



September 11, 2009

Mr. Frank Hagar  
Northgate Environmental Management, Inc.  
1100 Quail St., Suite 102  
Newport Beach, California 92660

Re: Tronox Henderson  
Work Order: 234964

Dear Mr. Hagar:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on August 08, 2009 and August 11, 2009. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4453.

Sincerely,

Edith Kent  
Project Manager

Chain of Custody: 2027.001.00531, 2027.001.00533, 2027.001.00535, 2027.001.00537, 2027.001.00545,  
2027.001.00560 and 2027.001.00564  
Enclosures

**Tronox LLC**  
**Tronox Henderson**  
**SDG:234964**

## Table of Contents

|  |           |
|--|-----------|
| <b>Cse Narrative</b> .....                                 | <b>1</b>  |
| <b>Chain of Custody and Supporting Documentation</b> ..... | <b>4</b>  |
| <b>Laboratory Certifications</b> .....                     | <b>19</b> |
| <b>Radiological Analysis</b> .....                         | <b>21</b> |
| Sample Data Summary .....                                  | 41        |
| Quality Control Data .....                                 | 63        |
| Raw Data .....   | 69        |
| Thorium .....  | 70        |
| Uranium.....   | 102       |
| Radium 228 .....   | 134       |
| Radium 226.....  | 149       |
| Method Calibration Data .....                              | 160       |
| Gas Flow Proportional Counters .....                       | 161       |
| Lucas Cell Counters .....                                  | 245       |
| <i>Lucas 1</i> .....                                       | 246       |
| <i>Lucas 2</i> .....                                       | 267       |
| <i>Lucas 3</i> .....                                       | 287       |
| <i>Lucas 4</i> .....                                       | 307       |
| <i>Lucas 5</i> .....                                       | 322       |
| <i>Lucas 6</i> .....                                       | 343       |
| Alpha Spectroscopy .....                                   | 369       |
| <i>Aug 17 Special Cal</i> .....                            | 381       |
| <i>Sep 5 Special Cal</i> .....                             | 601       |
| Background and Efficiency Data .....                       | 821       |
| Runlogs .....  | 1024      |

# **Case Narrative**

**CASE NARRATIVE**  
**for**  
**Tronox LLC**  
**Tronox Henderson**  
**SDG:234964**

**September 11, 2009**

**Laboratory Identification:**

GEL Laboratories LLC  
2040 Savage Road  
Charleston, South Carolina 29407  
(843) 556-8171

**Summary**

**Sample receipt**

The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on August 08, 2009 and August 11, 2009 for analysis. Shipping container temperatures were checked, documented, and within specifications. The samples were delivered with proper chain of custody documentation and signatures. All sample containers arrived without any visible signs of tampering or breakage. There are no additional comments concerning sample receipt.

**Items of Note**

All samples under this SDG were logged as an open SDG until a sufficient amount of samples were received by the lab. The client was notified that the SDG was closed on August 11, 2009 and the turnaround time would start from then. The client was notified that the SDG would be reported late. Please refer to the attached e-mails for further details.

**QC Issues**

The following samples did not meet the Tronox QA program sample result uncertainty limit of <30% for Ra-226 with the results between 2 and 5 times the MDA and were counted for the maximum time: 234964003 and 234964013. The following samples did not meet the Tronox QA program sample result uncertainty limit of <30% for Alpha Spec Uranium with the results between 2 and 5 times the MDA and were counted for the maximum time: 234964002, 234964004, 234964008, 234964011, 234964017 and 234964018. The following samples did not meet the Tronox QA program sample tracer yield requirements of 70-120% for Alpha Spec Uranium due to matrix issues: and 234964002. The following samples did not meet the Tronox QA program sample tracer yield requirements of 70-120% for Alpha Spec Thorium due to matrix issues: 234964002, 234964003, 234964007, 234964010, 234964012, 234964017, 234964018 and 234964019. The following samples did not meet the Tronox QA program sample result uncertainty limit of <30% for Alpha Spec Uranium with the results greater than 5 times the MDA and were counted for the maximum time: 234964006, 234964007, 234964009, 234964014 and 234964015. The Ra-226 lab duplicate did not meet the Tronox QA program result uncertainty limit of <30% with activity between 2 and 5 times the MDA and was counted for the maximum count time. The soil Thorium lab duplicate and the water Thorium method blank did not meet the Tronox QA program tracer yield requirements of 70-120%. The soil Uranium method blank for U238 and the lab duplicate for U235/236 do not meet the Tronox QA program sample result uncertainty limit of <30% with activity between 2 and 5 times the MDA and was counted for the maximum count time.

**Sample Identification**

The laboratory received the following samples:

| <b><u>Laboratory ID</u></b> | <b><u>Client ID</u></b> |
|-----------------------------|-------------------------|
| 234964001                   | RSAM8-10B               |
| 234964002                   | RSAM8-20B               |

|           |              |
|-----------|--------------|
| 234964003 | RSAM8009-20B |
| 234964004 | RSAM8-31B    |
| 234964005 | SA62-10B     |
| 234964006 | SA62-24B     |
| 234964007 | SA144-10B    |
| 234964008 | SA144009-10B |
| 234964009 | SA144-28B    |
| 234964010 | SA92-10B     |
| 234964011 | SA92-20B     |
| 234964012 | SA92-31B     |
| 234964013 | SA119-0.5B   |
| 234964014 | SA119-10B    |
| 234964015 | SA119-30B    |
| 234964016 | SA119-48B    |
| 234964017 | SA158-10B    |
| 234964018 | SA158-20B    |
| 234964019 | SA158-31B    |
| 234964020 | EB081009-SO2 |

### **Case Narrative**

Sample analyses were conducted using methodology as outlined in GEL Laboratories, LLC (GEL) Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

### **Data Package**

The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, Data Package Qualifier Definitions and data from the following fractions: Radiochemistry.

This data package, to the best of my knowledge, is in compliance with technical and administrative requirements.



Edith Kent

Project Manager

**Chain of Custody  
and  
Supporting  
Documentation**

2349041.



1100 Quail Street, Suite 102, Newport Beach, CA 92660  
(949) 280-9293

# CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate.

COC No. 2027.001.00531  
Page: 1 of 1  
Cooler # 1 of 1

| Required Ship to Lab:           |      | Required Project Information:   |  | Required Invoice Information:                              |  | TAT: Standard 30 day   |  | Rush   |  | Mark One   |  |  |                       |                             |  |  |                    |
|---------------------------------|------|---|--|--|--|--|--|--|--|--|--|--|-----------------------|-----------------------------|--|--|--------------------|
| Lab Name: GEL Laboratories, LLC |      | Site ID #: TRONOX LLC, HENDERSON  |  | Send Invoice to: Susan Crowley<br>Tronox LLC               |  | Address: PO Box 55   |  |  |  |  |  |  |                       |                             |  |  |                    |
| Address: 2040 Savage Road       |      | Project #: 2027.001   |  | City/State: Henderson, NV 89009                            |  | Phone #: (949) 280-9293  |  | QC level Required: Standard                            |  | Special EPA Stage 4 Mark one                           |  |  |                       |                             |  |  |                    |
| Charleston, SC 29407            |      | Site Address: 560 W. Lake Mead Drive  |  | Reimbursement project? <input checked="" type="checkbox"/> |  | Non-reimbursement project? <input type="checkbox"/>                                      |  | NJ Reduced Deliverable Package?                        |  |  |  |  |                       |                             |  |  |                    |
| Lab P/N: Edith M. Kent          |      | City: Henderson   |  | State: NV  |  | Send EDD to: Frank Hagar Northgate Environmental Management, Inc<br>frank.hagar@ngem.com |  | MA MCP Cert?   |  | CT RCP Cert?   |  |  |                       |                             |  |  |                    |
| Phone/Fax: (843) 566-8171       |      | Site PM Name: Derrick Willis  |  | Derrick Willis   |  | CC Hardcopy report to: PDF Electronic Version Only                                       |  |  |  |  |  |  |                       |                             |  |  |                    |
| Lab PM email: emk@gel.com       |      | Phone/Fax: (949) 375-7004   |  | Derrick.willis@ngem.com                                    |  | CC Hardcopy report to: see additional comments below                                     |  |  |  |  |  |  |                       |                             |  |  |                    |
| Applicable Lab Quote #:         |      | Site PM Email: derrick.willis@ngem.com  |  |  |  |  |  |  |  |  |  |  |                       |                             |  |  |                    |
| #                               | ITEM | SAMPLE ID<br>One Character per box.<br>(A-Z, 0-9, /, -)<br>Samples IDs MUST BE UNIQUE | Valid Matrix Codes   |  |  |  |  |  |  |  |  |  | Requested<br>Analyses | Comments/Lab<br>Sample I.D. |  |  |                    |
|                                 |      |   | MATRIX<br>GROUNDWATER<br>SURFACE WATER<br>WASTEWATER<br>SLURRY<br>SLUDGE<br>SOIL<br>WASTE<br>WIRE<br>AMBIENT AIR<br>SOIL GAS | WV<br>SW<br>WW<br>SL<br>SO<br>W<br>A<br>AA<br>AS<br>AG     | WV<br>SW<br>WW<br>SL<br>SO<br>W<br>A<br>AA<br>AS<br>AG | WV<br>SW<br>WW<br>SL<br>SO<br>W<br>A<br>AA<br>AS<br>AG                                   | WV<br>SW<br>WW<br>SL<br>SO<br>W<br>A<br>AA<br>AS<br>AG | WV<br>SW<br>WW<br>SL<br>SO<br>W<br>A<br>AA<br>AS<br>AG | WV<br>SW<br>WW<br>SL<br>SO<br>W<br>A<br>AA<br>AS<br>AG | WV<br>SW<br>WW<br>SL<br>SO<br>W<br>A<br>AA<br>AS<br>AG | WV<br>SW<br>WW<br>SL<br>SO<br>W<br>A<br>AA<br>AS<br>AG | WV<br>SW<br>WW<br>SL<br>SO<br>W<br>A<br>AA<br>AS<br>AG |                       |                             | WV<br>SW<br>WW<br>SL<br>SO<br>W<br>A<br>AA<br>AS<br>AG |  |                    |
| 1                               |      | RSAM8-10B   | SO   | G  | 8-7-09   | 0653   | 1  | N  | X  |  |  |  |                       |                             |  |  | 250 ml Plastic jar |
| 2                               |      | RSAM8-20B   | SO   | G  | 8-7-09   | 0724   | 1  | N  | X  |  |  |  |                       |                             |  |  | 250 ml Plastic jar |
| 3                               |      | RSAM8009-20B  | SO   | G  | 8-7-09   | 0724   | 1  | N  | X  |  |  |  |                       |                             |  |  | 250 ml Plastic jar |
| 4                               |      | RSAM8009-20B PF   | SO   | G  | 8-7-09   | 0846   | 1  | N  | X  |  |  |  |                       |                             |  |  | 250 ml Plastic jar |
| 5                               |      |   |  |  |  |  |  |  |  |  |  |  |                       |                             |  |  |                    |
| 6                               |      |   |  |  |  |  |  |  |  |  |  |  |                       |                             |  |  |                    |
| 7                               |      |   |  |  |  |  |  |  |  |  |  |  |                       |                             |  |  |                    |
| 8                               |      |   |  |  |  |  |  |  |  |  |  |  |                       |                             |  |  |                    |
| 9                               |      |   |  |  |  |  |  |  |  |  |  |  |                       |                             |  |  |                    |
| 10                              |      |   |  |  |  |  |  |  |  |  |  |  |                       |                             |  |  |                    |
| 11                              |      |   |  |  |  |  |  |  |  |  |  |  |                       |                             |  |  |                    |
| 12                              |      |   |  |  |  |  |  |  |  |  |  |  |                       |                             |  |  |                    |
| 13                              |      |   |  |  |  |  |  |  |  |  |  |  |                       |                             |  |  |                    |

| REINQUISHED BY / AFFILIATION | DATE | TIME | ACCEPTED BY / AFFILIATION | DATE | TIME | SAMPLE RECEIPT CONDITIONS |
|------------------------------|------|------|---------------------------|------|------|---------------------------|
| Paul R. GE                   | 8-7  | 1700 | Michelle Schmitt-Gel      | 8-7  | 1100 | Y/N Y/N Y/N Y/N Y/N Y/N   |
|                              |      |      |                           |      |      | Y/N Y/N Y/N Y/N Y/N Y/N   |
|                              |      |      |                           |      |      | Y/N Y/N Y/N Y/N Y/N Y/N   |
|                              |      |      |                           |      |      | Y/N Y/N Y/N Y/N Y/N Y/N   |

|  |  |                       |  |             |  |
|--|--|-----------------------|--|-------------|--|
| SHIPPING METHOD: (mark as appropriate) |  | SIGNATURE OF SAMPLER: |  | DATE SIGNED |  |
| UPS COURIER FEDEX                      |  | Brendan Muthilland    |  | 8-7         |  |
| UPS MAIL                               |  | Paul R. GE            |  | 1515        |  |

Additional Comments/Special Instructions:  
**FULL DIGESTION SPECIFICATION**  
**Radiocesiums\* includes Thorium (isotopic) and Uranium (isotopic)**  
**by EML HASL 300 modified(alpha spectroscopy)**

All PDF reports and EDDs will be uploaded to:  
 Northgate Environmental Management, Inc.  
 FTP site address provided to labs  
 Notifications provided to:  
 cindy.armold@ngem.com  
 frank.hagar@ngem.com





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(949) 260-9293

# CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate.

COC No. 2027.001.00535  
Page: 1 of 1  
Cooler # 1 of 1

| Required Ship to Lab:                             |      | Required Project Information:                         |              | Required Invoice Information:                              |             | TAT: Standard 30 day   |             | Rush                                  | Mark One       |                       |                                     |       |      |     |      |         |          |                    |                          |
|---|------|---|--------------|--|-------------|--|-------------|---------------------------------------|----------------|-----------------------|-------------------------------------|-------|------|-----|------|---------|----------|--------------------|--------------------------|
| Lab Name: GEL Laboratories, LLC                   |      | Site ID #: TRONOX LLC, HENDERSON                      |              | Send Invoice to: Susan Crowley<br>Tronox LLC               |             | Address: PO Box 55   |             | <input checked="" type="checkbox"/>   |                |                       |                                     |       |      |     |      |         |          |                    |                          |
| Address: 2040 Savage Road<br>Charleston, SC 29407 |      | Project #: 2027.001                                   |              | City/State: Henderson, NV 89009                            |             | Phone #: (949) 260-9293  |             | Special EPA Stage 4 Mark one          |                |                       |                                     |       |      |     |      |         |          |                    |                          |
| Lab PM: Edith M. Kent                             |      | Site Address: 660 W. Lake Mead Drive                  |              | Reimbursement project? <input checked="" type="checkbox"/> |             | Non-reimbursement project?   |             | NJ Reduced Deliverable Package?       |                |                       |                                     |       |      |     |      |         |          |                    |                          |
| Phone/Fax: (843) 556-8171                         |      | City: Henderson                                       |              | State: NV  |             | Send EDD to: Frank Hagar Northgate Environmental Management, Inc<br>frank.hagar@ngem.com |             | MA MCP Cert? <input type="checkbox"/> |                |                       |                                     |       |      |     |      |         |          |                    |                          |
| Lab PM email: emk@gel.com                         |      | Site PM Name: Derrick Willis                          |              | Derrick Willis   |             | CC Hardcopy report to: PDF Electronic Version Only                                       |             | CT RCP Cert? <input type="checkbox"/> |                |                       |                                     |       |      |     |      |         |          |                    |                          |
| Applicable Lab Quote #:                           |      | Phone/Fax: (949) 375-7004                             |              | Site PM Email: derrick.willis@ngem.com                     |             | CC Hardcopy report to: see additional comments below                                     |             | Lab Project ID (lab use)              |                |                       |                                     |       |      |     |      |         |          |                    |                          |
| #   | ITEM | SAMPLE ID<br>One Character per box.<br>(A-Z, 0-9 / -) | Matrix Codes | MATRIX   | SAMPLE TYPE | G-RAB C-COMP   | SAMPLE DATE | SAMPLE TIME                           | #OF CONTAINERS | FIELD FILTERED? (Y/N) | Preservatives                       |       |      |     |      |         |          | Requested Analyses | Comments/Lab Sample I.D. |
|   |      |   |              |  |             |  |             |                                       |                |                       | UNPRESERVED                         | H2SO4 | HNO3 | HCl | NaOH | Na2S2O3 | Methanol |                    |                          |
| 1   |      | SA62-10B  | W            | MATRIX   | G           |  | 8-7-09      | 1144                                  | 1              | N                     | <input checked="" type="checkbox"/> |       |      |     |      |         |          |                    | 250 ml Plastic jar       |
| 2   |      | SA62-24B  | W            | MATRIX   | G           |  | 8-7-09      | 1240                                  | 1              | N                     | <input checked="" type="checkbox"/> |       |      |     |      |         |          |                    | 250 ml Plastic jar       |
| 3   |      |   |              |  |             |  |             |                                       |                |                       |                                     |       |      |     |      |         |          |                    |                          |
| 4   |      |   |              |  |             |  |             |                                       |                |                       |                                     |       |      |     |      |         |          |                    |                          |
| 5   |      |   |              |  |             |  |             |                                       |                |                       |                                     |       |      |     |      |         |          |                    |                          |
| 6   |      |   |              |  |             |  |             |                                       |                |                       |                                     |       |      |     |      |         |          |                    |                          |
| 7   |      |   |              |  |             |  |             |                                       |                |                       |                                     |       |      |     |      |         |          |                    |                          |
| 8   |      |   |              |  |             |  |             |                                       |                |                       |                                     |       |      |     |      |         |          |                    |                          |
| 9   |      |   |              |  |             |  |             |                                       |                |                       |                                     |       |      |     |      |         |          |                    |                          |
| 10  |      |   |              |  |             |  |             |                                       |                |                       |                                     |       |      |     |      |         |          |                    |                          |
| 11  |      |   |              |  |             |  |             |                                       |                |                       |                                     |       |      |     |      |         |          |                    |                          |
| 12  |      |   |              |  |             |  |             |                                       |                |                       |                                     |       |      |     |      |         |          |                    |                          |
| 13  |      |   |              |  |             |  |             |                                       |                |                       |                                     |       |      |     |      |         |          |                    |                          |

Additional Comments/Special Instructions:  
FULL DIGESTION SPECIFICATION  
Radionuclides\* Includes Thorium (isotopic) and Uranium (isotopic)  
by EML HASL 300 modified(alpha spectroscopy)

All PDF reports and EDDs will be uploaded to:  
Northgate Environmental Management, Inc.  
FTP site address provided to labs  
Notifications provided to:  
cindy.armold@ngem.com  
frank.hagar@ngem.com

RELINQUISHED BY / AFFILIATION: [Signature]  
DATE: 8-7-09  
ACCEPTED BY / AFFILIATION: [Signature]  
DATE: 8-7-09

SHIPPING METHOD: (mark as appropriate)  
UPS COURIER FEDEX  
PRINT Name of SAMPLER: Brandon Maffiolano  
SIGNATURE of SAMPLER: [Signature]  
DATE Signed: 8-7  
Time: 1515

Temp in OC: [Blank]  
Samples on Ice?: [Blank]  
Sample Intact?: [Blank]  
Temp Blank?: [Blank]





### SAMPLE RECEIPT & REVIEW FORM

|  |     |                                       |   |
|--|-----|---------------------------------------|---|
| Client: <u>KERR/NORTHGATE</u>            |     | SDG/ARCOC/Work Order: <u>234964.1</u> |   |
| Received By: <u>mk</u>                   |     | Date Received: <u>8-8-09</u>          |   |
| Suspected Hazard Information             | Yes | No                                    | *If Counts > x2 area background on samples not marked "radioactive", contact the Radiation Safety Group of further investigation. |
| COC/Samples marked as radioactive?       |     | <input checked="" type="checkbox"/>   | Maximum Counts Observed*: <u>open 20</u>  |
| Classified Radioactive II or III by RSO? |     | <input checked="" type="checkbox"/>   |   |
| COC/Samples marked containing PCBs?      |     | <input checked="" type="checkbox"/>   |   |
| Shipped as a DOT Hazardous?              |     | <input checked="" type="checkbox"/>   | Hazard Class Shipped: UN#:  |
| Samples identified as Foreign Soil?      |     | <input checked="" type="checkbox"/>   |   |

| Sample Receipt Criteria |  | Yes                                 | NA                                  | No                                  | Comments/Qualifiers (Required for Non-Conforming Items)  |
|-------------------------|--|-------------------------------------|-------------------------------------|-------------------------------------|--|
| 1                       | Shipping containers received intact and sealed?                | <input checked="" type="checkbox"/> |                                     |                                     | Circle Applicable:<br>seals broken    damaged container    leaking container    other (describe) |
| 2                       | Samples requiring cold preservation within 0 ≤ 6 deg. C?       |                                     | <input checked="" type="checkbox"/> |                                     | ice bags    blue ice    dry ice <u>none</u> other (describe)<br><u>add =</u>                     |
| 3                       | Chain of custody documents included with shipment?             | <input checked="" type="checkbox"/> |                                     |                                     |  |
| 4                       | Sample containers intact and sealed?                           | <input checked="" type="checkbox"/> |                                     |                                     | Circle Applicable:<br>seals broken    damaged container    leaking container    other (describe) |
| 5                       | Samples requiring chemical preservation at proper pH?          |                                     | <input checked="" type="checkbox"/> |                                     | Sample ID's, containers affected and observed pH:<br>If Preservation added, Lot#:                |
| 6                       | VOA vials free of headspace (defined as < 6mm bubble)?         |                                     | <input checked="" type="checkbox"/> |                                     | Sample ID's and containers affected:   |
| 7                       | Are Encore containers present?                                 |                                     |                                     | <input checked="" type="checkbox"/> | (if yes, immediately deliver to Volatiles laboratory)  |
| 8                       | Samples received within holding time?                          | <input checked="" type="checkbox"/> |                                     |                                     | Id's and tests affected:   |
| 9                       | Sample ID's on COC match ID's on bottles?                      | <input checked="" type="checkbox"/> |                                     |                                     | Sample ID's and containers affected:   |
| 10                      | Date & time on COC match date & time on bottles?               | <input checked="" type="checkbox"/> |                                     |                                     | Sample ID's affected:  |
| 11                      | Number of containers received match number indicated on COC?   | <input checked="" type="checkbox"/> |                                     |                                     | Sample ID's affected:  |
| 12                      | COC form is properly signed in relinquished/received sections? | <input checked="" type="checkbox"/> |                                     |                                     |  |

Comments:

Fx 7978 3263 1829

PM (or PMA) review: Initials DS Date 8.10.09



1100 Quail Street, Suite 102, Newport Beach, CA 92660  
(949) 260-9253

**CHAIN-OF-CUSTODY / Analytical Request Document**

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate.

COC No. 2027.001.00545  
Page: 1 of 1  
Cooler # 1 of 1

**Required Ship to Lab:** Lab Name: GEL Laboratories, LLC | Site ID #: TRONOX LLC, HENDERSON | Send Invoice to: Susan Crowley, Ironox, LLC | TAT: Standard 30 day  Rush | Mark One

**Required Project Information:** Address: 2040 Savage Road | Project #: 2027.001 | City/State: Henderson, NV | Phone #: (949) 260-9253 | If Rush, Date due: | EPA Stage: Mark one

**Required Invoice Information:** Address: PO Box 55 | City/State: Henderson, NV | Reimbursement project?  Non-reimbursement project? | Mark one

**Site Information:** Site Address: 560 W. Lake Mead Drive | City: Henderson | State: NV | Reimbursement project?  Non-reimbursement project? | Mark one

**Project Manager:** Site PM Name: Derrick Willis | Site PM Email: derrick.willis@ngem.com | Phone/Fax: (843) 556-8171 | CC Hardcopy report to: frank.hagar@ngem.com

| ITEM # | SAMPLE ID<br>One Character per box.<br>(A-Z, 0-9 / - )<br>Samples IDs MUST BE UNIQUE | MATRIX         | SAMPLE TYPE | SAMPLE DATE | SAMPLE TIME | #OF CONTAINERS | FIELD FILTERED? (Y/N) | Preservatives        |             | Comments/Lab Sample I.D. |
|--------|--|----------------|-------------|-------------|-------------|----------------|-----------------------|----------------------|-------------|--------------------------|
|        |  |                |             |             |             |                |                       | H2SO4<br>Unpreserved | HCl<br>HNO3 |                          |
| 1      | SA92-10B   | DRINKING WATER | G           | 8/10/2009   | 11:17       | 1              | N                     |                      |             | 250 ml Plastic jar       |
| 2      | SA92-10BMS   | DRINKING WATER | G           | 8/10/2009   | 11:17       | 1              | N                     |                      |             | 250 ml Plastic jar       |
| 3      | SA92-10BMSD  | DRINKING WATER | G           | 8/10/2009   | 11:17       | 1              | N                     |                      |             | 250 ml Plastic jar       |
| 4      | SA92-20B   | DRINKING WATER | G           | 8/10/2009   | 12:05       | 1              | N                     |                      |             | 250 ml Plastic jar       |
| 5      | SA92-31B   | DRINKING WATER | G           | 8/10/2009   | 12:28       | 1              | N                     |                      |             | 250 ml Plastic jar       |
| 6-13   | /  |                |             |             |             |                |                       |                      |             |                          |

**Additional Comments/Special Instructions:** FULL DIGESTION SPECIFICATION Radionuclides\* includes Thorium (isotopic) and Uranium (isotopic) by EML HASL 300 modified(alpha spectroscopy)

**Relinquished by / Affiliation:** Peter S... GEL | Date: 8-10-09 | Time: 8:10

**Accepted by / Affiliation:** Mike... GEL | Date: 8-10-09 | Time: 1:45

**Shipping Method:** USPS COURIER  | Signature: Patrick Ferring | Date Signed: 8-10

UPS MAIL | Signature of Sampler: | Date Signed: 8-10 Time: 1:45 | Temp in OC: | Sample Intact?: | Samples on Ice?: | Trip Blank?:



1100 Quail Street, Suite 102, Newport Beach, CA 92660  
(949) 260-9293

**CHAIN-OF-CUSTODY / Analytical Request Document**  
The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate.

COC No. 2027.001.00560  
Page: 1 of 1  
Cooler # 1 of 1

|  |  |   |   |   |                     |   |   |  |  |   |  |   |  |  |  |   |  |
|--|--|---|---|---|---------------------|---|---|--|--|---|--|---|--|--|--|---|--|
| <b>Required Ship to Lab:</b><br>Lab Name: GEL Laboratories, LLC<br>Address: 2040 Savage Road<br>Charleston, SC 29407<br>Lab PM: Edith M. Kent<br>Phone/Fax: (843)556-8171<br>Lab PM email: emk@gel.com   |  | <b>Required Project Information:</b><br>Site ID #: TRONOX LLC, HENDERSON<br>Project #: 2027.001<br>Site Address: 560 W. Lake Mead Drive<br>Henderson, NV<br>City: Henderson<br>State: NV<br>Site PM Name: Derrick Willis<br>Phone/Fax: 949-375-7004<br>Site PM Email: derrick.willis@ngem.com |   | <b>Required Invoice Information:</b><br>Send Invoice to: Susan Crowley<br>Tronox LLC<br>Address: PO Box 55<br>Henderson, NV 89009<br>Phone #: (949)260-9293 |                     | TAT: Standard 30 day <input checked="" type="checkbox"/> Rush<br>Mark One |   |  |  |   |  |   |  |  |  |   |  |
| <b>Applicable Lab Quote #:</b><br>Applicable Lab Quote #:  |  | <b>Reimbursement project?</b><br><input checked="" type="checkbox"/> Non-reimbursement project? <input type="checkbox"/>  |   | <b>QC level Required:</b> Standard <input type="checkbox"/> Special EPA Stage 4 <input checked="" type="checkbox"/> Mark one                                |                     | NJ Reduced Deliverable Package? <input type="checkbox"/>                  |   |  |  |   |  |   |  |  |  |   |  |
| <b>MA MCP Cert?</b><br><input type="checkbox"/>  |  | <b>CT RCP Cert?</b><br><input type="checkbox"/>   |   | <b>Lab Project ID (lab use)</b><br><input type="checkbox"/>   |                     | Mark One  |   |  |  |   |  |   |  |  |  |   |  |
| <b>Analyses Requested</b>  |  |   |   |   |                     |   |   |  |  |   |  |   |  |  |  |   |  |
| <b>Valid Matrix Codes</b><br>MATRIX: WG, SW, SW-W, SW-W2, SW-W3, SW-W4, SW-W5, SW-W6, SW-W7, SW-W8, SW-W9, SW-W10, SW-W11, SW-W12, SW-W13, SW-W14, SW-W15, SW-W16, SW-W17, SW-W18, SW-W19, SW-W20, SW-W21, SW-W22, SW-W23, SW-W24, SW-W25, SW-W26, SW-W27, SW-W28, SW-W29, SW-W30, SW-W31, SW-W32, SW-W33, SW-W34, SW-W35, SW-W36, SW-W37, SW-W38, SW-W39, SW-W40, SW-W41, SW-W42, SW-W43, SW-W44, SW-W45, SW-W46, SW-W47, SW-W48, SW-W49, SW-W50, SW-W51, SW-W52, SW-W53, SW-W54, SW-W55, SW-W56, SW-W57, SW-W58, SW-W59, SW-W60, SW-W61, SW-W62, SW-W63, SW-W64, SW-W65, SW-W66, SW-W67, SW-W68, SW-W69, SW-W70, SW-W71, SW-W72, SW-W73, SW-W74, SW-W75, SW-W76, SW-W77, SW-W78, SW-W79, SW-W80, SW-W81, SW-W82, SW-W83, SW-W84, SW-W85, SW-W86, SW-W87, SW-W88, SW-W89, SW-W90, SW-W91, SW-W92, SW-W93, SW-W94, SW-W95, SW-W96, SW-W97, SW-W98, SW-W99, SW-W100, SW-W101, SW-W102, SW-W103, SW-W104, SW-W105, SW-W106, SW-W107, SW-W108, SW-W109, SW-W110, SW-W111, SW-W112, SW-W113, SW-W114, SW-W115, SW-W116, SW-W117, SW-W118, 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WATER<br>SW-W: WASTE WATER/WASTEWATER<br>SW-W2: WASTE WATER/WASTEWATER<br>SW-W3: WASTE WATER/WASTEWATER<br>SW-W4: WASTE WATER/WASTEWATER<br>SW-W5: WASTE WATER/WASTEWATER<br>SW-W6: WASTE WATER/WASTEWATER<br>SW-W7: WASTE WATER/WASTEWATER<br>SW-W8: WASTE WATER/WASTEWATER<br>SW-W9: WASTE WATER/WASTEWATER<br>SW-W10: WASTE WATER/WASTEWATER<br>SW-W11: WASTE WATER/WASTEWATER<br>SW-W12: WASTE WATER/WASTEWATER<br>SW-W13: WASTE WATER/WASTEWATER<br>SW-W14: WASTE WATER/WASTEWATER<br>SW-W15: WASTE WATER/WASTEWATER<br>SW-W16: WASTE WATER/WASTEWATER<br>SW-W17: WASTE WATER/WASTEWATER<br>SW-W18: WASTE WATER/WASTEWATER<br>SW-W19: WASTE WATER/WASTEWATER<br>SW-W20: WASTE WATER/WASTEWATER<br>SW-W21: WASTE WATER/WASTEWATER<br>SW-W22: WASTE WATER/WASTEWATER<br>SW-W23: WASTE WATER/WASTEWATER<br>SW-W24: WASTE WATER/WASTEWATER<br>SW-W25: WASTE WATER/WASTEWATER<br>SW-W26: WASTE WATER/WASTEWATER<br>SW-W27: WASTE WATER/WASTEWATER<br>SW-W28: WASTE WATER/WASTEWATER<br>SW-W29: WASTE WATER/WASTEWATER<br>SW-W30: WASTE WATER/WASTEWATER<br>SW-W31: WASTE WATER/WASTEWATER<br>SW-W32: WASTE WATER/WASTEWATER<br>SW-W33: WASTE WATER/WASTEWATER<br>SW-W34: WASTE WATER/WASTEWATER<br>SW-W35: WASTE WATER/WASTEWATER<br>SW-W36: WASTE WATER/WASTEWATER<br>SW-W37: WASTE WATER/WASTEWATER<br>SW-W38: WASTE WATER/WASTEWATER<br>SW-W39: WASTE WATER/WASTEWATER<br>SW-W40: WASTE WATER/WASTEWATER<br>SW-W41: WASTE WATER/WASTEWATER<br>SW-W42: WASTE WATER/WASTEWATER<br>SW-W43: WASTE WATER/WASTEWATER<br>SW-W44: WASTE WATER/WASTEWATER<br>SW-W45: WASTE WATER/WASTEWATER<br>SW-W46: WASTE WATER/WASTEWATER<br>SW-W47: WASTE WATER/WASTEWATER<br>SW-W48: WASTE WATER/WASTEWATER<br>SW-W49: WASTE WATER/WASTEWATER<br>SW-W50: WASTE WATER/WASTEWATER<br>SW-W51: WASTE WATER/WASTEWATER<br>SW-W52: WASTE WATER/WASTEWATER<br>SW-W53: WASTE WATER/WASTEWATER<br>SW-W54: WASTE WATER/WASTEWATER<br>SW-W55: WASTE WATER/WASTEWATER<br>SW-W56: WASTE WATER/WASTEWATER<br>SW-W57: WASTE WATER/WASTEWATER<br>SW-W58: WASTE WATER/WASTEWATER<br>SW-W59: WASTE WATER/WASTEWATER<br>SW-W60: WASTE WATER/WASTEWATER<br>SW-W61: WASTE WATER/WASTEWATER<br>SW-W62: WASTE WATER/WASTEWATER<br>SW-W63: WASTE WATER/WASTEWATER<br>SW-W64: WASTE WATER/WASTEWATER<br>SW-W65: WASTE WATER/WASTEWATER<br>SW-W66: WASTE WATER/WASTEWATER<br>SW-W67: WASTE WATER/WASTEWATER<br>SW-W68: WASTE WATER/WASTEWATER<br>SW-W69: WASTE WATER/WASTEWATER<br>SW-W70: WASTE WATER/WASTEWATER<br>SW-W71: WASTE WATER/WASTEWATER<br>SW-W72: WASTE WATER/WASTEWATER<br>SW-W73: WASTE WATER/WASTEWATER<br>SW-W74: WASTE WATER/WASTEWATER<br>SW-W75: WASTE WATER/WASTEWATER<br>SW-W76: WASTE WATER/WASTEWATER<br>SW-W77: WASTE WATER/WASTEWATER<br>SW-W78: WASTE WATER/WASTEWATER<br>SW-W79: WASTE WATER/WASTEWATER<br>SW-W80: WASTE WATER/WASTEWATER<br>SW-W81: WASTE WATER/WASTEWATER<br>SW-W82: WASTE WATER/WASTEWATER<br>SW-W83: WASTE WATER/WASTEWATER<br>SW-W84: WASTE WATER/WASTEWATER<br>SW-W85: WASTE WATER/WASTEWATER<br>SW-W86: WASTE WATER/WASTEWATER<br>SW-W87: WASTE WATER/WASTEWATER<br>SW-W88: WASTE WATER/WASTEWATER<br>SW-W89: WASTE WATER/WASTEWATER<br>SW-W90: WASTE WATER/WASTEWATER<br>SW-W91: WASTE WATER/WASTEWATER<br>SW-W92: WASTE WATER/WASTEWATER<br>SW-W93: WASTE WATER/WASTEWATER<br>SW-W94: WASTE WATER/WASTEWATER<br>SW-W95: WASTE WATER/WASTEWATER<br>SW-W96: WASTE WATER/WASTEWATER<br>SW-W97: WASTE WATER/WASTEWATER<br>SW-W98: WASTE WATER/WASTEWATER<br>SW-W99: WASTE WATER/WASTEWATER<br>SW-W100: WASTE WATER/WASTEWATER | MATRIX CODES:<br>G: G-RAB C-COMP<br>SO: SOIL  | MATRIX CODES:<br>UNPRESERVED<br>H2SO4<br>HNO3<br>HCl<br>NaOH<br>Na2SO3<br>Methanol<br>Other | FIELD FILTERED? (Y/N)<br><input type="checkbox"/> Y <input type="checkbox"/> N  | #OF CONTAINERS<br>1 | SAMPLE TIME<br>10:14<br>10:41<br>11:30<br>12:05                           | SAMPLE DATE<br>8/10/2009<br>8/10/2009<br>8/10/2009<br>8/10/2009 | DATE<br>8/10/09<br>8/10/09<br>8/10/09<br>8/10/09   | TIME<br>14:15<br>14:15<br>14:15<br>14:15 | ACCEPTED BY / AFFILIATION<br>Dana Brown, NCEM<br>Dana Brown<br>Dana Brown | DATE<br>8-10-09<br>8-10-09<br>8-10-09<br>8-10-09 | RECEIVED BY / AFFILIATION<br>Dana Brown, NCEM<br>Dana Brown<br>Dana Brown<br>Dana Brown | DATE<br>8-10-09<br>8-10-09<br>8-10-09<br>8-10-09 | TIME<br>14:15<br>14:15<br>14:15<br>14:15                     | SAMPLE RECEIPT CONDITIONS<br>Y/N Y/N Y/N<br>Y/N Y/N Y/N<br>Y/N Y/N Y/N<br>Y/N Y/N Y/N<br>Y/N Y/N Y/N | Samples On Ice? <input type="checkbox"/> Temp in OC<br>Samples Intact? <input type="checkbox"/> Trip Blank? <input type="checkbox"/>                        |  |
| <b>Additional Comments/Special Instructions:</b> AREA IV samples<br>FULL DIGESTION SPECIFICATION<br>Radionuclides* Includes Thorium (Isotopic) and Uranium (Isotopic)<br>by EML HASL 300 modified(alpha spectroscopy)  |  | <b>RELINQUISHED BY / AFFILIATION</b><br>Dana Brown, NCEM<br>Dana Brown<br>Dana Brown<br>Dana Brown  |   | <b>DATE</b><br>8-10-09<br>8-10-09<br>8-10-09<br>8-10-09   |                     | <b>TIME</b><br>14:15<br>14:15<br>14:15<br>14:15                           |   | <b>ACCEPTED BY / AFFILIATION</b><br>Dana Brown, NCEM<br>Dana Brown<br>Dana Brown<br>Dana Brown |  | <b>DATE</b><br>8-10-09<br>8-10-09<br>8-10-09<br>8-10-09                   |  | <b>TIME</b><br>14:15<br>14:15<br>14:15<br>14:15   |  | <b>SAMPLE NAME AND SIGNATURE</b><br>Dana Brown<br>Dana Brown |  | <b>SHIPPING METHOD:</b> (mark as appropriate)<br>UPS COURIER FEDEX<br>SIGNATURE OF SAMPLER: Dana Brown<br>DATE SHIPPED: 8/10/2009<br>TIME: 14:15<br>US MAIL |  |



1100 Quail Street, Suite 102, Newport Beach, CA 92660  
(949) 260-9293

# CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate.

COC No. 2027.001.00537  
Page: 1 of 1  
Cooler # 1 of 1

| Required Ship to Lab:                             |           | Required Project Information:            |             | Required Invoice Information:  |             | TAT: Standard 30 day                                 |                       | Rush                            |                       | Mark One                 |            |                 |                           |             |
|---|-----------|--|-------------|--|-------------|--|-----------------------|---------------------------------|-----------------------|--------------------------|------------|-----------------|---------------------------|-------------|
| Lab Name: GEL Laboratories, LLC                   |           | Site ID #: TRONOX LLC, HENDERSON         |             | Send Invoice to: Susan Crowley<br>Tronox LLC   |             | If Rush, Date due                                    |                       |                                 |                       |                          |            |                 |                           |             |
| Address: 2049 Savage Road<br>Charleston, SC 29407 |           | Project #: 2027.001                      |             | Address: PO Box 55   |             |  |                       |                                 |                       |                          |            |                 |                           |             |
| Lab PM: Edith M. Kent                             |           | City: Henderson                          |             | City/State: Henderson, NV 89009  |             | Phone #: (949) 260-9293                              |                       | Special                         |                       | EPA Stage                |            |                 |                           |             |
| Phone/Fax: (843) 556-8171                         |           | State: NV                                |             | Reimbursement project? <input checked="" type="checkbox"/>                               |             | Non-reimbursement project?                           |                       | Standard                        |                       | 4                        |            |                 |                           |             |
| Lab PM email: emk@gel.com                         |           | Site PM Name: Derrick Willis             |             | Send EDD to: Frank Hagar Northgate Environmental Management, Inc<br>frank.hagar@ngem.com |             | Send EDD to: frank.hagar@ngem.com                    |                       | NJ Reduced Deliverable Package? |                       |                          |            |                 |                           |             |
| Applicable Lab Quote #:                           |           | Phone/Fax: (949) 375-7004                |             | CC Hardcopy report to: PDF Electronic Version Only                                       |             | CC Hardcopy report to: see additional comments below |                       | MA MCP Cert?                    |                       | CT RCP Cert?             |            |                 |                           |             |
|   |           | Site PM Email: derrick.willis@ngem.com   |             |  |             |  |                       | Lab Project ID (lab use)        |                       |                          |            |                 |                           |             |
| ITEM #  | SAMPLE ID | One Character per box.<br>(A-Z, 0-9 / -) | SAMPLE TYPE | SAMPLE DATE  | SAMPLE TIME | #OF CONTAINERS                                       | FIELD FILTERED? (Y/N) | Preservatives                   | Requested Analytes    | Comments/Lab Sample I.D. | Temp in OC | Samples on Ice? | Sample Receipt Conditions | Temp Blank? |
| 1   | SA158-10B |  | G           | 8/10/2009  | 8:23        | 1  | N                     | Unpreserved                     | EPAD3 1 Radionuclides | 250 ml Plastic jar       |            | Y/N             | Y/N                       | Y/N         |
| 2   | SA158-20B |  | G           | 8/10/2009  | 10:02       | 1  | N                     | Unpreserved                     | EPAD3 0 Radionuclides | 250 ml Plastic jar       |            | Y/N             | Y/N                       | Y/N         |
| 3   | SA158-31B |  | G           | 8/10/2009  | 10:21       | 1  | N                     | Unpreserved                     | EPAD3 1 Radionuclides | 250 ml Plastic jar       |            | Y/N             | Y/N                       | Y/N         |
| 4   |           |  |             |  |             |  |                       |                                 |                       |                          |            |                 |                           |             |
| 5   |           |  |             |  |             |  |                       |                                 |                       |                          |            |                 |                           |             |
| 6   |           |  |             |  |             |  |                       |                                 |                       |                          |            |                 |                           |             |
| 7   |           |  |             |  |             |  |                       |                                 |                       |                          |            |                 |                           |             |
| 8   |           |  |             |  |             |  |                       |                                 |                       |                          |            |                 |                           |             |
| 9   |           |  |             |  |             |  |                       |                                 |                       |                          |            |                 |                           |             |
| 10  |           |  |             |  |             |  |                       |                                 |                       |                          |            |                 |                           |             |
| 11  |           |  |             |  |             |  |                       |                                 |                       |                          |            |                 |                           |             |
| 12  |           |  |             |  |             |  |                       |                                 |                       |                          |            |                 |                           |             |
| 13  |           |  |             |  |             |  |                       |                                 |                       |                          |            |                 |                           |             |

Additional Comments/Special Instructions:  
FULL DIGESTION SPECIFICATION  
Radionuclides\* includes Thorium (isotopic) and Uranium (isotopic)  
by EML HASL 300 modified(alpha spectroscopy)

All PDF reports and EDDs will be uploaded to:  
Northgate Environmental Management, Inc.  
FTP site address provided to labs  
Notifications provided to:  
cindy.armold@ngem.com  
frank.hagar@ngem.com

RELINQUISHED BY / AFFILIATION: Patrick Zizi GGS  
DATE: 8-10-09  
TIME: 17:00  
ACCEPTED BY / AFFILIATION: Mike Brundage  
DATE: 8-10-09  
TIME: 08:55

SHIPPING METHOD: (mark as appropriate)  
UPS COURIER  
SIGNATURE OF SAMPLER: Patrick Ferringer  
DATE SIGNED: 8-10  
TIME: 14:51



|  |     |                                     |   |
|--|-----|-------------------------------------|---|
| Client: <u>Kerr/Warhate</u>              |     | SDG/ARCOC/Work Order: <u>234964</u> |   |
| Received By: <u>MK</u>                   |     | Date Received: <u>8-11-09</u>       |   |
| Suspected Hazard Information             | Yes | No                                  | *If Counts > x2 area background on samples not marked "radioactive", contact the Radiation Safety Group of further investigation. |
| COC/Samples marked as radioactive?       |     | <input checked="" type="checkbox"/> | Maximum Counts Observed*: <u>cpm - 20</u>   |
| Classified Radioactive II or III by RSO? |     | <input checked="" type="checkbox"/> |   |
| COC/Samples marked containing PCBs?      |     | <input checked="" type="checkbox"/> |   |
| Shipped as a DOT Hazardous?              |     | <input checked="" type="checkbox"/> | Hazard Class Shipped: _____ UN#: _____  |
| Samples identified as Foreign Soil?      |     | <input checked="" type="checkbox"/> |   |

| Sample Receipt Criteria   | Yes                                 | NA                                  | No                                  | Comments/Qualifiers (Required for Non-Conforming Items)  |
|---|-------------------------------------|-------------------------------------|-------------------------------------|--|
| 1 Shipping containers received intact and sealed?                 | <input checked="" type="checkbox"/> |                                     |                                     | Circle Applicable:<br>seals broken    damaged container    leaking container    other (describe)   |
| 2 Samples requiring cold preservation within 0 ≤ 6 deg. C?        |                                     | <input checked="" type="checkbox"/> |                                     | Preservation Method:<br>ice bags    blue ice    dry ice <u>none</u> other (describe)<br><u>21c</u> |
| 3 Chain of custody documents included with shipment?              | <input checked="" type="checkbox"/> |                                     |                                     |  |
| 4 Sample containers intact and sealed?                            | <input checked="" type="checkbox"/> |                                     |                                     | Circle Applicable:<br>seals broken    damaged container    leaking container    other (describe)   |
| 5 Samples requiring chemical preservation at proper pH?           |                                     | <input checked="" type="checkbox"/> |                                     | Sample ID's, containers affected and observed pH:<br>If Preservation added, Lot#:                  |
| 6 VOA vials free of headspace (defined as < 6mm bubble)?          |                                     | <input checked="" type="checkbox"/> |                                     | Sample ID's and containers affected:   |
| 7 Are Encore containers present?                                  |                                     |                                     | <input checked="" type="checkbox"/> | (If yes, immediately deliver to Volatiles laboratory)  |
| 8 Samples received within holding time?                           | <input checked="" type="checkbox"/> |                                     |                                     | Id's and tests affected:   |
| 9 Sample ID's on COC match ID's on bottles?                       | <input checked="" type="checkbox"/> |                                     |                                     | Sample ID's and containers affected:   |
| 10 Date & time on COC match date & time on bottles?               | <input checked="" type="checkbox"/> |                                     |                                     | Sample ID's affected:  |
| 11 Number of containers received match number indicated on COC?   | <input checked="" type="checkbox"/> |                                     |                                     | Sample ID's affected:  |
| 12 COC form is properly signed in relinquished/received sections? | <input checked="" type="checkbox"/> |                                     |                                     |  |

Comments:

FX 7978 3646 8469

PM (or PMA) review: Initials DS Date 8-11-09







### SAMPLE RECEIPT & REVIEW FORM

|                               |                                      |
|-------------------------------|--------------------------------------|
| Client: <u>Kerr/NORTHGATE</u> | SDG/ARCOC/Work Order: <u>2349041</u> |
| Received By: <u>MIC</u>       | Date Received: <u>8-11-09</u>        |

|  |     |                                     |   |
|--|-----|-------------------------------------|---|
| <b>Suspected Hazard Information</b>      | Yes | No                                  | *If Counts > x2 area background on samples not marked "radioactive", contact the Radiation Safety Group of further investigation. |
| COC/Samples marked as radioactive?       |     | <input checked="" type="checkbox"/> | Maximum Counts Observed*: <u>20</u>   |
| Classified Radioactive II or III by RSO? |     | <input checked="" type="checkbox"/> |   |
| COC/Samples marked containing PCBs?      |     | <input checked="" type="checkbox"/> |   |
| Shipped as a DOT Hazardous?              |     | <input checked="" type="checkbox"/> | Hazard Class Shipped: _____ UN#: _____  |
| Samples identified as Foreign Soil?      |     | <input checked="" type="checkbox"/> |   |

| Sample Receipt Criteria |  | Yes                                 | NA                                  | No                                  | Comments/Qualifiers (Required for Non-Conforming Items)  |
|-------------------------|--|-------------------------------------|-------------------------------------|-------------------------------------|--|
| 1                       | Shipping containers received intact and sealed?                | <input checked="" type="checkbox"/> |                                     |                                     | Circle Applicable:<br>seals broken    damaged container    leaking container    other (describe) |
| 2                       | Samples requiring cold preservation within 0 ≤ 6 deg. C?       |                                     | <input checked="" type="checkbox"/> |                                     | ice bags    blue ice    dry ice <u>none</u> other (describe)<br><u>26°</u>                       |
| 3                       | Chain of custody documents included with shipment?             | <input checked="" type="checkbox"/> |                                     |                                     |  |
| 4                       | Sample containers intact and sealed?                           | <input checked="" type="checkbox"/> |                                     |                                     | Circle Applicable:<br>seals broken    damaged container    leaking container    other (describe) |
| 5                       | Samples requiring chemical preservation at proper pH?          | <input checked="" type="checkbox"/> |                                     |                                     | Sample ID's, containers affected and observed pH:<br>If Preservation added, Lot#:                |
| 6                       | VOA vials free of headspace (defined as < 6mm bubble)?         |                                     | <input checked="" type="checkbox"/> |                                     | Sample ID's and containers affected:   |
| 7                       | Are Encore containers present?                                 |                                     |                                     | <input checked="" type="checkbox"/> | (If yes, immediately deliver to Volatiles laboratory)  |
| 8                       | Samples received within holding time?                          | <input checked="" type="checkbox"/> |                                     |                                     | Id's and tests affected:   |
| 9                       | Sample ID's on COC match ID's on bottles?                      | <input checked="" type="checkbox"/> |                                     |                                     | Sample ID's and containers affected:   |
| 10                      | Date & time on COC match date & time on bottles?               | <input checked="" type="checkbox"/> |                                     |                                     | Sample ID's affected:  |
| 11                      | Number of containers received match number indicated on COC?   | <input checked="" type="checkbox"/> |                                     |                                     | Sample ID's affected:  |
| 12                      | COC form is properly signed in relinquished/received sections? | <input checked="" type="checkbox"/> |                                     |                                     |  |

Comments:

FX 7978 3667 8145

PM (or PMA) review: Initials DS Date 8.11.09

**Subject:** GEL Closed SDG 234964

**From:** Heather Shaffer <Heather.Shaffer@gel.com>

**Date:** Tue, 11 Aug 2009 11:52:24 -0400

**To:** Cindy Arnold <Cindy.Arnold@ngem.com>, Frank Hagar <Frank.Hagar@ngem.com>, Edie Kent <emk@gel.com>, Derrick Willis <Derrick.Willis@ngem.com>

**CC:** Heather Shaffer <hea01394@gel.com>

With today's receipts, we closed soil SDG 234964. Attached is a list of the samples in the SDG. As soon as we have completed the login review, you will receive the full receipt package for this SDG.

--  
Heather Shaffer  
Project Manager Assistant  
GEL Laboratories, LLC  
2040 Savage Road  
Charleston, SC (USA) 29407  
Main: 843.556.8171 x 4505  
Fax: 843.766.1178  
E-mail: [heather.shaffer@gel.com](mailto:heather.shaffer@gel.com)  
Web: [www.gel.com](http://www.gel.com)

|                   |   |
|-------------------|---|
| <b>234964.xls</b> | <b>Content-Type:</b> application/msexcel<br><b>Content-Encoding:</b> base64 |
|-------------------|---|

**Subject:** SDG 234964 Will Be Reported Late

**From:** Edie Kent <emk@gel.com>

**Date:** Tue, 08 Sep 2009 11:12:51 -0400

**To:** Cindy Arnold <Cindy.Arnold@ngem.com>, Frank Hagar <Frank.Hagar@ngem.com>, Derrick Willis <Derrick.Willis@ngem.com>, Team Kent <Team.Kent@gel.com>, 'Vivian Willis' <vivian.willis@verdant-solutions.com>

This SDG was due to be reported today and will be reported late. The lab is performing Alpha Spec recounts for Thorium due to a high RER and for Uranium due to low tracer yield. We anticipate reporting the data tomorrow.

Edie

--

Edith M. Kent  
Project Manager  
GEL Laboratories, LLC  
2040 Savage Road  
Charleston, SC (USA) 29407  
Direct: 843.769.7385 x4453  
Main: 843.556.8171  
Fax: 843.766.1178  
E-mail: [emk@gel.com](mailto:emk@gel.com)  
Web: [www.gel.com](http://www.gel.com)

**Subject:** SDG 234964 QC Issues - Alpha Spec Th, Alpha Spec U, Ra-226

**From:** Edie Kent <emk@gel.com>

**Date:** Fri, 11 Sep 2009 09:02:11 -0400

**To:** Cindy Arnold <Cindy.Arnold@ngem.com>, Frank Hagar <Frank.Hagar@ngem.com>, Derrick Willis <Derrick.Willis@ngem.com>, Team Kent <Team.Kent@gel.com>

**CC:** Martha Harrison <Martha.Harrison@gel.com>

The following are the QC issues regarding this SDG for Alpha Spec Th, Alpha Spec U and Ra 226:

**\*Ra 226 Issues:\***

The following samples do not meet the Tronox QA program sample result uncertainty limit of <30% with activity between 2 and 5 times the MDA and were counted for the maximum possible count time: RSAM8009-20B (234964003), SA119-0.5B (234964013), and the lab dup.

**\*Soil Thorium Issues:\***

The following samples did not meet the Tronox QA program tracer yield requirements of 70-120%: RSAM8-20B (234964002), RSAM8009-20B (234964003), SA144-10B (234964007), SA92-10B (234964010), SA92-31B (234964012), SA158-10B (234964017), SA158-20B (234964018), SA158-31B (234964019), and the lab DUP. The blank and LCS did meet the contract requirements. The samples and duplicate all meet the detection limit requirements, GEL's standard tracer yield recovery requirements, and the uncertainty requirements.

**\*Water Thorium Issues:\***

The method blank did not meet the Tronox QA program tracer yield requirements of 70-120%. With a value of 55.1%, the tracer yield met the GEL standard requirement. The samples and LCS in the batch met the contract tracer yield requirement. There was no activity greater than the detection limit in the method blank. It is not unusual for Thorium blanks to have yields less than the samples and LCS because more of the tracer is lost when there is no activity present.

**\*Soil Uranium Issues: \***

The method blank did not meet the Tronox QA program sample result uncertainty limit of <30% with activity between 2 and 5 times the MDA for U238 and was counted for the maximum possible count time.

The following samples do not meet the Tronox QA program sample result uncertainty limit of <30% with activity between 2 and 5 times the MDA for U235/236 and were counted for the maximum possible count time: RSAM8-20B (234964002), RSAM8-31B (234964004), SA144009-10B (234964008), SA92-20B (234964011), SA158-10B (234964017), SA158-20B (234964018), and the lab DUP.

The following samples do not meet the Tronox QA program sample result uncertainty limit of <30% with activity greater than 5 times the MDA for U235/236 and were counted for the maximum possible count time: SA62-24B (234964006), SA144-10B (234964007), SA144-28B (234964009), SA119-10B (234964014), SA119-30B (234964015).

Sample RSAM8-20B (234964002) does not meet the Tronox QA program tracer yield requirement of 70-120%. With a value of 59.2%, the sample does meet the GEL standard tracer requirements. The blank and LCS met the contract requirements.

This will be noted in the case narrative.

Edie

--  
Edith M. Kent  
Project Manager  
GEL Laboratories, LLC  
2040 Savage Road

Charleston, SC (USA) 29407  
Direct: 843.769.7385 x4453  
Main: 843.556.8171  
Fax: 843.766.1178  
E-mail: [emk@gel.com](mailto:emk@gel.com)  
Web: [www.gel.com](http://www.gel.com)

# **Laboratory Certifications**

**List of current GEL Certifications as of 11 September 2009**

| <b>State</b>              | <b>Certification</b> |
|---------------------------|----------------------|
| Arizona                   | AZ0668               |
| Arkansas                  | 88-0651              |
| CLIA                      | 42D0904046           |
| California – NELAP        | 01151CA              |
| Colorado                  | GEL                  |
| Connecticut               | PH-0169              |
| Dept. of Navy             | NFESC 413            |
| EPA Region 5              | WG-15J               |
| Florida – NELAP           | E87156               |
| Georgia                   | E87156 (FL/NELAP)    |
| Georgia DW                | 967                  |
| Hawaii                    | N/A                  |
| ISO 17025                 | 2567.01              |
| Idaho                     | SC00012              |
| Illinois – NELAP          | 200029               |
| Indiana                   | C-SC-01              |
| Kansas – NELAP            | E-10332              |
| Kentucky                  | 90129                |
| Louisiana – NELAP         | 03046                |
| Maryland                  | 270                  |
| Massachusetts             | M-SC012              |
| Nevada                    | SC00012              |
| New Jersey – NELAP        | SC002                |
| New Mexico                | FL NELAP E87156      |
| New York – NELAP          | 11501                |
| North Carolina            | 233                  |
| North Carolina DW         | 45709                |
| Oklahoma                  | 9904                 |
| Pennsylvania – NELAP      | 68-00485             |
| South Carolina            | 10120001/10120002    |
| Tennessee                 | TN 02934             |
| Texas – NELAP             | T104704235-07B-TX    |
| U.S. Dept. of Agriculture | S-52597              |
| Utah – NELAP              | GEL                  |
| Vermont                   | VT87156              |
| Virginia                  | 00151                |
| Washington                | C1641                |

# RADIOLOGICAL ANALYSIS



**Radiochemistry Case Narrative  
Tronox LLC (KERR)  
SDG 234964**

**Method/Analysis Information**

**Product:** Alphaspec Th, Liquid  
Analytical Method: DOE EML HASL-300, Th-01-RC Modified  
Analytical Batch Number: 893944

| <b>Sample ID</b> | <b>Client ID</b>                           |
|------------------|--|
| 234964020        | EB081009-SO2                               |
| 1201902396       | Method Blank (MB)                          |
| 1201902401       | Laboratory Control Sample (LCS)            |
| 1201903406       | Laboratory Control Sample Duplicate (LCSD) |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**

Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-038 REV# 12.

**Calibration Information:**

**Calibration Information**

All initial and continuing calibration requirements have been met.

**Standards Information**

Standard solution(s) for these analyses are NIST traceable and used before the expiration date(s).

**Sample Geometry**

All counting sources were prepared in the same geometry as the calibration standards.

**Quality Control (QC) Information:**

**Blank Information**

The blank volume is representative of the sample volumes in this batch.

**Designated QC**

A laboratory duplicate was not run with the analytical batch since it was designated by the client as a field QC. A laboratory control sample duplicate 1201903406 (LCSD) was analyzed for precision.

**QC Information**

Refer to Non-Conformance Report.

**Technical Information:****Holding Time**

All sample procedures for this sample set were performed within the required holding time.

**Sample Re-prep/Re-analysis**

Sample 1201902396 (MB) was recounted due to low tracer yield. Reporting original results.

**Miscellaneous Information:****NCR Documentation**

Nonconformance reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. The following NCR was generated for this SDG: NCR 727923 was generated due to Failed Recovery for Surrogate or Tracer. 1. The method blank, 1201902396, does not meet the client's tracer yield requirement of 70 - 120%. 1. With a value of 55.1%, the blank does meet GEL standard requirements. The samples and laboratory control samples in this batch do meet the client's tracer yield requirement. There is no activity greater than the detection limit in the method blank. Thorium blanks commonly have yields less than the samples and LCS because more of the tracer is lost in analysis when there is no activity present. Project manager notified, reporting results.

**Manual Integration**

No manual integrations were performed on data in this batch.

**Additional Comments**

The Th228 blank result is greater than the MDC but less than the detection limit.

**Qualifier information**

Manual qualifiers were not required.

**Method/Analysis Information**

|                          |                                     |
|--------------------------|-------------------------------------|
| <b>Product:</b>          | <b>Alphaspec Th, Solid</b>          |
| Analytical Method:       | DOE EML HASL-300, Th-01-RC Modified |
| Prep Method:             | Dry Soil Prep                       |
| Analytical Batch Number: | 899594                              |
| Prep Batch Number:       | 892846                              |

| <b>Sample ID</b> | <b>Client ID</b>                           |
|------------------|--|
| 234964001        | RSAM8-10B                                  |
| 234964002        | RSAM8-20B                                  |
| 234964003        | RSAM8009-20B                               |
| 234964004        | RSAM8-31B                                  |
| 234964005        | SA62-10B                                   |
| 234964006        | SA62-24B                                   |
| 234964007        | SA144-10B                                  |
| 234964008        | SA144009-10B                               |
| 234964009        | SA144-28B                                  |
| 234964010        | SA92-10B                                   |
| 234964011        | SA92-20B                                   |
| 234964012        | SA92-31B                                   |
| 234964013        | SA119-0.5B                                 |
| 234964014        | SA119-10B                                  |
| 234964015        | SA119-30B                                  |
| 234964016        | SA119-48B                                  |
| 234964017        | SA158-10B                                  |
| 234964018        | SA158-20B                                  |
| 234964019        | SA158-31B                                  |
| 1201916362       | Method Blank (MB)                          |
| 1201916363       | 234964010(SA92-10B) Sample Duplicate (DUP) |
| 1201916364       | 234964010(SA92-10B) Matrix Spike (MS)      |
| 1201916365       | Laboratory Control Sample (LCS)            |

The samples in this SDG were analyzed on a "dry weight" basis.

**SOP Reference**

Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-038 REV# 12.

**Calibration Information:**

**Calibration Information**

All initial and continuing calibration requirements have been met.

**Standards Information**

Standard solution(s) for these analyses are NIST traceable and used before the expiration date(s).

**Sample Geometry**

All counting sources were prepared in the same geometry as the calibration standards.

**Quality Control (QC) Information:**

**Blank Information**

The blank volume is representative of the sample volumes in this batch.

**Designated QC**

The following sample was used for QC: 234964010 (SA92-10B).

**QC Information**

Refer to Non-Conformance Report.

**Technical Information:**

**Holding Time**

All sample procedures for this sample set were performed within the required holding time.

**Sample Re-prep/Re-analysis**

Samples were recounted due to high relative percent difference/relative error ratio. Samples were reprep'd due to high blank activity.

**Miscellaneous Information:**

**NCR Documentation**

Nonconformance reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. The following NCR was generated for this SDG: NCR 731136 was generated due to Failed Recovery for Surrogate or Tracer. 1. Samples 234964002, 234964003, 234964007, 234964010, 234964012, 234964017, 234964018, 234964019 and the duplicate, 1201916363, do not meet the required tracer yield of 70 - 120%. 1. With values of 50.4 - 68.6%, samples do meet GEL standard tracer requirements. The blank and LCS meet the client tracer requirements. PM notified, reporting results.

**Manual Integration**

No manual integrations were performed on data in this batch.

**Additional Comments**

The blank, 1201916362 (MB), did not meet the detection limit for Th228 or Th230 due to keeping the blank volume consistent with the other sample aliquots. All other samples met the detection limits.

**Qualifier information**

Manual qualifiers were not required.

**Method/Analysis Information**

|                          |                                    |
|--------------------------|------------------------------------|
| <b>Product:</b>          | <b>Alphaspec U, Liquid</b>         |
| Analytical Method:       | DOE EML HASL-300, U-02-RC Modified |
| Analytical Batch Number: | 893946                             |

| <b>Sample ID</b> | <b>Client ID</b>                           |
|------------------|--|
| 234964020        | EB081009-SO2                               |
| 1201902402       | Method Blank (MB)                          |
| 1201902407       | Laboratory Control Sample (LCS)            |
| 1201903407       | Laboratory Control Sample Duplicate (LCSD) |

The samples in this SDG were analyzed on an "as received" basis.

### **SOP Reference**

Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-011 REV# 17.

### **Calibration Information:**

#### **Calibration Information**

All initial and continuing calibration requirements have been met.

#### **Standards Information**

Standard solution(s) for these analyses are NIST traceable and used before the expiration date(s).

#### **Sample Geometry**

All counting sources were prepared in the same geometry as the calibration standards.

### **Quality Control (QC) Information:**

#### **Blank Information**

The blank volume is representative of the sample volume in this batch.

#### **Designated QC**

A laboratory duplicate was not run with the analytical batch since it was designated by the client as a field QC. A laboratory control sample duplicate 1201903407 (LCSD) was analyzed for precision.

#### **QC Information**

All of the QC samples met the required acceptance limits.

### **Technical Information:**

#### **Holding Time**

All sample procedures for this sample set were performed within the required holding time.

#### **Sample Re-prep/Re-analysis**

Sample 234964020 (EB081009-SO2) was recounted due to high MDA.

### **Miscellaneous Information:**

#### **NCR Documentation**

Nonconformance reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A nonconformance report (NCR) was not generated for this SDG.

**Manual Integration**

No manual integrations were performed on data in this batch.

**Additional Comments**

Additional comments were not required for this sample set.

**Qualifier information**

Manual qualifiers were not required.

**Method/Analysis Information**

|                          |                                    |
|--------------------------|------------------------------------|
| <b>Product:</b>          | <b>Alphaspec U, Solid</b>          |
| Analytical Method:       | DOE EML HASL-300, U-02-RC Modified |
| Prep Method:             | Dry Soil Prep                      |
| Analytical Batch Number: | 899595                             |
| Prep Batch Number:       | 892846                             |

| <b>Sample ID</b> | <b>Client ID</b>                           |
|------------------|--|
| 234964001        | RSAM8-10B                                  |
| 234964002        | RSAM8-20B                                  |
| 234964003        | RSAM8009-20B                               |
| 234964004        | RSAM8-31B                                  |
| 234964005        | SA62-10B                                   |
| 234964006        | SA62-24B                                   |
| 234964007        | SA144-10B                                  |
| 234964008        | SA144009-10B                               |
| 234964009        | SA144-28B                                  |
| 234964010        | SA92-10B                                   |
| 234964011        | SA92-20B                                   |
| 234964012        | SA92-31B                                   |
| 234964013        | SA119-0.5B                                 |
| 234964014        | SA119-10B                                  |
| 234964015        | SA119-30B                                  |
| 234964016        | SA119-48B                                  |
| 234964017        | SA158-10B                                  |
| 234964018        | SA158-20B                                  |
| 234964019        | SA158-31B                                  |
| 1201916366       | Method Blank (MB)                          |
| 1201916367       | 234964010(SA92-10B) Sample Duplicate (DUP) |
| 1201916368       | 234964010(SA92-10B) Matrix Spike (MS)      |
| 1201916369       | Laboratory Control Sample (LCS)            |

The samples in this SDG were analyzed on a "dry weight" basis.

### **SOP Reference**

Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-011 REV# 17.

### **Calibration Information:**

#### **Calibration Information**

All initial and continuing calibration requirements have been met.

#### **Standards Information**

Standard solution(s) for these analyses are NIST traceable and used before the expiration date(s).

#### **Sample Geometry**

All counting sources were prepared in the same geometry as the calibration standards.

### **Quality Control (QC) Information:**

#### **Blank Information**

The blank volume is representative of the sample volume in this batch.

#### **Designated QC**

The following sample was used for QC: 234964010 (SA92-10B).

#### **QC Information**

Refer to Non-Conformance Report.

### **Technical Information:**

#### **Holding Time**

All sample procedures for this sample set were performed within the required holding time.

#### **Sample Re-prep/Re-analysis**

Sample 234964002 (RSAM8-20B) was recounted due to low carrier/tracer yield. Samples were reprepared due to high carrier/tracer yield.

### **Miscellaneous Information:**

#### **NCR Documentation**

Nonconformance reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. The following NCR was generated for this SDG: NCR 731127 was generated due to Failed Recovery for Surrogate or Tracer and Other. 1. Sample 234964002 does not meet the required tracer yield of 70 - 120%. 2. Samples 234964006, 234964007, 234964009, 234964014 and 234964015 have Uranium-235/236 activity greater than five times the MDA and uncertainty greater than 30% of that activity. Samples 234964002, 234964004, 234964008, 234964011, 234964017, 234964018 and 1201916367 have Uranium-235/236 activity between two and five times the MDA and uncertainty greater than 30% of that respective activity. Sample 1201916366 has Uranium-238 activity between two and five times the MDA and uncertainty greater

than 30% of that respective activity. 1. With a value of 59.2%, the sample does meet GEL standard tracer requirements. The blank and LCS meet the client tracer requirements. PM notified, reporting results. 2. Samples were all counted the maximum count time of 1000 minutes to achieve the best possible uncertainties. PM notified, reporting results.

**Manual Integration**

No manual integrations were performed on data in this batch.

**Additional Comments**

The U233/234 and U238 blank results are greater than the MDC but less than the detection limit.

**Qualifier information**

Manual qualifiers were not required.

**Method/Analysis Information**

|                          |                               |
|--------------------------|-------------------------------|
| <b>Product:</b>          | <b>Gas Flow Radium 228</b>    |
| Analytical Method:       | EPA 904.0/SW846 9320 Modified |
| Prep Method:             | Dry Soil Prep                 |
| Analytical Batch Number: | 893087                        |
| Prep Batch Number:       | 892846                        |



| <b>Sample ID</b> | <b>Client ID</b>                           |
|------------------|--|
| 234964001        | RSAM8-10B                                  |
| 234964002        | RSAM8-20B                                  |
| 234964003        | RSAM8009-20B                               |
| 234964004        | RSAM8-31B                                  |
| 234964005        | SA62-10B                                   |
| 234964006        | SA62-24B                                   |
| 234964007        | SA144-10B                                  |
| 234964008        | SA144009-10B                               |
| 234964009        | SA144-28B                                  |
| 234964010        | SA92-10B                                   |
| 234964011        | SA92-20B                                   |
| 234964012        | SA92-31B                                   |
| 234964013        | SA119-0.5B                                 |
| 234964014        | SA119-10B                                  |
| 234964015        | SA119-30B                                  |
| 234964016        | SA119-48B                                  |
| 234964017        | SA158-10B                                  |
| 234964018        | SA158-20B                                  |
| 234964019        | SA158-31B                                  |
| 1201899994       | Method Blank (MB)                          |
| 1201899995       | 234964010(SA92-10B) Sample Duplicate (DUP) |
| 1201899996       | 234964010(SA92-10B) Matrix Spike (MS)      |
| 1201899997       | Laboratory Control Sample (LCS)            |

The samples in this SDG were analyzed on a "dry weight" basis.

#### **SOP Reference**

Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-009 REV# 15.

#### **Calibration Information:**

##### **Calibration Information**

All initial and continuing calibration requirements have been met.

##### **Standards Information**

Standard solution(s) for these analyses are NIST traceable and used before the expiration date(s).

##### **Sample Geometry**

All counting sources were prepared in the same geometry as the calibration standards.

#### **Quality Control (QC) Information:**

##### **Blank Information**

The blank volume is representative of the sample volume in this batch.

##### **Designated QC**

The following sample was used for QC: 234964010 (SA92-10B).

**QC Information**

All of the QC samples met the required acceptance limits.

**Technical Information:**

**Holding Time**

All sample procedures for this sample set were performed within the required holding time.

**Sample Re-prep/Re-analysis**

Samples 234964001 (RSAM8-10B), 234964003 (RSAM8009-20B), 234964009 (SA144-28B), 234964010 (SA92-10B), 234964011 (SA92-20B), 234964014 (SA119-10B), 234964017 (SA158-10B) and 234964018 (SA158-20B) were recounted due to high MDAs. Sample 1201899994 (MB) was recounted due to a suspected blank false positive. Samples 234964001 (RSAM8-10B), 234964011 (SA92-20B) and 234964017 (SA158-10B) were recounted due to client uncertainty requirements.

**Chemical Recoveries**

All chemical recoveries meet the required acceptance limits for this sample set.

**Miscellaneous Information:**

**NCR Documentation**

Nonconformance reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A nonconformance report (NCR) was not generated for this SDG.

**Additional Comments**

Additional comments were not required for this sample set.

**Qualifier information**

Manual qualifiers were not required.

**Method/Analysis Information**

|                          |                               |
|--------------------------|-------------------------------|
| <b>Product:</b>          | <b>GFPC, Ra228, Liquid</b>    |
| Analytical Method:       | EPA 904.0/SW846 9320 Modified |
| Analytical Batch Number: | 894564                        |

| <b>Sample ID</b> | <b>Client ID</b>                               |
|------------------|--|
| 234964020        | EB081009-SO2                                   |
| 1201903941       | Method Blank (MB)                              |
| 1201903942       | 234964020(EB081009-SO2) Sample Duplicate (DUP) |
| 1201903943       | 234964020(EB081009-SO2) Matrix Spike (MS)      |
| 1201903944       | Laboratory Control Sample (LCS)                |

The samples in this SDG were analyzed on an "as received" basis.

#### **SOP Reference**

Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-009 REV# 15.

#### **Calibration Information:**

##### **Calibration Information**

All initial and continuing calibration requirements have been met.

##### **Standards Information**

Standard solution(s) for these analyses are NIST traceable and used before the expiration date(s).

##### **Sample Geometry**

All counting sources were prepared in the same geometry as the calibration standards.

#### **Quality Control (QC) Information:**

##### **Blank Information**

The blank volume is representative of the sample volume in this batch.

##### **Designated QC**

The following sample was used for QC: 234964020 (EB081009-SO2).

##### **QC Information**

All of the QC samples met the required acceptance limits.

#### **Technical Information:**

##### **Holding Time**

All sample procedures for this sample set were performed within the required holding time.

##### **Sample Re-prep/Re-analysis**

None of the samples in this sample set required reprep or reanalysis.

##### **Chemical Recoveries**

All chemical recoveries meet the required acceptance limits for this sample set.

#### **Miscellaneous Information:**

##### **NCR Documentation**

Nonconformance reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A nonconformance report (NCR) was not generated for this SDG.

**Additional Comments**

Additional comments were not required for this sample set.

**Qualifier information**

Manual qualifiers were not required.

**Method/Analysis Information**

|                          |                                 |
|--------------------------|---------------------------------|
| <b>Product:</b>          | <b>Lucas Cell, Ra226, solid</b> |
| Analytical Method:       | EPA 903.1 Modified              |
| Prep Method:             | Dry Soil Prep                   |
| Analytical Batch Number: | 893458                          |
| Prep Batch Number:       | 892846                          |

| <b>Sample ID</b> | <b>Client ID</b>                           |
|------------------|--|
| 234964001        | RSAM8-10B                                  |
| 234964002        | RSAM8-20B                                  |
| 234964003        | RSAM8009-20B                               |
| 234964004        | RSAM8-31B                                  |
| 234964005        | SA62-10B                                   |
| 234964006        | SA62-24B                                   |
| 234964007        | SA144-10B                                  |
| 234964008        | SA144009-10B                               |
| 234964009        | SA144-28B                                  |
| 234964010        | SA92-10B                                   |
| 234964011        | SA92-20B                                   |
| 234964012        | SA92-31B                                   |
| 234964013        | SA119-0.5B                                 |
| 234964014        | SA119-10B                                  |
| 234964015        | SA119-30B                                  |
| 234964016        | SA119-48B                                  |
| 234964017        | SA158-10B                                  |
| 234964018        | SA158-20B                                  |
| 234964019        | SA158-31B                                  |
| 1201900998       | Method Blank (MB)                          |
| 1201900999       | 234964010(SA92-10B) Sample Duplicate (DUP) |
| 1201901000       | 234964010(SA92-10B) Matrix Spike (MS)      |
| 1201901001       | Laboratory Control Sample (LCS)            |

The samples in this SDG were analyzed on a "dry weight" basis.

### **SOP Reference**

Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-008 REV# 12.

### **Calibration Information:**

#### **Calibration Information**

All initial and continuing calibration requirements have been met.

#### **Standards Information**

Standard solution(s) for these analyses are NIST traceable and used before the expiration date(s).

#### **Sample Geometry**

All counting sources were prepared in the same geometry as the calibration standards.

### **Quality Control (QC) Information:**

#### **Blank Information**

The blank volume is representative of the sample volume in this batch.

#### **Designated QC**

The following sample was used for QC: 234964010 (SA92-10B).

#### **QC Information**

Refer to Non-Conformance Report.

### **Technical Information:**

#### **Holding Time**

All sample procedures for this sample set were performed within the required holding time.

#### **Sample Re-prep/Re-analysis**

Sample 1201901001 (LCS) was recounted due to high recovery.

### **Miscellaneous Information:**

#### **NCR Documentation**

Nonconformance reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. The following NCR was generated for this SDG:

NCR 730321 was generated due to Other. 1. Samples 234964003, 234964013 and 1201900999 have Radium-226 activity between two and five times the MDA and uncertainty greater than 30% of that respective activity. Samples were all counted the maximum count time of 30 minutes to achieve the best possible uncertainties. 1. PM notified. Reporting results.

#### **Additional Comments**

The sample and the duplicate, 1201900999 (SA92-10B) and 234964010 (SA92-10B), did not meet the relative percent difference requirement, however they do meet the relative error ratio requirement with

value of 2.1679.

**Qualifier information**

Manual qualifiers were not required.

**Method/Analysis Information**

**Product:** Lucas Cell, Ra226, liquid

Analytical Method: EPA 903.1 Modified

Analytical Batch Number: 896543

| <b>Sample ID</b> | <b>Client ID</b>                               |
|------------------|--|
| 234964020        | EB081009-SO2                                   |
| 1201908843       | Method Blank (MB)                              |
| 1201908845       | 234964020(EB081009-SO2) Sample Duplicate (DUP) |
| 1201908847       | 234964020(EB081009-SO2) Matrix Spike (MS)      |
| 1201908848       | Laboratory Control Sample (LCS)                |

The samples in this SDG were analyzed on an "as received" basis.

**SOP Reference**

Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-008 REV# 12.

**Calibration Information:**

**Calibration Information**

All initial and continuing calibration requirements have been met.

**Standards Information**

Standard solution(s) for these analyses are NIST traceable and used before the expiration date(s).

**Sample Geometry**

All counting sources were prepared in the same geometry as the calibration standards.

**Quality Control (QC) Information:**

**Blank Information**

The blank volume is representative of the sample volume in this batch.

**Designated QC**

The following sample was used for QC: 234964020 (EB081009-SO2).

**QC Information**

All of the QC samples met the required acceptance limits.

**Technical Information:****Holding Time**

All sample procedures for this sample set were performed within the required holding time.

**Sample Re-prep/Re-analysis**

None of the samples in this sample set required reprep or reanalysis.

**Miscellaneous Information:****NCR Documentation**

Nonconformance reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A nonconformance report (NCR) was not generated for this SDG.

**Additional Comments**

Additional comments were not required for this sample set.

**Qualifier information**

Manual qualifiers were not required.

**Certification Statement**

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

**Review Validation:**

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

**The following data validator verified the information presented in this case narrative:**

Reviewer/Date:                     *Kath Bell*                      9/10/09

**COMPANY - WIDE NONCONFORMANCE REPORT**

|  |   |  |                             |
|--|---|--|-----------------------------|
| <b>Mo.Day Yr.</b><br>31-AUG-09   | <b>Division:</b><br>Radiochemistry                              | <b>Quality Criteria:</b><br>Specifications   | <b>Type:</b><br>Process     |
| <b>Instrument Type:</b><br>ALPHA SPECTROMETER  | <b>Test / Method:</b><br>DOE EML HASL-300, Th-01-RC<br>Modified | <b>Matrix Type:</b><br>Liquid  | <b>Client Code:</b><br>KERR |
| <b>Batch ID:</b><br>893944   | <b>Sample Numbers:</b><br>See below                             |  |                             |
| <b>Potentially affected work order(s)(SDG): 234654,234964</b>                                      |   |  |                             |
| <b>Application Issues:</b><br>Failed Recovery for Surrogate or Tracer                              |   |  |                             |
| <b>Specification and Requirements<br/>Nonconformance Description:</b>                              |   | <b>NRG Disposition:</b>  |                             |
| 1. The method blank, 1201902396, does not meet the client's tracer yield requirement of 70 - 120%. |   | 1. With a value of 55.1%, the blank does meet GEL standard requirements. The samples and laboratory control samples in this batch do meet the client's tracer yield requirement. There is no activity greater than the detection limit in the method blank. Thorium blanks commonly have yields less than the samples and LCS because more of the tracer is lost in analysis when there is no activity present. Project manager notified, reporting results. |                             |

**Originator's Name:**  
Joseph Moulden      31-AUG-09

**Data Validator/Group Leader:**  
Scott Moreland      01-SEP-09



**COMPANY - WIDE NONCONFORMANCE REPORT**

|  |   |  |                             |
|--|---|--|-----------------------------|
| <b>Mo.Day Yr.</b><br>04-SEP-09   | <b>Division:</b><br>Radiochemistry          | <b>Quality Criteria:</b><br>Specifications | <b>Type:</b><br>Process     |
| <b>Instrument Type:</b><br>LUCAS CELL DETECTOR   | <b>Test / Method:</b><br>EPA 903.1 Modified | <b>Matrix Type:</b><br>Solid               | <b>Client Code:</b><br>KERR |
| <b>Batch ID:</b><br>893458   | <b>Sample Numbers:</b><br>see below         |  |                             |
| <b>Potentially affected work order(s)(SDG): 234964</b>   |   |  |                             |
| <b>Application Issues:</b><br>Other  |   |  |                             |
| <b>Specification and Requirements<br/>Nonconformance Description:</b>  |   | <b>NRG Disposition:</b>                    |                             |
| 1. Samples 234964003, 234964013 and 1201900999 have Radium-226 activity between two and five times the MDA and uncertainty greater than 30% of that respective activity. Samples were all counted the maximum count time of 30 minutes to achieve the best possible uncertainties. |   | 1. PM notified. Reporting results.         |                             |

**Originator's Name:**

Lyndsey Pace      04-SEP-09

**Data Validator/Group Leader:**

Lesley Anderson      08-SEP-09

**COMPANY - WIDE NONCONFORMANCE REPORT**

|   |  |  |                             |
|---|--|--|-----------------------------|
| <b>Mo.Day Yr.</b><br>09-SEP-09                | <b>Division:</b><br>Radiochemistry                             | <b>Quality Criteria:</b><br>Specifications | <b>Type:</b><br>Process     |
| <b>Instrument Type:</b><br>ALPHA SPECTROMETER | <b>Test / Method:</b><br>DOE EML HASL-300, U-02-RC<br>Modified | <b>Matrix Type:</b><br>Solid               | <b>Client Code:</b><br>KERR |
| <b>Batch ID:</b><br>899595                    | <b>Sample Numbers:</b><br>See below                            |  |                             |

**Potentially affected work order(s)(SDG): 234964**

**Application Issues:**

Failed Recovery for Surrogate or Tracer

Other

|   |  |
|---|--|
| <b>Specification and Requirements<br/>Nonconformance Description:</b>   | <b>NRG Disposition:</b>  |
| <p>1. Sample 234964002 does not meet the required tracer yield of 70 - 120%.</p> <p>2. Samples 234964006, 234964007, 234964009, 234964014 and 234964015 have Uranium-235/236 activity greater than five times the MDA and uncertainty greater than 30% of that activity.</p> <p>Samples 234964002, 234964004, 234964008, 234964011, 234964017, 234964018 and 1201916367 have Uranium-235/236 activity between two and five times the MDA and uncertainty greater than 30% of that respective activity.</p> <p>Sample 1201916366 has Uranium-238 activity between two and five times the MDA and uncertainty greater than 30% of that respective activity.</p> | <p>1. With a value of 59.2%, the sample does meet GEL standard tracer requirements. The blank and LCS meet the client tracer requirements. PM notified, reporting results.</p> <p>2. Samples were all counted the maximum count time of 1000 minutes to achieve the best possible uncertainties. PM notified, reporting results.</p> |

**Originator's Name:**

Joseph Moulden      09-SEP-09

**Data Validator/Group Leader:**

Eric Brimstin                      09-SEP-09

**COMPANY - WIDE NONCONFORMANCE REPORT**

|  |   |  |                             |
|--|---|--|-----------------------------|
| <b>Mo.Day Yr.</b><br>09-SEP-09   | <b>Division:</b><br>Radiochemistry                              | <b>Quality Criteria:</b><br>Specifications   | <b>Type:</b><br>Process     |
| <b>Instrument Type:</b><br>ALPHA SPECTROMETER  | <b>Test / Method:</b><br>DOE EML HASL-300, Th-01-RC<br>Modified | <b>Matrix Type:</b><br>Solid   | <b>Client Code:</b><br>KERR |
| <b>Batch ID:</b><br>899594   | <b>Sample Numbers:</b><br>See below                             |  |                             |
| <b>Potentially affected work order(s)(SDG): 234964</b>   |   |  |                             |
| <b>Application Issues:</b><br>Failed Recovery for Surrogate or Tracer  |   |  |                             |
| <b>Specification and Requirements</b><br><b>Nonconformance Description:</b>  |   | <b>NRG Disposition:</b>  |                             |
| 1. Samples 234964002, 234964003, 234964007, 234964010, 234964012, 234964017, 234964018, 234964019 and the duplicate, 1201916363, do not meet the required tracer yield of 70 - 120%. |   | 1. With values of 50.4 - 68.6%, samples do meet GEL standard tracer requirements. The blank and LCS meet the client tracer requirements. PM notified, reporting results. |                             |

**Originator's Name:**  
Joseph Moulden      09-SEP-09

**Data Validator/Group Leader:**  
Joseph Moulden

# SAMPLE DATA SUMMARY

# GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Certificate of Analysis Report for

KERR003 Tronox LLC

Client SDG: 234964 GEL Work Order: 234964

**The Qualifiers in this report are defined as follows:**

- \* A quality control analyte recovery is outside of specified acceptance criteria
- \*\* Analyte is a surrogate compound
- U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the detection limit.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Edith Kent.



Reviewed by \_\_\_\_\_

# GEL LABORATORIES LLC

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## Certificate of Analysis

Company : Northgate Environmental  
Management, Inc.  
Address : 1100 Quail St., Suite 102  
Newport Beach, California 92660

Report Date: September 10, 2009

Contact: Mr. Frank Hagar  
Project: **Tronox Henderson**

|                   |                 |            |               |
|-------------------|-----------------|------------|---------------|
| Client Sample ID: | RSAM8-10B       | Project:   | KERRHenderson |
| Sample ID:        | 234964001       | Client ID: | KERR003       |
| Matrix:           | SO              |            |               |
| Collect Date:     | 07-AUG-09 06:53 |            |               |
| Receive Date:     | 08-AUG-09       |            |               |
| Collector:        | Client          |            |               |

| Parameter  | Qualifier | Result | Uncertainty | DL     | RL    | Units | DF | Analyst | Date     | Time | Batch  | Method |
|--|-----------|--------|-------------|--------|-------|-------|----|---------|----------|------|--------|--------|
| <b>Rad Alpha Spec Analysis</b>                         |           |        |             |        |       |       |    |         |          |      |        |        |
| <i>Alphaspec Th, Solid "Dry Weight Corrected"</i>      |           |        |             |        |       |       |    |         |          |      |        |        |
| Thorium-228  |           | 2.11   | +/-0.244    | 0.0694 | 0.050 | pCi/g |    | KXM     | 09/08/09 | 1205 | 899594 | 1      |
|  |           |        |             |        |       |       |    |         |          |      | 4      |        |
| Thorium-230  |           | 1.25   | +/-0.189    | 0.0796 | 0.050 | pCi/g |    |         |          |      |        |        |
| Thorium-232  |           | 1.76   | +/-0.223    | 0.069  | 0.100 | pCi/g |    |         |          |      |        |        |
| <i>Alphaspec U, Solid "Dry Weight Corrected"</i>       |           |        |             |        |       |       |    |         |          |      |        |        |
| Uranium-233/234  |           | 1.15   | +/-0.110    | 0.0381 | 0.040 | pCi/g |    | KXM     | 09/04/09 | 1441 | 899595 | 2      |
|  |           |        |             |        |       |       |    |         |          |      | 4      |        |
| Uranium-235/236  |           | 0.0426 | +/-0.0249   | 0.0251 | 0.040 | pCi/g |    |         |          |      |        |        |
| Uranium-238  |           | 1.18   | +/-0.111    | 0.0381 | 0.040 | pCi/g |    |         |          |      |        |        |
| <b>Rad Gas Flow Proportional Counting</b>              |           |        |             |        |       |       |    |         |          |      |        |        |
| <i>Gas Flow Radium 228 "Dry Weight Corrected"</i>      |           |        |             |        |       |       |    |         |          |      |        |        |
| Radium-228   |           | 0.874  | +/-0.299    | 0.460  | 0.500 | pCi/g |    | JXC5    | 08/24/09 | 1715 | 893087 | 3      |
| <b>Rad Radium-226</b>                                  |           |        |             |        |       |       |    |         |          |      |        |        |
| <i>Lucas Cell, Ra226, solid "Dry Weight Corrected"</i> |           |        |             |        |       |       |    |         |          |      |        |        |
| Radium-226   |           | 1.26   | +/-0.331    | 0.287  | 0.500 | pCi/g |    | KSD1    | 09/04/09 | 1615 | 893458 | 4      |

**The following Prep Methods were performed**

| Method        | Description                | Analyst | Date     | Time | Prep Batch |
|---------------|----------------------------|---------|----------|------|------------|
| Dry Soil Prep | Dry Soil Prep GL-RAD-A-021 | CXC1    | 08/11/09 | 1623 | 892846     |

**The following Analytical Methods were performed**

| Method | Description                         | Analyst Comments |
|--------|-------------------------------------|------------------|
| 1      | DOE EML HASL-300, Th-01-RC Modified |                  |
| 2      | DOE EML HASL-300, U-02-RC Modified  |                  |
| 3      | EPA 904.0/SW846 9320 Modified       |                  |
| 4      | EPA 903.1 Modified                  |                  |

| Surrogate/Tracer recovery | Test                                       | Result | Nominal | Recovery% | Acceptable Limits |
|---------------------------|--|--------|---------|-----------|-------------------|
| Actinium-227 Tracer       | Alphaspec Th, Solid "Dry Weight Corrected" |        |         | 73.9      | (15%-125%)        |
| Uranium-232 Tracer        | Alphaspec U, Solid "Dry Weight Corrected"  |        |         | 99.1      | (15%-125%)        |
| Barium-133 Tracer         | Gas Flow Radium 228 "Dry Weight Corrected" |        |         | 84.7      | (25%-125%)        |

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## Certificate of Analysis

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 Address : 1100 Quail St., Suite 102  
 Newport Beach, California 92660

Report Date: September 10, 2009

Contact: Mr. Frank Hagar  
 Project: **Tronox Henderson**

|                   |                 |            |               |
|-------------------|-----------------|------------|---------------|
| Client Sample ID: | RSAM8-20B       | Project:   | KERRHenderson |
| Sample ID:        | 234964002       | Client ID: | KERR003       |
| Matrix:           | SO              |            |               |
| Collect Date:     | 07-AUG-09 07:24 |            |               |
| Receive Date:     | 08-AUG-09       |            |               |
| Collector:        | Client          |            |               |

| Parameter  | Qualifier | Result | Uncertainty | DL     | RL    | Units | DF | Analyst | Date     | Time | Batch  | Method |
|--|-----------|--------|-------------|--------|-------|-------|----|---------|----------|------|--------|--------|
| <b>Rad Alpha Spec Analysis</b>                         |           |        |             |        |       |       |    |         |          |      |        |        |
| <i>Alphaspec Th, Solid "Dry Weight Corrected"</i>      |           |        |             |        |       |       |    |         |          |      |        |        |
| Thorium-228  |           | 2.26   | +/-0.276    | 0.0828 | 0.050 | pCi/g |    | KXM     | 09/08/09 | 1205 | 899594 | 1      |
|  |           |        |             |        |       |       |    |         |          |      | 4      |        |
| Thorium-230  |           | 1.56   | +/-0.230    | 0.0823 | 0.050 | pCi/g |    |         |          |      |        |        |
| Thorium-232  |           | 1.86   | +/-0.250    | 0.0823 | 0.100 | pCi/g |    |         |          |      |        |        |
| <i>Alphaspec U, Solid "Dry Weight Corrected"</i>       |           |        |             |        |       |       |    |         |          |      |        |        |
| Uranium-233/234  |           | 1.38   | +/-0.177    | 0.045  | 0.040 | pCi/g |    | KXM     | 09/08/09 | 1131 | 899595 | 2      |
|  |           |        |             |        |       |       |    |         |          |      | 4      |        |
| Uranium-235/236  |           | 0.0509 | +/-0.0377   | 0.0218 | 0.040 | pCi/g |    |         |          |      |        |        |
| Uranium-238  |           | 1.29   | +/-0.172    | 0.045  | 0.040 | pCi/g |    |         |          |      |        |        |
| <b>Rad Gas Flow Proportional Counting</b>              |           |        |             |        |       |       |    |         |          |      |        |        |
| <i>Gas Flow Radium 228 "Dry Weight Corrected"</i>      |           |        |             |        |       |       |    |         |          |      |        |        |
| Radium-228   |           | 0.671  | +/-0.400    | 0.618  | 0.500 | pCi/g |    | JXC5    | 08/24/09 | 1355 | 893087 | 3      |
| <b>Rad Radium-226</b>                                  |           |        |             |        |       |       |    |         |          |      |        |        |
| <i>Lucas Cell, Ra226, solid "Dry Weight Corrected"</i> |           |        |             |        |       |       |    |         |          |      |        |        |
| Radium-226   |           | 1.61   | +/-0.362    | 0.280  | 0.500 | pCi/g |    | KSD1    | 09/04/09 | 1615 | 893458 | 4      |

**The following Prep Methods were performed**

| Method        | Description                | Analyst | Date     | Time | Prep Batch |
|---------------|----------------------------|---------|----------|------|------------|
| Dry Soil Prep | Dry Soil Prep GL-RAD-A-021 | CXC1    | 08/11/09 | 1623 | 892846     |

**The following Analytical Methods were performed**

| Method | Description                         | Analyst Comments |
|--------|-------------------------------------|------------------|
| 1      | DOE EML HASL-300, Th-01-RC Modified |                  |
| 2      | DOE EML HASL-300, U-02-RC Modified  |                  |
| 3      | EPA 904.0/SW846 9320 Modified       |                  |
| 4      | EPA 903.1 Modified                  |                  |

| Surrogate/Tracer recovery | Test                                       | Result | Nominal | Recovery% | Acceptable Limits |
|---------------------------|--|--------|---------|-----------|-------------------|
| Actinium-227 Tracer       | Alphaspec Th, Solid "Dry Weight Corrected" |        |         | 66.9      | (15%-125%)        |
| Uranium-232 Tracer        | Alphaspec U, Solid "Dry Weight Corrected"  |        |         | 59.2      | (15%-125%)        |
| Barium-133 Tracer         | Gas Flow Radium 228 "Dry Weight Corrected" |        |         | 91.9      | (25%-125%)        |

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## Certificate of Analysis

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 Newport Beach, California 92660

Report Date: September 10, 2009

Contact: Mr. Frank Hagar  
 Project: **Tronox Henderson**

|                   |                 |            |               |
|-------------------|-----------------|------------|---------------|
| Client Sample ID: | RSAM8009-20B    | Project:   | KERRHenderson |
| Sample ID:        | 234964003       | Client ID: | KERR003       |
| Matrix:           | SO              |            |               |
| Collect Date:     | 07-AUG-09 07:24 |            |               |
| Receive Date:     | 08-AUG-09       |            |               |
| Collector:        | Client          |            |               |

| Parameter  | Qualifier | Result | Uncertainty | DL     | RL    | Units | DF | Analyst | Date     | Time | Batch  | Method |
|--|-----------|--------|-------------|--------|-------|-------|----|---------|----------|------|--------|--------|
| <b>Rad Alpha Spec Analysis</b>                         |           |        |             |        |       |       |    |         |          |      |        |        |
| <i>Alphaspec Th, Solid "Dry Weight Corrected"</i>      |           |        |             |        |       |       |    |         |          |      |        |        |
| Thorium-228  |           | 2.01   | +/-0.257    | 0.135  | 0.050 | pCi/g |    | KXM     | 09/08/09 | 1205 | 899594 | 1      |
|  |           |        |             |        |       |       |    |         |          |      | 4      |        |
| Thorium-230  |           | 1.45   | +/-0.215    | 0.0975 | 0.050 | pCi/g |    |         |          |      |        |        |
| Thorium-232  |           | 1.61   | +/-0.222    | 0.0607 | 0.100 | pCi/g |    |         |          |      |        |        |
| <i>Alphaspec U, Solid "Dry Weight Corrected"</i>       |           |        |             |        |       |       |    |         |          |      |        |        |
| Uranium-233/234  |           | 1.47   | +/-0.138    | 0.0504 | 0.040 | pCi/g |    | KXM     | 09/04/09 | 1441 | 899595 | 2      |
|  |           |        |             |        |       |       |    |         |          |      | 4      |        |
| Uranium-235/236  |           | 0.0855 | +/-0.0429   | 0.0501 | 0.040 | pCi/g |    |         |          |      |        |        |
| Uranium-238  |           | 1.23   | +/-0.126    | 0.0364 | 0.040 | pCi/g |    |         |          |      |        |        |
| <b>Rad Gas Flow Proportional Counting</b>              |           |        |             |        |       |       |    |         |          |      |        |        |
| <i>Gas Flow Radium 228 "Dry Weight Corrected"</i>      |           |        |             |        |       |       |    |         |          |      |        |        |
| Radium-228   |           | 1.06   | +/-0.314    | 0.348  | 0.500 | pCi/g |    | JXC5    | 08/24/09 | 1533 | 893087 | 3      |
| <b>Rad Radium-226</b>                                  |           |        |             |        |       |       |    |         |          |      |        |        |
| <i>Lucas Cell, Ra226, solid "Dry Weight Corrected"</i> |           |        |             |        |       |       |    |         |          |      |        |        |
| Radium-226   |           | 1.04   | +/-0.324    | 0.324  | 0.500 | pCi/g |    | KSD1    | 09/04/09 | 1615 | 893458 | 4      |

**The following Prep Methods were performed**

| Method        | Description                | Analyst | Date     | Time | Prep Batch |
|---------------|----------------------------|---------|----------|------|------------|
| Dry Soil Prep | Dry Soil Prep GL-RAD-A-021 | CXC1    | 08/11/09 | 1623 | 892846     |

**The following Analytical Methods were performed**

| Method | Description                         | Analyst Comments |
|--------|-------------------------------------|------------------|
| 1      | DOE EML HASL-300, Th-01-RC Modified |                  |
| 2      | DOE EML HASL-300, U-02-RC Modified  |                  |
| 3      | EPA 904.0/SW846 9320 Modified       |                  |
| 4      | EPA 903.1 Modified                  |                  |

| Surrogate/Tracer recovery | Test                                       | Result | Nominal | Recovery% | Acceptable Limits |
|---------------------------|--|--------|---------|-----------|-------------------|
| Actinium-227 Tracer       | Alphaspec Th, Solid "Dry Weight Corrected" |        |         | 68.6      | (15%-125%)        |
| Uranium-232 Tracer        | Alphaspec U, Solid "Dry Weight Corrected"  |        |         | 78.7      | (15%-125%)        |
| Barium-133 Tracer         | Gas Flow Radium 228 "Dry Weight Corrected" |        |         | 89.3      | (25%-125%)        |



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## Certificate of Analysis

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 Newport Beach, California 92660

Report Date: September 10, 2009

Contact: Mr. Frank Hagar  
 Project: **Tronox Henderson**

|                   |                 |            |               |
|-------------------|-----------------|------------|---------------|
| Client Sample ID: | RSAM8-31B       | Project:   | KERRHenderson |
| Sample ID:        | 234964004       | Client ID: | KERR003       |
| Matrix:           | SO              |            |               |
| Collect Date:     | 07-AUG-09 08:46 |            |               |
| Receive Date:     | 08-AUG-09       |            |               |
| Collector:        | Client          |            |               |

| Parameter  | Qualifier | Result | Uncertainty | DL     | RL    | Units | DF | Analyst | Date     | Time | Batch  | Method |
|--|-----------|--------|-------------|--------|-------|-------|----|---------|----------|------|--------|--------|
| <b>Rad Alpha Spec Analysis</b>                         |           |        |             |        |       |       |    |         |          |      |        |        |
| <i>Alphaspec Th, Solid "Dry Weight Corrected"</i>      |           |        |             |        |       |       |    |         |          |      |        |        |
| Thorium-228  |           | 1.40   | +/-0.209    | 0.103  | 0.050 | pCi/g |    | KXM     | 09/08/09 | 1205 | 899594 | 1      |
|  |           |        |             |        |       |       |    |         |          |      | 4      |        |
| Thorium-230  |           | 1.92   | +/-0.240    | 0.0844 | 0.050 | pCi/g |    |         |          |      |        |        |
| Thorium-232  |           | 1.20   | +/-0.189    | 0.0584 | 0.100 | pCi/g |    |         |          |      |        |        |
| <i>Alphaspec U, Solid "Dry Weight Corrected"</i>       |           |        |             |        |       |       |    |         |          |      |        |        |
| Uranium-233/234  |           | 1.64   | +/-0.137    | 0.0419 | 0.040 | pCi/g |    | KXM     | 09/04/09 | 1441 | 899595 | 2      |
|  |           |        |             |        |       |       |    |         |          |      | 4      |        |
| Uranium-235/236  |           | 0.0719 | +/-0.0345   | 0.0345 | 0.040 | pCi/g |    |         |          |      |        |        |
| Uranium-238  |           | 1.57   | +/-0.133    | 0.0279 | 0.040 | pCi/g |    |         |          |      |        |        |
| <b>Rad Gas Flow Proportional Counting</b>              |           |        |             |        |       |       |    |         |          |      |        |        |
| <i>Gas Flow Radium 228 "Dry Weight Corrected"</i>      |           |        |             |        |       |       |    |         |          |      |        |        |
| Radium-228   |           | 0.818  | +/-0.327    | 0.427  | 0.500 | pCi/g |    | JXC5    | 08/24/09 | 1356 | 893087 | 3      |
| <b>Rad Radium-226</b>                                  |           |        |             |        |       |       |    |         |          |      |        |        |
| <i>Lucas Cell, Ra226, solid "Dry Weight Corrected"</i> |           |        |             |        |       |       |    |         |          |      |        |        |
| Radium-226   |           | 4.46   | +/-0.567    | 0.285  | 0.500 | pCi/g |    | KSD1    | 09/04/09 | 1615 | 893458 | 4      |

**The following Prep Methods were performed**

| Method        | Description                | Analyst | Date     | Time | Prep Batch |
|---------------|----------------------------|---------|----------|------|------------|
| Dry Soil Prep | Dry Soil Prep GL-RAD-A-021 | CXC1    | 08/11/09 | 1623 | 892846     |

**The following Analytical Methods were performed**

| Method | Description                         | Analyst Comments |
|--------|-------------------------------------|------------------|
| 1      | DOE EML HASL-300, Th-01-RC Modified |                  |
| 2      | DOE EML HASL-300, U-02-RC Modified  |                  |
| 3      | EPA 904.0/SW846 9320 Modified       |                  |
| 4      | EPA 903.1 Modified                  |                  |

| Surrogate/Tracer recovery | Test                                       | Result | Nominal | Recovery% | Acceptable Limits |
|---------------------------|--|--------|---------|-----------|-------------------|
| Actinium-227 Tracer       | Alphaspec Th, Solid "Dry Weight Corrected" |        |         | 71.3      | (15%-125%)        |
| Uranium-232 Tracer        | Alphaspec U, Solid "Dry Weight Corrected"  |        |         | 96.5      | (15%-125%)        |
| Barium-133 Tracer         | Gas Flow Radium 228 "Dry Weight Corrected" |        |         | 91.0      | (25%-125%)        |

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## Certificate of Analysis

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 Newport Beach, California 92660

Report Date: September 10, 2009

Contact: Mr. Frank Hagar  
 Project: **Tronox Henderson**

|                   |                 |            |               |
|-------------------|-----------------|------------|---------------|
| Client Sample ID: | SA62-10B        | Project:   | KERRHenderson |
| Sample ID:        | 234964005       | Client ID: | KERR003       |
| Matrix:           | SO              |            |               |
| Collect Date:     | 07-AUG-09 11:44 |            |               |
| Receive Date:     | 08-AUG-09       |            |               |
| Collector:        | Client          |            |               |

| Parameter  | Qualifier | Result | Uncertainty | DL     | RL    | Units | DF | Analyst | Date     | Time | Batch  | Method |
|--|-----------|--------|-------------|--------|-------|-------|----|---------|----------|------|--------|--------|
| <b>Rad Alpha Spec Analysis</b>                         |           |        |             |        |       |       |    |         |          |      |        |        |
| <i>Alphaspec Th, Solid "Dry Weight Corrected"</i>      |           |        |             |        |       |       |    |         |          |      |        |        |
| Thorium-228  |           | 1.91   | +/-0.233    | 0.130  | 0.050 | pCi/g |    | KXM     | 09/08/09 | 1205 | 899594 | 1      |
|  |           |        |             |        |       |       |    |         |          |      | 4      |        |
| Thorium-230  |           | 1.51   | +/-0.203    | 0.0973 | 0.050 | pCi/g |    |         |          |      |        |        |
| Thorium-232  |           | 1.73   | +/-0.216    | 0.0906 | 0.100 | pCi/g |    |         |          |      |        |        |
| <i>Alphaspec U, Solid "Dry Weight Corrected"</i>       |           |        |             |        |       |       |    |         |          |      |        |        |
| Uranium-233/234  |           | 1.33   | +/-0.116    | 0.0249 | 0.040 | pCi/g |    | KXM     | 09/04/09 | 1441 | 899595 | 2      |
|  |           |        |             |        |       |       |    |         |          |      | 4      |        |
| Uranium-235/236  |           | 0.0611 | +/-0.0302   | 0.0308 | 0.040 | pCi/g |    |         |          |      |        |        |
| Uranium-238  |           | 1.24   | +/-0.112    | 0.0288 | 0.040 | pCi/g |    |         |          |      |        |        |
| <b>Rad Gas Flow Proportional Counting</b>              |           |        |             |        |       |       |    |         |          |      |        |        |
| <i>Gas Flow Radium 228 "Dry Weight Corrected"</i>      |           |        |             |        |       |       |    |         |          |      |        |        |
| Radium-228   |           | 0.685  | +/-0.393    | 0.600  | 0.500 | pCi/g |    | JXC5    | 08/24/09 | 1356 | 893087 | 3      |
| <b>Rad Radium-226</b>                                  |           |        |             |        |       |       |    |         |          |      |        |        |
| <i>Lucas Cell, Ra226, solid "Dry Weight Corrected"</i> |           |        |             |        |       |       |    |         |          |      |        |        |
| Radium-226   |           | 1.29   | +/-0.338    | 0.302  | 0.500 | pCi/g |    | KSD1    | 09/04/09 | 1615 | 893458 | 4      |

**The following Prep Methods were performed**

| Method        | Description                | Analyst | Date     | Time | Prep Batch |
|---------------|----------------------------|---------|----------|------|------------|
| Dry Soil Prep | Dry Soil Prep GL-RAD-A-021 | CXC1    | 08/11/09 | 1623 | 892846     |

**The following Analytical Methods were performed**

| Method | Description                         | Analyst Comments |
|--------|-------------------------------------|------------------|
| 1      | DOE EML HASL-300, Th-01-RC Modified |                  |
| 2      | DOE EML HASL-300, U-02-RC Modified  |                  |
| 3      | EPA 904.0/SW846 9320 Modified       |                  |
| 4      | EPA 903.1 Modified                  |                  |

| Surrogate/Tracer recovery | Test                                       | Result | Nominal | Recovery% | Acceptable Limits |
|---------------------------|--|--------|---------|-----------|-------------------|
| Actinium-227 Tracer       | Alphaspec Th, Solid "Dry Weight Corrected" |        |         | 79.9      | (15%-125%)        |
| Uranium-232 Tracer        | Alphaspec U, Solid "Dry Weight Corrected"  |        |         | 101       | (15%-125%)        |
| Barium-133 Tracer         | Gas Flow Radium 228 "Dry Weight Corrected" |        |         | 90.1      | (25%-125%)        |

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2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Certificate of Analysis

Company : Northgate Environmental Management, Inc.  
 Address : 1100 Quail St., Suite 102  
 Newport Beach, California 92660

Report Date: September 10, 2009

Contact: Mr. Frank Hagar  
 Project: **Tronox Henderson**

|                   |                 |            |               |
|-------------------|-----------------|------------|---------------|
| Client Sample ID: | SA62-24B        | Project:   | KERRHenderson |
| Sample ID:        | 234964006       | Client ID: | KERR003       |
| Matrix:           | SO              |            |               |
| Collect Date:     | 07-AUG-09 12:40 |            |               |
| Receive Date:     | 08-AUG-09       |            |               |
| Collector:        | Client          |            |               |

| Parameter  | Qualifier | Result | Uncertainty | DL     | RL    | Units | DF | Analyst | Date     | Time | Batch  | Method |
|--|-----------|--------|-------------|--------|-------|-------|----|---------|----------|------|--------|--------|
| <b>Rad Alpha Spec Analysis</b>                         |           |        |             |        |       |       |    |         |          |      |        |        |
| <i>Alphaspec Th, Solid "Dry Weight Corrected"</i>      |           |        |             |        |       |       |    |         |          |      |        |        |
| Thorium-228  |           | 1.22   | +/-0.196    | 0.129  | 0.050 | pCi/g |    | KXM     | 09/08/09 | 1205 | 899594 | 1      |
|  |           |        |             |        |       |       |    |         |          |      | 4      |        |
| Thorium-230  |           | 2.45   | +/-0.262    | 0.0555 | 0.050 | pCi/g |    |         |          |      |        |        |
| Thorium-232  |           | 1.19   | +/-0.184    | 0.0695 | 0.100 | pCi/g |    |         |          |      |        |        |
| <i>Alphaspec U, Solid "Dry Weight Corrected"</i>       |           |        |             |        |       |       |    |         |          |      |        |        |
| Uranium-233/234  |           | 2.11   | +/-0.159    | 0.0344 | 0.040 | pCi/g |    | KXM     | 09/04/09 | 1441 | 899595 | 2      |
|  |           |        |             |        |       |       |    |         |          |      | 4      |        |
| Uranium-235/236  |           | 0.119  | +/-0.0419   | 0.0115 | 0.040 | pCi/g |    |         |          |      |        |        |
| Uranium-238  |           | 1.96   | +/-0.153    | 0.0298 | 0.040 | pCi/g |    |         |          |      |        |        |
| <b>Rad Gas Flow Proportional Counting</b>              |           |        |             |        |       |       |    |         |          |      |        |        |
| <i>Gas Flow Radium 228 "Dry Weight Corrected"</i>      |           |        |             |        |       |       |    |         |          |      |        |        |
| Radium-228   |           | 1.48   | +/-0.420    | 0.494  | 0.500 | pCi/g |    | JXC5    | 08/24/09 | 1356 | 893087 | 3      |
| <b>Rad Radium-226</b>                                  |           |        |             |        |       |       |    |         |          |      |        |        |
| <i>Lucas Cell, Ra226, solid "Dry Weight Corrected"</i> |           |        |             |        |       |       |    |         |          |      |        |        |
| Radium-226   |           | 1.12   | +/-0.285    | 0.170  | 0.500 | pCi/g |    | KSD1    | 09/04/09 | 1615 | 893458 | 4      |

**The following Prep Methods were performed**

| Method        | Description                | Analyst | Date     | Time | Prep Batch |
|---------------|----------------------------|---------|----------|------|------------|
| Dry Soil Prep | Dry Soil Prep GL-RAD-A-021 | CXC1    | 08/11/09 | 1623 | 892846     |

**The following Analytical Methods were performed**

| Method | Description                         | Analyst Comments |
|--------|-------------------------------------|------------------|
| 1      | DOE EML HASL-300, Th-01-RC Modified |                  |
| 2      | DOE EML HASL-300, U-02-RC Modified  |                  |
| 3      | EPA 904.0/SW846 9320 Modified       |                  |
| 4      | EPA 903.1 Modified                  |                  |

| Surrogate/Tracer recovery | Test                                       | Result | Nominal | Recovery% | Acceptable Limits |
|---------------------------|--|--------|---------|-----------|-------------------|
| Actinium-227 Tracer       | Alphaspec Th, Solid "Dry Weight Corrected" |        |         | 74.6      | (15%-125%)        |
| Uranium-232 Tracer        | Alphaspec U, Solid "Dry Weight Corrected"  |        |         | 96.7      | (15%-125%)        |
| Barium-133 Tracer         | Gas Flow Radium 228 "Dry Weight Corrected" |        |         | 86.2      | (25%-125%)        |

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## Certificate of Analysis

Company : Northgate Environmental  
Management, Inc.  
Address : 1100 Quail St., Suite 102  
Newport Beach, California 92660

Report Date: September 10, 2009

Contact: Mr. Frank Hagar  
Project: **Tronox Henderson**

Client Sample ID: SA144-10B  
Sample ID: 234964007  
Matrix: SO  
Collect Date: 07-AUG-09 09:57  
Receive Date: 08-AUG-09  
Collector: Client

Project: KERRHenderson  
Client ID: KERR003

| Parameter  | Qualifier | Result | Uncertainty | DL     | RL    | Units | DF | Analyst | Date     | Time | Batch  | Method |
|--|-----------|--------|-------------|--------|-------|-------|----|---------|----------|------|--------|--------|
| <b>Rad Alpha Spec Analysis</b>                         |           |        |             |        |       |       |    |         |          |      |        |        |
| <i>Alphaspec Th, Solid "Dry Weight Corrected"</i>      |           |        |             |        |       |       |    |         |          |      |        |        |
| Thorium-228  |           | 1.95   | +/-0.309    | 0.196  | 0.050 | pCi/g |    | KXM     | 09/08/09 | 1407 | 899594 | 1      |
|  |           |        |             |        |       |       |    |         |          |      | 4      |        |
| Thorium-230  |           | 1.56   | +/-0.266    | 0.110  | 0.050 | pCi/g |    |         |          |      |        |        |
| Thorium-232  |           | 1.57   | +/-0.267    | 0.110  | 0.100 | pCi/g |    |         |          |      |        |        |
| <i>Alphaspec U, Solid "Dry Weight Corrected"</i>       |           |        |             |        |       |       |    |         |          |      |        |        |
| Uranium-233/234  |           | 1.62   | +/-0.136    | 0.036  | 0.040 | pCi/g |    | KXM     | 09/04/09 | 1441 | 899595 | 2      |
|  |           |        |             |        |       |       |    |         |          |      | 4      |        |
| Uranium-235/236  |           | 0.0542 | +/-0.0274   | 0.0108 | 0.040 | pCi/g |    |         |          |      |        |        |
| Uranium-238  |           | 1.38   | +/-0.125    | 0.028  | 0.040 | pCi/g |    |         |          |      |        |        |
| <b>Rad Gas Flow Proportional Counting</b>              |           |        |             |        |       |       |    |         |          |      |        |        |
| <i>Gas Flow Radium 228 "Dry Weight Corrected"</i>      |           |        |             |        |       |       |    |         |          |      |        |        |
| Radium-228   |           | 1.01   | +/-0.493    | 0.731  | 0.500 | pCi/g |    | JXC5    | 08/24/09 | 1356 | 893087 | 3      |
| <b>Rad Radium-226</b>                                  |           |        |             |        |       |       |    |         |          |      |        |        |
| <i>Lucas Cell, Ra226, solid "Dry Weight Corrected"</i> |           |        |             |        |       |       |    |         |          |      |        |        |
| Radium-226   |           | 1.24   | +/-0.330    | 0.249  | 0.500 | pCi/g |    | KSD1    | 09/04/09 | 1650 | 893458 | 4      |

### The following Prep Methods were performed

| Method        | Description                | Analyst | Date     | Time | Prep Batch |
|---------------|----------------------------|---------|----------|------|------------|
| Dry Soil Prep | Dry Soil Prep GL-RAD-A-021 | CXC1    | 08/11/09 | 1623 | 892846     |

### The following Analytical Methods were performed

| Method | Description                         | Analyst Comments |
|--------|-------------------------------------|------------------|
| 1      | DOE EML HASL-300, Th-01-RC Modified |                  |
| 2      | DOE EML HASL-300, U-02-RC Modified  |                  |
| 3      | EPA 904.0/SW846 9320 Modified       |                  |
| 4      | EPA 903.1 Modified                  |                  |

| Surrogate/Tracer recovery | Test                                       | Result | Nominal | Recovery% | Acceptable Limits |
|---------------------------|--|--------|---------|-----------|-------------------|
| Actinium-227 Tracer       | Alphaspec Th, Solid "Dry Weight Corrected" |        |         | 58.6      | (15%-125%)        |
| Uranium-232 Tracer        | Alphaspec U, Solid "Dry Weight Corrected"  |        |         | 95.1      | (15%-125%)        |
| Barium-133 Tracer         | Gas Flow Radium 228 "Dry Weight Corrected" |        |         | 74.5      | (25%-125%)        |

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## Certificate of Analysis

Company : Northgate Environmental Management, Inc.  
 Address : 1100 Quail St., Suite 102  
 Newport Beach, California 92660

Report Date: September 10, 2009

Contact: Mr. Frank Hagar  
 Project: **Tronox Henderson**

|                   |                 |            |               |
|-------------------|-----------------|------------|---------------|
| Client Sample ID: | SA144009-10B    | Project:   | KERRHenderson |
| Sample ID:        | 234964008       | Client ID: | KERR003       |
| Matrix:           | SO              |            |               |
| Collect Date:     | 07-AUG-09 09:57 |            |               |
| Receive Date:     | 08-AUG-09       |            |               |
| Collector:        | Client          |            |               |

| Parameter  | Qualifier | Result | Uncertainty | DL     | RL    | Units | DF | Analyst | Date     | Time | Batch  | Method |
|--|-----------|--------|-------------|--------|-------|-------|----|---------|----------|------|--------|--------|
| <b>Rad Alpha Spec Analysis</b>                         |           |        |             |        |       |       |    |         |          |      |        |        |
| <i>Alphaspec Th, Solid "Dry Weight Corrected"</i>      |           |        |             |        |       |       |    |         |          |      |        |        |
| Thorium-228  |           | 1.75   | +/-0.259    | 0.143  | 0.050 | pCi/g |    | KXM     | 09/08/09 | 1407 | 899594 | 1      |
|  |           |        |             |        |       |       |    |         |          |      | 4      |        |
| Thorium-230  |           | 0.881  | +/-0.183    | 0.103  | 0.050 | pCi/g |    |         |          |      |        |        |
| Thorium-232  |           | 1.63   | +/-0.244    | 0.0889 | 0.100 | pCi/g |    |         |          |      |        |        |
| <i>Alphaspec U, Solid "Dry Weight Corrected"</i>       |           |        |             |        |       |       |    |         |          |      |        |        |
| Uranium-233/234  |           | 1.57   | +/-0.134    | 0.0361 | 0.040 | pCi/g |    | KXM     | 09/04/09 | 1441 | 899595 | 2      |
|  |           |        |             |        |       |       |    |         |          |      | 4      |        |
| Uranium-235/236  |           | 0.0762 | +/-0.0341   | 0.0278 | 0.040 | pCi/g |    |         |          |      |        |        |
| Uranium-238  |           | 1.33   | +/-0.124    | 0.0393 | 0.040 | pCi/g |    |         |          |      |        |        |
| <b>Rad Gas Flow Proportional Counting</b>              |           |        |             |        |       |       |    |         |          |      |        |        |
| <i>Gas Flow Radium 228 "Dry Weight Corrected"</i>      |           |        |             |        |       |       |    |         |          |      |        |        |
| Radium-228   |           | 0.991  | +/-0.484    | 0.719  | 0.500 | pCi/g |    | JXC5    | 08/24/09 | 1356 | 893087 | 3      |
| <b>Rad Radium-226</b>                                  |           |        |             |        |       |       |    |         |          |      |        |        |
| <i>Lucas Cell, Ra226, solid "Dry Weight Corrected"</i> |           |        |             |        |       |       |    |         |          |      |        |        |
| Radium-226   |           | 0.788  | +/-0.234    | 0.178  | 0.500 | pCi/g |    | KSD1    | 09/04/09 | 1650 | 893458 | 4      |

**The following Prep Methods were performed**

| Method        | Description                | Analyst | Date     | Time | Prep Batch |
|---------------|----------------------------|---------|----------|------|------------|
| Dry Soil Prep | Dry Soil Prep GL-RAD-A-021 | CXC1    | 08/11/09 | 1623 | 892846     |

**The following Analytical Methods were performed**

| Method | Description                         | Analyst Comments |
|--------|-------------------------------------|------------------|
| 1      | DOE EML HASL-300, Th-01-RC Modified |                  |
| 2      | DOE EML HASL-300, U-02-RC Modified  |                  |
| 3      | EPA 904.0/SW846 9320 Modified       |                  |
| 4      | EPA 903.1 Modified                  |                  |

| Surrogate/Tracer recovery | Test                                       | Result | Nominal | Recovery% | Acceptable Limits |
|---------------------------|--|--------|---------|-----------|-------------------|
| Actinium-227 Tracer       | Alphaspec Th, Solid "Dry Weight Corrected" |        |         | 76.5      | (15%-125%)        |
| Uranium-232 Tracer        | Alphaspec U, Solid "Dry Weight Corrected"  |        |         | 92.4      | (15%-125%)        |
| Barium-133 Tracer         | Gas Flow Radium 228 "Dry Weight Corrected" |        |         | 78.0      | (25%-125%)        |

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## Certificate of Analysis

Company : Northgate Environmental Management, Inc.  
 Address : 1100 Quail St., Suite 102  
 Newport Beach, California 92660

Report Date: September 10, 2009

Contact: Mr. Frank Hagar  
 Project: **Tronox Henderson**

|                   |                 |            |               |
|-------------------|-----------------|------------|---------------|
| Client Sample ID: | SA144-28B       | Project:   | KERRHenderson |
| Sample ID:        | 234964009       | Client ID: | KERR003       |
| Matrix:           | SO              |            |               |
| Collect Date:     | 07-AUG-09 10:41 |            |               |
| Receive Date:     | 08-AUG-09       |            |               |
| Collector:        | Client          |            |               |

| Parameter  | Qualifier | Result | Uncertainty | DL     | RL    | Units | DF | Analyst | Date     | Time | Batch  | Method |
|--|-----------|--------|-------------|--------|-------|-------|----|---------|----------|------|--------|--------|
| <b>Rad Alpha Spec Analysis</b>                         |           |        |             |        |       |       |    |         |          |      |        |        |
| <i>Alphaspec Th, Solid "Dry Weight Corrected"</i>      |           |        |             |        |       |       |    |         |          |      |        |        |
| Thorium-228  |           | 1.76   | +/-0.235    | 0.124  | 0.050 | pCi/g |    | KXM     | 09/08/09 | 1407 | 899594 | 1      |
|  |           |        |             |        |       |       |    |         |          |      | 4      |        |
| Thorium-230  |           | 2.34   | +/-0.263    | 0.0583 | 0.050 | pCi/g |    |         |          |      |        |        |
| Thorium-232  |           | 1.72   | +/-0.226    | 0.0583 | 0.100 | pCi/g |    |         |          |      |        |        |
| <i>Alphaspec U, Solid "Dry Weight Corrected"</i>       |           |        |             |        |       |       |    |         |          |      |        |        |
| Uranium-233/234  |           | 2.18   | +/-0.188    | 0.032  | 0.040 | pCi/g |    | KXM     | 09/04/09 | 1422 | 899595 | 2      |
|  |           |        |             |        |       |       |    |         |          |      | 4      |        |
| Uranium-235/236  |           | 0.124  | +/-0.0497   | 0.0155 | 0.040 | pCi/g |    |         |          |      |        |        |
| Uranium-238  |           | 1.89   | +/-0.174    | 0.0126 | 0.040 | pCi/g |    |         |          |      |        |        |
| <b>Rad Gas Flow Proportional Counting</b>              |           |        |             |        |       |       |    |         |          |      |        |        |
| <i>Gas Flow Radium 228 "Dry Weight Corrected"</i>      |           |        |             |        |       |       |    |         |          |      |        |        |
| Radium-228   |           | 1.11   | +/-0.323    | 0.349  | 0.500 | pCi/g |    | JXC5    | 08/24/09 | 1533 | 893087 | 3      |
| <b>Rad Radium-226</b>                                  |           |        |             |        |       |       |    |         |          |      |        |        |
| <i>Lucas Cell, Ra226, solid "Dry Weight Corrected"</i> |           |        |             |        |       |       |    |         |          |      |        |        |
| Radium-226   |           | 2.19   | +/-0.395    | 0.244  | 0.500 | pCi/g |    | KSD1    | 09/04/09 | 1650 | 893458 | 4      |

**The following Prep Methods were performed**

| Method        | Description                | Analyst | Date     | Time | Prep Batch |
|---------------|----------------------------|---------|----------|------|------------|
| Dry Soil Prep | Dry Soil Prep GL-RAD-A-021 | CXC1    | 08/11/09 | 1623 | 892846     |

**The following Analytical Methods were performed**

| Method | Description                         | Analyst Comments |
|--------|-------------------------------------|------------------|
| 1      | DOE EML HASL-300, Th-01-RC Modified |                  |
| 2      | DOE EML HASL-300, U-02-RC Modified  |                  |
| 3      | EPA 904.0/SW846 9320 Modified       |                  |
| 4      | EPA 903.1 Modified                  |                  |

| Surrogate/Tracer recovery | Test                                       | Result | Nominal | Recovery% | Acceptable Limits |
|---------------------------|--|--------|---------|-----------|-------------------|
| Actinium-227 Tracer       | Alphaspec Th, Solid "Dry Weight Corrected" |        |         | 92.6      | (15%-125%)        |
| Uranium-232 Tracer        | Alphaspec U, Solid "Dry Weight Corrected"  |        |         | 83.5      | (15%-125%)        |
| Barium-133 Tracer         | Gas Flow Radium 228 "Dry Weight Corrected" |        |         | 82.3      | (25%-125%)        |

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## Certificate of Analysis

Company : Northgate Environmental  
Management, Inc.  
Address : 1100 Quail St., Suite 102  
Newport Beach, California 92660

Report Date: September 10, 2009

Contact: Mr. Frank Hagar  
Project: **Tronox Henderson**

|                   |                 |            |               |
|-------------------|-----------------|------------|---------------|
| Client Sample ID: | SA92-10B        | Project:   | KERRHenderson |
| Sample ID:        | 234964010       | Client ID: | KERR003       |
| Matrix:           | SO              |            |               |
| Collect Date:     | 10-AUG-09 11:17 |            |               |
| Receive Date:     | 11-AUG-09       |            |               |
| Collector:        | Client          |            |               |

| Parameter  | Qualifier | Result | Uncertainty | DL     | RL    | Units | DF | Analyst | Date     | Time | Batch  | Method |
|--|-----------|--------|-------------|--------|-------|-------|----|---------|----------|------|--------|--------|
| <b>Rad Alpha Spec Analysis</b>                         |           |        |             |        |       |       |    |         |          |      |        |        |
| <i>Alphaspec Th, Solid "Dry Weight Corrected"</i>      |           |        |             |        |       |       |    |         |          |      |        |        |
| Thorium-228  |           | 1.77   | +/-0.287    | 0.184  | 0.050 | pCi/g |    | KXM     | 09/08/09 | 1407 | 899594 | 1      |
|  |           |        |             |        |       |       |    |         |          |      | 4      |        |
| Thorium-230  |           | 1.05   | +/-0.211    | 0.0827 | 0.050 | pCi/g |    |         |          |      |        |        |
| Thorium-232  |           | 1.45   | +/-0.249    | 0.103  | 0.100 | pCi/g |    |         |          |      |        |        |
| <i>Alphaspec U, Solid "Dry Weight Corrected"</i>       |           |        |             |        |       |       |    |         |          |      |        |        |
| Uranium-233/234  |           | 1.19   | +/-0.128    | 0.0392 | 0.040 | pCi/g |    | KXM     | 09/04/09 | 1422 | 899595 | 2      |
|  |           |        |             |        |       |       |    |         |          |      | 4      |        |
| Uranium-235/236  |           | 0.0439 | +/-0.0298   | 0.0336 | 0.040 | pCi/g |    |         |          |      |        |        |
| Uranium-238  |           | 1.20   | +/-0.128    | 0.034  | 0.040 | pCi/g |    |         |          |      |        |        |
| <b>Rad Gas Flow Proportional Counting</b>              |           |        |             |        |       |       |    |         |          |      |        |        |
| <i>Gas Flow Radium 228 "Dry Weight Corrected"</i>      |           |        |             |        |       |       |    |         |          |      |        |        |
| Radium-228   |           | 0.663  | +/-0.287    | 0.384  | 0.500 | pCi/g |    | JXC5    | 08/24/09 | 1533 | 893087 | 3      |
| <b>Rad Radium-226</b>                                  |           |        |             |        |       |       |    |         |          |      |        |        |
| <i>Lucas Cell, Ra226, solid "Dry Weight Corrected"</i> |           |        |             |        |       |       |    |         |          |      |        |        |
| Radium-226   |           | 1.63   | +/-0.379    | 0.313  | 0.500 | pCi/g |    | KSD1    | 09/04/09 | 1650 | 893458 | 4      |

**The following Prep Methods were performed**

| Method        | Description                | Analyst | Date     | Time | Prep Batch |
|---------------|----------------------------|---------|----------|------|------------|
| Dry Soil Prep | Dry Soil Prep GL-RAD-A-021 | CXC1    | 08/11/09 | 1623 | 892846     |

**The following Analytical Methods were performed**

| Method | Description                         | Analyst Comments |
|--------|-------------------------------------|------------------|
| 1      | DOE EML HASL-300, Th-01-RC Modified |                  |
| 2      | DOE EML HASL-300, U-02-RC Modified  |                  |
| 3      | EPA 904.0/SW846 9320 Modified       |                  |
| 4      | EPA 903.1 Modified                  |                  |

| Surrogate/Tracer recovery | Test                                       | Result | Nominal | Recovery% | Acceptable Limits |
|---------------------------|--|--------|---------|-----------|-------------------|
| Actinium-227 Tracer       | Alphaspec Th, Solid "Dry Weight Corrected" |        |         | 63.5      | (15%-125%)        |
| Uranium-232 Tracer        | Alphaspec U, Solid "Dry Weight Corrected"  |        |         | 97.0      | (15%-125%)        |
| Barium-133 Tracer         | Gas Flow Radium 228 "Dry Weight Corrected" |        |         | 82.8      | (25%-125%)        |

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## Certificate of Analysis

Company : Northgate Environmental Management, Inc.  
 Address : 1100 Quail St., Suite 102  
 Newport Beach, California 92660

Report Date: September 10, 2009

Contact: Mr. Frank Hagar  
 Project: **Tronox Henderson**

|                   |                 |            |               |
|-------------------|-----------------|------------|---------------|
| Client Sample ID: | SA92-20B        | Project:   | KERRHenderson |
| Sample ID:        | 234964011       | Client ID: | KERR003       |
| Matrix:           | SO              |            |               |
| Collect Date:     | 10-AUG-09 12:05 |            |               |
| Receive Date:     | 11-AUG-09       |            |               |
| Collector:        | Client          |            |               |

| Parameter  | Qualifier | Result | Uncertainty | DL     | RL    | Units | DF | Analyst | Date     | Time | Batch  | Method |
|--|-----------|--------|-------------|--------|-------|-------|----|---------|----------|------|--------|--------|
| <b>Rad Alpha Spec Analysis</b>                         |           |        |             |        |       |       |    |         |          |      |        |        |
| <i>Alphaspec Th, Solid "Dry Weight Corrected"</i>      |           |        |             |        |       |       |    |         |          |      |        |        |
| Thorium-228  |           | 2.14   | +/-0.283    | 0.134  | 0.050 | pCi/g |    | KXM     | 09/08/09 | 1407 | 899594 | 1      |
|  |           |        |             |        |       |       |    |         |          |      | 4      |        |
| Thorium-230  |           | 1.82   | +/-0.255    | 0.0706 | 0.050 | pCi/g |    |         |          |      |        |        |
| Thorium-232  |           | 1.94   | +/-0.263    | 0.0706 | 0.100 | pCi/g |    |         |          |      |        |        |
| <i>Alphaspec U, Solid "Dry Weight Corrected"</i>       |           |        |             |        |       |       |    |         |          |      |        |        |
| Uranium-233/234  |           | 1.73   | +/-0.152    | 0.0104 | 0.040 | pCi/g |    | KXM     | 09/04/09 | 1422 | 899595 | 2      |
|  |           |        |             |        |       |       |    |         |          |      | 4      |        |
| Uranium-235/236  |           | 0.073  | +/-0.0367   | 0.0328 | 0.040 | pCi/g |    |         |          |      |        |        |
| Uranium-238  |           | 1.57   | +/-0.145    | 0.0104 | 0.040 | pCi/g |    |         |          |      |        |        |
| <b>Rad Gas Flow Proportional Counting</b>              |           |        |             |        |       |       |    |         |          |      |        |        |
| <i>Gas Flow Radium 228 "Dry Weight Corrected"</i>      |           |        |             |        |       |       |    |         |          |      |        |        |
| Radium-228   |           | 0.468  | +/-0.167    | 0.247  | 0.500 | pCi/g |    | JXC5    | 08/24/09 | 1715 | 893087 | 3      |
| <b>Rad Radium-226</b>                                  |           |        |             |        |       |       |    |         |          |      |        |        |
| <i>Lucas Cell, Ra226, solid "Dry Weight Corrected"</i> |           |        |             |        |       |       |    |         |          |      |        |        |
| Radium-226   |           | 1.98   | +/-0.392    | 0.285  | 0.500 | pCi/g |    | KSD1    | 09/04/09 | 1650 | 893458 | 4      |

**The following Prep Methods were performed**

| Method        | Description                | Analyst | Date     | Time | Prep Batch |
|---------------|----------------------------|---------|----------|------|------------|
| Dry Soil Prep | Dry Soil Prep GL-RAD-A-021 | CXC1    | 08/11/09 | 1623 | 892846     |

**The following Analytical Methods were performed**

| Method | Description                         | Analyst Comments |
|--------|-------------------------------------|------------------|
| 1      | DOE EML HASL-300, Th-01-RC Modified |                  |
| 2      | DOE EML HASL-300, U-02-RC Modified  |                  |
| 3      | EPA 904.0/SW846 9320 Modified       |                  |
| 4      | EPA 903.1 Modified                  |                  |

| Surrogate/Tracer recovery | Test                                       | Result | Nominal | Recovery% | Acceptable Limits |
|---------------------------|--|--------|---------|-----------|-------------------|
| Actinium-227 Tracer       | Alphaspec Th, Solid "Dry Weight Corrected" |        |         | 73.4      | (15%-125%)        |
| Uranium-232 Tracer        | Alphaspec U, Solid "Dry Weight Corrected"  |        |         | 101       | (15%-125%)        |
| Barium-133 Tracer         | Gas Flow Radium 228 "Dry Weight Corrected" |        |         | 101       | (25%-125%)        |



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## Certificate of Analysis

Company : Northgate Environmental  
Management, Inc.  
Address : 1100 Quail St., Suite 102  
Newport Beach, California 92660

Report Date: September 10, 2009

Contact: Mr. Frank Hagar  
Project: **Tronox Henderson**

|                   |                 |            |               |
|-------------------|-----------------|------------|---------------|
| Client Sample ID: | SA92-31B        | Project:   | KERRHenderson |
| Sample ID:        | 234964012       | Client ID: | KERR003       |
| Matrix:           | SO              |            |               |
| Collect Date:     | 10-AUG-09 12:28 |            |               |
| Receive Date:     | 11-AUG-09       |            |               |
| Collector:        | Client          |            |               |

| Parameter  | Qualifier | Result | Uncertainty | DL     | RL    | Units | DF | Analyst | Date     | Time | Batch  | Method |
|--|-----------|--------|-------------|--------|-------|-------|----|---------|----------|------|--------|--------|
| <b>Rad Alpha Spec Analysis</b>                         |           |        |             |        |       |       |    |         |          |      |        |        |
| <i>Alphaspec Th, Solid "Dry Weight Corrected"</i>      |           |        |             |        |       |       |    |         |          |      |        |        |
| Thorium-228  |           | 1.23   | +/-0.230    | 0.139  | 0.050 | pCi/g |    | KXM     | 09/08/09 | 1407 | 899594 | 1      |
|  |           |        |             |        |       |       |    |         |          |      | 4      |        |
| Thorium-230  |           | 4.21   | +/-0.409    | 0.0787 | 0.050 | pCi/g |    |         |          |      |        |        |
| Thorium-232  |           | 0.987  | +/-0.203    | 0.114  | 0.100 | pCi/g |    |         |          |      |        |        |
| <i>Alphaspec U, Solid "Dry Weight Corrected"</i>       |           |        |             |        |       |       |    |         |          |      |        |        |
| Uranium-233/234  |           | 3.67   | +/-0.219    | 0.0372 | 0.040 | pCi/g |    | KXM     | 09/04/09 | 1422 | 899595 | 2      |
|  |           |        |             |        |       |       |    |         |          |      | 4      |        |
| Uranium-235/236  |           | 0.208  | +/-0.0577   | 0.0125 | 0.040 | pCi/g |    |         |          |      |        |        |
| Uranium-238  |           | 3.69   | +/-0.219    | 0.0258 | 0.040 | pCi/g |    |         |          |      |        |        |
| <b>Rad Gas Flow Proportional Counting</b>              |           |        |             |        |       |       |    |         |          |      |        |        |
| <i>Gas Flow Radium 228 "Dry Weight Corrected"</i>      |           |        |             |        |       |       |    |         |          |      |        |        |
| Radium-228   |           | 1.42   | +/-0.374    | 0.370  | 0.500 | pCi/g |    | JXC5    | 08/24/09 | 1356 | 893087 | 3      |
| <b>Rad Radium-226</b>                                  |           |        |             |        |       |       |    |         |          |      |        |        |
| <i>Lucas Cell, Ra226, solid "Dry Weight Corrected"</i> |           |        |             |        |       |       |    |         |          |      |        |        |
| Radium-226   |           | 1.63   | +/-0.359    | 0.284  | 0.500 | pCi/g |    | KSD1    | 09/04/09 | 1650 | 893458 | 4      |

**The following Prep Methods were performed**

| Method        | Description                | Analyst | Date     | Time | Prep Batch |
|---------------|----------------------------|---------|----------|------|------------|
| Dry Soil Prep | Dry Soil Prep GL-RAD-A-021 | CXC1    | 08/11/09 | 1623 | 892846     |

**The following Analytical Methods were performed**

| Method | Description                         | Analyst Comments |
|--------|-------------------------------------|------------------|
| 1      | DOE EML HASL-300, Th-01-RC Modified |                  |
| 2      | DOE EML HASL-300, U-02-RC Modified  |                  |
| 3      | EPA 904.0/SW846 9320 Modified       |                  |
| 4      | EPA 903.1 Modified                  |                  |

| Surrogate/Tracer recovery | Test                                       | Result | Nominal | Recovery% | Acceptable Limits |
|---------------------------|--|--------|---------|-----------|-------------------|
| Actinium-227 Tracer       | Alphaspec Th, Solid "Dry Weight Corrected" |        |         | 65.3      | (15%-125%)        |
| Uranium-232 Tracer        | Alphaspec U, Solid "Dry Weight Corrected"  |        |         | 98.8      | (15%-125%)        |
| Barium-133 Tracer         | Gas Flow Radium 228 "Dry Weight Corrected" |        |         | 86.6      | (25%-125%)        |

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## Certificate of Analysis

Company : Northgate Environmental Management, Inc.  
 Address : 1100 Quail St., Suite 102  
 Newport Beach, California 92660

Report Date: September 10, 2009

Contact: Mr. Frank Hagar  
 Project: **Tronox Henderson**

|                   |                 |            |               |
|-------------------|-----------------|------------|---------------|
| Client Sample ID: | SA119-0.5B      | Project:   | KERRHenderson |
| Sample ID:        | 234964013       | Client ID: | KERR003       |
| Matrix:           | SO              |            |               |
| Collect Date:     | 10-AUG-09 10:14 |            |               |
| Receive Date:     | 11-AUG-09       |            |               |
| Collector:        | Client          |            |               |

| Parameter  | Qualifier | Result | Uncertainty | DL     | RL    | Units | DF | Analyst | Date     | Time | Batch  | Method |
|--|-----------|--------|-------------|--------|-------|-------|----|---------|----------|------|--------|--------|
| <b>Rad Alpha Spec Analysis</b>                         |           |        |             |        |       |       |    |         |          |      |        |        |
| <i>Alphaspec Th, Solid "Dry Weight Corrected"</i>      |           |        |             |        |       |       |    |         |          |      |        |        |
| Thorium-228  |           | 1.57   | +/-0.237    | 0.109  | 0.050 | pCi/g |    | KXM     | 09/08/09 | 1408 | 899594 | 1      |
|  |           |        |             |        |       |       |    |         |          |      | 4      |        |
| Thorium-230  |           | 0.989  | +/-0.186    | 0.0846 | 0.050 | pCi/g |    |         |          |      |        |        |
| Thorium-232  |           | 1.65   | +/-0.239    | 0.0846 | 0.100 | pCi/g |    |         |          |      |        |        |
| <i>Alphaspec U, Solid "Dry Weight Corrected"</i>       |           |        |             |        |       |       |    |         |          |      |        |        |
| Uranium-233/234  |           | 0.855  | +/-0.109    | 0.0341 | 0.040 | pCi/g |    | KXM     | 09/04/09 | 1422 | 899595 | 2      |
|  |           |        |             |        |       |       |    |         |          |      | 4      |        |
| Uranium-235/236  |           | 0.0176 | +/-0.0173   | 0.0132 | 0.040 | pCi/g |    |         |          |      |        |        |
| Uranium-238  |           | 0.959  | +/-0.115    | 0.0341 | 0.040 | pCi/g |    |         |          |      |        |        |
| <b>Rad Gas Flow Proportional Counting</b>              |           |        |             |        |       |       |    |         |          |      |        |        |
| <i>Gas Flow Radium 228 "Dry Weight Corrected"</i>      |           |        |             |        |       |       |    |         |          |      |        |        |
| Radium-228   |           | 0.562  | +/-0.256    | 0.321  | 0.500 | pCi/g |    | JXC5    | 08/24/09 | 1356 | 893087 | 3      |
| <b>Rad Radium-226</b>                                  |           |        |             |        |       |       |    |         |          |      |        |        |
| <i>Lucas Cell, Ra226, solid "Dry Weight Corrected"</i> |           |        |             |        |       |       |    |         |          |      |        |        |
| Radium-226   |           | 1.04   | +/-0.313    | 0.307  | 0.500 | pCi/g |    | KSD1    | 09/04/09 | 1720 | 893458 | 4      |

**The following Prep Methods were performed**

| Method        | Description                | Analyst | Date     | Time | Prep Batch |
|---------------|----------------------------|---------|----------|------|------------|
| Dry Soil Prep | Dry Soil Prep GL-RAD-A-021 | CXC1    | 08/11/09 | 1623 | 892846     |

**The following Analytical Methods were performed**

| Method | Description                         | Analyst Comments |
|--------|-------------------------------------|------------------|
| 1      | DOE EML HASL-300, Th-01-RC Modified |                  |
| 2      | DOE EML HASL-300, U-02-RC Modified  |                  |
| 3      | EPA 904.0/SW846 9320 Modified       |                  |
| 4      | EPA 903.1 Modified                  |                  |

| Surrogate/Tracer recovery | Test                                       | Result | Nominal | Recovery% | Acceptable Limits |
|---------------------------|--|--------|---------|-----------|-------------------|
| Actinium-227 Tracer       | Alphaspec Th, Solid "Dry Weight Corrected" |        |         | 74.4      | (15%-125%)        |
| Uranium-232 Tracer        | Alphaspec U, Solid "Dry Weight Corrected"  |        |         | 102       | (15%-125%)        |
| Barium-133 Tracer         | Gas Flow Radium 228 "Dry Weight Corrected" |        |         | 90.3      | (25%-125%)        |

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## Certificate of Analysis

Company : Northgate Environmental Management, Inc.  
 Address : 1100 Quail St., Suite 102  
 Newport Beach, California 92660

Report Date: September 10, 2009

Contact: Mr. Frank Hagar  
 Project: **Tronox Henderson**

|                   |                 |            |               |
|-------------------|-----------------|------------|---------------|
| Client Sample ID: | SA119-10B       | Project:   | KERRHenderson |
| Sample ID:        | 234964014       | Client ID: | KERR003       |
| Matrix:           | SO              |            |               |
| Collect Date:     | 10-AUG-09 10:41 |            |               |
| Receive Date:     | 11-AUG-09       |            |               |
| Collector:        | Client          |            |               |

| Parameter  | Qualifier | Result | Uncertainty | DL     | RL    | Units | DF | Analyst | Date     | Time | Batch  | Method |
|--|-----------|--------|-------------|--------|-------|-------|----|---------|----------|------|--------|--------|
| <b>Rad Alpha Spec Analysis</b>                         |           |        |             |        |       |       |    |         |          |      |        |        |
| <i>Alphaspec Th, Solid "Dry Weight Corrected"</i>      |           |        |             |        |       |       |    |         |          |      |        |        |
| Thorium-228  |           | 1.27   | +/-0.204    | 0.120  | 0.050 | pCi/g |    | KXM     | 09/08/09 | 1408 | 899594 | 1      |
|  |           |        |             |        |       |       |    |         |          |      | 4      |        |
| Thorium-230  |           | 1.67   | +/-0.227    | 0.0863 | 0.050 | pCi/g |    |         |          |      |        |        |
| Thorium-232  |           | 1.46   | +/-0.211    | 0.0748 | 0.100 | pCi/g |    |         |          |      |        |        |
| <i>Alphaspec U, Solid "Dry Weight Corrected"</i>       |           |        |             |        |       |       |    |         |          |      |        |        |
| Uranium-233/234  |           | 1.74   | +/-0.154    | 0.0389 | 0.040 | pCi/g |    | KXM     | 09/04/09 | 1423 | 899595 | 2      |
|  |           |        |             |        |       |       |    |         |          |      | 4      |        |
| Uranium-235/236  |           | 0.087  | +/-0.0381   | 0.013  | 0.040 | pCi/g |    |         |          |      |        |        |
| Uranium-238  |           | 1.59   | +/-0.147    | 0.0337 | 0.040 | pCi/g |    |         |          |      |        |        |
| <b>Rad Gas Flow Proportional Counting</b>              |           |        |             |        |       |       |    |         |          |      |        |        |
| <i>Gas Flow Radium 228 "Dry Weight Corrected"</i>      |           |        |             |        |       |       |    |         |          |      |        |        |
| Radium-228   |           | 0.460  | +/-0.222    | 0.310  | 0.500 | pCi/g |    | JXC5    | 08/24/09 | 1527 | 893087 | 3      |
| <b>Rad Radium-226</b>                                  |           |        |             |        |       |       |    |         |          |      |        |        |
| <i>Lucas Cell, Ra226, solid "Dry Weight Corrected"</i> |           |        |             |        |       |       |    |         |          |      |        |        |
| Radium-226   |           | 0.980  | +/-0.279    | 0.264  | 0.500 | pCi/g |    | KSD1    | 09/04/09 | 1720 | 893458 | 4      |

**The following Prep Methods were performed**

| Method        | Description                | Analyst | Date     | Time | Prep Batch |
|---------------|----------------------------|---------|----------|------|------------|
| Dry Soil Prep | Dry Soil Prep GL-RAD-A-021 | CXC1    | 08/11/09 | 1623 | 892846     |

**The following Analytical Methods were performed**

| Method | Description                         | Analyst Comments |
|--------|-------------------------------------|------------------|
| 1      | DOE EML HASL-300, Th-01-RC Modified |                  |
| 2      | DOE EML HASL-300, U-02-RC Modified  |                  |
| 3      | EPA 904.0/SW846 9320 Modified       |                  |
| 4      | EPA 903.1 Modified                  |                  |

| Surrogate/Tracer recovery | Test                                       | Result | Nominal | Recovery% | Acceptable Limits |
|---------------------------|--|--------|---------|-----------|-------------------|
| Actinium-227 Tracer       | Alphaspec Th, Solid "Dry Weight Corrected" |        |         | 88.7      | (15%-125%)        |
| Uranium-232 Tracer        | Alphaspec U, Solid "Dry Weight Corrected"  |        |         | 102       | (15%-125%)        |
| Barium-133 Tracer         | Gas Flow Radium 228 "Dry Weight Corrected" |        |         | 100       | (25%-125%)        |

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## Certificate of Analysis

Company : Northgate Environmental Management, Inc.  
 Address : 1100 Quail St., Suite 102  
 Newport Beach, California 92660

Report Date: September 10, 2009

Contact: Mr. Frank Hagar  
 Project: **Tronox Henderson**

|                   |                 |            |               |
|-------------------|-----------------|------------|---------------|
| Client Sample ID: | SA119-30B       | Project:   | KERRHenderson |
| Sample ID:        | 234964015       | Client ID: | KERR003       |
| Matrix:           | SO              |            |               |
| Collect Date:     | 10-AUG-09 11:30 |            |               |
| Receive Date:     | 11-AUG-09       |            |               |
| Collector:        | Client          |            |               |

| Parameter  | Qualifier | Result | Uncertainty | DL     | RL    | Units | DF | Analyst | Date     | Time | Batch  | Method |
|--|-----------|--------|-------------|--------|-------|-------|----|---------|----------|------|--------|--------|
| <b>Rad Alpha Spec Analysis</b>                         |           |        |             |        |       |       |    |         |          |      |        |        |
| <i>Alphaspec Th, Solid "Dry Weight Corrected"</i>      |           |        |             |        |       |       |    |         |          |      |        |        |
| Thorium-228  |           | 1.85   | +/-0.251    | 0.105  | 0.050 | pCi/g |    | KXM     | 09/08/09 | 1408 | 899594 | 1      |
|  |           |        |             |        |       |       |    |         |          |      | 4      |        |
| Thorium-230  |           | 2.33   | +/-0.279    | 0.094  | 0.050 | pCi/g |    |         |          |      |        |        |
| Thorium-232  |           | 1.56   | +/-0.229    | 0.0815 | 0.100 | pCi/g |    |         |          |      |        |        |
| <i>Alphaspec U, Solid "Dry Weight Corrected"</i>       |           |        |             |        |       |       |    |         |          |      |        |        |
| Uranium-233/234  |           | 2.22   | +/-0.171    | 0.0325 | 0.040 | pCi/g |    | KXM     | 09/04/09 | 1440 | 899595 | 2      |
|  |           |        |             |        |       |       |    |         |          |      | 4      |        |
| Uranium-235/236  |           | 0.0796 | +/-0.0358   | 0.0126 | 0.040 | pCi/g |    |         |          |      |        |        |
| Uranium-238  |           | 2.02   | +/-0.163    | 0.0325 | 0.040 | pCi/g |    |         |          |      |        |        |
| <b>Rad Gas Flow Proportional Counting</b>              |           |        |             |        |       |       |    |         |          |      |        |        |
| <i>Gas Flow Radium 228 "Dry Weight Corrected"</i>      |           |        |             |        |       |       |    |         |          |      |        |        |
| Radium-228   |           | 0.640  | +/-0.378    | 0.570  | 0.500 | pCi/g |    | JXC5    | 08/24/09 | 1356 | 893087 | 3      |
| <b>Rad Radium-226</b>                                  |           |        |             |        |       |       |    |         |          |      |        |        |
| <i>Lucas Cell, Ra226, solid "Dry Weight Corrected"</i> |           |        |             |        |       |       |    |         |          |      |        |        |
| Radium-226   |           | 1.64   | +/-0.403    | 0.345  | 0.500 | pCi/g |    | KSD1    | 09/04/09 | 1720 | 893458 | 4      |

**The following Prep Methods were performed**

| Method        | Description                | Analyst | Date     | Time | Prep Batch |
|---------------|----------------------------|---------|----------|------|------------|
| Dry Soil Prep | Dry Soil Prep GL-RAD-A-021 | CXC1    | 08/11/09 | 1623 | 892846     |

**The following Analytical Methods were performed**

| Method | Description                         | Analyst Comments |
|--------|-------------------------------------|------------------|
| 1      | DOE EML HASL-300, Th-01-RC Modified |                  |
| 2      | DOE EML HASL-300, U-02-RC Modified  |                  |
| 3      | EPA 904.0/SW846 9320 Modified       |                  |
| 4      | EPA 903.1 Modified                  |                  |

| Surrogate/Tracer recovery | Test                                       | Result | Nominal | Recovery% | Acceptable Limits |
|---------------------------|--|--------|---------|-----------|-------------------|
| Actinium-227 Tracer       | Alphaspec Th, Solid "Dry Weight Corrected" |        |         | 77.8      | (15%-125%)        |
| Uranium-232 Tracer        | Alphaspec U, Solid "Dry Weight Corrected"  |        |         | 102       | (15%-125%)        |
| Barium-133 Tracer         | Gas Flow Radium 228 "Dry Weight Corrected" |        |         | 80.3      | (25%-125%)        |

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## Certificate of Analysis

Company : Northgate Environmental  
Management, Inc.  
Address : 1100 Quail St., Suite 102  
Newport Beach, California 92660

Report Date: September 10, 2009

Contact: Mr. Frank Hagar  
Project: **Tronox Henderson**

|                   |                 |            |               |
|-------------------|-----------------|------------|---------------|
| Client Sample ID: | SA119-48B       | Project:   | KERRHenderson |
| Sample ID:        | 234964016       | Client ID: | KERR003       |
| Matrix:           | SO              |            |               |
| Collect Date:     | 10-AUG-09 12:05 |            |               |
| Receive Date:     | 11-AUG-09       |            |               |
| Collector:        | Client          |            |               |

| Parameter  | Qualifier | Result | Uncertainty | DL     | RL    | Units | DF | Analyst | Date     | Time | Batch  | Method |
|--|-----------|--------|-------------|--------|-------|-------|----|---------|----------|------|--------|--------|
| <b>Rad Alpha Spec Analysis</b>                         |           |        |             |        |       |       |    |         |          |      |        |        |
| <i>Alphaspec Th, Solid "Dry Weight Corrected"</i>      |           |        |             |        |       |       |    |         |          |      |        |        |
| Thorium-228  |           | 1.60   | +/-0.236    | 0.135  | 0.050 | pCi/g |    | KXM     | 09/08/09 | 1408 | 899594 | 1      |
|  |           |        |             |        |       |       |    |         |          |      | 4      |        |
| Thorium-230  |           | 4.12   | +/-0.365    | 0.0918 | 0.050 | pCi/g |    |         |          |      |        |        |
| Thorium-232  |           | 1.53   | +/-0.223    | 0.0796 | 0.100 | pCi/g |    |         |          |      |        |        |
| <i>Alphaspec U, Solid "Dry Weight Corrected"</i>       |           |        |             |        |       |       |    |         |          |      |        |        |
| Uranium-233/234  |           | 3.70   | +/-0.220    | 0.0373 | 0.040 | pCi/g |    | KXM     | 09/04/09 | 1440 | 899595 | 2      |
|  |           |        |             |        |       |       |    |         |          |      | 4      |        |
| Uranium-235/236  |           | 0.200  | +/-0.0578   | 0.0319 | 0.040 | pCi/g |    |         |          |      |        |        |
| Uranium-238  |           | 4.03   | +/-0.229    | 0.0323 | 0.040 | pCi/g |    |         |          |      |        |        |
| <b>Rad Gas Flow Proportional Counting</b>              |           |        |             |        |       |       |    |         |          |      |        |        |
| <i>Gas Flow Radium 228 "Dry Weight Corrected"</i>      |           |        |             |        |       |       |    |         |          |      |        |        |
| Radium-228   |           | 0.556  | +/-0.269    | 0.374  | 0.500 | pCi/g |    | JXC5    | 08/24/09 | 1356 | 893087 | 3      |
| <b>Rad Radium-226</b>                                  |           |        |             |        |       |       |    |         |          |      |        |        |
| <i>Lucas Cell, Ra226, solid "Dry Weight Corrected"</i> |           |        |             |        |       |       |    |         |          |      |        |        |
| Radium-226   |           | 1.83   | +/-0.406    | 0.322  | 0.500 | pCi/g |    | KSD1    | 09/04/09 | 1720 | 893458 | 4      |

**The following Prep Methods were performed**

| Method        | Description                | Analyst | Date     | Time | Prep Batch |
|---------------|----------------------------|---------|----------|------|------------|
| Dry Soil Prep | Dry Soil Prep GL-RAD-A-021 | CXC1    | 08/11/09 | 1623 | 892846     |

**The following Analytical Methods were performed**

| Method | Description                         | Analyst Comments |
|--------|-------------------------------------|------------------|
| 1      | DOE EML HASL-300, Th-01-RC Modified |                  |
| 2      | DOE EML HASL-300, U-02-RC Modified  |                  |
| 3      | EPA 904.0/SW846 9320 Modified       |                  |
| 4      | EPA 903.1 Modified                  |                  |

| Surrogate/Tracer recovery | Test                                       | Result | Nominal | Recovery% | Acceptable Limits |
|---------------------------|--|--------|---------|-----------|-------------------|
| Actinium-227 Tracer       | Alphaspec Th, Solid "Dry Weight Corrected" |        |         | 84.6      | (15%-125%)        |
| Uranium-232 Tracer        | Alphaspec U, Solid "Dry Weight Corrected"  |        |         | 102       | (15%-125%)        |
| Barium-133 Tracer         | Gas Flow Radium 228 "Dry Weight Corrected" |        |         | 101       | (25%-125%)        |

# GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Certificate of Analysis

Company : Northgate Environmental Management, Inc.  
 Address : 1100 Quail St., Suite 102  
 Newport Beach, California 92660

Report Date: September 10, 2009

Contact: Mr. Frank Hagar  
 Project: **Tronox Henderson**

|                   |                 |            |               |
|-------------------|-----------------|------------|---------------|
| Client Sample ID: | SA158-10B       | Project:   | KERRHenderson |
| Sample ID:        | 234964017       | Client ID: | KERR003       |
| Matrix:           | SO              |            |               |
| Collect Date:     | 10-AUG-09 08:23 |            |               |
| Receive Date:     | 11-AUG-09       |            |               |
| Collector:        | Client          |            |               |

| Parameter  | Qualifier | Result | Uncertainty | DL     | RL    | Units | DF | Analyst | Date     | Time | Batch  | Method |
|--|-----------|--------|-------------|--------|-------|-------|----|---------|----------|------|--------|--------|
| <b>Rad Alpha Spec Analysis</b>                         |           |        |             |        |       |       |    |         |          |      |        |        |
| <i>Alphaspec Th, Solid "Dry Weight Corrected"</i>      |           |        |             |        |       |       |    |         |          |      |        |        |
| Thorium-228  |           | 1.68   | +/-0.262    | 0.0319 | 0.050 | pCi/g |    | KXM     | 09/08/09 | 1408 | 899594 | 1      |
|  |           |        |             |        |       |       |    |         |          |      | 4      |        |
| Thorium-230  |           | 1.33   | +/-0.238    | 0.117  | 0.050 | pCi/g |    |         |          |      |        |        |
| Thorium-232  |           | 1.77   | +/-0.272    | 0.101  | 0.100 | pCi/g |    |         |          |      |        |        |
| <i>Alphaspec U, Solid "Dry Weight Corrected"</i>       |           |        |             |        |       |       |    |         |          |      |        |        |
| Uranium-233/234  |           | 1.72   | +/-0.121    | 0.0271 | 0.040 | pCi/g |    | KXM     | 09/04/09 | 1442 | 899595 | 2      |
|  |           |        |             |        |       |       |    |         |          |      | 4      |        |
| Uranium-235/236  |           | 0.120  | +/-0.037    | 0.0261 | 0.040 | pCi/g |    |         |          |      |        |        |
| Uranium-238  |           | 1.36   | +/-0.107    | 0.0169 | 0.040 | pCi/g |    |         |          |      |        |        |
| <b>Rad Gas Flow Proportional Counting</b>              |           |        |             |        |       |       |    |         |          |      |        |        |
| <i>Gas Flow Radium 228 "Dry Weight Corrected"</i>      |           |        |             |        |       |       |    |         |          |      |        |        |
| Radium-228   |           | 0.746  | +/-0.278    | 0.431  | 0.500 | pCi/g |    | JXC5    | 08/24/09 | 1715 | 893087 | 3      |
| <b>Rad Radium-226</b>                                  |           |        |             |        |       |       |    |         |          |      |        |        |
| <i>Lucas Cell, Ra226, solid "Dry Weight Corrected"</i> |           |        |             |        |       |       |    |         |          |      |        |        |
| Radium-226   |           | 1.23   | +/-0.281    | 0.151  | 0.500 | pCi/g |    | KSD1    | 09/04/09 | 1720 | 893458 | 4      |

**The following Prep Methods were performed**

| Method        | Description                | Analyst | Date     | Time | Prep Batch |
|---------------|----------------------------|---------|----------|------|------------|
| Dry Soil Prep | Dry Soil Prep GL-RAD-A-021 | CXC1    | 08/11/09 | 1623 | 892846     |

**The following Analytical Methods were performed**

| Method | Description                         | Analyst Comments |
|--------|-------------------------------------|------------------|
| 1      | DOE EML HASL-300, Th-01-RC Modified |                  |
| 2      | DOE EML HASL-300, U-02-RC Modified  |                  |
| 3      | EPA 904.0/SW846 9320 Modified       |                  |
| 4      | EPA 903.1 Modified                  |                  |

| Surrogate/Tracer recovery | Test                                       | Result | Nominal | Recovery% | Acceptable Limits |
|---------------------------|--|--------|---------|-----------|-------------------|
| Actinium-227 Tracer       | Alphaspec Th, Solid "Dry Weight Corrected" |        |         | 64.3      | (15%-125%)        |
| Uranium-232 Tracer        | Alphaspec U, Solid "Dry Weight Corrected"  |        |         | 105       | (15%-125%)        |
| Barium-133 Tracer         | Gas Flow Radium 228 "Dry Weight Corrected" |        |         | 88.8      | (25%-125%)        |

# GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Certificate of Analysis

Company : Northgate Environmental Management, Inc.  
 Address : 1100 Quail St., Suite 102  
 Newport Beach, California 92660

Report Date: September 10, 2009

Contact: Mr. Frank Hagar  
 Project: **Tronox Henderson**

|                   |                 |            |               |
|-------------------|-----------------|------------|---------------|
| Client Sample ID: | SA158-20B       | Project:   | KERRHenderson |
| Sample ID:        | 234964018       | Client ID: | KERR003       |
| Matrix:           | SO              |            |               |
| Collect Date:     | 10-AUG-09 10:02 |            |               |
| Receive Date:     | 11-AUG-09       |            |               |
| Collector:        | Client          |            |               |

| Parameter  | Qualifier | Result | Uncertainty | DL     | RL    | Units | DF | Analyst | Date     | Time | Batch  | Method |
|--|-----------|--------|-------------|--------|-------|-------|----|---------|----------|------|--------|--------|
| <b>Rad Alpha Spec Analysis</b>                         |           |        |             |        |       |       |    |         |          |      |        |        |
| <i>Alphaspec Th, Solid "Dry Weight Corrected"</i>      |           |        |             |        |       |       |    |         |          |      |        |        |
| Thorium-228  |           | 2.27   | +/-0.354    | 0.182  | 0.050 | pCi/g |    | KXM     | 09/08/09 | 1408 | 899594 | 1      |
|  |           |        |             |        |       |       |    |         |          |      | 4      |        |
| Thorium-230  |           | 2.63   | +/-0.377    | 0.166  | 0.050 | pCi/g |    |         |          |      |        |        |
| Thorium-232  |           | 2.01   | +/-0.329    | 0.149  | 0.100 | pCi/g |    |         |          |      |        |        |
| <i>Alphaspec U, Solid "Dry Weight Corrected"</i>       |           |        |             |        |       |       |    |         |          |      |        |        |
| Uranium-233/234  |           | 2.25   | +/-0.139    | 0.0214 | 0.040 | pCi/g |    | KXM     | 09/04/09 | 1442 | 899595 | 2      |
|  |           |        |             |        |       |       |    |         |          |      | 4      |        |
| Uranium-235/236  |           | 0.0772 | +/-0.0296   | 0.0211 | 0.040 | pCi/g |    |         |          |      |        |        |
| Uranium-238  |           | 1.80   | +/-0.124    | 0.0171 | 0.040 | pCi/g |    |         |          |      |        |        |
| <b>Rad Gas Flow Proportional Counting</b>              |           |        |             |        |       |       |    |         |          |      |        |        |
| <i>Gas Flow Radium 228 "Dry Weight Corrected"</i>      |           |        |             |        |       |       |    |         |          |      |        |        |
| Radium-228   |           | 0.776  | +/-0.317    | 0.419  | 0.500 | pCi/g |    | JXC5    | 08/24/09 | 1534 | 893087 | 3      |
| <b>Rad Radium-226</b>                                  |           |        |             |        |       |       |    |         |          |      |        |        |
| <i>Lucas Cell, Ra226, solid "Dry Weight Corrected"</i> |           |        |             |        |       |       |    |         |          |      |        |        |
| Radium-226   |           | 1.76   | +/-0.356    | 0.263  | 0.500 | pCi/g |    | KSD1    | 09/04/09 | 1720 | 893458 | 4      |

**The following Prep Methods were performed**

| Method        | Description                | Analyst | Date     | Time | Prep Batch |
|---------------|----------------------------|---------|----------|------|------------|
| Dry Soil Prep | Dry Soil Prep GL-RAD-A-021 | CXC1    | 08/11/09 | 1623 | 892846     |

**The following Analytical Methods were performed**

| Method | Description                         | Analyst Comments |
|--------|-------------------------------------|------------------|
| 1      | DOE EML HASL-300, Th-01-RC Modified |                  |
| 2      | DOE EML HASL-300, U-02-RC Modified  |                  |
| 3      | EPA 904.0/SW846 9320 Modified       |                  |
| 4      | EPA 903.1 Modified                  |                  |

| Surrogate/Tracer recovery | Test                                       | Result | Nominal | Recovery% | Acceptable Limits |
|---------------------------|--|--------|---------|-----------|-------------------|
| Actinium-227 Tracer       | Alphaspec Th, Solid "Dry Weight Corrected" |        |         | 50.4      | (15%-125%)        |
| Uranium-232 Tracer        | Alphaspec U, Solid "Dry Weight Corrected"  |        |         | 107       | (15%-125%)        |
| Barium-133 Tracer         | Gas Flow Radium 228 "Dry Weight Corrected" |        |         | 77.1      | (25%-125%)        |

# GEL LABORATORIES LLC

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## Certificate of Analysis

Company : Northgate Environmental Management, Inc.  
 Address : 1100 Quail St., Suite 102  
 Newport Beach, California 92660

Report Date: September 10, 2009

Contact: Mr. Frank Hagar  
 Project: **Tronox Henderson**

|                   |                 |            |               |
|-------------------|-----------------|------------|---------------|
| Client Sample ID: | SA158-31B       | Project:   | KERRHenderson |
| Sample ID:        | 234964019       | Client ID: | KERR003       |
| Matrix:           | SO              |            |               |
| Collect Date:     | 10-AUG-09 10:21 |            |               |
| Receive Date:     | 11-AUG-09       |            |               |
| Collector:        | Client          |            |               |

| Parameter  | Qualifier | Result | Uncertainty | DL     | RL    | Units | DF | Analyst | Date     | Time | Batch  | Method |
|--|-----------|--------|-------------|--------|-------|-------|----|---------|----------|------|--------|--------|
| <b>Rad Alpha Spec Analysis</b>                         |           |        |             |        |       |       |    |         |          |      |        |        |
| <i>Alphaspec Th, Solid "Dry Weight Corrected"</i>      |           |        |             |        |       |       |    |         |          |      |        |        |
| Thorium-228  |           | 2.04   | +/-0.298    | 0.144  | 0.050 | pCi/g |    | KXM     | 09/08/09 | 1409 | 899594 | 1      |
|  |           |        |             |        |       |       |    |         |          |      | 4      |        |
| Thorium-230  |           | 3.78   | +/-0.395    | 0.0818 | 0.050 | pCi/g |    |         |          |      |        |        |
| Thorium-232  |           | 1.56   | +/-0.265    | 0.164  | 0.100 | pCi/g |    |         |          |      |        |        |
| <i>Alphaspec U, Solid "Dry Weight Corrected"</i>       |           |        |             |        |       |       |    |         |          |      |        |        |
| Uranium-233/234  |           | 2.99   | +/-0.183    | 0.0463 | 0.040 | pCi/g |    | KXM     | 09/04/09 | 1442 | 899595 | 2      |
|  |           |        |             |        |       |       |    |         |          |      | 4      |        |
| Uranium-235/236  |           | 0.213  | +/-0.0547   | 0.0271 | 0.040 | pCi/g |    |         |          |      |        |        |
| Uranium-238  |           | 2.88   | +/-0.179    | 0.0384 | 0.040 | pCi/g |    |         |          |      |        |        |
| <b>Rad Gas Flow Proportional Counting</b>              |           |        |             |        |       |       |    |         |          |      |        |        |
| <i>Gas Flow Radium 228 "Dry Weight Corrected"</i>      |           |        |             |        |       |       |    |         |          |      |        |        |
| Radium-228   |           | 0.622  | +/-0.296    | 0.391  | 0.500 | pCi/g |    | JXC5    | 08/24/09 | 1356 | 893087 | 3      |
| <b>Rad Radium-226</b>                                  |           |        |             |        |       |       |    |         |          |      |        |        |
| <i>Lucas Cell, Ra226, solid "Dry Weight Corrected"</i> |           |        |             |        |       |       |    |         |          |      |        |        |
| Radium-226   |           | 2.70   | +/-0.473    | 0.312  | 0.500 | pCi/g |    | KSD1    | 09/04/09 | 1755 | 893458 | 4      |

**The following Prep Methods were performed**

| Method        | Description                | Analyst | Date     | Time | Prep Batch |
|---------------|----------------------------|---------|----------|------|------------|
| Dry Soil Prep | Dry Soil Prep GL-RAD-A-021 | CXC1    | 08/11/09 | 1623 | 892846     |

**The following Analytical Methods were performed**

| Method | Description                         | Analyst Comments |
|--------|-------------------------------------|------------------|
| 1      | DOE EML HASL-300, Th-01-RC Modified |                  |
| 2      | DOE EML HASL-300, U-02-RC Modified  |                  |
| 3      | EPA 904.0/SW846 9320 Modified       |                  |
| 4      | EPA 903.1 Modified                  |                  |

| Surrogate/Tracer recovery | Test                                       | Result | Nominal | Recovery% | Acceptable Limits |
|---------------------------|--|--------|---------|-----------|-------------------|
| Actinium-227 Tracer       | Alphaspec Th, Solid "Dry Weight Corrected" |        |         | 63.6      | (15%-125%)        |
| Uranium-232 Tracer        | Alphaspec U, Solid "Dry Weight Corrected"  |        |         | 81.0      | (15%-125%)        |
| Barium-133 Tracer         | Gas Flow Radium 228 "Dry Weight Corrected" |        |         | 81.4      | (25%-125%)        |



# GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Certificate of Analysis

Company : Northgate Environmental  
Management, Inc.  
Address : 1100 Quail St., Suite 102  
Newport Beach, California 92660

Report Date: September 10, 2009

Contact: Mr. Frank Hagar  
Project: **Tronox Henderson**

|                   |                 |            |               |
|-------------------|-----------------|------------|---------------|
| Client Sample ID: | EB081009-SO2    | Project:   | KERRHenderson |
| Sample ID:        | 234964020       | Client ID: | KERR003       |
| Matrix:           | SO              |            |               |
| Collect Date:     | 10-AUG-09 12:45 |            |               |
| Receive Date:     | 11-AUG-09       |            |               |
| Collector:        | Client          |            |               |

| Parameter                                      | Qualifier | Result   | Uncertainty | DL      | RL    | Units | DF | AnalystDate   | Time | Batch  | Method |
|--|-----------|----------|-------------|---------|-------|-------|----|---------------|------|--------|--------|
| <b>Rad Alpha Spec Analysis</b>                 |           |          |             |         |       |       |    |               |      |        |        |
| <i>Alphaspec Th, Liquid "As Received"</i>      |           |          |             |         |       |       |    |               |      |        |        |
| Thorium-228                                    |           | 0.0416   | +/-0.0224   | 0.0212  | 0.030 | pCi/L |    | JXD2 08/19/09 | 1229 | 893944 | 1      |
| Thorium-230                                    | U         | 0.00554  | +/-0.00768  | 0.00831 | 0.030 | pCi/L |    |               |      |        |        |
| Thorium-232                                    | U         | -0.00277 | +/-0.0094   | 0.0265  | 0.030 | pCi/L |    |               |      |        |        |
| <i>Alphaspec U, Liquid "As Received"</i>       |           |          |             |         |       |       |    |               |      |        |        |
| Uranium-233/234                                | U         | 0.00748  | +/-0.0105   | 0.018   | 0.030 | pCi/L |    | JXD2 08/28/09 | 1604 | 893946 | 2      |
| Uranium-235/236                                | U         | 0.00     | +/-0.00569  | 0.0087  | 0.030 | pCi/L |    |               |      |        |        |
| Uranium-238                                    | U         | -0.00469 | +/-0.0092   | 0.026   | 0.030 | pCi/L |    |               |      |        |        |
| <b>Rad Gas Flow Proportional Counting</b>      |           |          |             |         |       |       |    |               |      |        |        |
| <i>GFPC, Ra228, Liquid "As Received"</i>       |           |          |             |         |       |       |    |               |      |        |        |
| Radium-228                                     | U         | 1.68     | +/-1.42     | 2.26    | 3.00  | pCi/L |    | MXS2 08/20/09 | 1533 | 894564 | 3      |
| <b>Rad Radium-226</b>                          |           |          |             |         |       |       |    |               |      |        |        |
| <i>Lucas Cell, Ra226, liquid "As Received"</i> |           |          |             |         |       |       |    |               |      |        |        |
| Radium-226                                     | U         | 0.224    | +/-0.208    | 0.330   | 1.00  | pCi/L |    | KSD1 09/02/09 | 0750 | 896543 | 4      |

**The following Analytical Methods were performed**

| Method | Description                         | Analyst Comments |
|--------|-------------------------------------|------------------|
| 1      | DOE EML HASL-300, Th-01-RC Modified |                  |
| 2      | DOE EML HASL-300, U-02-RC Modified  |                  |
| 3      | EPA 904.0/SW846 9320 Modified       |                  |
| 4      | EPA 903.1 Modified                  |                  |

| Surrogate/Tracer recovery | Test                               | Result | Nominal | Recovery% | Acceptable Limits |
|---------------------------|------------------------------------|--------|---------|-----------|-------------------|
| Actinium-227 Tracer       | Alphaspec Th, Liquid "As Received" |        |         | 77.1      | (15%-125%)        |
| Uranium-232 Tracer        | Alphaspec U, Liquid "As Received"  |        |         | 93.5      | (15%-125%)        |
| Barium-133 Tracer         | GFPC, Ra228, Liquid "As Received"  |        |         | 77.9      | (15%-125%)        |

# QUALITY CONTROL DATA

# GEL LABORATORIES LLC

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

## QC Summary

Report Date: September 10, 2009

Page 1 of 5

Northgate Environmental Management, Inc.

1100 Quail St., Suite 102  
Newport Beach, California

Contact: Mr. Frank Hagar

Workorder: 234964

| Parmname              | NOM    | Sample | Qual | QC         | Units | RPD%   | REC% | Range      | Anlst | Date     | Time  |
|-----------------------|--------|--------|------|------------|-------|--------|------|------------|-------|----------|-------|
| <b>Rad Alpha Spec</b> |        |        |      |            |       |        |      |            |       |          |       |
| Batch                 | 893944 |        |      |            |       |        |      |            |       |          |       |
| QC1201902401          | LCS    |        |      |            |       |        |      |            |       |          |       |
| Thorium-228           |        |        | U    | 0.0148     | pCi/L |        |      |            | JXD2  | 08/19/09 | 12:29 |
|                       |        |        |      | +/-0.0154  |       |        |      |            |       |          |       |
| Thorium-230           | 2.68   |        |      | 3.13       | pCi/L |        | 117  | (75%-125%) |       |          |       |
|                       |        |        |      | +/-0.189   |       |        |      |            |       |          |       |
| Thorium-232           |        |        | U    | 0.00296    | pCi/L |        |      | (75%-125%) |       |          |       |
|                       |        |        |      | +/-0.013   |       |        |      |            |       |          |       |
| QC1201903406          | LCSD   |        |      |            |       |        |      |            |       |          |       |
| Thorium-228           |        |        |      | 0.030      | pCi/L | 67.8   |      |            |       | 08/19/09 | 12:29 |
|                       |        |        |      | +/-0.0207  |       |        |      |            |       |          |       |
| Thorium-230           | 2.68   |        |      | 3.23       | pCi/L | 3.14   | 121  | (0%-20%)   |       |          |       |
|                       |        |        |      | +/-0.184   |       |        |      |            |       |          |       |
| Thorium-232           |        |        | U    | 0.00272    | pCi/L | 8.27   |      | (0%-20%)   |       |          |       |
|                       |        |        |      | +/-0.0119  |       |        |      |            |       |          |       |
| QC1201902396          | MB     |        |      |            |       |        |      |            |       |          |       |
| Thorium-228           |        |        |      | 0.024      | pCi/L |        |      |            |       | 08/19/09 | 12:29 |
|                       |        |        |      | +/-0.0192  |       |        |      |            |       |          |       |
| Thorium-230           |        |        | U    | 0.00399    | pCi/L |        |      |            |       |          |       |
|                       |        |        |      | +/-0.0135  |       |        |      |            |       |          |       |
| Thorium-232           |        |        | U    | 0.00399    | pCi/L |        |      |            |       |          |       |
|                       |        |        |      | +/-0.00782 |       |        |      |            |       |          |       |
| Batch                 | 893946 |        |      |            |       |        |      |            |       |          |       |
| QC1201902407          | LCS    |        |      |            |       |        |      |            |       |          |       |
| Uranium-233/234       |        |        |      | 2.91       | pCi/L |        |      |            | JXD2  | 08/22/09 | 17:58 |
|                       |        |        |      | +/-0.161   |       |        |      |            |       |          |       |
| Uranium-235/236       |        |        |      | 0.136      | pCi/L |        |      |            |       |          |       |
|                       |        |        |      | +/-0.0401  |       |        |      |            |       |          |       |
| Uranium-238           | 3.15   |        |      | 3.05       | pCi/L |        | 96.8 | (75%-125%) |       |          |       |
|                       |        |        |      | +/-0.164   |       |        |      |            |       |          |       |
| QC1201903407          | LCSD   |        |      |            |       |        |      |            |       |          |       |
| Uranium-233/234       |        |        |      | 2.91       | pCi/L | 0.0755 |      |            |       | 08/22/09 | 17:58 |
|                       |        |        |      | +/-0.172   |       |        |      |            |       |          |       |
| Uranium-235/236       |        |        |      | 0.197      | pCi/L | 36.7   |      |            |       |          |       |
|                       |        |        |      | +/-0.0499  |       |        |      |            |       |          |       |
| Uranium-238           | 3.15   |        |      | 3.00       | pCi/L | 1.65   | 95.2 | (0%-20%)   |       |          |       |
|                       |        |        |      | +/-0.172   |       |        |      |            |       |          |       |
| QC1201902402          | MB     |        |      |            |       |        |      |            |       |          |       |
| Uranium-233/234       |        |        | U    | -0.00349   | pCi/L |        |      |            |       | 08/22/09 | 17:58 |
|                       |        |        |      | +/-0.0139  |       |        |      |            |       |          |       |
| Uranium-235/236       |        |        | U    | 0.00       | pCi/L |        |      |            |       |          |       |
|                       |        |        |      | +/-0.00935 |       |        |      |            |       |          |       |
| Uranium-238           |        |        | U    | 0.00546    | pCi/L |        |      |            |       |          |       |

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## QC Summary

Workorder: 234964

Page 2 of 5

| Parmname              | NOM       | Sample | Qual | QC         | Units     | RPD%  | REC% | Range       | Anlst | Date     | Time  |
|-----------------------|-----------|--------|------|------------|-----------|-------|------|-------------|-------|----------|-------|
| <b>Rad Alpha Spec</b> |           |        |      |            |           |       |      |             |       |          |       |
| Batch                 | 893946    |        |      |            |           |       |      |             |       |          |       |
|                       |           |        |      | +/-0.00757 |           |       |      |             |       |          |       |
| Batch                 | 899594    |        |      |            |           |       |      |             |       |          |       |
| QC1201916363          | 234964010 | DUP    |      |            |           |       |      |             |       |          |       |
| Thorium-228           |           |        |      | 1.77       | 1.61      | pCi/g | 9.47 | (0% - 20%)  | KXM4  | 09/08/09 | 14:08 |
|                       |           |        |      | +/-0.287   | +/-0.270  |       |      |             |       |          |       |
| Thorium-230           |           |        |      | 1.05       | 1.11      | pCi/g | 5.56 | (0% - 20%)  |       |          |       |
|                       |           |        |      | +/-0.211   | +/-0.212  |       |      |             |       |          |       |
| Thorium-232           |           |        |      | 1.45       | 1.42      | pCi/g | 2.09 | (0% - 20%)  |       |          |       |
|                       |           |        |      | +/-0.249   | +/-0.243  |       |      |             |       |          |       |
| QC1201916365          | LCS       |        |      |            |           |       |      |             |       |          |       |
| Thorium-228           |           |        | U    | 0.0954     |           | pCi/g |      |             |       | 09/08/09 | 12:05 |
|                       |           |        |      | +/-0.0802  |           |       |      |             |       |          |       |
| Thorium-230           | 8.26      |        |      | 9.32       |           | pCi/g | 113  | (75%-125%)  |       |          |       |
|                       |           |        |      | +/-0.494   |           |       |      |             |       |          |       |
| Thorium-232           |           |        | U    | 0.00       |           | pCi/g |      | (75%-125%)  |       |          |       |
|                       |           |        |      | +/-0.0376  |           |       |      |             |       |          |       |
| QC1201916362          | MB        |        |      |            |           |       |      |             |       |          |       |
| Thorium-228           |           |        | U    | 0.0428     |           | pCi/g |      |             |       | 09/08/09 | 14:07 |
|                       |           |        |      | +/-0.0804  |           |       |      |             |       |          |       |
| Thorium-230           |           |        | U    | 0.00851    |           | pCi/g |      |             |       |          |       |
|                       |           |        |      | +/-0.0289  |           |       |      |             |       |          |       |
| Thorium-232           |           |        | U    | -0.00851   |           | pCi/g |      |             |       |          |       |
|                       |           |        |      | +/-0.0289  |           |       |      |             |       |          |       |
| QC1201916364          | 234964010 | MS     |      |            |           |       |      |             |       |          |       |
| Thorium-228           |           |        |      | 1.77       | 1.70      | pCi/g |      |             |       | 09/08/09 | 12:05 |
|                       |           |        |      | +/-0.287   | +/-0.235  |       |      |             |       |          |       |
| Thorium-230           | 8.39      |        |      | 1.05       | 9.43      | pCi/g | 99.9 | (75%-125%)  |       |          |       |
|                       |           |        |      | +/-0.211   | +/-0.493  |       |      |             |       |          |       |
| Thorium-232           |           |        |      | 1.45       | 1.43      | pCi/g |      | (75%-125%)  |       |          |       |
|                       |           |        |      | +/-0.249   | +/-0.196  |       |      |             |       |          |       |
| Batch                 | 899595    |        |      |            |           |       |      |             |       |          |       |
| QC1201916367          | 234964010 | DUP    |      |            |           |       |      |             |       |          |       |
| Uranium-233/234       |           |        |      | 1.19       | 1.11      | pCi/g | 6.91 | (0% - 20%)  | KXM4  | 09/04/09 | 15:21 |
|                       |           |        |      | +/-0.128   | +/-0.0983 |       |      |             |       |          |       |
| Uranium-235/236       |           |        |      | 0.0439     | 0.087     | pCi/g | 65.9 | (0% - 100%) |       |          |       |
|                       |           |        |      | +/-0.0298  | +/-0.0311 |       |      |             |       |          |       |
| Uranium-238           |           |        |      | 1.20       | 1.09      | pCi/g | 9.23 | (0% - 20%)  |       |          |       |
|                       |           |        |      | +/-0.128   | +/-0.0967 |       |      |             |       |          |       |
| QC1201916369          | LCS       |        |      |            |           |       |      |             |       |          |       |
| Uranium-233/234       |           |        |      |            | 4.38      | pCi/g |      |             |       | 09/04/09 | 14:41 |
|                       |           |        |      |            | +/-0.209  |       |      |             |       |          |       |
| Uranium-235/236       |           |        |      |            | 0.195     | pCi/g |      |             |       |          |       |
|                       |           |        |      |            | +/-0.0489 |       |      |             |       |          |       |
| Uranium-238           | 4.75      |        |      |            | 4.74      | pCi/g | 99.8 | (75%-125%)  |       |          |       |
|                       |           |        |      |            | +/-0.217  |       |      |             |       |          |       |

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## QC Summary

Workorder: 234964

Page 3 of 5

| Parmname              | NOM  | Sample    | Qual | QC        | Units | RPD% | REC% | Range       | Anlst | Date     | Time  |
|-----------------------|------|-----------|------|-----------|-------|------|------|-------------|-------|----------|-------|
| <b>Rad Alpha Spec</b> |      |           |      |           |       |      |      |             |       |          |       |
| Batch                 |      | 899595    |      |           |       |      |      |             |       |          |       |
| QC1201916366          |      | MB        |      |           |       |      |      |             |       |          |       |
| Uranium-233/234       |      |           |      | 0.0331    | pCi/g |      |      |             | KXM4  | 09/04/09 | 14:42 |
|                       |      |           |      | +/-0.0208 |       |      |      |             |       |          |       |
| Uranium-235/236       |      |           | U    | 0.00823   | pCi/g |      |      |             |       |          |       |
|                       |      |           |      | +/-0.0142 |       |      |      |             |       |          |       |
| Uranium-238           |      |           |      | 0.020     | pCi/g |      |      |             |       |          |       |
|                       |      |           |      | +/-0.013  |       |      |      |             |       |          |       |
| QC1201916368          |      | 234964010 | MS   |           |       |      |      |             |       |          |       |
| Uranium-233/234       |      |           |      | 1.19      | pCi/g |      |      |             |       | 09/04/09 | 14:41 |
|                       |      |           |      | +/-0.128  |       |      |      |             |       |          |       |
| Uranium-235/236       |      |           |      | 0.0439    | pCi/g |      |      |             |       |          |       |
|                       |      |           |      | +/-0.0298 |       |      |      |             |       |          |       |
| Uranium-238           | 4.95 |           |      | 1.20      | pCi/g |      | 96.4 | (75%-125%)  |       |          |       |
|                       |      |           |      | +/-0.128  |       |      |      |             |       |          |       |
| <b>Rad Gas Flow</b>   |      |           |      |           |       |      |      |             |       |          |       |
| Batch                 |      | 893087    |      |           |       |      |      |             |       |          |       |
| QC1201899995          |      | 234964010 | DUP  |           |       |      |      |             |       |          |       |
| Radium-228            |      |           |      | 0.663     | pCi/g | 44.1 |      | (0% - 100%) | JXC5  | 08/24/09 | 13:57 |
|                       |      |           |      | +/-0.287  |       |      |      |             |       |          |       |
| QC1201899997          |      | LCS       |      |           |       |      |      |             |       |          |       |
| Radium-228            | 7.94 |           |      | 8.06      | pCi/g |      | 101  | (75%-125%)  |       | 08/24/09 | 13:57 |
|                       |      |           |      | +/-0.800  |       |      |      |             |       |          |       |
| QC1201899994          |      | MB        |      |           |       |      |      |             |       |          |       |
| Radium-228            |      |           | U    | 0.394     | pCi/g |      |      |             |       | 08/24/09 | 15:34 |
|                       |      |           |      | +/-0.263  |       |      |      |             |       |          |       |
| QC1201899996          |      | 234964010 | MS   |           |       |      |      |             |       |          |       |
| Radium-228            | 81.1 |           |      | 0.663     | pCi/g |      | 98   | (75%-125%)  |       | 08/24/09 | 13:57 |
|                       |      |           |      | +/-0.287  |       |      |      |             |       |          |       |
| Batch                 |      | 894564    |      |           |       |      |      |             |       |          |       |
| QC1201903942          |      | 234964020 | DUP  |           |       |      |      |             |       |          |       |
| Radium-228            |      |           | U    | 1.68      | pCi/L | 29.4 |      | (0% - 100%) | MXS2  | 08/20/09 | 15:33 |
|                       |      |           |      | +/-1.42   |       |      |      |             |       |          |       |
| QC1201903944          |      | LCS       |      |           |       |      |      |             |       |          |       |
| Radium-228            | 40.5 |           |      | 33.8      | pCi/L |      | 83.5 | (75%-125%)  |       | 08/20/09 | 15:34 |
|                       |      |           |      | +/-4.03   |       |      |      |             |       |          |       |
| QC1201903941          |      | MB        |      |           |       |      |      |             |       |          |       |
| Radium-228            |      |           | U    | 0.743     | pCi/L |      |      |             |       | 08/20/09 | 15:33 |
|                       |      |           |      | +/-1.89   |       |      |      |             |       |          |       |
| QC1201903943          |      | 234964020 | MS   |           |       |      |      |             |       |          |       |
| Radium-228            | 40.5 |           | U    | 1.68      | pCi/L |      | 85.4 | (75%-125%)  |       | 08/20/09 | 15:33 |
|                       |      |           |      | +/-1.42   |       |      |      |             |       |          |       |
|                       |      |           |      | +/-3.62   |       |      |      |             |       |          |       |
| <b>Rad Ra-226</b>     |      |           |      |           |       |      |      |             |       |          |       |
| Batch                 |      | 893458    |      |           |       |      |      |             |       |          |       |
| QC1201900999          |      | 234964010 | DUP  |           |       |      |      |             |       |          |       |
| Radium-226            |      |           |      | 1.63      | pCi/g | 67.7 |      | (0% - 100%) | KSD1  | 09/04/09 | 17:55 |
|                       |      |           |      | +/-0.379  |       |      |      |             |       |          |       |
| QC1201901001          |      | LCS       |      |           |       |      |      |             |       |          |       |

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## QC Summary

Workorder: 234964

Page 4 of 5

| Parmname                   | NOM  | Sample   | Qual | QC       | Units | RPD% | REC% | Range       | Anlst | Date     | Time  |
|----------------------------|------|----------|------|----------|-------|------|------|-------------|-------|----------|-------|
| <b>Rad Ra-226</b>          |      |          |      |          |       |      |      |             |       |          |       |
| Batch                      |      | 893458   |      |          |       |      |      |             |       |          |       |
| Radium-226                 | 11.1 |          |      | 12.5     | pCi/g |      | 112  | (75%-125%)  |       | 09/04/09 | 18:40 |
|                            |      |          |      | +/-1.53  |       |      |      |             |       |          |       |
| QC1201900998 MB            |      |          |      |          |       |      |      |             |       |          |       |
| Radium-226                 |      |          | U    | 0.153    | pCi/g |      |      |             | KSD1  | 09/04/09 | 17:55 |
|                            |      |          |      | +/-0.153 |       |      |      |             |       |          |       |
| QC1201901000 234964010 MS  |      |          |      |          |       |      |      |             |       |          |       |
| Radium-226                 | 11.9 | 1.63     |      | 11.6     | pCi/g |      | 83.7 | (75%-125%)  |       | 09/04/09 | 17:55 |
|                            |      | +/-0.379 |      | +/-0.902 |       |      |      |             |       |          |       |
| Batch                      |      | 896543   |      |          |       |      |      |             |       |          |       |
| QC1201908845 234964020 DUP |      |          |      |          |       |      |      |             |       |          |       |
| Radium-226                 |      |          | U    | 0.224    | pCi/L | 70.3 |      | (0% - 100%) | KSD1  | 09/02/09 | 07:50 |
|                            |      |          |      | +/-0.208 |       |      |      |             |       |          |       |
| QC1201908848 LCS           |      |          |      |          |       |      |      |             |       |          |       |
| Radium-226                 | 24.2 |          |      | 20.4     | pCi/L |      | 84.5 | (75%-125%)  |       | 09/02/09 | 08:25 |
|                            |      |          |      | +/-1.19  |       |      |      |             |       |          |       |
| QC1201908843 MB            |      |          |      |          |       |      |      |             |       |          |       |
| Radium-226                 |      |          | U    | 0.221    | pCi/L |      |      |             |       | 09/02/09 | 07:50 |
|                            |      |          |      | +/-0.189 |       |      |      |             |       |          |       |
| QC1201908847 234964020 MS  |      |          |      |          |       |      |      |             |       |          |       |
| Radium-226                 | 121  |          | U    | 0.224    | pCi/L |      | 93.9 | (75%-125%)  |       | 09/02/09 | 08:25 |
|                            |      |          |      | +/-0.208 |       |      |      |             |       |          |       |
|                            |      |          |      | +/-6.96  |       |      |      |             |       |          |       |

**Notes:**

The Qualifiers in this report are defined as follows:

- \*\* Analyte is a surrogate compound
- < Result is less than value reported
- > Result is greater than value reported
- A The TIC is a suspected aldol-condensation product
- B For General Chemistry and Organic analysis the target analyte was detected in the associated blank.
- BD Results are either below the MDC or tracer recovery is low
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of the sample
- F Estimated Value
- H Analytical holding time was exceeded
- J Value is estimated
- M M if above MDC and less than LLD
- M Matrix Related Failure
- N/A RPD or %Recovery limits do not apply.
- ND Analyte concentration is not detected above the detection limit
- NJ Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- R Sample results are rejected

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## QC Summary

Workorder: 234964

Page 5 of 5

| Parmname | NOM | Sample Qual  | QC | Units | RPD% | REC% | Range | Anlst | Date | Time |
|----------|-----|--|----|-------|------|------|-------|-------|------|------|
| U        |     | Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.   |    |       |      |      |       |       |      |      |
| UI       |     | Gamma Spectroscopy--Uncertain identification   |    |       |      |      |       |       |      |      |
| X        |     | Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier                                     |    |       |      |      |       |       |      |      |
| Y        |     | QC Samples were not spiked with this compound  |    |       |      |      |       |       |      |      |
| ^        |     | RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry. |    |       |      |      |       |       |      |      |
| h        |     | Preparation or preservation holding time was exceeded  |    |       |      |      |       |       |      |      |

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more.

^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.

\* Indicates that a Quality Control parameter was not within specifications.

For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

**RAW DATA**



# THORIUM

### Radiochemistry Batch Checklist, Rev 9

Batch# 893944 Product: Th Date: 8/31/09

| Criteria:  | Yes | No | Comments       |
|--|-----|----|----------------|
| Sample Solids are less than or equal to 100 mg for GAB.  |     |    | N/A            |
| Samples have been blank corrected (if required)  |     |    | N/A            |
| If activity less 10* MDA/ MDC, error is 150% or less of sample activity. If greater 10* MDA/ MDC, error is 40% or less. If below the MDA/ MDC, error is okay.  | ✓   |    |                |
| Instrument source check is within limits.  | ✓   |    |                |
| Instrument bkg check is within limits.   | ✓   |    |                |
| Method RDL/ LLD has been met.  | ✓   |    |                |
| If duplicate activities are less 5* MDA/ MDC, then RPD is 100% or less. If greater 5* MDA/ MDC, then RPD 20% or less. If below the MDA/ MDC, the RPD is 0%.<br>Or meets the client's required RER acceptance criteria. | ✓   |    |                |
| Tracer yield is 15-125% . Carrier yield 25-125%.<br>Or meets the client's contract acceptance criteria.  |     | ✓  | NCR 727923     |
| Method blank is less than the RDL/ LLD.<br>(If rad samples, < 5% of lowest activity)   | ✓   |    | case narrative |
| Sample was run within hold time.   | ✓   |    |                |
| Sample was correctly preserved if required.  | ✓   |    |                |
| Smears Taken for Radioactive batches.  |     |    | N/A            |
| Method Spike and LCS are within 75-125% or meets the client's contract acceptance criteria.  | ✓   |    |                |
| No blank spaces on data forms.<br>All line outs initialed and dated.<br>No transcription errors are apparent.  | ✓   |    |                |
| Aux data is correct.   |     |    | N/A            |
| Client Special requirements page has been checked.   | ✓   |    |                |
| Raw Data and/ or spectrum are included and properly stated.  | ✓   |    |                |
| QC data entered into QC database and batch is in REWV  | ✓   |    |                |
| Hit notification complete (if necessary)   |     |    | N/A            |
| Batch entered into Case Narrative.   | ✓   |    |                |
| Batch non-conformances completed, if applicable.   | ✓   |    | NCR 727923     |
| Batch non-conformances second reviewed and disposition verified to be completed.   | ✓   |    | NCR 727923     |
| Aliquot Correction completed if required.  |     |    | N/A            |
| Review sample historical results if available<br>(If REMP, results above MDC have been verified by historical results, recount or re-analysis.)  | ✓   |    |                |

GEL Laboratories, LLC

revised 8/1/08

Primary Review Performed By: Jop LML 8/31/09

Secondary Review Performed By: [Signature] 8/31/09  
[Signature] 8/31/09

8/24

9/4

KERR

PV

# Thorium (Ac-227 Tracer) Que Sheet

17-AUG-09

Batch #: 893944 Analyst: JXD2 First Client Due Date: 04-SEP-09 Internal Due Date: 24-AUG-09  
 Tracer Isotope: Ac-227 Tracer Code: 0387-β-102 Expiration Date: 07/23/10 Vol: 0.1 Ac-227 Separation Date/Time: 07/17/09 17:45  
 LCS Isotope: Th-230 LCS Code: A-2796-J Expiration Date: 04/13/10 Vol: 0.1  
 Spike Isotope: Th-230 Spike Code: \_\_\_\_\_ Expiration Date: \_\_\_\_\_ Vol: \_\_\_\_\_  
 Prep Date: 08/17/09 Initials: JXD Pipet ID: 2971058 Balance ID: 16750207 Witness: MO 8/17/09

| Sample ID    | Client Description   | Type   | Hazard Code | Min CRDL  | Matrix | Client     | Collection Date | Pos. | Label # | Wet/Dry Aliquot (g D/F) | Th Det # |
|--------------|----------------------|--------|-------------|-----------|--------|------------|-----------------|------|---------|-------------------------|----------|
| 234654021-1  | EB080609-SO          | SAMPLE |             | .03 pCi/L | WATER  | KERR003    | 06-AUG-09       | 1    | 1       | 0.800                   | 201      |
| 234964020-1  | EB081009-SO2         | SAMPLE |             | .03 pCi/L | WATER  | KERR003    | 10-AUG-09       | 2    | 2       | 0.700                   | 202      |
| 1201902396-1 | MB for batch 893944  | MB     |             | .03 pCi/L | WATER  | QC ACCOUNT |                 | 3    | 3       | 0.800                   | 206      |
| 1201902401-1 | LCS for batch 893944 | LCS    |             | .03 pCi/L | WATER  | QC ACCOUNT |                 | 4    | 4       | 0.800                   | 198      |
| 1201903406-1 | LCS for batch 893944 | LCS    |             | .03 pCi/L | WATER  | QC ACCOUNT | 06-AUG-09       | 5    | 5       | 0.800                   | 205      |

Choose SOP Used: GL-RAD-A-038   
 GL-RAD-A-045 \_\_\_\_\_  
 GL-RAD-A-043 \_\_\_\_\_  
 GL-RAD-A-032 \_\_\_\_\_

Solid Sample Dissolution by: LEACH or DIGESTION  
 Circle One

Data Reviewed By: JXD 8/17/09  
8/28/09

GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 893944  
SAMPLE DATE : 18-AUG-2009 17:45:00

SAMPLE ID : S0234964020\_TH  
SAMPLE QTY: 0.800 L

DETECTOR NUMBER :78903  
AVERAGE %EFFICIENCY :26.3766  
% YIELD : 77.090

COUNT DATE:19-AUG-2009 12:29:16  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :JXD2

MS/MSD  
ID : A2796-J  
ISOTOPE : TH-230  
PCI/L : 2.675E+00

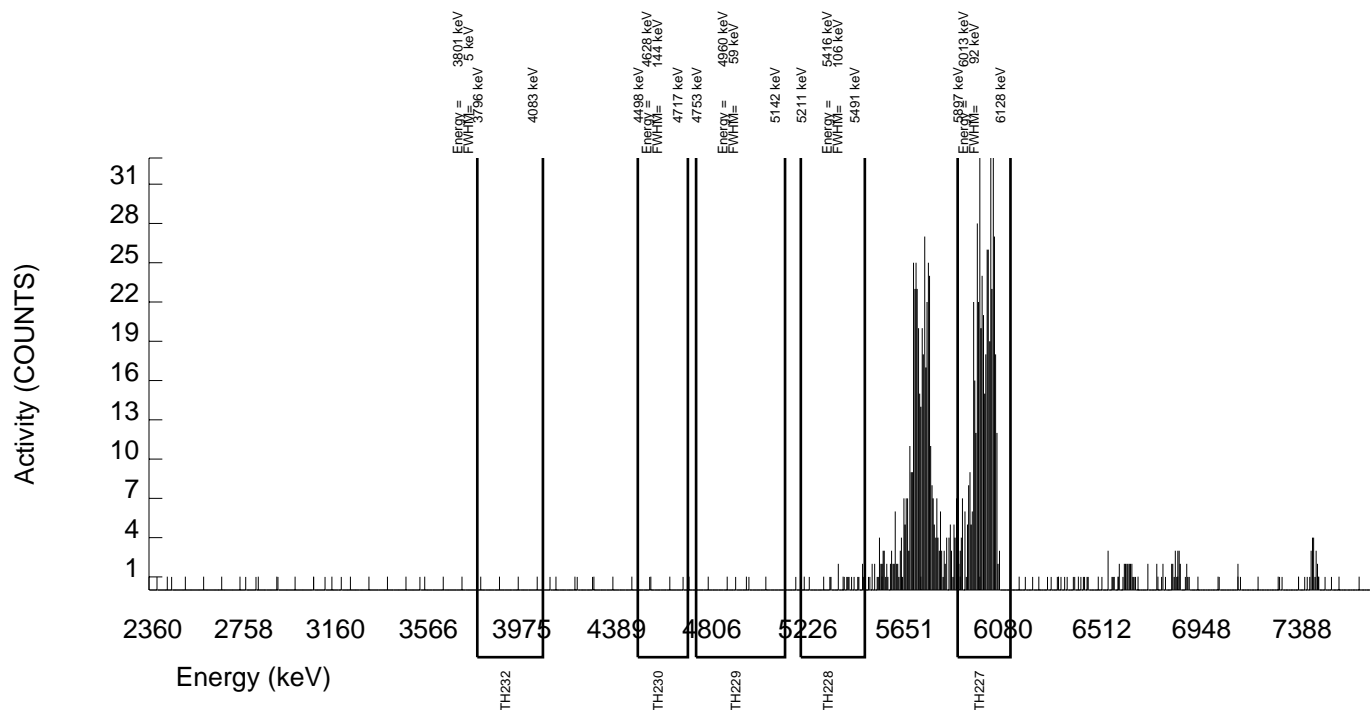
LCS/LCSD  
ID : A2796-J  
ISOTOPE : TH-230  
PCI/L : 2.675E+00

TRACER  
ID : 0387-B-102  
ISOTOPE : AC227  
NOMINAL : 3.91531 dpm  
RESULTS : 3.01831 dpm

LIB FILE : ENV\_ALPHA\_TH.N  
BKG FILE : B202.CNF;45  
BKG DATE : 16-AUG-2009  
EFF FILE : W202.CNF;32  
CAL DATE : 23-JUL-2009

NUCLIDE ACTIVITY SUMMARY

| NUCLIDE | ENERGY   | GROSS AREA | NET AREA | BKG AREA | BKG Sg | %ABUN    | ACTIVITY pCi/L | TPU 1.96-SIGMA | MDA pCi/L | Lc pCi/L | UNC pCi/L |
|---------|----------|------------|----------|----------|--------|----------|----------------|----------------|-----------|----------|-----------|
| AC-227  | 6038.010 | 520.000    | 520.000  | 0.000    | 0.0000 | 68.10000 | 2.20E+00       | 2.24E-01       | 1.27E-02  | 0.00E+00 | 1.89E-01  |
| TH-228  | 5363.000 | 16.000     | 15.000   | 1.000    | 1.0000 | 99.94000 | 4.16E-02       | 2.25E-02       | 2.12E-02  | 6.45E-03 | 2.24E-02  |
| TH229   | 4900.000 | 2.000      | 1.000    | 1.000    | 1.0000 | 99.52000 | 2.78E-03       | 9.45E-03       | 2.13E-02  | 6.47E-03 | 9.45E-03  |
| TH-230  | 4625.000 | 2.000      | 2.000    | 0.000    | 0.0000 | 100.0000 | 5.54E-03       | 7.68E-03       | 8.31E-03  | 0.00E+00 | 7.68E-03  |
| TH-232  | 3972.000 | 1.000      | -1.000   | 2.000    | 1.4142 | 100.0000 | -2.77E-03      | 9.40E-03       | 2.65E-02  | 9.11E-03 | 9.40E-03  |



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 893944  
SAMPLE DATE : 18-AUG-2009 17:45:00

SAMPLE ID : S1201902396\_TH  
SAMPLE QTY: 0.800 L

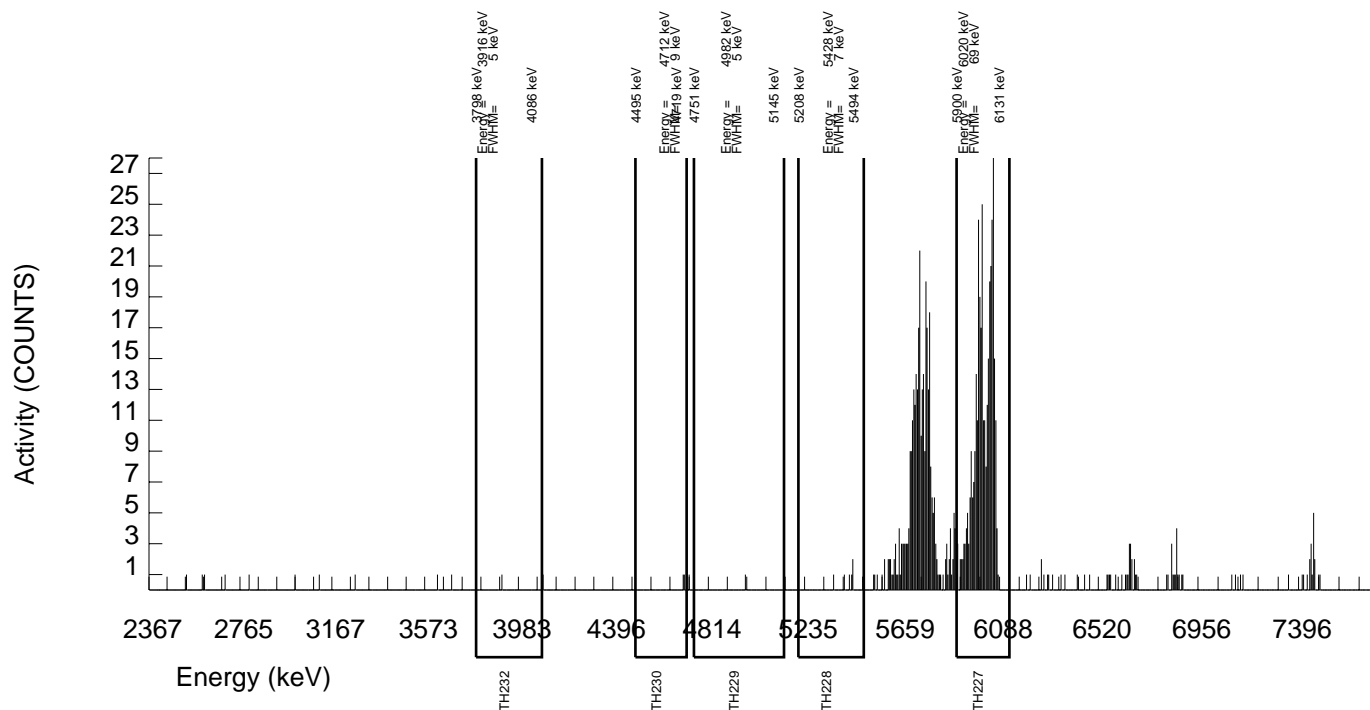
DETECTOR NUMBER :78909  
AVERAGE %EFFICIENCY :25.6293  
% YIELD : 55.079

COUNT DATE:19-AUG-2009 12:29:28  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :JXD2

|   |   |  |   |
|---|---|--|---|
| MS/MSD<br>ID : A2796-J<br>ISOTOPE : TH-230<br>PCI/L : 2.675E+00 | LCS/LCSD<br>ID : A2796-J<br>ISOTOPE : TH-230<br>PCI/L : 2.675E+00 | TRACER<br>ID : 0387-B-102<br>ISOTOPE : AC227<br>NOMINAL : 3.91531 dpm<br>RESULTS : 2.15651 dpm | LIB FILE : ENV_ALPHA_TH.N<br>BKG FILE : B206.CNF;45<br>BKG DATE : 16-AUG-2009<br>EFF FILE : W206.CNF;32<br>CAL DATE : 23-JUL-2009 |
|---|---|--|---|

NUCLIDE ACTIVITY SUMMARY

| NUCLIDE | ENERGY   | GROSS AREA | NET AREA | BKG AREA | BKG Sg | %ABUN    | ACTIVITY pCi/L | TPU 1.96-SIGMA | MDA pCi/L | Lc pCi/L | UNC pCi/L |
|---------|----------|------------|----------|----------|--------|----------|----------------|----------------|-----------|----------|-----------|
| AC-227  | 6038.010 | 361.000    | 361.000  | 0.000    | 0.0000 | 68.10000 | 2.20E+00       | 2.57E-01       | 1.83E-02  | 0.00E+00 | 2.27E-01  |
| TH-228  | 5363.000 | 6.000      | 6.000    | 0.000    | 0.0000 | 99.94000 | 2.40E-02       | 1.92E-02       | 1.20E-02  | 0.00E+00 | 1.92E-02  |
| TH229   | 4900.000 | 1.000      | -2.000   | 3.000    | 1.7321 | 99.52000 | -8.02E-03      | 1.57E-02       | 4.43E-02  | 1.61E-02 | 1.57E-02  |
| TH-230  | 4625.000 | 2.000      | 1.000    | 1.000    | 1.0000 | 100.0000 | 3.99E-03       | 1.35E-02       | 3.05E-02  | 9.28E-03 | 1.35E-02  |
| TH-232  | 3972.000 | 1.000      | 1.000    | 0.000    | 0.0000 | 100.0000 | 3.99E-03       | 7.82E-03       | 1.20E-02  | 0.00E+00 | 7.82E-03  |



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 893944  
SAMPLE DATE : 18-AUG-2009 17:45:00

SAMPLE ID : S1201902401\_TH  
SAMPLE QTY: 0.800 L

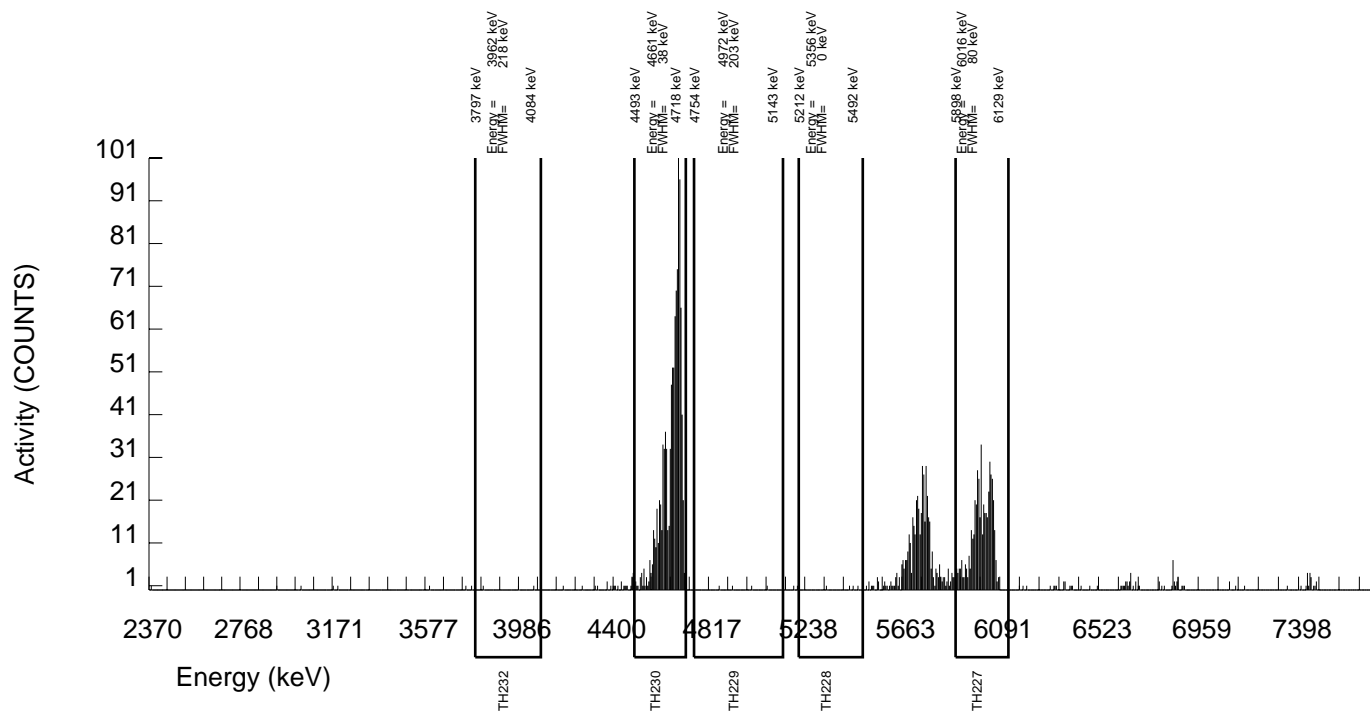
DETECTOR NUMBER :78895  
AVERAGE %EFFICIENCY :25.5422  
% YIELD : 74.556

COUNT DATE:19-AUG-2009 12:29:03  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :JXD2

|   |   |  |   |
|---|---|--|---|
| MS/MSD<br>ID : A2796-J<br>ISOTOPE : TH-230<br>PCI/L : 2.675E+00 | LCS/LCSD<br>ID : A2796-J<br>ISOTOPE : TH-230<br>PCI/L : 2.675E+00 | TRACER<br>ID : 0387-B-102<br>ISOTOPE : AC227<br>NOMINAL : 3.91531 dpm<br>RESULTS : 2.91909 dpm | LIB FILE : ENV_ALPHA_TH.N<br>BKG FILE : B198.CNF;45<br>BKG DATE : 16-AUG-2009<br>EFF FILE : W198.CNF;32<br>CAL DATE : 23-JUL-2009 |
|---|---|--|---|

NUCLIDE ACTIVITY SUMMARY

| NUCLIDE | ENERGY   | GROSS AREA | NET AREA | BKG AREA | BKG Sg | %ABUN    | ACTIVITY pCi/L | TPU 1.96-SIGMA | MDA pCi/L | Lc pCi/L | UNC pCi/L |
|---------|----------|------------|----------|----------|--------|----------|----------------|----------------|-----------|----------|-----------|
| AC-227  | 6038.010 | 488.000    | 487.000  | 1.000    | 1.0000 | 68.10000 | 2.20E+00       | 2.30E-01       | 3.46E-02  | 1.05E-02 | 1.96E-01  |
| TH-228  | 5363.000 | 6.000      | 5.000    | 1.000    | 1.0000 | 99.94000 | 1.48E-02       | 1.54E-02       | 2.27E-02  | 6.89E-03 | 1.54E-02  |
| TH229   | 4900.000 | 4.000      | 3.000    | 1.000    | 1.0000 | 99.52000 | 8.91E-03       | 1.30E-02       | 2.27E-02  | 6.91E-03 | 1.30E-02  |
| TH-230  | 4625.000 | 1058.000   | 1058.000 | 0.000    | 0.0000 | 100.0000 | 3.13E+00       | 2.53E-01       | 8.87E-03  | 0.00E+00 | 1.89E-01  |
| TH-232  | 3972.000 | 3.000      | 1.000    | 2.000    | 1.4142 | 100.0000 | 2.96E-03       | 1.30E-02       | 2.83E-02  | 9.73E-03 | 1.30E-02  |



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 893944  
SAMPLE DATE : 18-AUG-2009 17:45:00

SAMPLE ID : S1201903406\_TH  
SAMPLE QTY: 0.800 L

DETECTOR NUMBER :78908  
AVERAGE %EFFICIENCY :25.0334  
% YIELD : 82.632

COUNT DATE:19-AUG-2009 12:29:25  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :JXD2

MS/MSD  
ID : A2796-J  
ISOTOPE : TH-230  
PCI/L : 2.675E+00

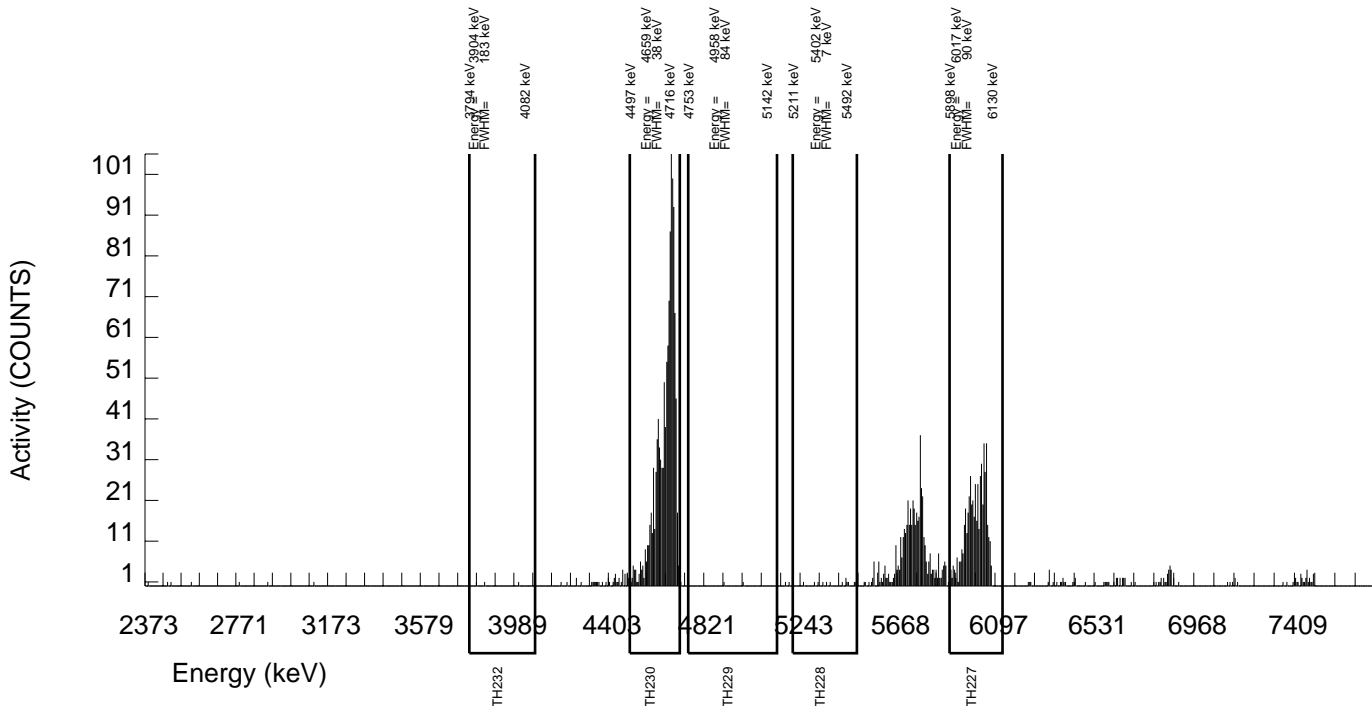
LCS/LCSD  
ID : A2796-J  
ISOTOPE : TH-230  
PCI/L : 2.675E+00

TRACER  
ID : 0387-B-102  
ISOTOPE : AC227  
NOMINAL : 3.91531 dpm  
RESULTS : 3.23531 dpm

LIB FILE : ENV\_ALPHA\_TH.N  
BKG FILE : B205.CNF;45  
BKG DATE : 16-AUG-2009  
EFF FILE : W205.CNF;32  
CAL DATE : 23-JUL-2009

NUCLIDE ACTIVITY SUMMARY

| NUCLIDE | ENERGY   | GROSS AREA | NET AREA | BKG AREA | BKG Sg | %ABUN    | ACTIVITY pCi/L | TPU 1.96-SIGMA | MDA pCi/L | Lc pCi/L | UNC pCi/L |
|---------|----------|------------|----------|----------|--------|----------|----------------|----------------|-----------|----------|-----------|
| AC-227  | 6038.010 | 530.000    | 529.000  | 1.000    | 1.0000 | 68.10000 | 2.20E+00       | 2.23E-01       | 3.19E-02  | 9.70E-03 | 1.88E-01  |
| TH-228  | 5363.000 | 13.000     | 11.000   | 2.000    | 1.4142 | 99.94000 | 3.00E-02       | 2.08E-02       | 2.61E-02  | 8.97E-03 | 2.07E-02  |
| TH229   | 4900.000 | 2.000      | 1.000    | 1.000    | 1.0000 | 99.52000 | 2.74E-03       | 9.29E-03       | 2.09E-02  | 6.36E-03 | 9.29E-03  |
| TH-230  | 4625.000 | 1188.000   | 1187.000 | 1.000    | 1.0000 | 100.0000 | 3.23E+00       | 2.54E-01       | 2.08E-02  | 6.33E-03 | 1.84E-01  |
| TH-232  | 3972.000 | 3.000      | 1.000    | 2.000    | 1.4142 | 100.0000 | 2.72E-03       | 1.19E-02       | 2.61E-02  | 8.96E-03 | 1.19E-02  |



### Radiochemistry Batch Checklist, Rev 9

Batch# 899594 Product: Th Date: 9/9/09

| Criteria:  | Yes | No | Comments       |
|--|-----|----|----------------|
| Sample Solids are less than or equal to 100 mg for GAB.  |     |    | N/A            |
| Samples have been blank corrected (if required)  |     |    | N/A            |
| If activity less 10* MDA/ MDC, error is 150% or less of sample activity. If greater 10* MDA/ MDC, error is 40% or less. If below the MDA/ MDC, error is okay.  | ✓   |    |                |
| Instrument source check is within limits.  | ✓   |    |                |
| Instrument bkg check is within limits.   | ✓   |    |                |
| Method RDL/ LLD has been met.  | ✓   |    | Case narrative |
| If duplicate activities are less 5* MDA/ MDC, then RPD is 100% or less. If greater 5* MDA/ MDC, then RPD 20% or less. If below the MDA/ MDC, the RPD is 0%.<br>Or meets the client's required RER acceptance criteria. | ✓   |    |                |
| Tracer yield is 15-125% . Carrier yield 25-125%.<br>Or meets the client's contract acceptance criteria.  |     | ✓  | NCR 731136     |
| Method blank is less than the RDL/ LLD.<br>(If rad samples, < 5% of lowest activity)   | ✓   |    |                |
| Sample was run within hold time.   | ✓   |    |                |
| Sample was correctly preserved if required.  |     |    | N/A            |
| Smears Taken for Radioactive batches.  |     |    | N/A            |
| Method Spike and LCS are within 75-125% or meets the client's contract acceptance criteria.  | ✓   |    |                |
| No blank spaces on data forms.<br>All line outs initialed and dated.   | ✓   |    |                |
| No transcription errors are apparent.  |     |    |                |
| Aux data is correct.   |     |    | N/A            |
| Client Special requirements page has been checked.   |     |    |                |
| Raw Data and/ or spectrum are included and properly stated.  | ✓   |    |                |
| QC data entered into QC database and batch is in REVW  | ✓   |    |                |
| Hit notification complete (if necessary)   | ✓   |    |                |
| Batch entered into Case Narrative.   | ✓   |    |                |
| Batch non-conformances completed, if applicable.   | ✓   |    | NCR 731136     |
| Batch non-conformances second reviewed and disposition verified to be completed.   | ✓   |    | NCR 731136     |
| Aliquot Correction completed if required.  |     |    | N/A            |
| Review sample historical results if available<br>(If REMP, results above MDC have been verified by historical results, recount or re-analysis.)  | ✓   |    |                |

GEL Laboratories, LLC

revised 8/1/08

Primary Review Performed By: Sop LMJ - 9/9/09

Secondary Review Performed By: [Signature] 9/9/09



✓P

# Thorium (Ac-227 Tracer) Que Sheet

02-SEP-09

Batch #: 899594 Analyst: KXM4 First Client Due Date: 08-SEP-09 Internal Due Date: 02-SEP-09 1450  
 Tracer Isotope: Ac-227 Tracer Code: 881-B-102 Expiration Date: 7/23/10 Ac-227 Separation Date/Time: 9-3-09/1550me  
 LCS Isotope: Th-230 LCS Code: A2190-J Expiration Date: 4/13/10 Vol: 0.1ml  
 Spike Isotope: Th-230 Spike Code: A2190-J Expiration Date: 4/13/10 Vol: 0.1ml  
 Prep Date: 9/2/09 Initials: MAB Pipet ID: 2911058 Balance ID: 50410272  
 Witness: 09/02/09 JMO

| Sample ID    | Client Description     | Type   | Hazard Code | Min CRDL       | Matrix | Client     | Collection Date | Pos. | Label # | Wet/Dry Aliquot (g) (l) (f) | Th Det # |
|--------------|------------------------|--------|-------------|----------------|--------|------------|-----------------|------|---------|-----------------------------|----------|
| 234964001-3  | RSAM8-10B              | SAMPLE |             | .05 pCi/g      | SOIL   | KERR003    | 07-AUG-09       | 1    | 1       | 0.250                       | 26       |
| 234964002-3  | RSAM8-20B              | SAMPLE |             | .05 pCi/g      | SOIL   | KERR003    | 07-AUG-09       | 2    | 2       | 0.250                       | 27       |
| 234964003-3  | RSAM8009-20B           | SAMPLE |             | .05 pCi/g      | SOIL   | KERR003    | 07-AUG-09       | 3    | 3       | 0.256                       | 33       |
| 234964004-3  | RSAM8-31B              | SAMPLE |             | .05 pCi/g      | SOIL   | KERR003    | 07-AUG-09       | 4    | 4       | 0.258                       | 36       |
| 234964005-3  | SA62-10B               | SAMPLE |             | .05 pCi/g      | SOIL   | KERR003    | 07-AUG-09       | 5    | 5       | 0.253                       | 38       |
| 234964006-3  | SA62-24B               | SAMPLE |             | .05 pCi/g      | SOIL   | KERR003    | 07-AUG-09       | 6    | 6       | 0.255                       | 40       |
| 234964007-3  | SA144-10B              | SAMPLE |             | .05 pCi/g      | SOIL   | KERR003    | 07-AUG-09       | 7    | 7       | 0.251                       | 42       |
| 234964008-3  | SA144009-10B           | SAMPLE |             | .05 pCi/g      | SOIL   | KERR003    | 07-AUG-09       | 8    | 8       | 0.251                       | 43       |
| 234964009-3  | SA144-28B              | SAMPLE |             | .05 pCi/g      | SOIL   | KERR003    | 07-AUG-09       | 9    | 9       | 0.252                       | 44       |
| 234964010-3  | SA92-10B               | SAMPLE |             | .05 pCi/g      | SOIL   | KERR003    | 10-AUG-09       | 10   | 10      | 0.254                       | 45       |
| 234964011-3  | SA92-20B               | SAMPLE |             | .05 pCi/g      | SOIL   | KERR003    | 10-AUG-09       | 11   | 11      | 0.258                       | 46       |
| 234964012-3  | SA92-31B               | SAMPLE |             | .05 pCi/g      | SOIL   | KERR003    | 10-AUG-09       | 12   | 12      | 0.259                       | 47       |
| 234964013-3  | SA119-0.5B             | SAMPLE |             | .05 pCi/g      | SOIL   | KERR003    | 10-AUG-09       | 13   | 13      | 0.257                       | 173      |
| 234964014-3  | SA119-10B              | SAMPLE |             | .05 pCi/g      | SOIL   | KERR003    | 10-AUG-09       | 14   | 14      | 0.254                       | 185      |
| 234964015-3  | SA119-30B              | SAMPLE |             | .05 pCi/g      | SOIL   | KERR003    | 10-AUG-09       | 15   | 15      | 0.258                       | 188      |
| 234964016-3  | SA119-48B              | SAMPLE |             | .05 pCi/g      | SOIL   | KERR003    | 10-AUG-09       | 16   | 16      | 0.254                       | 195      |
| 234964017-3  | SA158-10B              | SAMPLE |             | .05 pCi/g      | SOIL   | KERR003    | 10-AUG-09       | 17   | 17      | 0.259                       | 196      |
| 234964018-3  | SA158-20B              | SAMPLE |             | .05 pCi/g      | SOIL   | KERR003    | 10-AUG-09       | 18   | 18      | 0.258                       | 203      |
| 234964019-3  | SA158-31B              | SAMPLE |             | .05 pCi/g      | SOIL   | KERR003    | 10-AUG-09       | 19   | 19      | 0.259                       | 204      |
| 1201916362-1 | MB for batch 899594    | MB     |             | UCF pCi/g to 1 | SOIL   | QC ACCOUNT | 10-AUG-09       | 20   | 20      | 0.259                       | 191      |
| 1201916363-3 | SA92-10B(234964010DUP) | DUP    |             | .05 pCi/g      | SOIL   | QC ACCOUNT | 10-AUG-09       | 21   | 21      | 0.258                       | 194      |
| 1201916364-3 | SA92-10B(234964010MS)  | MS     |             | .05 pCi/g      | SOIL   | QC ACCOUNT | 10-AUG-09       | 22   | 22      | 0.258                       | 197      |
| 1201916365-1 | LCS for batch 899594   | LCS    |             | UCF pCi/g to 1 | SOIL   | QC ACCOUNT | 10-AUG-09       | 23   | 23      | 0.259                       | 198      |

Choose SOP Used: GL-RAD-A-038  
 GL-RAD-A-045  
 GL-RAD-A-043  
 GL-RAD-A-032

Solid Sample Dissolution by: LEACH or DIGESTION Data Reviewed By: SopML-9/9/09  
 Circle One

GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 899594  
SAMPLE DATE : 3-SEP-2009 14:50:00.

SAMPLE ID : S0234964001\_TH  
SAMPLE QTY: 0.250 G

DETECTOR NUMBER :42484  
AVERAGE %EFFICIENCY :33.8551  
% YIELD : 73.922

COUNT DATE: 8-SEP-2009 12:05:30  
ELAPSED LIVE TIME(SEC): 59999.99  
ANALYST :KXM4

MS/MSD  
ID : A2796-J  
ISOTOPE : TH-230  
PCI/G : 8.561E+00

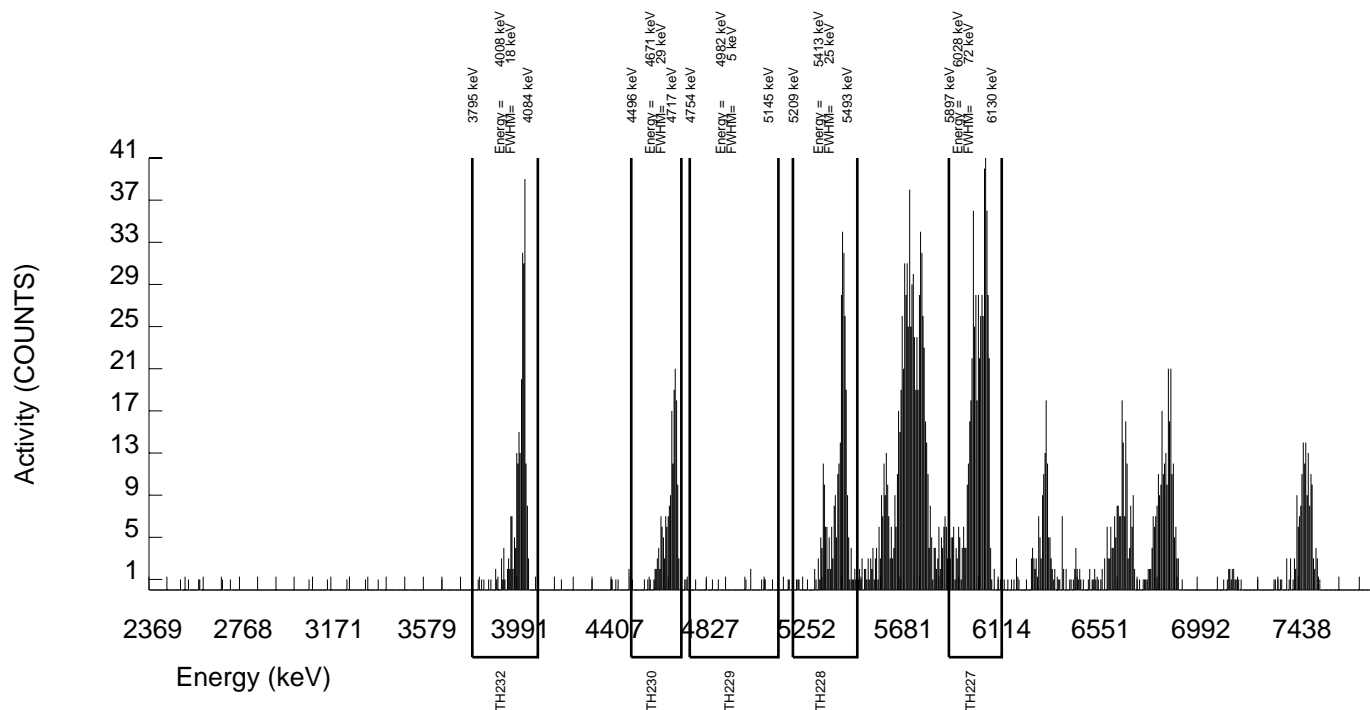
LCS/LCSD  
ID : A2796-J  
ISOTOPE : TH-230  
PCI/G : 8.561E+00

TRACER  
ID : 0387-B-102  
ISOTOPE : AC227  
NOMINAL : 3.90989 dpm  
RESULTS : 2.89028 dpm

LIB FILE : ENV\_ALPHA\_TH.N  
BKG FILE : B027.CNF;1068  
BKG DATE : 6-SEP-2009  
EFF FILE : W027.CNF;318  
CAL DATE : 5-SEP-2009

NUCLIDE ACTIVITY SUMMARY

| NUCLIDE | ENERGY   | GROSS AREA | NET AREA | BKG AREA | BKG Sg | %ABUN    | ACTIVITY pCi/G | TPU 1.96-SIGMA | MDA pCi/G | Lc pCi/G | UNC pCi/G |
|---------|----------|------------|----------|----------|--------|----------|----------------|----------------|-----------|----------|-----------|
| AC-227  | 6038.010 | 555.000    | 549.000  | 6.000    | 2.4495 | 68.10000 | 7.04E+00       | 7.42E-01       | 1.85E-01  | 7.31E-02 | 5.96E-01  |
| TH-228  | 5363.000 | 294.000    | 292.000  | 2.000    | 1.4142 | 99.94000 | 2.11E+00       | 2.78E-01       | 6.94E-02  | 2.38E-02 | 2.44E-01  |
| TH229   | 4900.000 | 11.000     | 4.000    | 7.000    | 2.6458 | 99.52000 | 2.89E-02       | 6.02E-02       | 1.11E-01  | 4.45E-02 | 6.02E-02  |
| TH-230  | 4625.000 | 176.000    | 173.000  | 3.000    | 1.7321 | 100.0000 | 1.25E+00       | 2.04E-01       | 7.96E-02  | 2.90E-02 | 1.89E-01  |
| TH-232  | 3972.000 | 247.000    | 245.000  | 2.000    | 1.4142 | 100.0000 | 1.76E+00       | 2.49E-01       | 6.90E-02  | 2.37E-02 | 2.23E-01  |



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 899594  
SAMPLE DATE : 3-SEP-2009 14:50:00.

SAMPLE ID : S0234964002\_TH  
SAMPLE QTY: 0.250 G

DETECTOR NUMBER :78785  
AVERAGE %EFFICIENCY :31.3483  
% YIELD : 66.891

COUNT DATE: 8-SEP-2009 12:05:32  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :KXM4

MS/MSD  
ID : A2796-J  
ISOTOPE : TH-230  
PCI/G : 8.561E+00

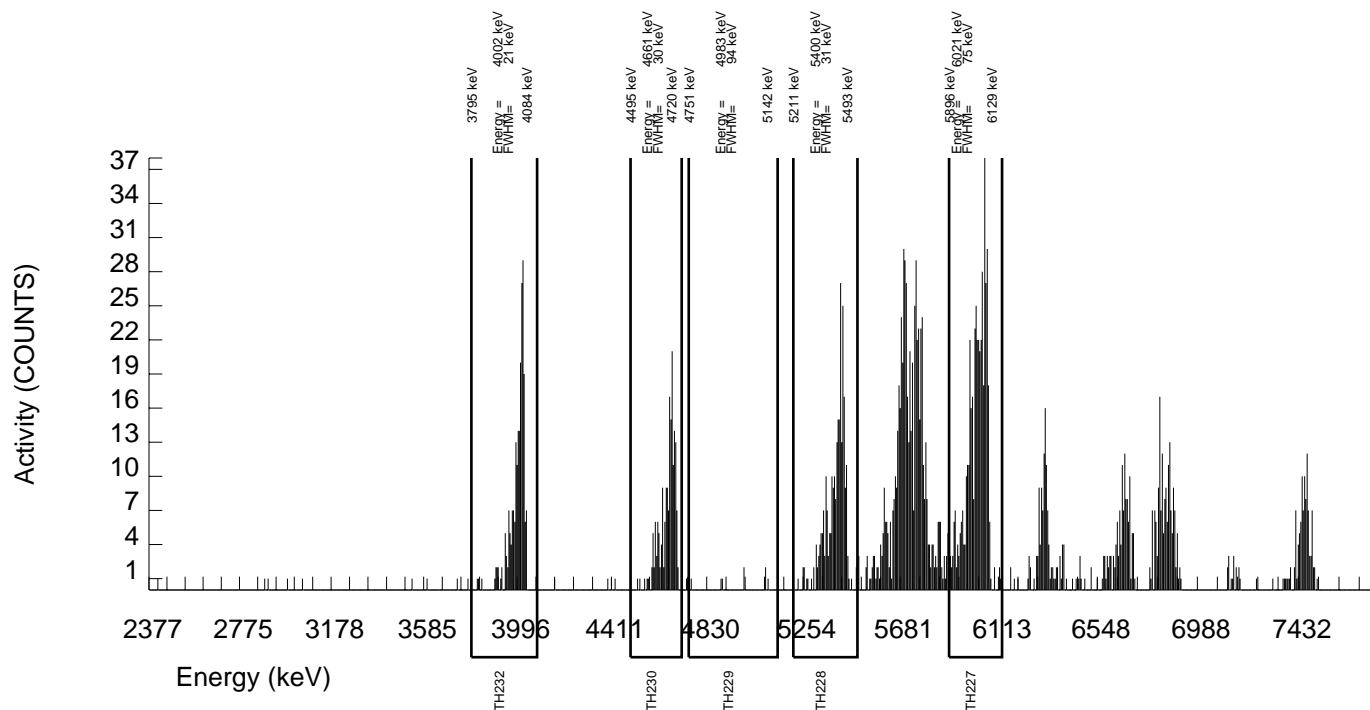
LCS/LCSD  
ID : A2796-J  
ISOTOPE : TH-230  
PCI/G : 8.561E+00

TRACER  
ID : 0387-B-102  
ISOTOPE : AC227  
NOMINAL : 3.90989 dpm  
RESULTS : 2.61538 dpm

LIB FILE : ENV\_ALPHA\_TH.N  
BKG FILE : B033.CNF;1058  
BKG DATE : 6-SEP-2009  
EFF FILE : W033.CNF;319  
CAL DATE : 5-SEP-2009

NUCLIDE ACTIVITY SUMMARY

| NUCLIDE | ENERGY   | GROSS AREA | NET AREA | BKG AREA | BKG Sg | %ABUN    | ACTIVITY pCi/G | TPU 1.96-SIGMA | MDA pCi/G | Lc pCi/G | UNC pCi/G |
|---------|----------|------------|----------|----------|--------|----------|----------------|----------------|-----------|----------|-----------|
| AC-227  | 6038.010 | 467.000    | 460.000  | 7.000    | 2.6458 | 68.10000 | 7.04E+00       | 7.77E-01       | 2.34E-01  | 9.43E-02 | 6.54E-01  |
| TH-228  | 5363.000 | 263.000    | 261.000  | 2.000    | 1.4142 | 99.94000 | 2.26E+00       | 3.07E-01       | 8.28E-02  | 2.84E-02 | 2.76E-01  |
| TH229   | 4900.000 | 8.000      | -2.000   | 10.000   | 3.1623 | 99.52000 | -1.73E-02      | 7.18E-02       | 1.53E-01  | 6.35E-02 | 7.18E-02  |
| TH-230  | 4625.000 | 184.000    | 182.000  | 2.000    | 1.4142 | 100.0000 | 1.56E+00       | 2.48E-01       | 8.23E-02  | 2.83E-02 | 2.30E-01  |
| TH-232  | 3972.000 | 219.000    | 217.000  | 2.000    | 1.4142 | 100.0000 | 1.86E+00       | 2.74E-01       | 8.23E-02  | 2.83E-02 | 2.50E-01  |



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 899594  
SAMPLE DATE : 3-SEP-2009 14:50:00.

SAMPLE ID : S0234964003\_TH  
SAMPLE QTY: 0.256 G

DETECTOR NUMBER :78203  
AVERAGE %EFFICIENCY :32.3699  
% YIELD : 68.583

COUNT DATE: 8-SEP-2009 12:05:32  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :KXM4

MS/MSD  
ID : A2796-J  
ISOTOPE : TH-230  
PCI/G : 8.360E+00

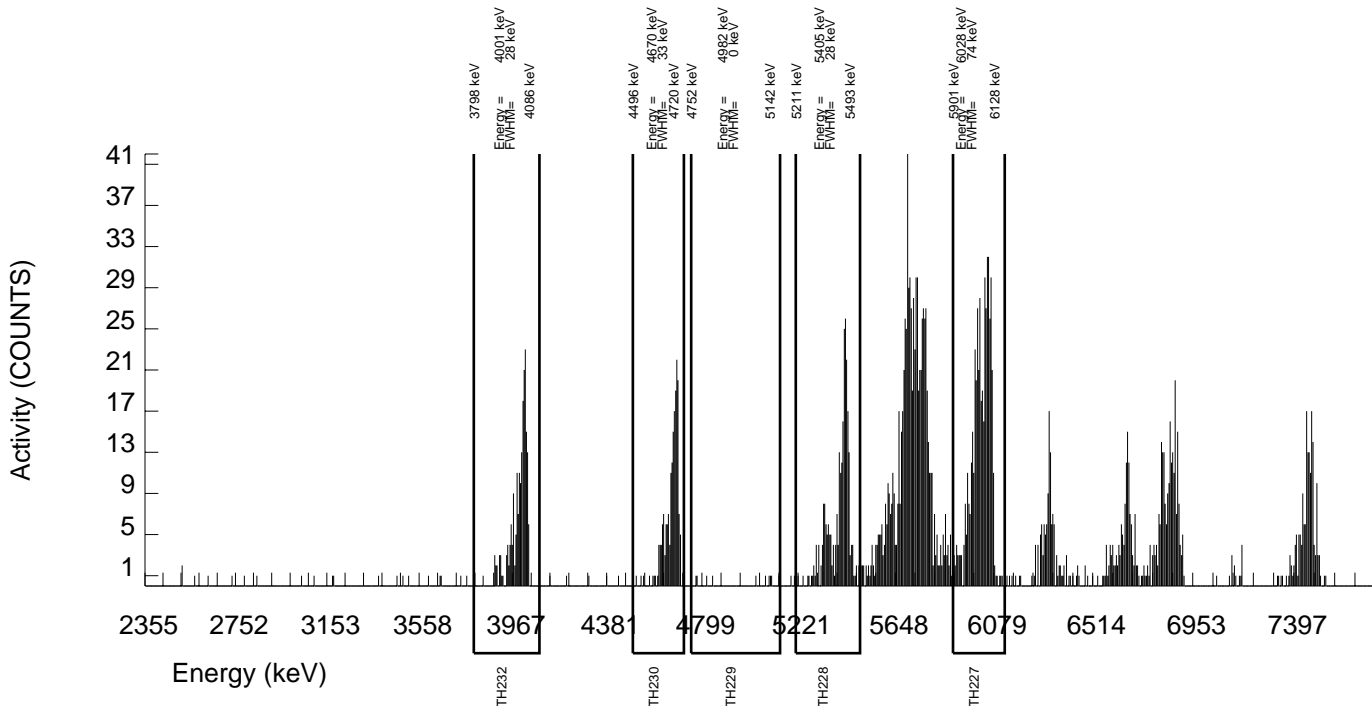
LCS/LCSD  
ID : A2796-J  
ISOTOPE : TH-230  
PCI/G : 8.360E+00

TRACER  
ID : 0387-B-102  
ISOTOPE : AC227  
NOMINAL : 3.90989 dpm  
RESULTS : 2.68151 dpm

LIB FILE : ENV\_ALPHA\_TH.N  
BKG FILE : B036.CNF;1054  
BKG DATE : 6-SEP-2009  
EFF FILE : W036.CNF;320  
CAL DATE : 5-SEP-2009

NUCLIDE ACTIVITY SUMMARY

| NUCLIDE | ENERGY   | GROSS AREA | NET AREA | BKG AREA | BKG Sg | %ABUN    | ACTIVITY pCi/G | TPU 1.96-SIGMA | MDA pCi/G | Lc pCi/G | UNC pCi/G |
|---------|----------|------------|----------|----------|--------|----------|----------------|----------------|-----------|----------|-----------|
| AC-227  | 6038.010 | 495.000    | 487.000  | 8.000    | 2.8284 | 68.10000 | 6.88E+00       | 7.44E-01       | 2.28E-01  | 9.30E-02 | 6.21E-01  |
| TH-228  | 5363.000 | 261.000    | 252.000  | 9.000    | 3.0000 | 99.94000 | 2.01E+00       | 2.83E-01       | 1.35E-01  | 5.56E-02 | 2.57E-01  |
| TH229   | 4900.000 | 10.000     | 3.000    | 7.000    | 2.6458 | 99.52000 | 2.39E-02       | 6.44E-02       | 1.22E-01  | 4.90E-02 | 6.44E-02  |
| TH-230  | 4625.000 | 187.000    | 183.000  | 4.000    | 2.0000 | 100.0000 | 1.45E+00       | 2.31E-01       | 9.75E-02  | 3.69E-02 | 2.15E-01  |
| TH-232  | 3972.000 | 204.000    | 203.000  | 1.000    | 1.0000 | 100.0000 | 1.61E+00       | 2.42E-01       | 6.07E-02  | 1.84E-02 | 2.22E-01  |

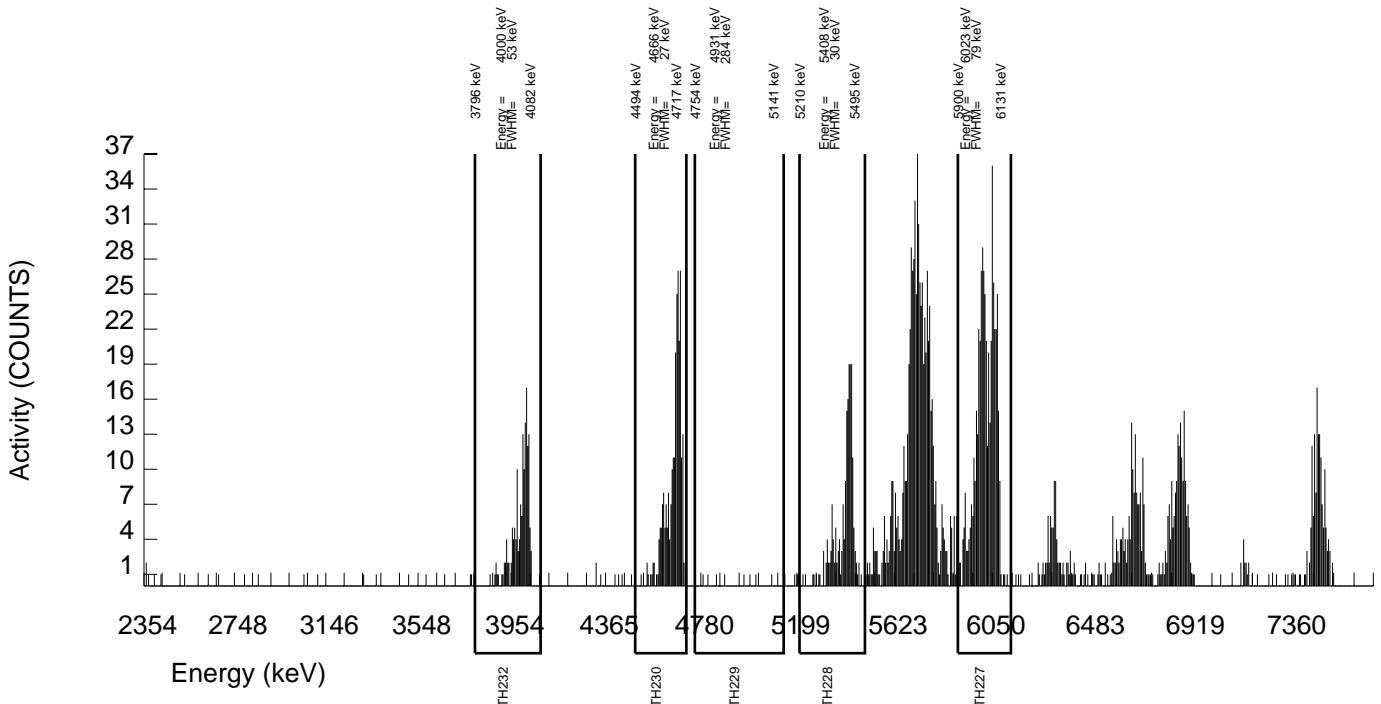


GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

|  |   |  |  |
|--|---|--|--|
| BATCH NUMBER: 899594<br>SAMPLE DATE : 3-SEP-2009 14:50:00.                 |   | SAMPLE ID : S0234964004_TH<br>SAMPLE QTY: 0.258 G  |  |
| DETECTOR NUMBER :78773<br>AVERAGE %EFFICIENCY :32.0737<br>% YIELD : 71.348 |   | COUNT DATE: 8-SEP-2009 12:05:34<br>ELAPSED LIVE TIME(SEC): 60000.00<br>ANALYST :KXM4           |  |
| MS/MSD<br>ID : A2796-J<br>ISOTOPE : TH-230<br>PCI/G : 8.295E+00            | LCS/LCSD<br>ID : A2796-J<br>ISOTOPE : TH-230<br>PCI/G : 8.295E+00 | TRACER<br>ID : 0387-B-102<br>ISOTOPE : AC227<br>NOMINAL : 3.90989 dpm<br>RESULTS : 2.78962 dpm | LIB FILE : ENV_ALPHA_TH.N<br>BKG FILE : B040.CNF;1065<br>BKG DATE : 6-SEP-2009<br>EFF FILE : W040.CNF;306<br>CAL DATE : 5-SEP-2009 |

NUCLIDE ACTIVITY SUMMARY

| NUCLIDE | ENERGY   | GROSS AREA | NET AREA | BKG AREA | BKG Sg | %ABUN    | ACTIVITY pCi/G | TPU 1.96-SIGMA | MDA pCi/G | Lc pCi/G | UNC pCi/G |
|---------|----------|------------|----------|----------|--------|----------|----------------|----------------|-----------|----------|-----------|
| AC-227  | 6038.010 | 506.000    | 502.000  | 4.000    | 2.0000 | 68.10000 | 6.83E+00       | 7.26E-01       | 1.67E-01  | 6.33E-02 | 6.02E-01  |
| TH-228  | 5363.000 | 188.000    | 183.000  | 5.000    | 2.2361 | 99.94000 | 1.40E+00       | 2.25E-01       | 1.03E-01  | 3.99E-02 | 2.09E-01  |
| TH229   | 4900.000 | 8.000      | -1.000   | 9.000    | 3.0000 | 99.52000 | -7.67E-03      | 6.20E-02       | 1.30E-01  | 5.35E-02 | 6.20E-02  |
| TH-230  | 4625.000 | 255.000    | 252.000  | 3.000    | 1.7321 | 100.0000 | 1.92E+00       | 2.66E-01       | 8.44E-02  | 3.07E-02 | 2.40E-01  |
| TH-232  | 3972.000 | 158.000    | 157.000  | 1.000    | 1.0000 | 100.0000 | 1.20E+00       | 2.02E-01       | 5.84E-02  | 1.77E-02 | 1.89E-01  |



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 899594  
SAMPLE DATE : 3-SEP-2009 14:50:00.

SAMPLE ID : S0234964005\_TH  
SAMPLE QTY: 0.253 G

DETECTOR NUMBER :78205  
AVERAGE %EFFICIENCY :32.9883  
% YIELD : 79.872

COUNT DATE: 8-SEP-2009 12:05:34  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :KXM4

MS/MSD  
ID : A2796-J  
ISOTOPE : TH-230  
PCI/G : 8.459E+00

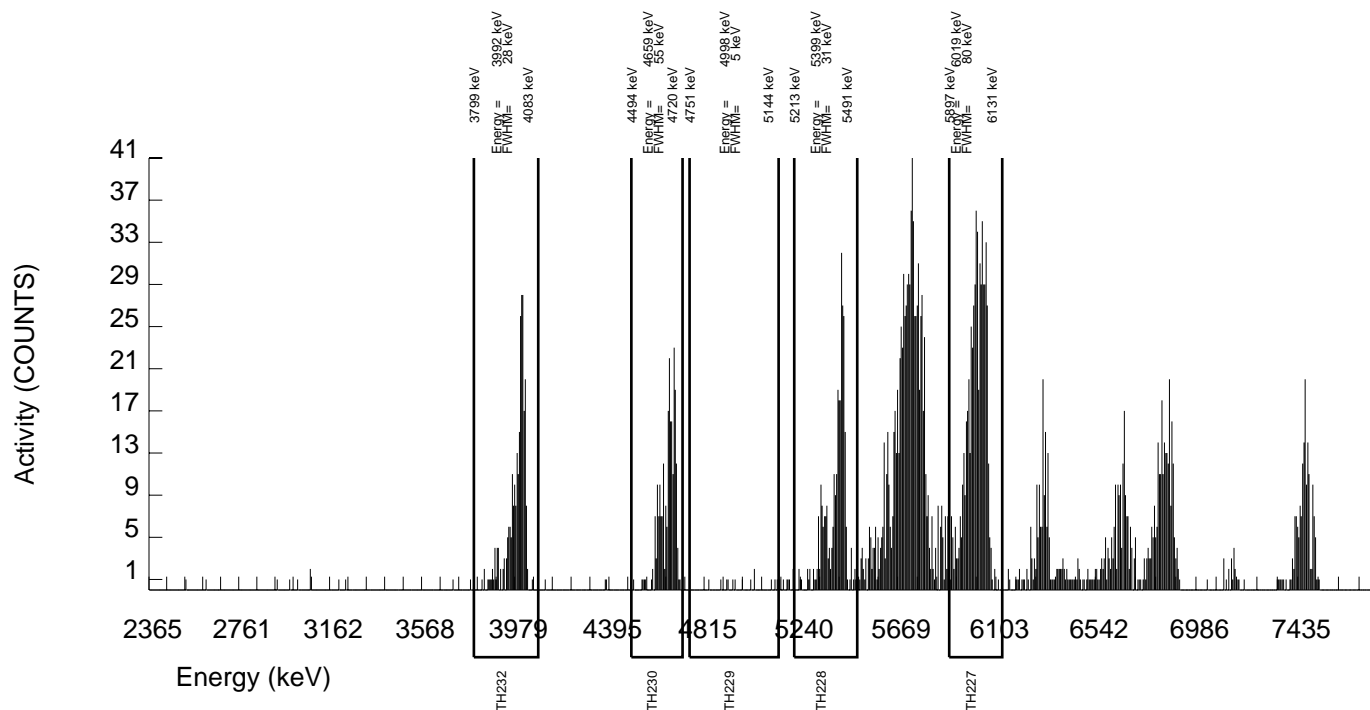
LCS/LCSD  
ID : A2796-J  
ISOTOPE : TH-230  
PCI/G : 8.459E+00

TRACER  
ID : 0387-B-102  
ISOTOPE : AC227  
NOMINAL : 3.90989 dpm  
RESULTS : 3.12290 dpm

LIB FILE : ENV\_ALPHA\_TH.N  
BKG FILE : B041.CNF;1058  
BKG DATE : 6-SEP-2009  
EFF FILE : W041.CNF;310  
CAL DATE : 5-SEP-2009

NUCLIDE ACTIVITY SUMMARY

| NUCLIDE | ENERGY   | GROSS AREA | NET AREA | BKG AREA | BKG Sg | %ABUN    | ACTIVITY pCi/G | TPU 1.96-SIGMA | MDA pCi/G | Lc pCi/G | UNC pCi/G |
|---------|----------|------------|----------|----------|--------|----------|----------------|----------------|-----------|----------|-----------|
| AC-227  | 6038.010 | 582.000    | 578.000  | 4.000    | 2.0000 | 68.10000 | 6.96E+00       | 7.06E-01       | 1.48E-01  | 5.60E-02 | 5.71E-01  |
| TH-228  | 5363.000 | 293.000    | 281.000  | 12.000   | 3.4641 | 99.94000 | 1.91E+00       | 2.59E-01       | 1.30E-01  | 5.48E-02 | 2.33E-01  |
| TH229   | 4900.000 | 13.000     | 7.000    | 6.000    | 2.4495 | 99.52000 | 4.75E-02       | 5.81E-02       | 9.78E-02  | 3.87E-02 | 5.80E-02  |
| TH-230  | 4625.000 | 229.000    | 223.000  | 6.000    | 2.4495 | 100.0000 | 1.51E+00       | 2.22E-01       | 9.73E-02  | 3.85E-02 | 2.03E-01  |
| TH-232  | 3972.000 | 261.000    | 256.000  | 5.000    | 2.2361 | 100.0000 | 1.73E+00       | 2.39E-01       | 9.06E-02  | 3.52E-02 | 2.16E-01  |



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 899594  
SAMPLE DATE : 3-SEP-2009 14:50:00.

SAMPLE ID : S0234964006\_TH  
SAMPLE QTY: 0.255 G

DETECTOR NUMBER :78793  
AVERAGE %EFFICIENCY :32.6249  
% YIELD : 74.614

COUNT DATE: 8-SEP-2009 12:05:34  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :KXM4

MS/MSD  
ID : A2796-J  
ISOTOPE : TH-230  
PCI/G : 8.393E+00

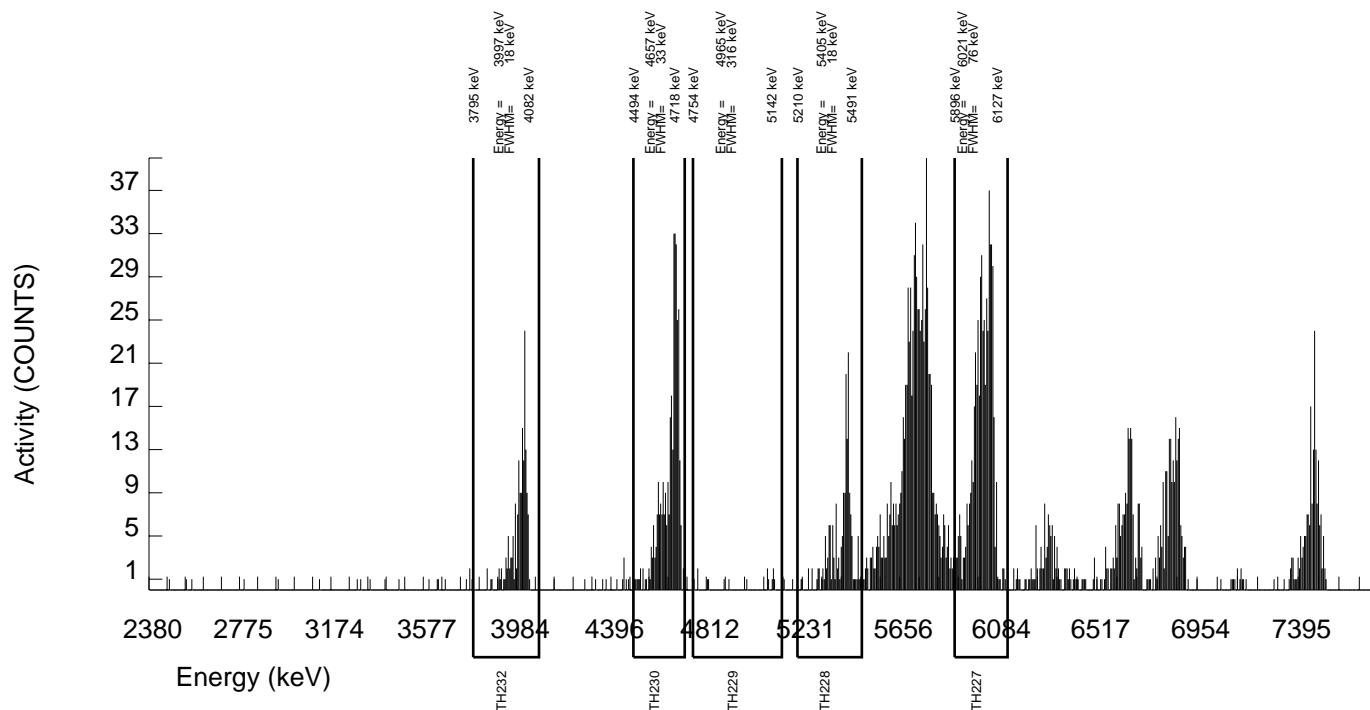
LCS/LCSD  
ID : A2796-J  
ISOTOPE : TH-230  
PCI/G : 8.393E+00

TRACER  
ID : 0387-B-102  
ISOTOPE : AC227  
NOMINAL : 3.90989 dpm  
RESULTS : 2.91731 dpm

LIB FILE : ENV\_ALPHA\_TH.N  
BKG FILE : B042.CNF;1057  
BKG DATE : 6-SEP-2009  
EFF FILE : W042.CNF;283  
CAL DATE : 5-SEP-2009

NUCLIDE ACTIVITY SUMMARY

| NUCLIDE | ENERGY   | GROSS AREA | NET AREA | BKG AREA | BKG Sg | %ABUN    | ACTIVITY pCi/G | TPU 1.96-SIGMA | MDA pCi/G | Lc pCi/G | UNC pCi/G |
|---------|----------|------------|----------|----------|--------|----------|----------------|----------------|-----------|----------|-----------|
| AC-227  | 6038.010 | 543.000    | 534.000  | 9.000    | 3.0000 | 68.10000 | 6.91E+00       | 7.24E-01       | 2.19E-01  | 9.03E-02 | 5.96E-01  |
| TH-228  | 5363.000 | 177.000    | 167.000  | 10.000   | 3.1623 | 99.94000 | 1.22E+00       | 2.09E-01       | 1.29E-01  | 5.37E-02 | 1.96E-01  |
| TH229   | 4900.000 | 15.000     | 10.000   | 5.000    | 2.2361 | 99.52000 | 7.29E-02       | 6.41E-02       | 9.77E-02  | 3.79E-02 | 6.39E-02  |
| TH-230  | 4625.000 | 338.000    | 337.000  | 1.000    | 1.0000 | 100.0000 | 2.45E+00       | 3.00E-01       | 5.55E-02  | 1.69E-02 | 2.62E-01  |
| TH-232  | 3972.000 | 166.000    | 164.000  | 2.000    | 1.4142 | 100.0000 | 1.19E+00       | 1.98E-01       | 6.95E-02  | 2.39E-02 | 1.84E-01  |



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 899594  
SAMPLE DATE : 3-SEP-2009 14:50:00.

SAMPLE ID : S0234964007\_TH  
SAMPLE QTY: 0.251 G

DETECTOR NUMBER :74435  
AVERAGE %EFFICIENCY :26.6815  
% YIELD : 58.614

COUNT DATE: 8-SEP-2009 14:07:19  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :KXM4

MS/MSD  
ID : A2796-J  
ISOTOPE : TH-230  
PCI/G : 8.527E+00

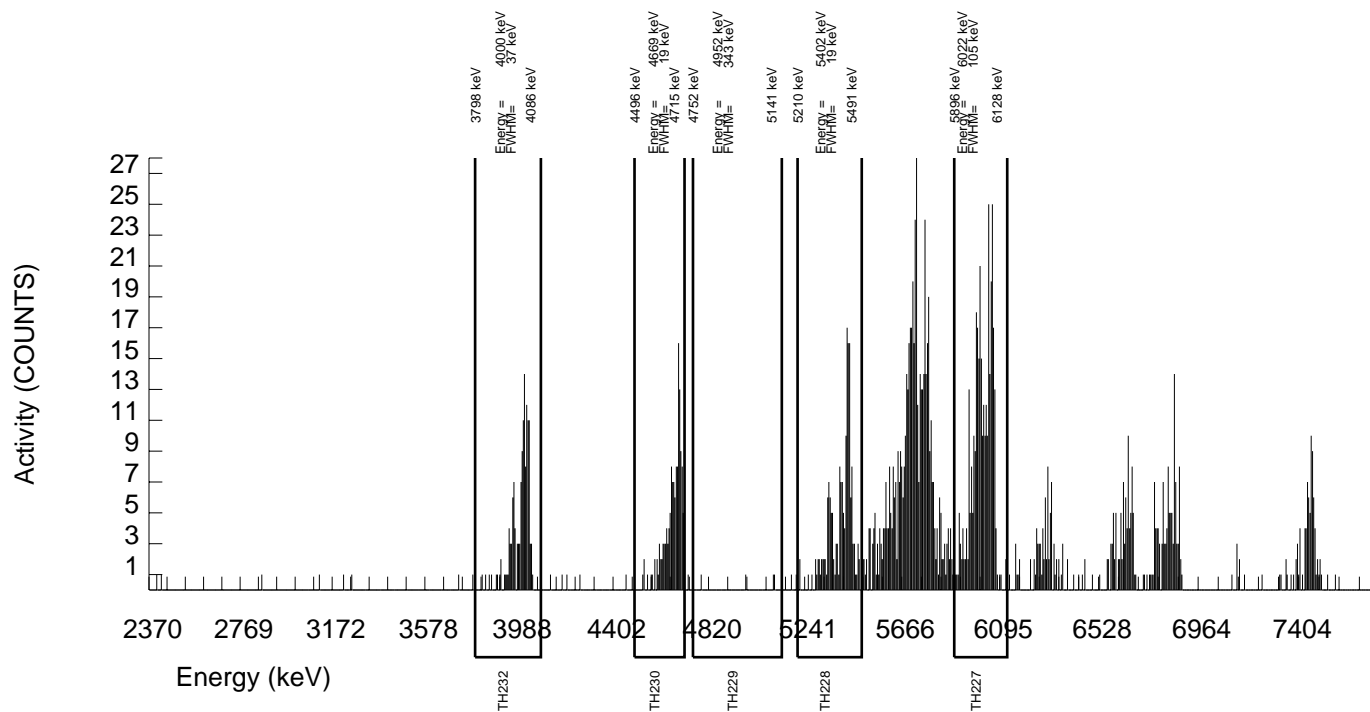
LCS/LCSD  
ID : A2796-J  
ISOTOPE : TH-230  
PCI/G : 8.527E+00

TRACER  
ID : 0387-B-102  
ISOTOPE : AC227  
NOMINAL : 3.90989 dpm  
RESULTS : 2.29175 dpm

LIB FILE : ENV\_ALPHA\_TH.N  
BKG FILE : B177.CNF;124  
BKG DATE : 6-SEP-2009  
EFF FILE : W177.CNF;38  
CAL DATE : 24-AUG-2009

NUCLIDE ACTIVITY SUMMARY

| NUCLIDE | ENERGY   | GROSS AREA | NET AREA | BKG AREA | BKG Sg | %ABUN    | ACTIVITY pCi/G | TPU 1.96-SIGMA | MDA pCi/G | Lc pCi/G | UNC pCi/G |
|---------|----------|------------|----------|----------|--------|----------|----------------|----------------|-----------|----------|-----------|
| AC-227  | 6038.010 | 345.000    | 342.000  | 3.000    | 1.7321 | 68.10000 | 7.02E+00       | 8.59E-01       | 2.27E-01  | 8.27E-02 | 7.50E-01  |
| TH-228  | 5363.000 | 178.000    | 169.000  | 9.000    | 3.0000 | 99.94000 | 1.95E+00       | 3.30E-01       | 1.96E-01  | 8.06E-02 | 3.09E-01  |
| TH229   | 4900.000 | 5.000      | 2.000    | 3.000    | 1.7321 | 99.52000 | 2.31E-02       | 6.39E-02       | 1.28E-01  | 4.65E-02 | 6.39E-02  |
| TH-230  | 4625.000 | 138.000    | 136.000  | 2.000    | 1.4142 | 100.0000 | 1.56E+00       | 2.82E-01       | 1.10E-01  | 3.78E-02 | 2.66E-01  |
| TH-232  | 3972.000 | 139.000    | 137.000  | 2.000    | 1.4142 | 100.0000 | 1.57E+00       | 2.83E-01       | 1.10E-01  | 3.78E-02 | 2.67E-01  |





GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 899594  
SAMPLE DATE : 3-SEP-2009 14:50:00.

SAMPLE ID : S0234964008\_TH  
SAMPLE QTY: 0.251 G

DETECTOR NUMBER :74438  
AVERAGE %EFFICIENCY :25.2837  
% YIELD : 76.505

COUNT DATE: 8-SEP-2009 14:07:27  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :KXM4

MS/MSD  
ID : A2796-J  
ISOTOPE : TH-230  
PCI/G : 8.527E+00

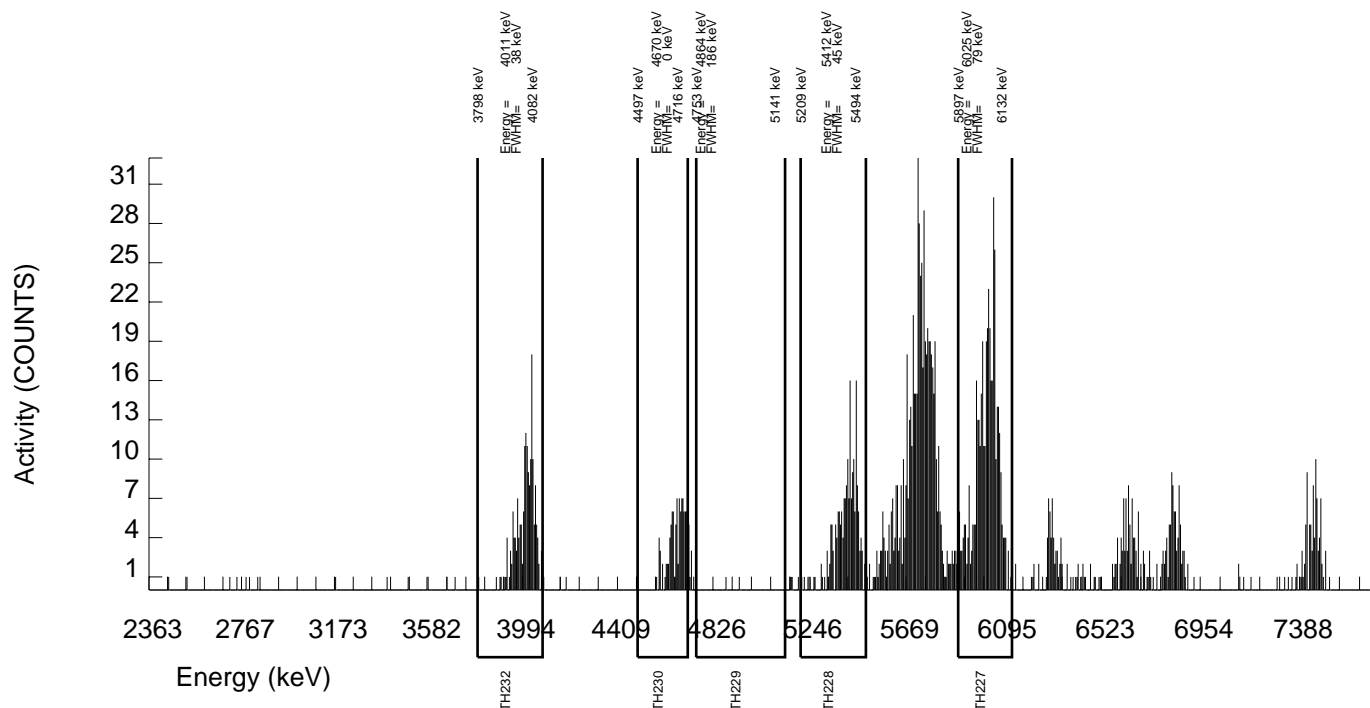
LCS/LCSD  
ID : A2796-J  
ISOTOPE : TH-230  
PCI/G : 8.527E+00

TRACER  
ID : 0387-B-102  
ISOTOPE : AC227  
NOMINAL : 3.90989 dpm  
RESULTS : 2.99124 dpm

LIB FILE : ENV\_ALPHA\_TH.N  
BKG FILE : B180.CNF;126  
BKG DATE : 6-SEP-2009  
EFF FILE : W180.CNF;38  
CAL DATE : 24-AUG-2009

NUCLIDE ACTIVITY SUMMARY

| NUCLIDE | ENERGY   | GROSS AREA | NET AREA | BKG AREA | BKG Sg | %ABUN    | ACTIVITY pCi/G | TPU 1.96-SIGMA | MDA pCi/G | Lc pCi/G | UNC pCi/G |
|---------|----------|------------|----------|----------|--------|----------|----------------|----------------|-----------|----------|-----------|
| AC-227  | 6038.010 | 423.000    | 423.000  | 0.000    | 0.0000 | 68.10000 | 7.02E+00       | 7.89E-01       | 4.98E-02  | 0.00E+00 | 6.69E-01  |
| TH-228  | 5363.000 | 194.000    | 187.000  | 7.000    | 2.6458 | 99.94000 | 1.75E+00       | 2.79E-01       | 1.43E-01  | 5.74E-02 | 2.59E-01  |
| TH229   | 4900.000 | 3.000      | -5.000   | 8.000    | 2.8284 | 99.52000 | -4.66E-02      | 6.06E-02       | 1.51E-01  | 6.13E-02 | 6.06E-02  |
| TH-230  | 4625.000 | 98.000     | 95.000   | 3.000    | 1.7321 | 100.0000 | 8.81E-01       | 1.90E-01       | 1.03E-01  | 3.74E-02 | 1.83E-01  |
| TH-232  | 3972.000 | 178.000    | 176.000  | 2.000    | 1.4142 | 100.0000 | 1.63E+00       | 2.63E-01       | 8.89E-02  | 3.05E-02 | 2.44E-01  |



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 899594  
SAMPLE DATE : 3-SEP-2009 14:50:00.

SAMPLE ID : S0234964009\_TH  
SAMPLE QTY: 0.252 G

DETECTOR NUMBER :74440  
AVERAGE %EFFICIENCY :25.3473  
% YIELD : 92.550

COUNT DATE: 8-SEP-2009 14:07:34  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :KXM4

MS/MSD  
ID : A2796-J  
ISOTOPE : TH-230  
PCI/G : 8.493E+00

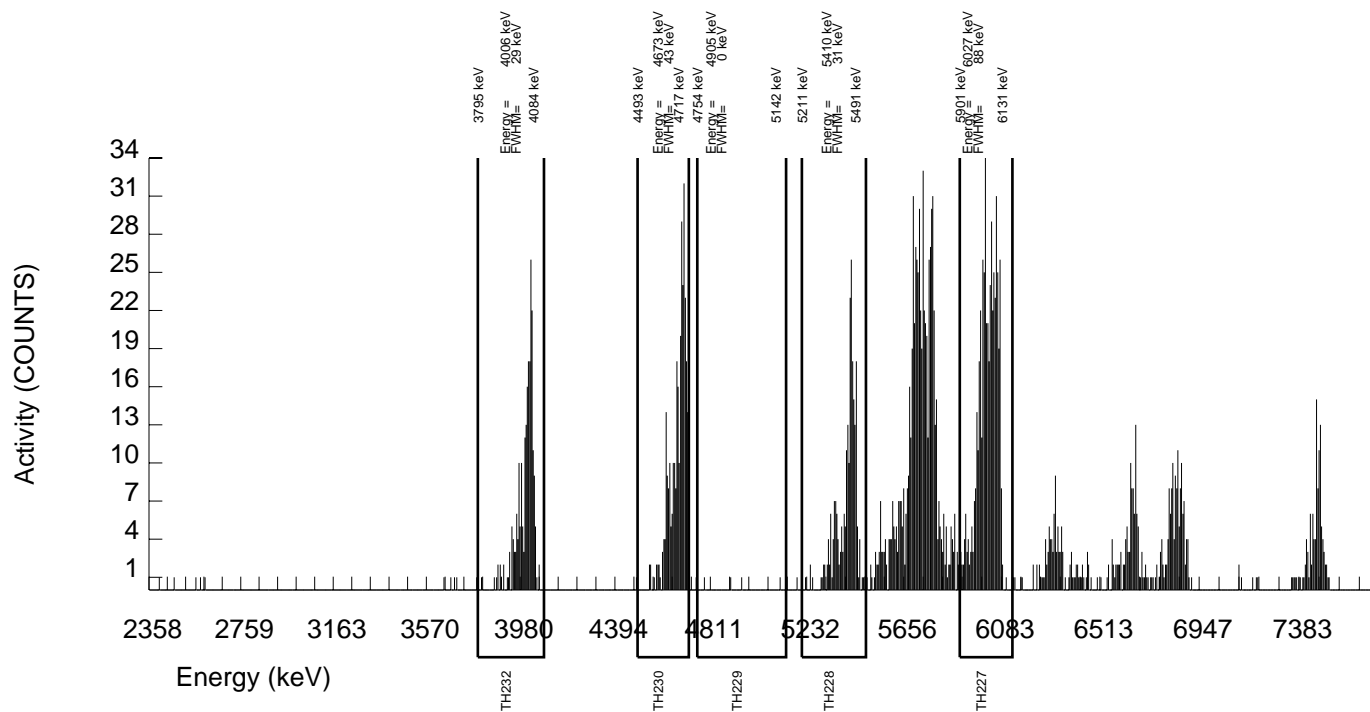
LCS/LCSD  
ID : A2796-J  
ISOTOPE : TH-230  
PCI/G : 8.493E+00

TRACER  
ID : 0387-B-102  
ISOTOPE : AC227  
NOMINAL : 3.90989 dpm  
RESULTS : 3.61859 dpm

LIB FILE : ENV\_ALPHA\_TH.N  
BKG FILE : B182.CNF;124  
BKG DATE : 6-SEP-2009  
EFF FILE : W182.CNF;38  
CAL DATE : 24-AUG-2009

NUCLIDE ACTIVITY SUMMARY

| NUCLIDE | ENERGY   | GROSS AREA | NET AREA | BKG AREA | BKG Sg | %ABUN    | ACTIVITY pCi/G | TPU 1.96-SIGMA | MDA pCi/G | Lc pCi/G | UNC pCi/G |
|---------|----------|------------|----------|----------|--------|----------|----------------|----------------|-----------|----------|-----------|
| AC-227  | 6038.010 | 515.000    | 513.000  | 2.000    | 1.4142 | 68.10000 | 6.99E+00       | 7.36E-01       | 1.31E-01  | 4.48E-02 | 6.07E-01  |
| TH-228  | 5363.000 | 237.000    | 229.000  | 8.000    | 2.8284 | 99.94000 | 1.76E+00       | 2.57E-01       | 1.24E-01  | 5.04E-02 | 2.35E-01  |
| TH229   | 4900.000 | 5.000      | 1.000    | 4.000    | 2.0000 | 99.52000 | 7.66E-03       | 4.50E-02       | 9.42E-02  | 3.56E-02 | 4.50E-02  |
| TH-230  | 4625.000 | 308.000    | 307.000  | 1.000    | 1.0000 | 100.0000 | 2.34E+00       | 2.97E-01       | 5.83E-02  | 1.77E-02 | 2.63E-01  |
| TH-232  | 3972.000 | 227.000    | 226.000  | 1.000    | 1.0000 | 100.0000 | 1.72E+00       | 2.48E-01       | 5.83E-02  | 1.77E-02 | 2.26E-01  |



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 899594  
SAMPLE DATE : 3-SEP-2009 14:50:00.

SAMPLE ID : S0234964010\_TH  
SAMPLE QTY: 0.254 G

DETECTOR NUMBER :68615  
AVERAGE %EFFICIENCY :25.8400  
% YIELD : 63.532

COUNT DATE: 8-SEP-2009 14:07:43  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :KXM4

MS/MSD  
ID : A2796-J  
ISOTOPE : TH-230  
PCI/G : 8.426E+00

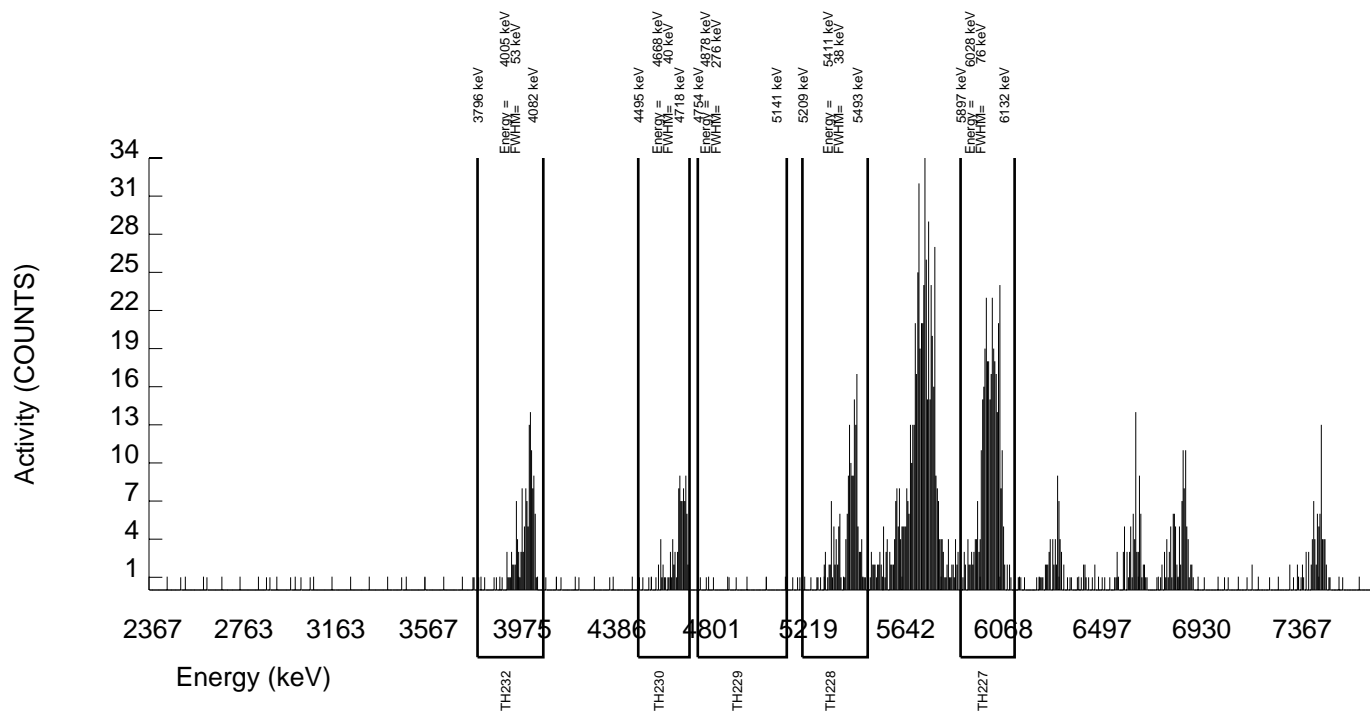
LCS/LCSD  
ID : A2796-J  
ISOTOPE : TH-230  
PCI/G : 8.426E+00

TRACER  
ID : 0387-B-102  
ISOTOPE : AC227  
NOMINAL : 3.90989 dpm  
RESULTS : 2.48404 dpm

LIB FILE : ENV\_ALPHA\_TH.N  
BKG FILE : B185.CNF;106  
BKG DATE : 6-SEP-2009  
EFF FILE : W185.CNF;38  
CAL DATE : 24-AUG-2009

NUCLIDE ACTIVITY SUMMARY

| NUCLIDE | ENERGY   | GROSS AREA | NET AREA | BKG AREA | BKG Sg | %ABUN    | ACTIVITY pCi/G | TPU 1.96-SIGMA | MDA pCi/G | Lc pCi/G | UNC pCi/G |
|---------|----------|------------|----------|----------|--------|----------|----------------|----------------|-----------|----------|-----------|
| AC-227  | 6038.010 | 368.000    | 359.000  | 9.000    | 3.0000 | 68.10000 | 6.93E+00       | 8.43E-01       | 3.28E-01  | 1.35E-01 | 7.35E-01  |
| TH-228  | 5363.000 | 172.000    | 163.000  | 9.000    | 3.0000 | 99.94000 | 1.77E+00       | 3.05E-01       | 1.84E-01  | 7.58E-02 | 2.87E-01  |
| TH229   | 4900.000 | 6.000      | 5.000    | 1.000    | 1.0000 | 99.52000 | 5.43E-02       | 5.64E-02       | 8.31E-02  | 2.53E-02 | 5.63E-02  |
| TH-230  | 4625.000 | 98.000     | 97.000   | 1.000    | 1.0000 | 100.0000 | 1.05E+00       | 2.20E-01       | 8.27E-02  | 2.51E-02 | 2.11E-01  |
| TH-232  | 3972.000 | 136.000    | 134.000  | 2.000    | 1.4142 | 100.0000 | 1.45E+00       | 2.63E-01       | 1.03E-01  | 3.55E-02 | 2.49E-01  |



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 899594  
SAMPLE DATE : 3-SEP-2009 14:50:00.

SAMPLE ID : S0234964011\_TH  
SAMPLE QTY: 0.258 G

DETECTOR NUMBER :68616  
AVERAGE %EFFICIENCY :25.7841  
% YIELD : 73.424

COUNT DATE: 8-SEP-2009 14:07:45  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :KXM4

MS/MSD  
ID : A2796-J  
ISOTOPE : TH-230  
PCI/G : 8.295E+00

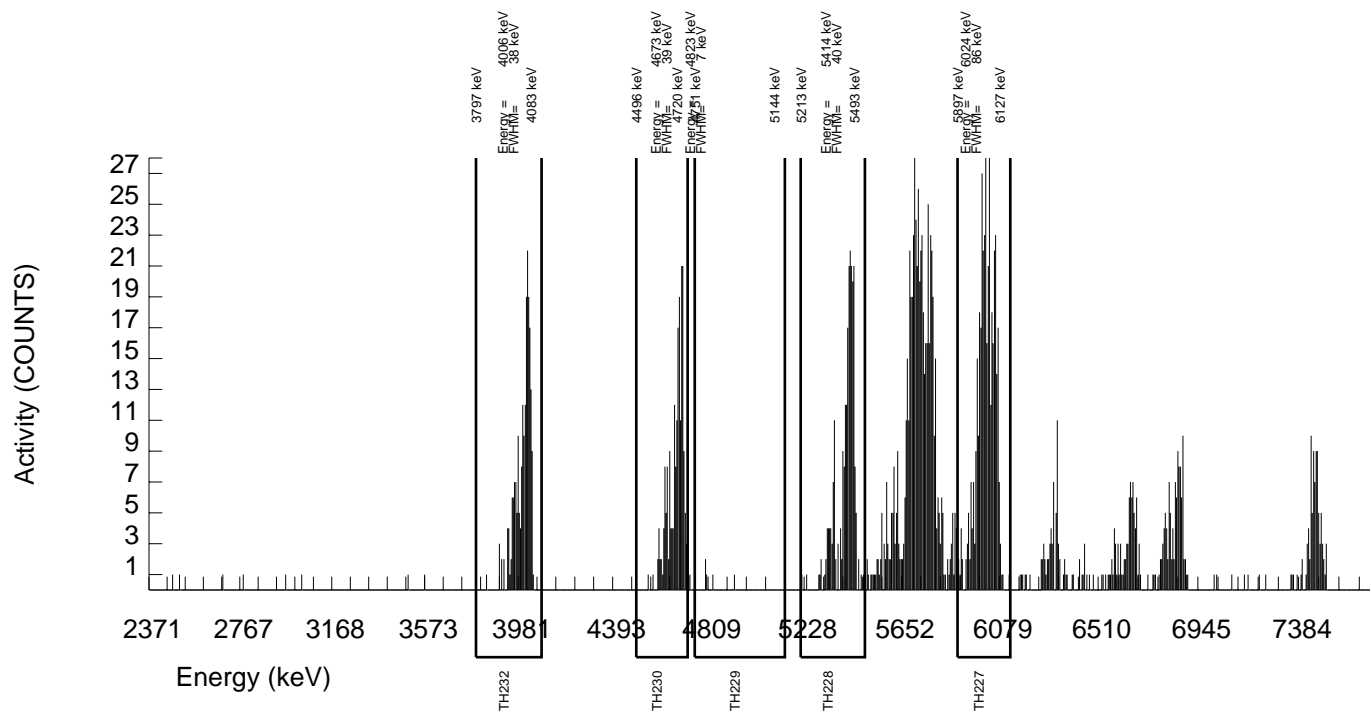
LCS/LCSD  
ID : A2796-J  
ISOTOPE : TH-230  
PCI/G : 8.295E+00

TRACER  
ID : 0387-B-102  
ISOTOPE : AC227  
NOMINAL : 3.90989 dpm  
RESULTS : 2.87081 dpm

LIB FILE : ENV\_ALPHA\_TH.N  
BKG FILE : B186.CNF;106  
BKG DATE : 6-SEP-2009  
EFF FILE : W186.CNF;39  
CAL DATE : 24-AUG-2009

NUCLIDE ACTIVITY SUMMARY

| NUCLIDE | ENERGY   | GROSS AREA | NET AREA | BKG AREA | BKG Sg | %ABUN    | ACTIVITY pCi/G | TPU 1.96-SIGMA | MDA pCi/G | Lc pCi/G | UNC pCi/G |
|---------|----------|------------|----------|----------|--------|----------|----------------|----------------|-----------|----------|-----------|
| AC-227  | 6038.010 | 417.000    | 414.000  | 3.000    | 1.7321 | 68.10000 | 6.83E+00       | 7.77E-01       | 1.82E-01  | 6.64E-02 | 6.62E-01  |
| TH-228  | 5363.000 | 237.000    | 231.000  | 6.000    | 2.4495 | 99.94000 | 2.14E+00       | 3.11E-01       | 1.34E-01  | 5.29E-02 | 2.83E-01  |
| TH229   | 4900.000 | 6.000      | 3.000    | 3.000    | 1.7321 | 99.52000 | 2.78E-02       | 5.45E-02       | 1.02E-01  | 3.73E-02 | 5.45E-02  |
| TH-230  | 4625.000 | 198.000    | 197.000  | 1.000    | 1.0000 | 100.0000 | 1.82E+00       | 2.77E-01       | 7.06E-02  | 2.15E-02 | 2.55E-01  |
| TH-232  | 3972.000 | 211.000    | 210.000  | 1.000    | 1.0000 | 100.0000 | 1.94E+00       | 2.87E-01       | 7.06E-02  | 2.15E-02 | 2.63E-01  |



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 899594  
SAMPLE DATE : 3-SEP-2009 14:50:00.

SAMPLE ID : S0234964012\_TH  
SAMPLE QTY: 0.259 G

DETECTOR NUMBER :68621  
AVERAGE %EFFICIENCY :25.9021  
% YIELD : 65.322

COUNT DATE: 8-SEP-2009 14:07:51  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :KXM4

MS/MSD  
ID : A2796-J  
ISOTOPE : TH-230  
PCI/G : 8.263E+00

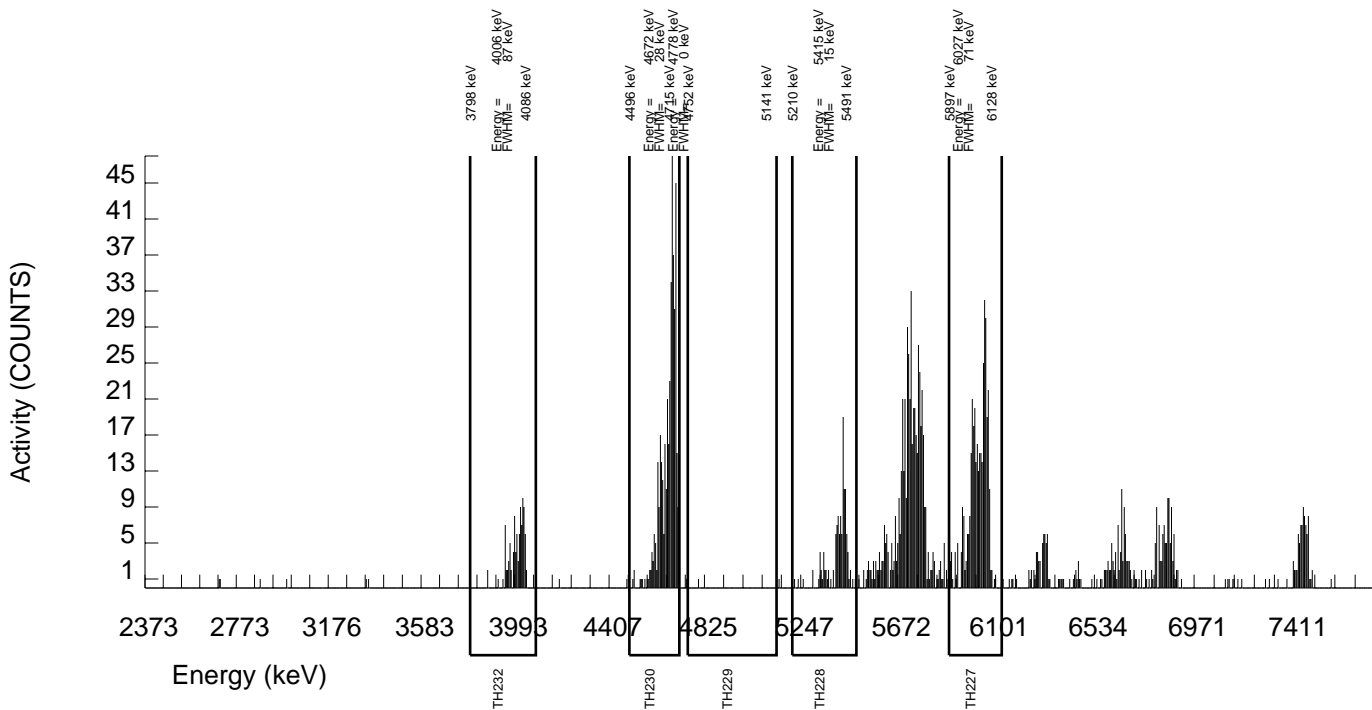
LCS/LCSD  
ID : A2796-J  
ISOTOPE : TH-230  
PCI/G : 8.263E+00

TRACER  
ID : 0387-B-102  
ISOTOPE : AC227  
NOMINAL : 3.90989 dpm  
RESULTS : 2.55402 dpm

LIB FILE : ENV\_ALPHA\_TH.N  
BKG FILE : B188.CNF;106  
BKG DATE : 6-SEP-2009  
EFF FILE : W188.CNF;39  
CAL DATE : 24-AUG-2009

NUCLIDE ACTIVITY SUMMARY

| NUCLIDE | ENERGY   | GROSS AREA | NET AREA | BKG AREA | BKG Sg | %ABUN    | ACTIVITY pCi/G | TPU 1.96-SIGMA | MDA pCi/G | Lc pCi/G | UNC pCi/G |
|---------|----------|------------|----------|----------|--------|----------|----------------|----------------|-----------|----------|-----------|
| AC-227  | 6038.010 | 373.000    | 370.000  | 3.000    | 1.7321 | 68.10000 | 6.80E+00       | 8.07E-01       | 2.03E-01  | 7.41E-02 | 6.98E-01  |
| TH-228  | 5363.000 | 124.000    | 119.000  | 5.000    | 2.2361 | 99.94000 | 1.23E+00       | 2.41E-01       | 1.39E-01  | 5.38E-02 | 2.30E-01  |
| TH229   | 4900.000 | 2.000      | -1.000   | 3.000    | 1.7321 | 99.52000 | -1.03E-02      | 4.53E-02       | 1.14E-01  | 4.16E-02 | 4.53E-02  |
| TH-230  | 4625.000 | 411.000    | 410.000  | 1.000    | 1.0000 | 100.0000 | 4.21E+00       | 4.79E-01       | 7.87E-02  | 2.39E-02 | 4.09E-01  |
| TH-232  | 3972.000 | 99.000     | 96.000   | 3.000    | 1.7321 | 100.0000 | 9.87E-01       | 2.12E-01       | 1.14E-01  | 4.14E-02 | 2.03E-01  |



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 899594  
SAMPLE DATE : 3-SEP-2009 14:50:00.

SAMPLE ID : S0234964013\_TH  
SAMPLE QTY: 0.257 G

DETECTOR NUMBER :68636  
AVERAGE %EFFICIENCY :26.6707  
% YIELD : 74.414

COUNT DATE: 8-SEP-2009 14:08:19  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :KXM4

MS/MSD  
ID : A2796-J  
ISOTOPE : TH-230  
PCI/G : 8.328E+00

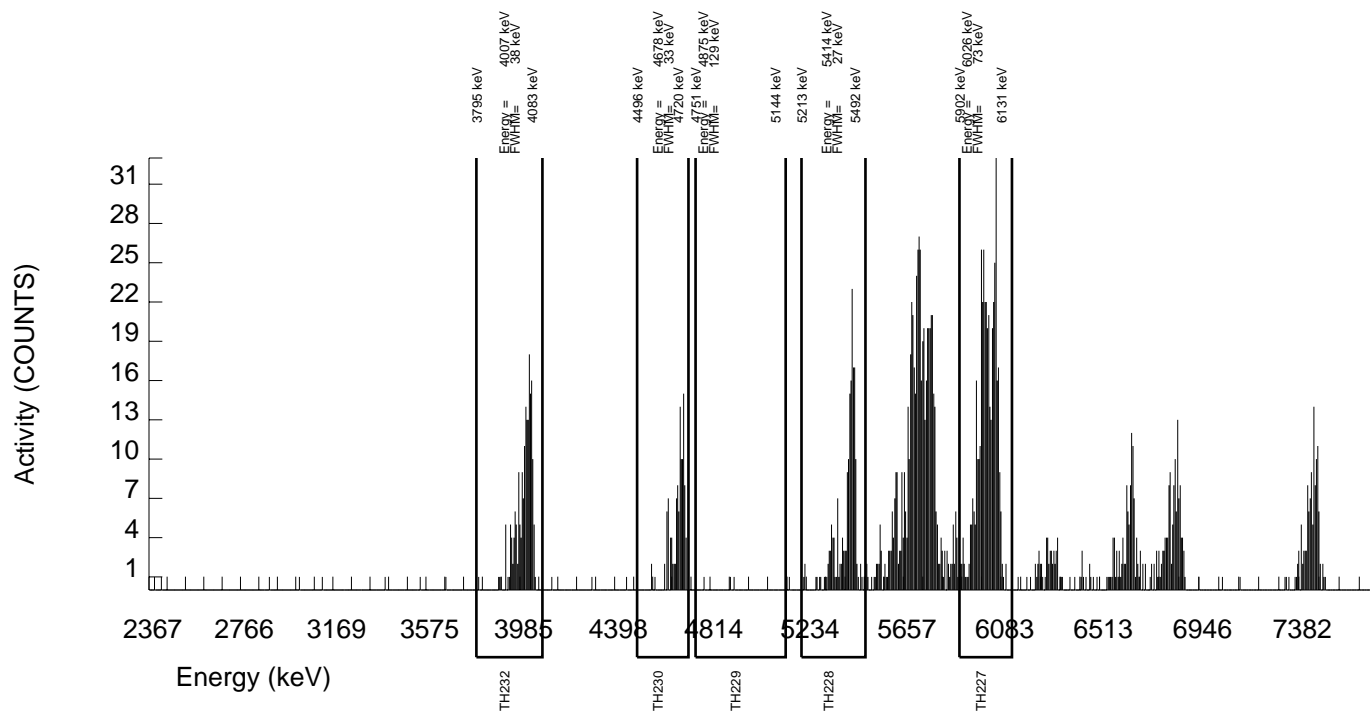
LCS/LCSD  
ID : A2796-J  
ISOTOPE : TH-230  
PCI/G : 8.328E+00

TRACER  
ID : 0387-B-102  
ISOTOPE : AC227  
NOMINAL : 3.90989 dpm  
RESULTS : 2.90950 dpm

LIB FILE : ENV\_ALPHA\_TH.N  
BKG FILE : B195.CNF;112  
BKG DATE : 6-SEP-2009  
EFF FILE : W195.CNF;37  
CAL DATE : 24-AUG-2009

NUCLIDE ACTIVITY SUMMARY

| NUCLIDE | ENERGY   | GROSS AREA | NET AREA | BKG AREA | BKG Sg | %ABUN    | ACTIVITY pCi/G | TPU 1.96-SIGMA | MDA pCi/G | Lc pCi/G | UNC pCi/G |
|---------|----------|------------|----------|----------|--------|----------|----------------|----------------|-----------|----------|-----------|
| AC-227  | 6038.010 | 435.000    | 434.000  | 1.000    | 1.0000 | 68.10000 | 6.85E+00       | 7.75E-01       | 1.21E-01  | 3.67E-02 | 6.46E-01  |
| TH-228  | 5363.000 | 181.000    | 177.000  | 4.000    | 2.0000 | 99.94000 | 1.57E+00       | 2.56E-01       | 1.09E-01  | 4.13E-02 | 2.37E-01  |
| TH229   | 4900.000 | 3.000      | -2.000   | 5.000    | 2.2361 | 99.52000 | -1.77E-02      | 4.92E-02       | 1.19E-01  | 4.62E-02 | 4.92E-02  |
| TH-230  | 4625.000 | 114.000    | 112.000  | 2.000    | 1.4142 | 100.0000 | 9.89E-01       | 1.96E-01       | 8.46E-02  | 2.91E-02 | 1.86E-01  |
| TH-232  | 3972.000 | 189.000    | 187.000  | 2.000    | 1.4142 | 100.0000 | 1.65E+00       | 2.61E-01       | 8.46E-02  | 2.91E-02 | 2.39E-01  |



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 899594  
SAMPLE DATE : 3-SEP-2009 14:50:00.

SAMPLE ID : S0234964014\_TH  
SAMPLE QTY: 0.254 G

DETECTOR NUMBER :68637  
AVERAGE %EFFICIENCY :25.6349  
% YIELD : 88.659

COUNT DATE: 8-SEP-2009 14:08:22  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :KXM4

MS/MSD  
ID : A2796-J  
ISOTOPE : TH-230  
PCI/G : 8.426E+00

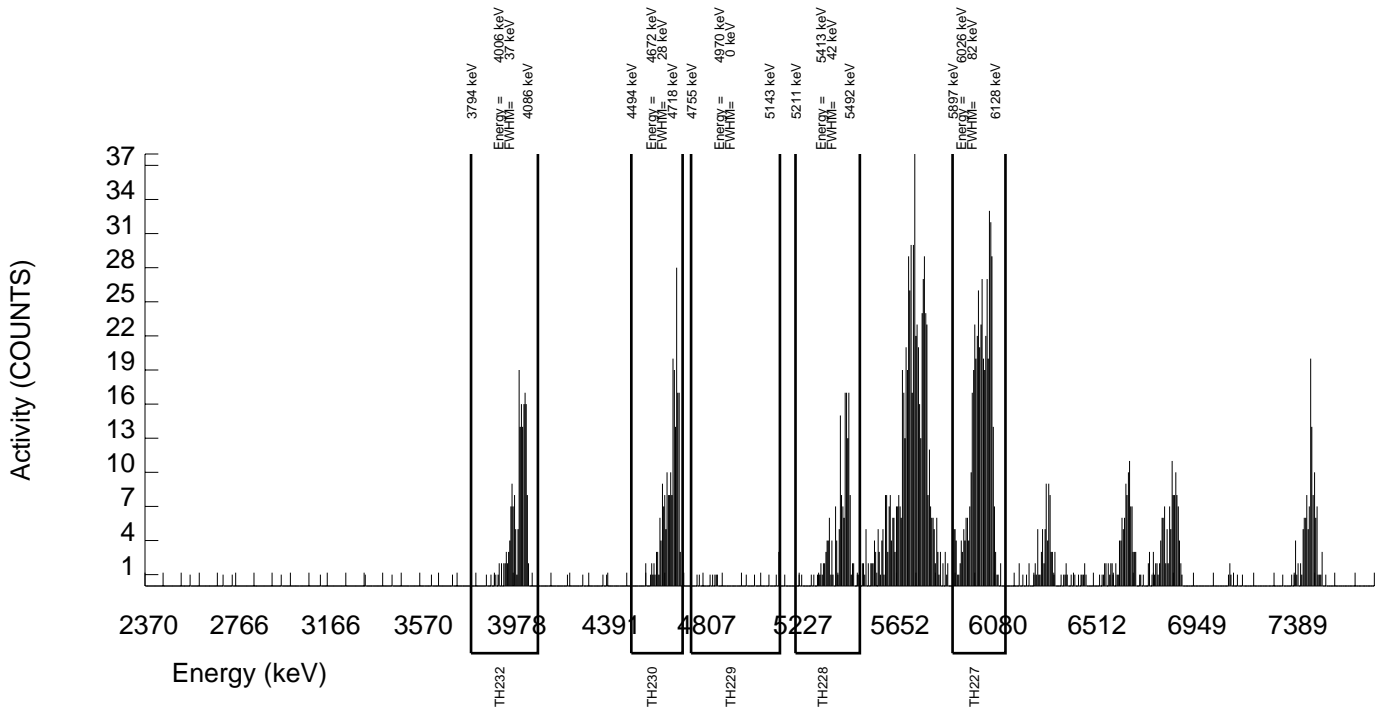
LCS/LCSD  
ID : A2796-J  
ISOTOPE : TH-230  
PCI/G : 8.426E+00

TRACER  
ID : 0387-B-102  
ISOTOPE : AC227  
NOMINAL : 3.90989 dpm  
RESULTS : 3.46647 dpm

LIB FILE : ENV\_ALPHA\_TH.N  
BKG FILE : B196.CNF;107  
BKG DATE : 6-SEP-2009  
EFF FILE : W196.CNF;38  
CAL DATE : 24-AUG-2009

NUCLIDE ACTIVITY SUMMARY

| NUCLIDE | ENERGY   | GROSS AREA | NET AREA | BKG AREA | BKG Sg | %ABUN    | ACTIVITY pCi/G | TPU 1.96-SIGMA | MDA pCi/G | Lc pCi/G | UNC pCi/G |
|---------|----------|------------|----------|----------|--------|----------|----------------|----------------|-----------|----------|-----------|
| AC-227  | 6038.010 | 498.000    | 497.000  | 1.000    | 1.0000 | 68.10000 | 6.93E+00       | 7.37E-01       | 1.07E-01  | 3.25E-02 | 6.11E-01  |
| TH-228  | 5363.000 | 169.000    | 162.000  | 7.000    | 2.6458 | 99.94000 | 1.27E+00       | 2.18E-01       | 1.20E-01  | 4.83E-02 | 2.04E-01  |
| TH229   | 4900.000 | 14.000     | 12.000   | 2.000    | 1.4142 | 99.52000 | 9.41E-02       | 6.17E-02       | 7.51E-02  | 2.58E-02 | 6.15E-02  |
| TH-230  | 4625.000 | 217.000    | 214.000  | 3.000    | 1.7321 | 100.0000 | 1.67E+00       | 2.48E-01       | 8.63E-02  | 3.14E-02 | 2.27E-01  |
| TH-232  | 3972.000 | 189.000    | 187.000  | 2.000    | 1.4142 | 100.0000 | 1.46E+00       | 2.29E-01       | 7.48E-02  | 2.57E-02 | 2.11E-01  |



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 899594  
SAMPLE DATE : 3-SEP-2009 14:50:00.

SAMPLE ID : S0234964015\_TH  
SAMPLE QTY: 0.258 G

DETECTOR NUMBER :78905  
AVERAGE %EFFICIENCY :26.4008  
% YIELD : 77.774

COUNT DATE: 8-SEP-2009 14:08:47  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :KXM4

MS/MSD  
ID : A2796-J  
ISOTOPE : TH-230  
PCI/G : 8.295E+00

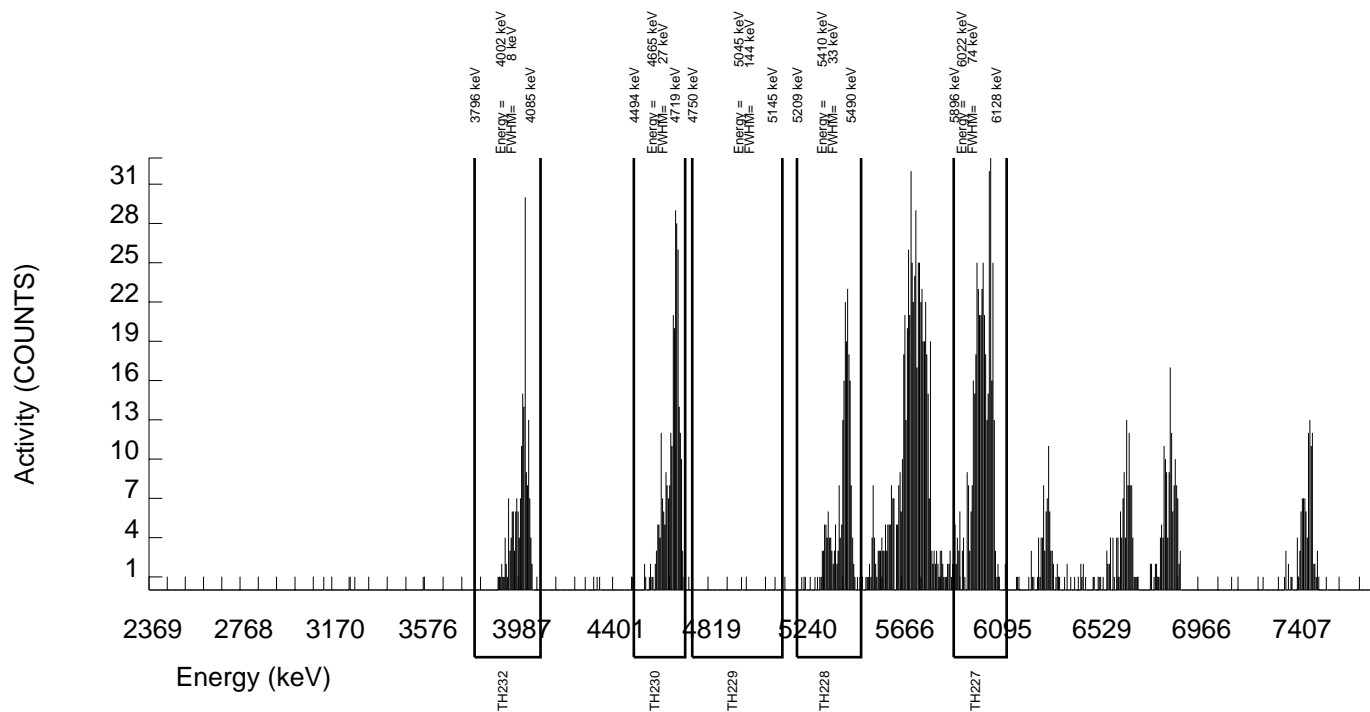
LCS/LCSD  
ID : A2796-J  
ISOTOPE : TH-230  
PCI/G : 8.295E+00

TRACER  
ID : 0387-B-102  
ISOTOPE : AC227  
NOMINAL : 3.90989 dpm  
RESULTS : 3.04086 dpm

LIB FILE : ENV\_ALPHA\_TH.N  
BKG FILE : B203.CNF;52  
BKG DATE : 6-SEP-2009  
EFF FILE : W203.CNF;36  
CAL DATE : 24-AUG-2009

NUCLIDE ACTIVITY SUMMARY

| NUCLIDE | ENERGY   | GROSS AREA | NET AREA | BKG AREA | BKG Sg | %ABUN    | ACTIVITY pCi/G | TPU 1.96-SIGMA | MDA pCi/G | Lc pCi/G | UNC pCi/G |
|---------|----------|------------|----------|----------|--------|----------|----------------|----------------|-----------|----------|-----------|
| AC-227  | 6038.010 | 450.000    | 449.000  | 1.000    | 1.0000 | 68.10000 | 6.83E+00       | 7.52E-01       | 1.16E-01  | 3.54E-02 | 6.33E-01  |
| TH-228  | 5363.000 | 220.000    | 216.000  | 4.000    | 2.0000 | 99.94000 | 1.85E+00       | 2.74E-01       | 1.05E-01  | 3.98E-02 | 2.51E-01  |
| TH229   | 4900.000 | 2.000      | -5.000   | 7.000    | 2.6458 | 99.52000 | -4.27E-02      | 5.02E-02       | 1.31E-01  | 5.26E-02 | 5.02E-02  |
| TH-230  | 4625.000 | 277.000    | 274.000  | 3.000    | 1.7321 | 100.0000 | 2.33E+00       | 3.11E-01       | 9.40E-02  | 3.43E-02 | 2.79E-01  |
| TH-232  | 3972.000 | 186.000    | 184.000  | 2.000    | 1.4142 | 100.0000 | 1.56E+00       | 2.47E-01       | 8.15E-02  | 2.80E-02 | 2.29E-01  |





GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 899594  
SAMPLE DATE : 3-SEP-2009 14:50:00.

SAMPLE ID : S0234964016\_TH  
SAMPLE QTY: 0.254 G

DETECTOR NUMBER :78907  
AVERAGE %EFFICIENCY :25.2346  
% YIELD : 84.630

COUNT DATE: 8-SEP-2009 14:08:50  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :KXM4

MS/MSD  
ID : A2796-J  
ISOTOPE : TH-230  
PCI/G : 8.426E+00

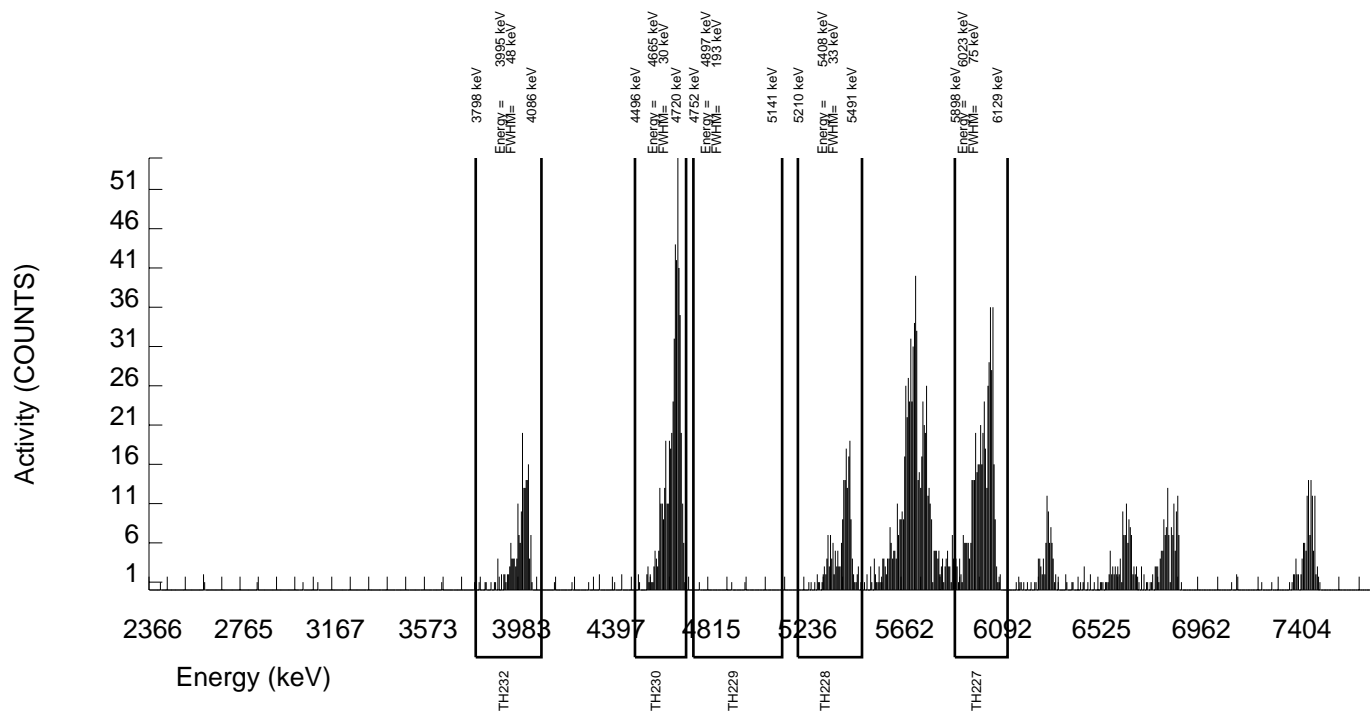
LCS/LCSD  
ID : A2796-J  
ISOTOPE : TH-230  
PCI/G : 8.426E+00

TRACER  
ID : 0387-B-102  
ISOTOPE : AC227  
NOMINAL : 3.90989 dpm  
RESULTS : 3.30893 dpm

LIB FILE : ENV\_ALPHA\_TH.N  
BKG FILE : B204.CNF;52  
BKG DATE : 6-SEP-2009  
EFF FILE : W204.CNF;35  
CAL DATE : 24-AUG-2009

NUCLIDE ACTIVITY SUMMARY

| NUCLIDE | ENERGY   | GROSS AREA | NET AREA | BKG AREA | BKG Sg | %ABUN    | ACTIVITY pCi/G | TPU 1.96-SIGMA | MDA pCi/G | Lc pCi/G | UNC pCi/G |
|---------|----------|------------|----------|----------|--------|----------|----------------|----------------|-----------|----------|-----------|
| AC-227  | 6038.010 | 471.000    | 467.000  | 4.000    | 2.0000 | 68.10000 | 6.93E+00       | 7.57E-01       | 1.83E-01  | 6.91E-02 | 6.34E-01  |
| TH-228  | 5363.000 | 200.000    | 192.000  | 8.000    | 2.8284 | 99.94000 | 1.60E+00       | 2.55E-01       | 1.35E-01  | 5.50E-02 | 2.36E-01  |
| TH229   | 4900.000 | 3.000      | -7.000   | 10.000   | 3.1623 | 99.52000 | -5.84E-02      | 5.90E-02       | 1.48E-01  | 6.14E-02 | 5.90E-02  |
| TH-230  | 4625.000 | 499.000    | 496.000  | 3.000    | 1.7321 | 100.0000 | 4.12E+00       | 4.40E-01       | 9.18E-02  | 3.35E-02 | 3.65E-01  |
| TH-232  | 3972.000 | 186.000    | 184.000  | 2.000    | 1.4142 | 100.0000 | 1.53E+00       | 2.41E-01       | 7.96E-02  | 2.73E-02 | 2.23E-01  |



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 899594  
SAMPLE DATE : 3-SEP-2009 14:50:00.

SAMPLE ID : S0234964017\_TH  
SAMPLE QTY: 0.259 G

DETECTOR NUMBER :78908  
AVERAGE %EFFICIENCY :25.6002  
% YIELD : 64.308

COUNT DATE: 8-SEP-2009 14:08:53  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :KXM4

MS/MSD  
ID : A2796-J  
ISOTOPE : TH-230  
PCI/G : 8.263E+00

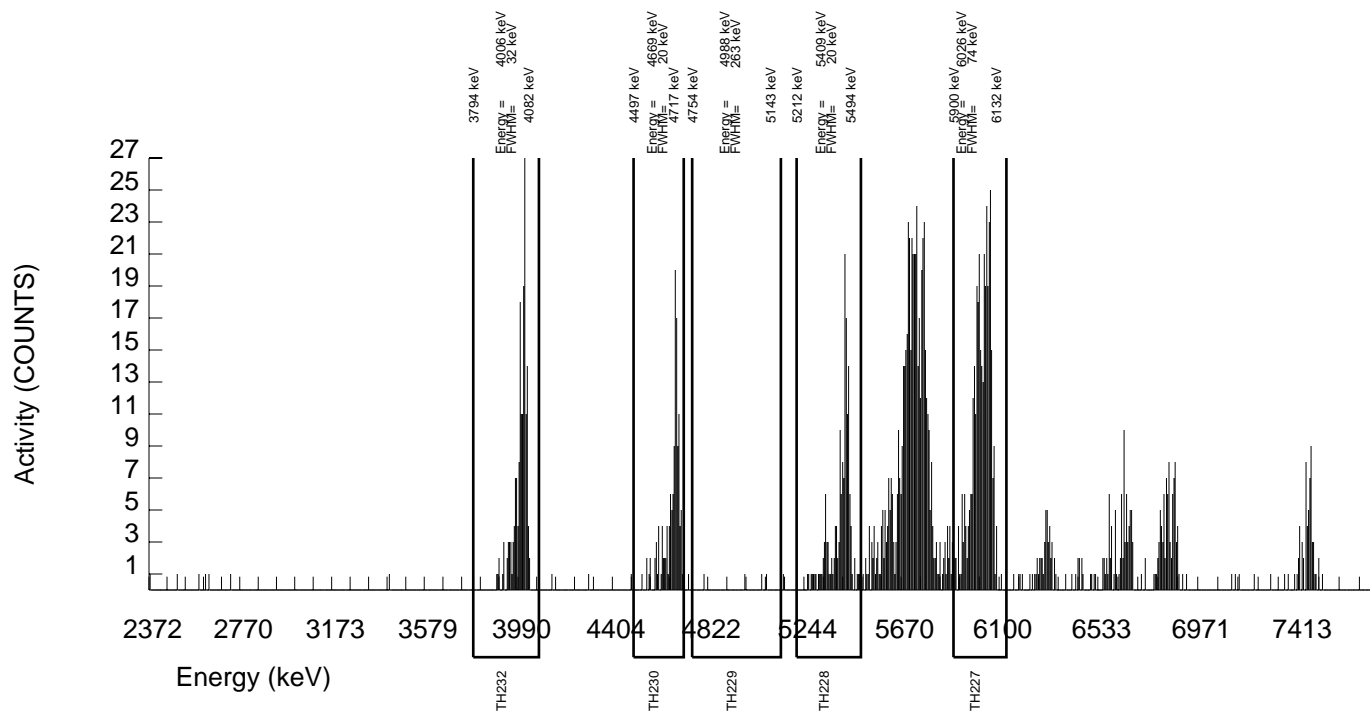
LCS/LCSD  
ID : A2796-J  
ISOTOPE : TH-230  
PCI/G : 8.263E+00

TRACER  
ID : 0387-B-102  
ISOTOPE : AC227  
NOMINAL : 3.90989 dpm  
RESULTS : 2.51436 dpm

LIB FILE : ENV\_ALPHA\_TH.N  
BKG FILE : B205.CNF;52  
BKG DATE : 6-SEP-2009  
EFF FILE : W205.CNF;35  
CAL DATE : 24-AUG-2009

NUCLIDE ACTIVITY SUMMARY

| NUCLIDE | ENERGY   | GROSS AREA | NET AREA | BKG AREA | BKG Sg | %ABUN    | ACTIVITY pCi/G | TPU 1.96-SIGMA | MDA pCi/G | Lc pCi/G | UNC pCi/G |
|---------|----------|------------|----------|----------|--------|----------|----------------|----------------|-----------|----------|-----------|
| AC-227  | 6038.010 | 360.000    | 360.000  | 0.000    | 0.0000 | 68.10000 | 6.80E+00       | 8.10E-01       | 5.67E-02  | 0.00E+00 | 7.02E-01  |
| TH-228  | 5363.000 | 158.000    | 158.000  | 0.000    | 0.0000 | 99.94000 | 1.68E+00       | 2.80E-01       | 3.19E-02  | 0.00E+00 | 2.62E-01  |
| TH229   | 4900.000 | 4.000      | -3.000   | 7.000    | 2.6458 | 99.52000 | -3.18E-02      | 6.90E-02       | 1.63E-01  | 6.53E-02 | 6.90E-02  |
| TH-230  | 4625.000 | 129.000    | 126.000  | 3.000    | 1.7321 | 100.0000 | 1.33E+00       | 2.51E-01       | 1.17E-01  | 4.26E-02 | 2.38E-01  |
| TH-232  | 3972.000 | 170.000    | 168.000  | 2.000    | 1.4142 | 100.0000 | 1.77E+00       | 2.91E-01       | 1.01E-01  | 3.48E-02 | 2.72E-01  |



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 899594  
SAMPLE DATE : 3-SEP-2009 14:50:00.

SAMPLE ID : S0234964018\_TH  
SAMPLE QTY: 0.258 G

DETECTOR NUMBER :78910  
AVERAGE %EFFICIENCY :25.6717  
% YIELD : 50.412

COUNT DATE: 8-SEP-2009 14:08:59  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :KXM4

MS/MSD  
ID : A2796-J  
ISOTOPE : TH-230  
PCI/G : 8.295E+00

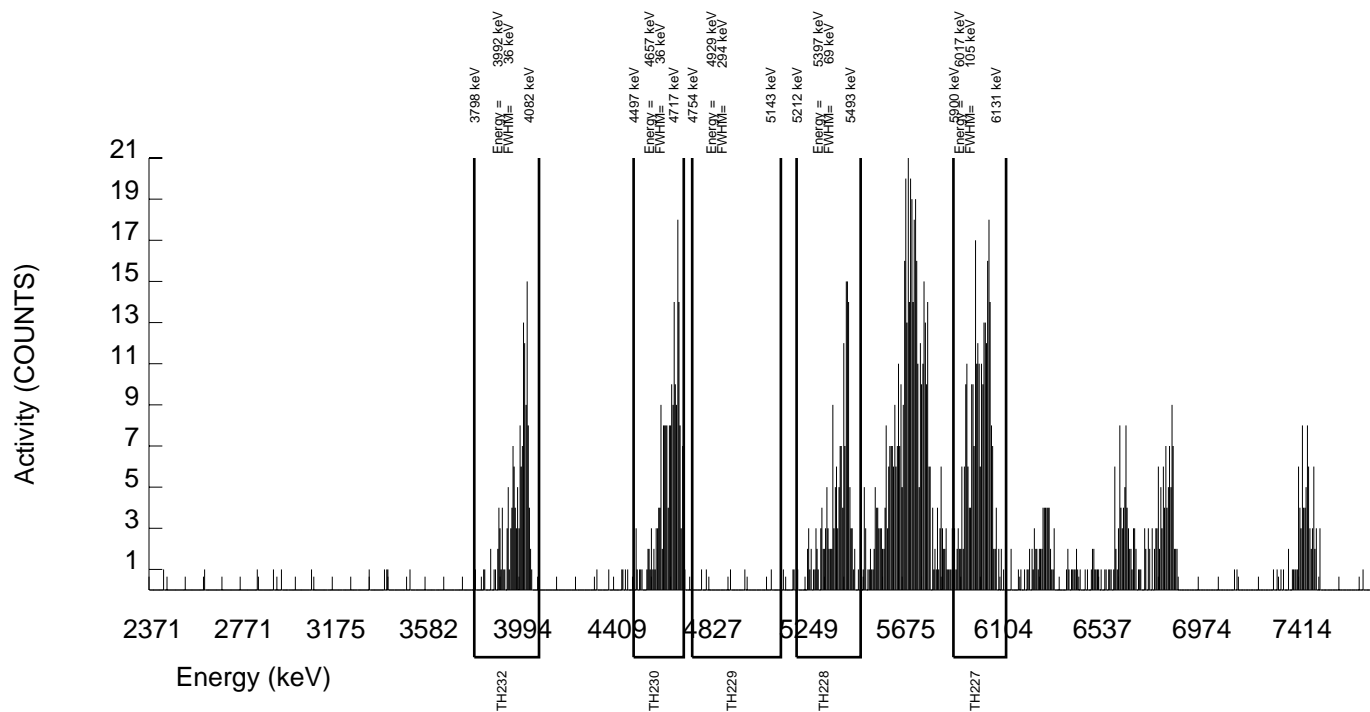
LCS/LCSD  
ID : A2796-J  
ISOTOPE : TH-230  
PCI/G : 8.295E+00

TRACER  
ID : 0387-B-102  
ISOTOPE : AC227  
NOMINAL : 3.90989 dpm  
RESULTS : 1.97107 dpm

LIB FILE : ENV\_ALPHA\_TH.N  
BKG FILE : B207.CNF;52  
BKG DATE : 6-SEP-2009  
EFF FILE : W207.CNF;35  
CAL DATE : 24-AUG-2009

NUCLIDE ACTIVITY SUMMARY

| NUCLIDE | ENERGY   | GROSS AREA | NET AREA | BKG AREA | BKG Sg | %ABUN    | ACTIVITY pCi/G | TPU 1.96-SIGMA | MDA pCi/G | Lc pCi/G | UNC pCi/G |
|---------|----------|------------|----------|----------|--------|----------|----------------|----------------|-----------|----------|-----------|
| AC-227  | 6038.010 | 285.000    | 283.000  | 2.000    | 1.4142 | 68.10000 | 6.83E+00       | 8.98E-01       | 2.31E-01  | 7.94E-02 | 8.01E-01  |
| TH-228  | 5363.000 | 172.000    | 167.000  | 5.000    | 2.2361 | 99.94000 | 2.27E+00       | 3.79E-01       | 1.82E-01  | 7.06E-02 | 3.54E-01  |
| TH229   | 4900.000 | 5.000      | 0.000    | 5.000    | 2.2361 | 99.52000 | 0.00E+00       | 8.40E-02       | 1.82E-01  | 7.05E-02 | 8.40E-02  |
| TH-230  | 4625.000 | 199.000    | 195.000  | 4.000    | 2.0000 | 100.0000 | 2.63E+00       | 4.08E-01       | 1.66E-01  | 6.28E-02 | 3.77E-01  |
| TH-232  | 3972.000 | 152.000    | 149.000  | 3.000    | 1.7321 | 100.0000 | 2.01E+00       | 3.50E-01       | 1.49E-01  | 5.44E-02 | 3.29E-01  |



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 899594  
SAMPLE DATE : 3-SEP-2009 14:50:00.

SAMPLE ID : S0234964019\_TH  
SAMPLE QTY: 0.259 G

DETECTOR NUMBER :78911  
AVERAGE %EFFICIENCY :25.5872  
% YIELD : 63.626

COUNT DATE: 8-SEP-2009 14:09:02  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :KXM4

MS/MSD  
ID : A2796-J  
ISOTOPE : TH-230  
PCI/G : 8.263E+00

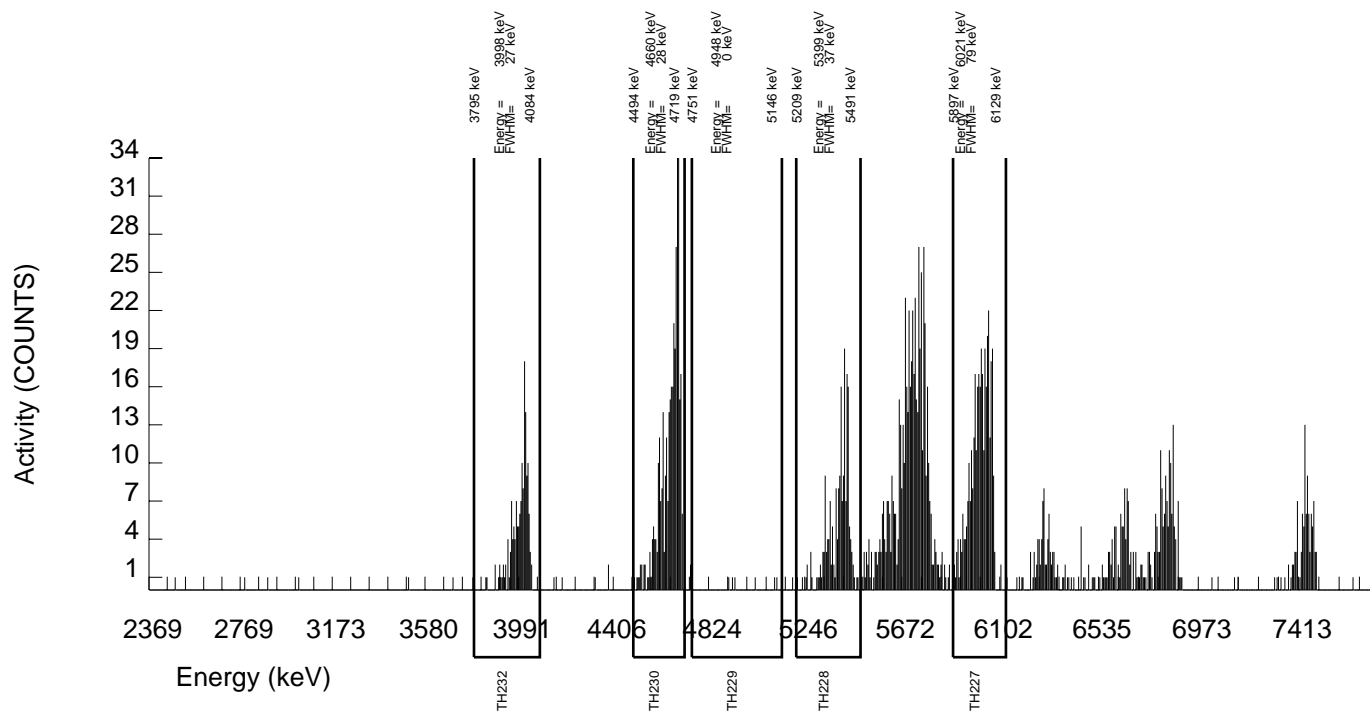
LCS/LCSD  
ID : A2796-J  
ISOTOPE : TH-230  
PCI/G : 8.263E+00

TRACER  
ID : 0387-B-102  
ISOTOPE : AC227  
NOMINAL : 3.90989 dpm  
RESULTS : 2.48770 dpm

LIB FILE : ENV\_ALPHA\_TH.N  
BKG FILE : B208.CNF;52  
BKG DATE : 6-SEP-2009  
EFF FILE : W208.CNF;35  
CAL DATE : 24-AUG-2009

NUCLIDE ACTIVITY SUMMARY

| NUCLIDE | ENERGY   | GROSS AREA | NET AREA | BKG AREA | BKG Sg | %ABUN    | ACTIVITY pCi/G | TPU 1.96-SIGMA | MDA pCi/G | Lc pCi/G | UNC pCi/G |
|---------|----------|------------|----------|----------|--------|----------|----------------|----------------|-----------|----------|-----------|
| AC-227  | 6038.010 | 358.000    | 356.000  | 2.000    | 1.4142 | 68.10000 | 6.80E+00       | 8.17E-01       | 1.83E-01  | 6.28E-02 | 7.10E-01  |
| TH-228  | 5363.000 | 195.000    | 190.000  | 5.000    | 2.2361 | 99.94000 | 2.04E+00       | 3.22E-01       | 1.44E-01  | 5.59E-02 | 2.98E-01  |
| TH229   | 4900.000 | 8.000      | 3.000    | 5.000    | 2.2361 | 99.52000 | 3.22E-02       | 7.59E-02       | 1.44E-01  | 5.58E-02 | 7.59E-02  |
| TH-230  | 4625.000 | 355.000    | 354.000  | 1.000    | 1.0000 | 100.0000 | 3.78E+00       | 4.54E-01       | 8.18E-02  | 2.49E-02 | 3.95E-01  |
| TH-232  | 3972.000 | 153.000    | 146.000  | 7.000    | 2.6458 | 100.0000 | 1.56E+00       | 2.81E-01       | 1.64E-01  | 6.58E-02 | 2.65E-01  |



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 899594  
SAMPLE DATE : 3-SEP-2009 14:50:00.

SAMPLE ID : S1201916362\_TH  
SAMPLE QTY: 0.259 G

DETECTOR NUMBER :68620  
AVERAGE %EFFICIENCY :25.2055  
% YIELD : 81.097

COUNT DATE: 8-SEP-2009 14:07:48  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :KXM4

MS/MSD  
ID : A2796-J  
ISOTOPE : TH-230  
PCI/G : 8.263E+00

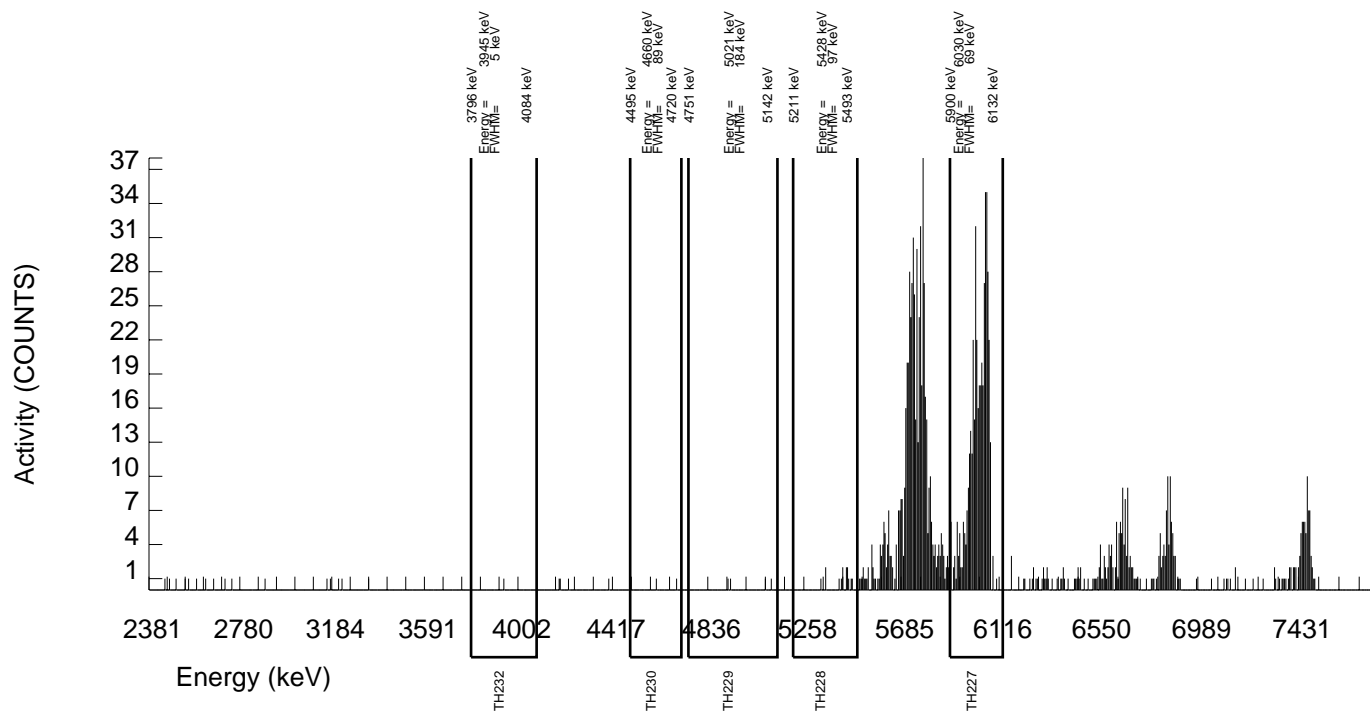
LCS/LCSD  
ID : A2796-J  
ISOTOPE : TH-230  
PCI/G : 8.263E+00

TRACER  
ID : 0387-B-102  
ISOTOPE : AC227  
NOMINAL : 3.90989 dpm  
RESULTS : 3.17080 dpm

LIB FILE : ENV\_ALPHA\_TH.N  
BKG FILE : B187.CNF;106  
BKG DATE : 6-SEP-2009  
EFF FILE : W187.CNF;38  
CAL DATE : 24-AUG-2009

NUCLIDE ACTIVITY SUMMARY

| NUCLIDE | ENERGY   | GROSS AREA | NET AREA | BKG AREA | BKG Sg | %ABUN    | ACTIVITY pCi/G | TPU 1.96-SIGMA | MDA pCi/G | Lc pCi/G | UNC pCi/G |
|---------|----------|------------|----------|----------|--------|----------|----------------|----------------|-----------|----------|-----------|
| AC-227  | 6038.010 | 447.000    | 447.000  | 0.000    | 0.0000 | 68.10000 | 6.80E+00       | 7.60E-01       | 4.56E-02  | 0.00E+00 | 6.30E-01  |
| TH-228  | 5363.000 | 14.000     | 5.000    | 9.000    | 3.0000 | 99.94000 | 4.28E-02       | 8.05E-02       | 1.45E-01  | 5.97E-02 | 8.04E-02  |
| TH229   | 4900.000 | 4.000      | -1.000   | 5.000    | 2.2361 | 99.52000 | -8.55E-03      | 5.03E-02       | 1.15E-01  | 4.45E-02 | 5.03E-02  |
| TH-230  | 4625.000 | 2.000      | 1.000    | 1.000    | 1.0000 | 100.0000 | 8.51E-03       | 2.89E-02       | 6.51E-02  | 1.98E-02 | 2.89E-02  |
| TH-232  | 3972.000 | 1.000      | -1.000   | 2.000    | 1.4142 | 100.0000 | -8.51E-03      | 2.89E-02       | 8.15E-02  | 2.80E-02 | 2.89E-02  |



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 899594  
SAMPLE DATE : 3-SEP-2009 14:50:00.

SAMPLE ID : S1201916363\_TH  
SAMPLE QTY: 0.258 G

DETECTOR NUMBER :68635  
AVERAGE %EFFICIENCY :25.5915  
% YIELD : 65.758

COUNT DATE: 8-SEP-2009 14:08:17  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :KXM4

MS/MSD  
ID : A2796-J  
ISOTOPE : TH-230  
PCI/G : 8.295E+00

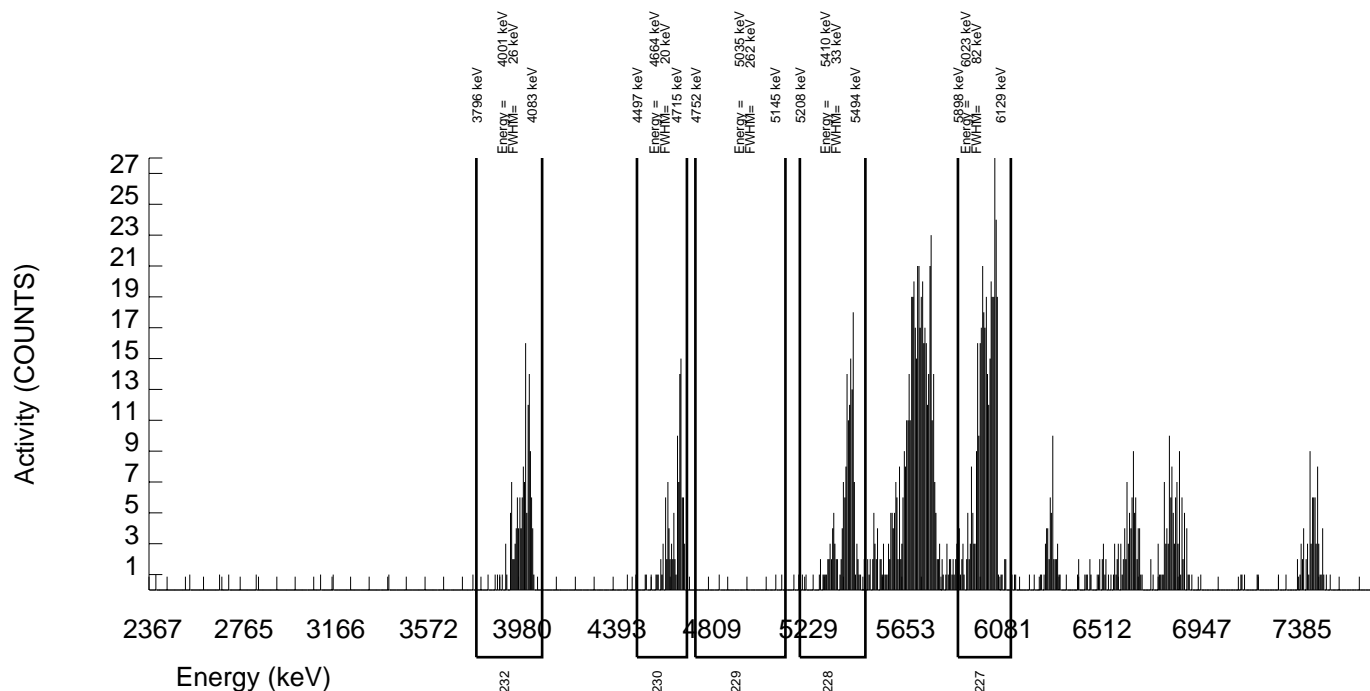
LCS/LCSD  
ID : A2796-J  
ISOTOPE : TH-230  
PCI/G : 8.295E+00

TRACER  
ID : 0387-B-102  
ISOTOPE : AC227  
NOMINAL : 3.90989 dpm  
RESULTS : 2.57107 dpm

LIB FILE : ENV\_ALPHA\_TH.N  
BKG FILE : B194.CNF;106  
BKG DATE : 6-SEP-2009  
EFF FILE : W194.CNF;38  
CAL DATE : 24-AUG-2009

NUCLIDE ACTIVITY SUMMARY

| NUCLIDE | ENERGY   | GROSS AREA | NET AREA | BKG AREA | BKG Sg | %ABUN    | ACTIVITY pCi/G | TPU 1.96-SIGMA | MDA pCi/G | Lc pCi/G | UNC pCi/G |
|---------|----------|------------|----------|----------|--------|----------|----------------|----------------|-----------|----------|-----------|
| AC-227  | 6038.010 | 369.000    | 368.000  | 1.000    | 1.0000 | 68.10000 | 6.83E+00       | 8.08E-01       | 1.42E-01  | 4.32E-02 | 6.99E-01  |
| TH-228  | 5363.000 | 164.000    | 154.000  | 10.000   | 3.1623 | 99.94000 | 1.61E+00       | 2.86E-01       | 1.85E-01  | 7.68E-02 | 2.70E-01  |
| TH229   | 4900.000 | 3.000      | 1.000    | 2.000    | 1.4142 | 99.52000 | 1.04E-02       | 4.57E-02       | 9.99E-02  | 3.43E-02 | 4.57E-02  |
| TH-230  | 4625.000 | 108.000    | 107.000  | 1.000    | 1.0000 | 100.0000 | 1.11E+00       | 2.22E-01       | 7.94E-02  | 2.41E-02 | 2.12E-01  |
| TH-232  | 3972.000 | 140.000    | 137.000  | 3.000    | 1.7321 | 100.0000 | 1.42E+00       | 2.57E-01       | 1.15E-01  | 4.18E-02 | 2.43E-01  |



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ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 899594  
SAMPLE DATE : 3-SEP-2009 14:50:00.

SAMPLE ID : S1201916364\_TH  
SAMPLE QTY: 0.255 G

DETECTOR NUMBER :67042  
AVERAGE %EFFICIENCY :33.5313  
% YIELD : 79.394

COUNT DATE: 8-SEP-2009 12:05:32  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :KXM4

MS/MSD  
ID : A2796-J  
ISOTOPE : TH-230  
PCI/G : 8.393E+00

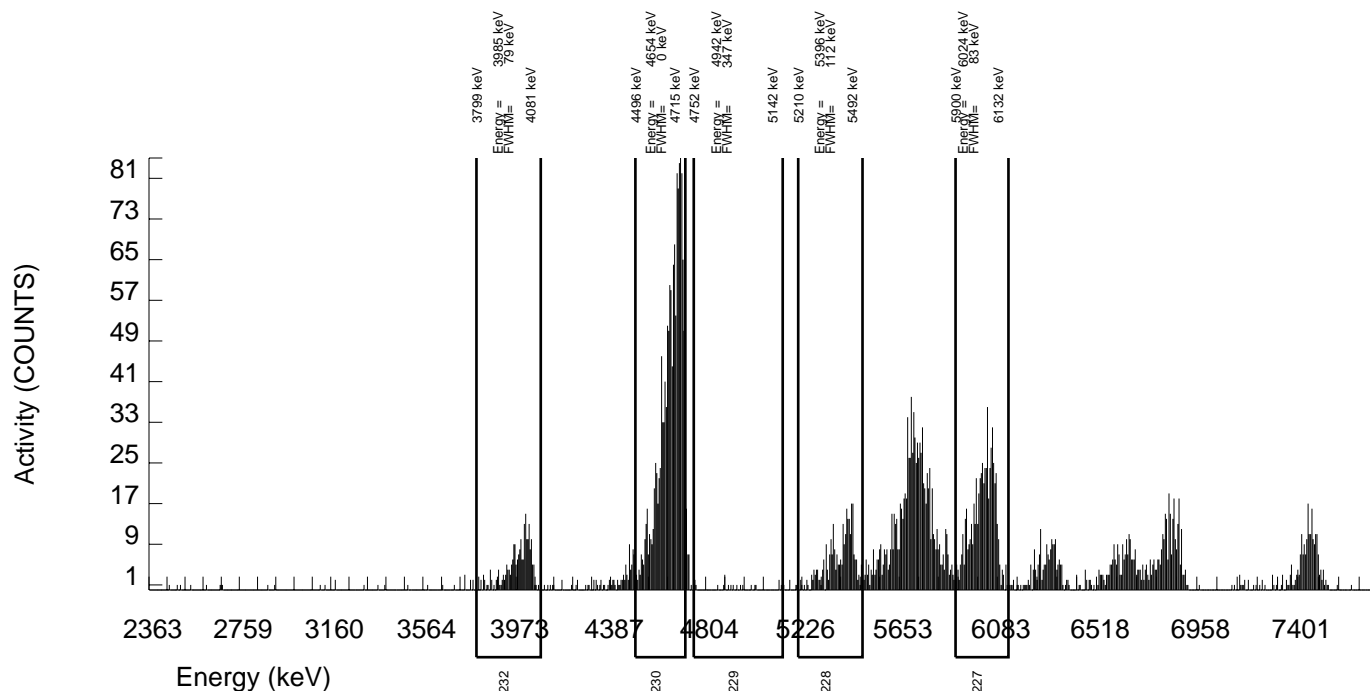
LCS/LCSD  
ID : A2796-J  
ISOTOPE : TH-230  
PCI/G : 8.393E+00

TRACER  
ID : 0387-B-102  
ISOTOPE : AC227  
NOMINAL : 3.90989 dpm  
RESULTS : 3.10422 dpm

LIB FILE : ENV\_ALPHA\_TH.N  
BKG FILE : B031.CNF;1059  
BKG DATE : 6-SEP-2009  
EFF FILE : W031.CNF;329  
CAL DATE : 5-SEP-2009

NUCLIDE ACTIVITY SUMMARY

| NUCLIDE | ENERGY   | GROSS AREA | NET AREA | BKG AREA | BKG Sg | %ABUN    | ACTIVITY pCi/G | TPU 1.96-SIGMA | MDA pCi/G | Lc pCi/G | UNC pCi/G |
|---------|----------|------------|----------|----------|--------|----------|----------------|----------------|-----------|----------|-----------|
| AC-227  | 6038.010 | 600.000    | 584.000  | 16.000   | 4.0000 | 68.10000 | 6.91E+00       | 7.07E-01       | 2.56E-01  | 1.10E-01 | 5.75E-01  |
| TH-228  | 5363.000 | 288.000    | 254.000  | 34.000   | 5.8310 | 99.94000 | 1.70E+00       | 2.55E-01       | 2.01E-01  | 9.05E-02 | 2.35E-01  |
| TH229   | 4900.000 | 20.000     | 10.000   | 10.000   | 3.1623 | 99.52000 | 6.67E-02       | 7.17E-02       | 1.18E-01  | 4.90E-02 | 7.16E-02  |
| TH-230  | 4625.000 | 1429.000   | 1421.000 | 8.000    | 2.8284 | 100.0000 | 9.43E+00       | 7.47E-01       | 1.07E-01  | 4.37E-02 | 4.93E-01  |
| TH-232  | 3972.000 | 221.000    | 216.000  | 5.000    | 2.2361 | 100.0000 | 1.43E+00       | 2.13E-01       | 8.89E-02  | 3.45E-02 | 1.96E-01  |



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ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 899594  
SAMPLE DATE : 3-SEP-2009 14:50:00.

SAMPLE ID : S1201916365\_TH  
SAMPLE QTY: 0.259 G

DETECTOR NUMBER :78202  
AVERAGE %EFFICIENCY :30.5099  
% YIELD : 84.119

COUNT DATE: 8-SEP-2009 12:05:32  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :KXM4

MS/MSD  
ID : A2796-J  
ISOTOPE : TH-230  
PCI/G : 8.263E+00

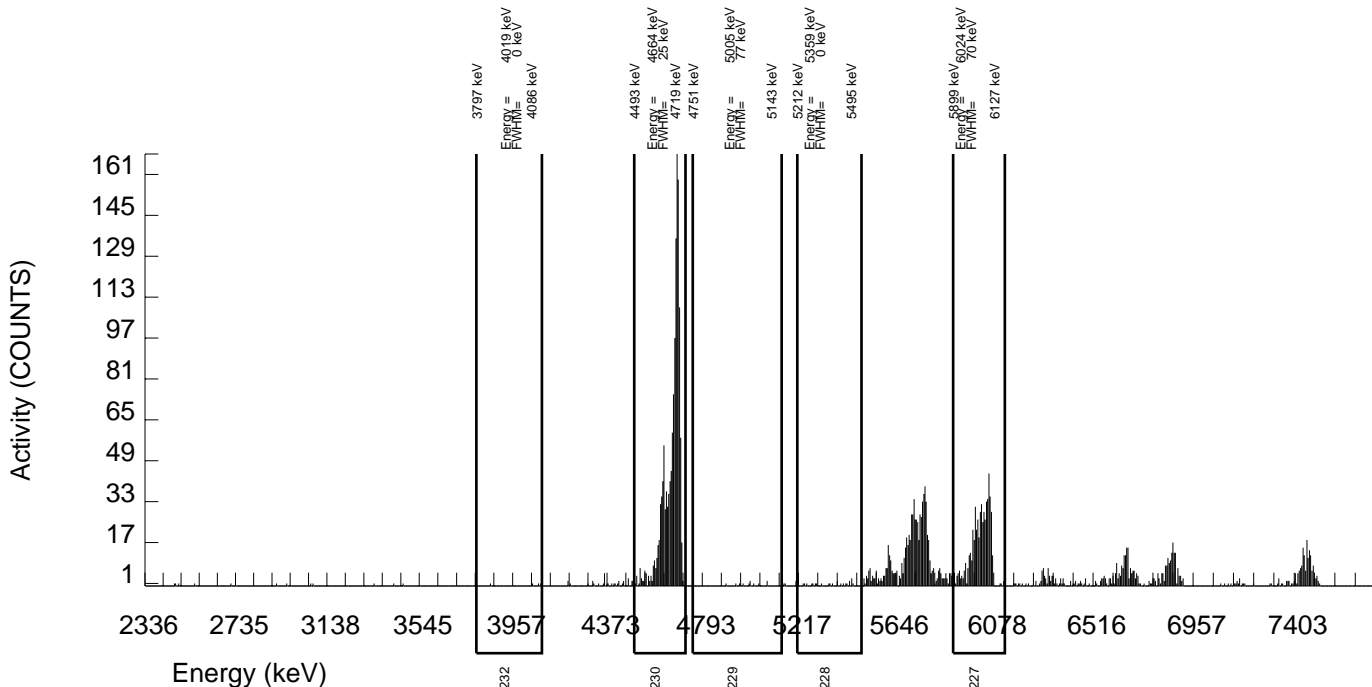
LCS/LCSD  
ID : A2796-J  
ISOTOPE : TH-230  
PCI/G : 8.263E+00

TRACER  
ID : 0387-B-102  
ISOTOPE : AC227  
NOMINAL : 3.90989 dpm  
RESULTS : 3.28896 dpm

LIB FILE : ENV\_ALPHA\_TH.N  
BKG FILE : B035.CNF;1056  
BKG DATE : 6-SEP-2009  
EFF FILE : W035.CNF;308  
CAL DATE : 5-SEP-2009

NUCLIDE ACTIVITY SUMMARY

| NUCLIDE | ENERGY   | GROSS AREA | NET AREA | BKG AREA | BKG Sg | %ABUN    | ACTIVITY pCi/G | TPU 1.96-SIGMA | MDA pCi/G | Lc pCi/G | UNC pCi/G |
|---------|----------|------------|----------|----------|--------|----------|----------------|----------------|-----------|----------|-----------|
| AC-227  | 6038.010 | 565.000    | 563.000  | 2.000    | 1.4142 | 68.10000 | 6.80E+00       | 6.93E-01       | 1.16E-01  | 3.97E-02 | 5.64E-01  |
| TH-228  | 5363.000 | 25.000     | 14.000   | 11.000   | 3.3166 | 99.94000 | 9.54E-02       | 8.04E-02       | 1.26E-01  | 5.26E-02 | 8.02E-02  |
| TH229   | 4900.000 | 11.000     | -3.000   | 14.000   | 3.7417 | 99.52000 | -2.04E-02      | 6.67E-02       | 1.39E-01  | 5.93E-02 | 6.67E-02  |
| TH-230  | 4625.000 | 1381.000   | 1376.000 | 5.000    | 2.2361 | 100.0000 | 9.32E+00       | 7.42E-01       | 9.08E-02  | 3.53E-02 | 4.94E-01  |
| TH-232  | 3972.000 | 4.000      | 0.000    | 4.000    | 2.0000 | 100.0000 | 0.00E+00       | 3.76E-02       | 8.34E-02  | 3.15E-02 | 3.76E-02  |





# URANIUM

### Radiochemistry Batch Checklist, Rev 9

Batch# 893 946 Product: V Date: 8/31/09

| Criteria:   | Yes | No | Comments |
|---|-----|----|----------|
| Sample Solids are less than or equal to 100 mg for GAB.   |     |    | N/A      |
| Samples have been blank corrected (if required)   |     |    | N/A      |
| If activity less 10* MDA/ MDC, error is 150% or less of sample activity. If greater 10* MDA/ MDC, error is 40% or less. If below the MDA/ MDC, error is okay. | ✓   |    |          |
| Instrument source check is within limits.   | ✓   |    |          |
| Instrument bkg check is within limits.  | ✓   |    |          |
| Method RDL/ LLD has been met.   | ✓   |    |          |
| If duplicate activities are less 5* MDA/ MDC, then RPD is 100% or less. If greater 5* MDA/ MDC, then RPD 20% or less. If below the MDA/ MDC, the RPD is 0%.   | ✓   |    |          |
| Or meets the client's required RER acceptance criteria.   |     |    |          |
| Tracer yield is 15-125% . Carrier yield 25-125%.  | ✓   |    |          |
| Or meets the client's contract acceptance criteria.   |     |    |          |
| Method blank is less than the RDL/ LLD.<br>(If rad samples, < 5% of lowest activity)  | ✓   |    |          |
| Sample was run within hold time.  | ✓   |    |          |
| Sample was correctly preserved if required.   | ✓   |    |          |
| Smears Taken for Radioactive batches.   |     |    | N/A      |
| Method Spike and LCS are within 75-125% or meets the client's contract acceptance criteria.   | ✓   |    |          |
| No blank spaces on data forms.  |     |    |          |
| All line outs initialed and dated.  | ✓   |    |          |
| No transcription errors are apparent.   |     |    |          |
| Aux data is correct.  |     |    | N/A      |
| Client Special requirements page has been checked.  | ✓   |    |          |
| Raw Data and/ or spectrum are included and properly stated.   | ✓   |    |          |
| QC data entered into QC database and batch is in REVW   | ✓   |    |          |
| Hit notification complete (if necessary)  |     |    | N/A      |
| Batch entered into Case Narrative.  | ✓   |    |          |
| Batch non-conformances completed, if applicable.  |     |    | N/A      |
| Batch non-conformances second reviewed and disposition verified to be completed.  |     |    | N/A      |
| Aliquot Correction completed if required.   |     |    | N/A      |
| Review sample historical results if available<br>(If REMP, results above MDC have been verified by historical results, recount or re-analysis.)               | ✓   |    |          |

GEL Laboratories, LLC

revised 8/1/08

Primary Review Performed By: Jop LMI - 8/31/09

Secondary Review Performed By: not chld 9/1/09

8/24 9/4

KERR

# Uranium Que Sheet

17-AUG-09

Batch #: 893946    Analyst: JXD2    First Client Due Date: 04-SEP-09    Internal Due Date: 24-AUG-09  
 Tracer Isotope: U-232/U-236    Tracer Code: 283-ε    Expiration Date: 01/15/10    Vol: 0.1  
 LCS Isotope: U-238    LCS Code: 163-ε    Expiration Date: 04/16/10    Vol: 0.1  
 Spike Isotope: U-238    Spike Code: \_\_\_\_\_    Expiration Date: \_\_\_\_\_    Vol: \_\_\_\_\_  
 Prep Date: 07/27/09    Initials: gbd    Pipet ID: 2571058    Balance ID: 16350207

Witness: WU 8/17/09

| Sample ID    | Client Description   | Type   | Hazard Code | Min CRDL  | Matrix | Client     | Collection Date | Pos. | Label # | Wet/Dry Aliquot (g UF) | U Det # |
|--------------|----------------------|--------|-------------|-----------|--------|------------|-----------------|------|---------|------------------------|---------|
| 234654021-1  | EB080609-SO          | SAMPLE |             | .03 pCi/L | WATER  | KERR003    | 06-AUG-09       | 1    | 1       | 0.800                  | 152     |
| 234964020-1  | EB081009-SO2         | SAMPLE |             | .03 pCi/L | WATER  | KERR003    | 10-AUG-09       | 2    | 2       | 0.800                  | 114     |
| 1201902402-1 | MB for batch 893946  | MB     |             | .03 pCi/L | WATER  | QC ACCOUNT |                 | 3    | 3       | 0.800                  | 154     |
| 1201902407-1 | LCS for batch 893946 | LCS    |             | .03 pCi/L | WATER  | QC ACCOUNT |                 | 4    | 4       | 0.800                  | 155     |
| 1201903407-1 | LCS for batch 893946 | LCS    |             | .03 pCi/L | WATER  | QC ACCOUNT | 06-AUG-09       | 5    | 5       | 0.800                  | 156     |

09 8/24/09

Choose SOP used: GL-RAD-A-011  
 GL-RAD-A-038  
 GL-RAD-A-045  
 GL-RAD-A-043

Solid Sample Dissolution by: LEACH or DIGESTION  
Circle One

Data Reviewed By: JPLML-8/31/09  
8/31/09

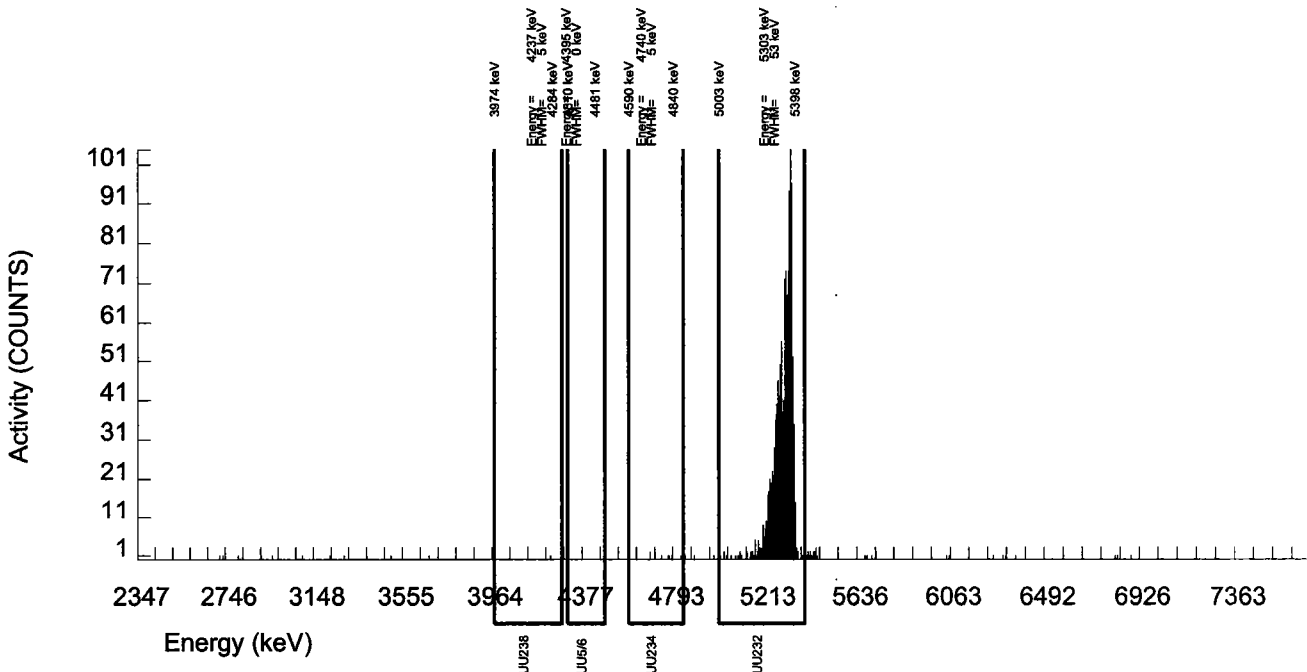
GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

|  |   |   |   |
|--|---|---|---|
| BATCH NUMBER: 893946<br>SAMPLE DATE : 10-AUG-2009 00:00:00                 |   | SAMPLE ID : S0234964020_UU<br>SAMPLE QTY: 0.800 L   |   |
| DETECTOR NUMBER :78258<br>AVERAGE %EFFICIENCY :25.6694<br>% YIELD : 93.468 |   | COUNT DATE:28-AUG-2009 16:04:44<br>ELAPSED LIVE TIME(SEC): 60000.00<br>ANALYST :JXD2      |   |
| MS/MSD<br>ID : 1163-G<br>ISOTOPE : U-238<br>PCI/L : 3.149E+00              | LCS/LCSD<br>ID : 1163-G<br>ISOTOPE : U-238<br>PCI/L : 3.149E+00 | TRACER<br>ID : 1283-E<br>ISOTOPE : U232<br>NOMINAL : 5.26260 dpm<br>RESULTS : 4.91883 dpm | LIB FILE : ENV_ALPHA_UU.N<br>BKG FILE : B114.CNF;389<br>BKG DATE : 23-AUG-2009<br>EFF FILE : W114.CNF;108<br>CAL DATE : 17-AUG-2009 |

NUCLIDE ACTIVITY SUMMARY

| NUCLIDE | ENERGY   | GROSS AREA | NET AREA | BKG AREA | BKG Sg | %ABUN    | ACTIVITY pCi/L | TPU 1.96-SIGMA | MDA pCi/L | Lc pCi/L | UNC pCi/L |
|---------|----------|------------|----------|----------|--------|----------|----------------|----------------|-----------|----------|-----------|
| U-3/4   | 4763.020 | 8.000      | 3.188    | 1.000    | 1.0000 | 100.0000 | 7.48E-03       | 1.05E-02       | 1.80E-02  | 5.46E-03 | 1.05E-02  |
| U232    | 5302.100 | 1264.000   | 1262.000 | 2.000    | 1.4142 | 100.0000 | 2.96E+00       | 4.35E-01       | 2.25E-02  | 7.72E-03 | 1.64E-01  |
| U-235   | 4391.000 | 0.000      | 0.000    | 0.000    | 0.0000 | 80.90000 | 0.00E+00       | 5.70E-03       | 8.70E-03  | 0.00E+00 | 5.69E-03  |
| U-238   | 4184.730 | 1.000      | -2.000   | 3.000    | 1.7321 | 100.0000 | -4.69E-03      | 9.21E-03       | 2.60E-02  | 9.46E-03 | 9.20E-03  |

NOTE: Corrections made to U-3/4 net area due to tracer impurity



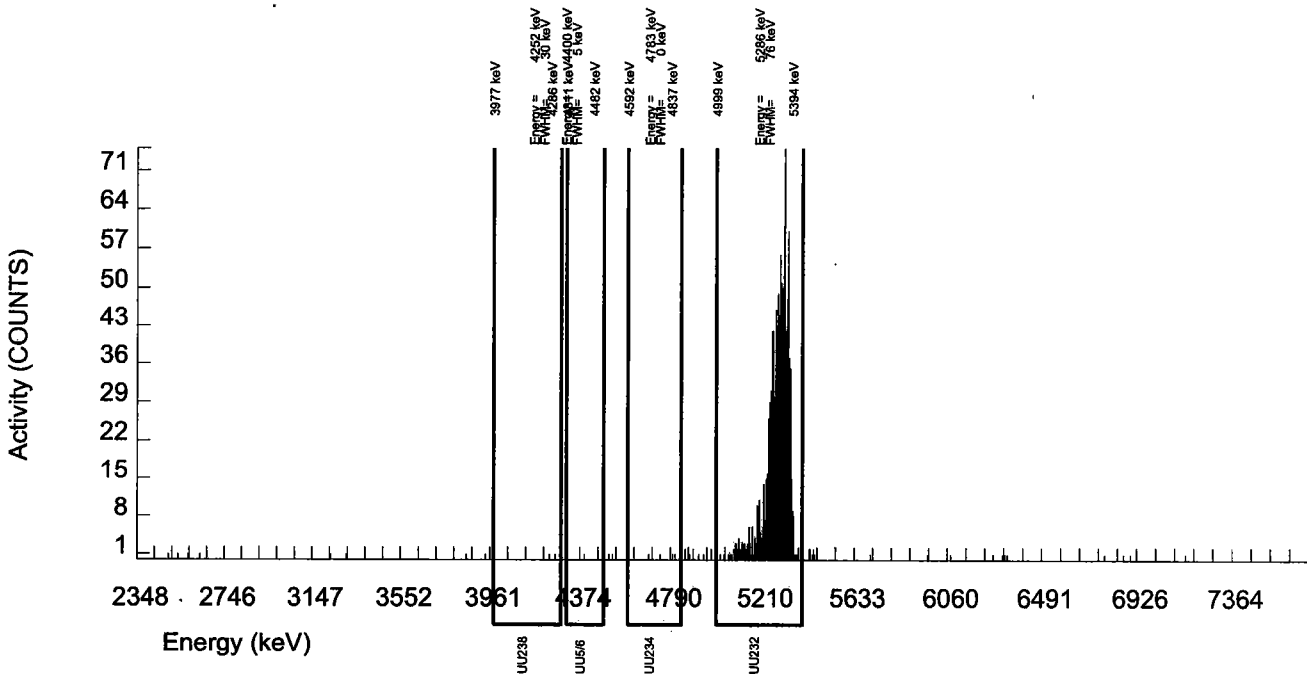
GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

|  |   |   |  |
|--|---|---|--|
| BATCH NUMBER: 893946<br>SAMPLE DATE : 17-AUG-2009 00:00:00                 |   | SAMPLE ID : S1201902402_UU<br>SAMPLE QTY: 0.800 L   |  |
| DETECTOR NUMBER :76224<br>AVERAGE %EFFICIENCY :25.5940<br>% YIELD : 80.582 |   | COUNT DATE:22-AUG-2009 17:58:20<br>ELAPSED LIVE TIME(SEC): 60000.00<br>ANALYST :JXD2      |  |
| MS/MSD<br>ID : 1163-G<br>ISOTOPE : U-238<br>PCI/L : 3.149E+00              | LCS/LCSD<br>ID : 1163-G<br>ISOTOPE : U-238<br>PCI/L : 3.149E+00 | TRACER<br>ID : 1283-E<br>ISOTOPE : U232<br>NOMINAL : 5.26164 dpm<br>RESULTS : 4.23995 dpm | LIB FILE : ENV_ALPHA_UU.N<br>BKG FILE : B154.CNF;335<br>BKG DATE : 16-AUG-2009<br>EFF FILE : W154.CNF;96<br>CAL DATE : 17-AUG-2009 |

NUCLIDE ACTIVITY SUMMARY

| NUCLIDE | ENERGY   | GROSS AREA | NET AREA | BKG AREA | BKG Sg | %ABUN    | ACTIVITY pCi/L | TPU 1.96-SIGMA | MDA pCi/L | Lc pCi/L | UNC pCi/L |
|---------|----------|------------|----------|----------|--------|----------|----------------|----------------|-----------|----------|-----------|
| U-3/4   | 4763.020 | 6.000      | -1.277   | 4.000    | 2.0000 | 100.0000 | -3.49E-03      | 1.39E-02       | 3.36E-02  | 1.27E-02 | 1.39E-02  |
| U232    | 5302.100 | 1093.000   | 1085.000 | 8.000    | 2.8284 | 100.0000 | 2.96E+00       | 4.46E-01       | 4.41E-02  | 1.80E-02 | 1.78E-01  |
| U-235   | 4391.000 | 1.000      | 0.000    | 1.000    | 1.0000 | 80.90000 | 0.00E+00       | 9.37E-03       | 2.58E-02  | 7.85E-03 | 9.35E-03  |
| U-238   | 4184.730 | 2.000      | 2.000    | 0.000    | 0.0000 | 100.0000 | 5.46E-03       | 7.60E-03       | 8.19E-03  | 0.00E+00 | 7.57E-03  |

NOTE: Corrections made to U-3/4 net area due to tracer impurity



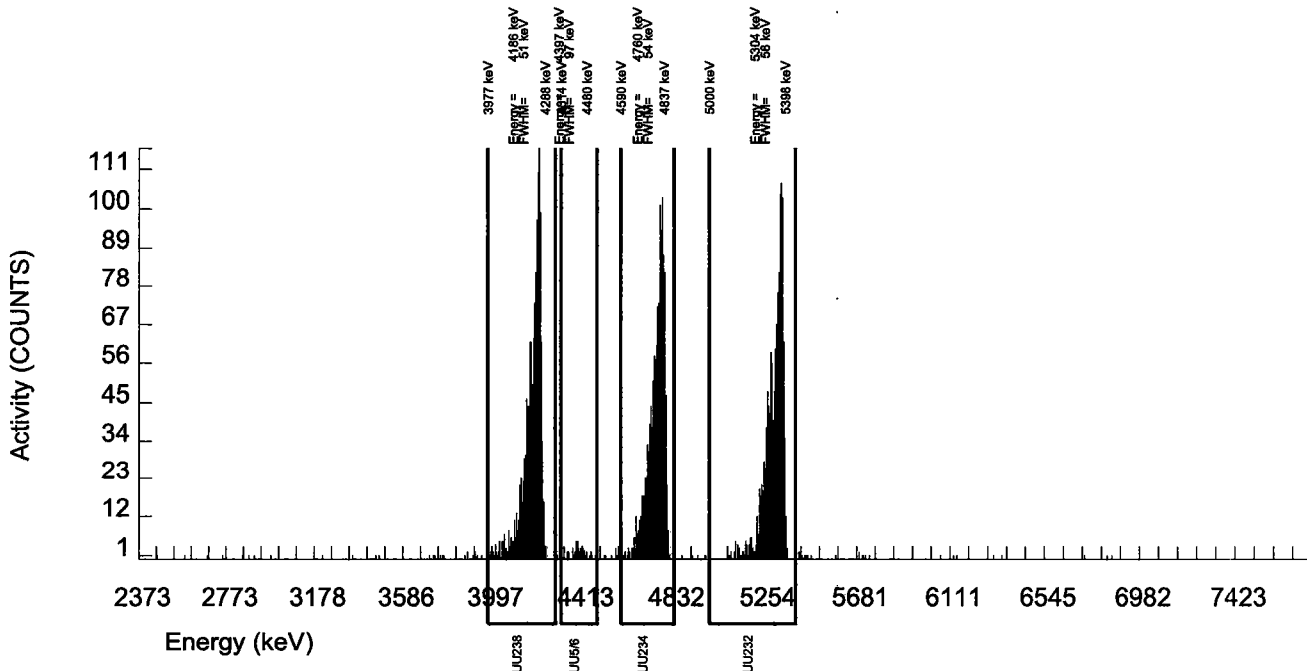
GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

|  |   |   |   |
|--|---|---|---|
| BATCH NUMBER: 893946<br>SAMPLE DATE : 17-AUG-2009 00:00:00                 |   | SAMPLE ID : S1201902407_UU<br>SAMPLE QTY: 0.800 L   |   |
| DETECTOR NUMBER :75553<br>AVERAGE %EFFICIENCY :26.0403<br>% YIELD : 94.166 |   | COUNT DATE:22-AUG-2009 17:58:23<br>ELAPSED LIVE TIME(SEC): 60000.00<br>ANALYST :JXD2      |   |
| MS/MSD<br>ID : 1163-G<br>ISOTOPE : U-238<br>PCI/L : 3.149E+00              | LCS/LCSD<br>ID : 1163-G<br>ISOTOPE : U-238<br>PCI/L : 3.149E+00 | TRACER<br>ID : 1283-E<br>ISOTOPE : U232<br>NOMINAL : 5.26164 dpm<br>RESULTS : 4.95466 dpm | LIB FILE : ENV_ALPHA_UU.N<br>BKG FILE : B155.CNF;342<br>BKG DATE : 16-AUG-2009<br>EFF FILE : W155.CNF;105<br>CAL DATE : 17-AUG-2009 |

NUCLIDE ACTIVITY SUMMARY

| NUCLIDE | ENERGY   | GROSS AREA | NET AREA | BKG AREA | BKG Sg | %ABUN    | ACTIVITY pCi/L | TPU 1.96-SIGMA | MDA pCi/L | Lc pCi/L | UNC pCi/L |
|---------|----------|------------|----------|----------|--------|----------|----------------|----------------|-----------|----------|-----------|
| U-3/4   | 4763.020 | 1277.000   | 1269.104 | 4.000    | 2.0000 | 100.0000 | 2.91E+00       | 4.28E-01       | 2.83E-02  | 1.07E-02 | 1.61E-01  |
| U232    | 5302.100 | 1299.000   | 1290.000 | 9.000    | 3.0000 | 100.0000 | 2.96E+00       | 4.34E-01       | 3.89E-02  | 1.60E-02 | 1.63E-01  |
| U-235   | 4391.000 | 50.000     | 48.000   | 2.000    | 1.4142 | 80.90000 | 1.36E-01       | 4.42E-02       | 2.72E-02  | 9.34E-03 | 4.01E-02  |
| U-238   | 4184.730 | 1330.000   | 1329.000 | 1.000    | 1.0000 | 100.0000 | 3.05E+00       | 4.46E-01       | 1.76E-02  | 5.34E-03 | 1.64E-01  |

NOTE: Corrections made to U-3/4 net area due to tracer impurity



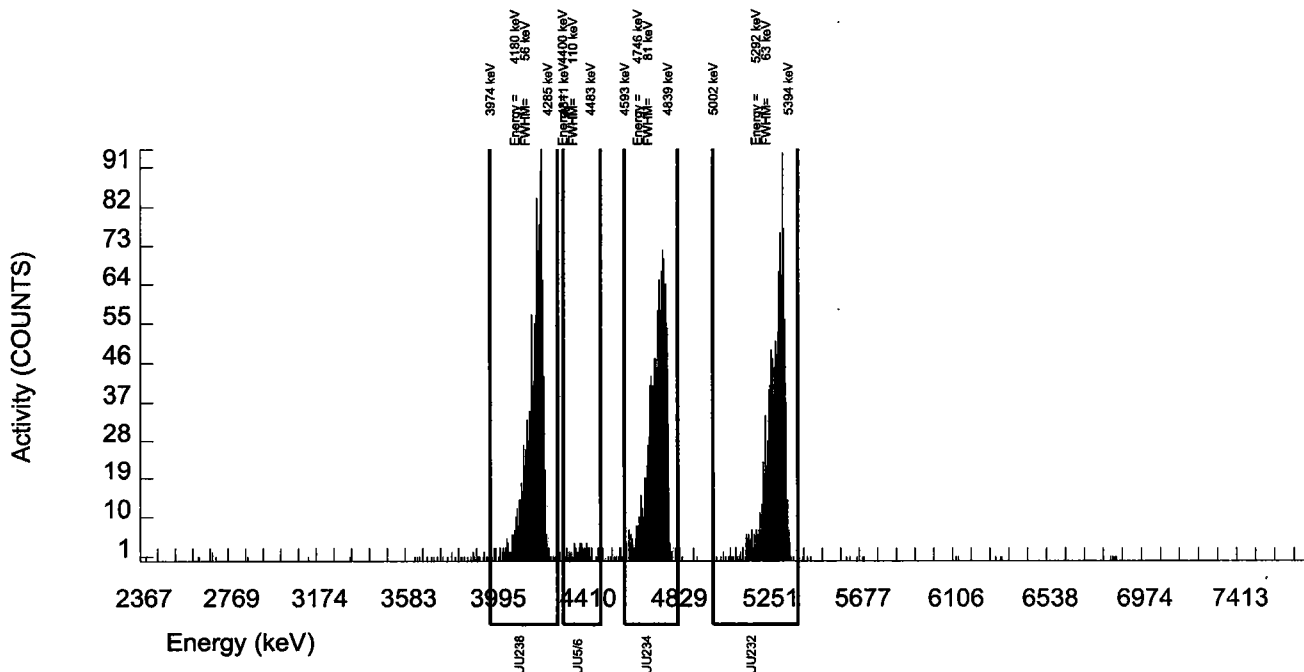
GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

|  |   |   |   |
|--|---|---|---|
| BATCH NUMBER: 893946<br>SAMPLE DATE : 17-AUG-2009 00:00:00                 |   | SAMPLE ID : S1201903407_UU<br>SAMPLE QTY: 0.800 L   |   |
| DETECTOR NUMBER :75554<br>AVERAGE %EFFICIENCY :24.7825<br>% YIELD : 88.207 |   | COUNT DATE:22-AUG-2009 17:58:25<br>ELAPSED LIVE TIME(SEC): 60000.00<br>ANALYST :JXD2      |   |
| MS/MSD<br>ID : 1163-G<br>ISOTOPE : U-238<br>PCI/L : 3.149E+00              | LCS/LCSD<br>ID : 1163-G<br>ISOTOPE : U-238<br>PCI/L : 3.149E+00 | TRACER<br>ID : 1283-E<br>ISOTOPE : U232<br>NOMINAL : 5.26164 dpm<br>RESULTS : 4.64112 dpm | LIB FILE : ENV_ALPHA_UU.N<br>BKG FILE : B156.CNF;343<br>BKG DATE : 16-AUG-2009<br>EFF FILE : W156.CNF;109<br>CAL DATE : 17-AUG-2009 |

NUCLIDE ACTIVITY SUMMARY

| NUCLIDE | ENERGY   | GROSS AREA | NET AREA | BKG AREA | BKG Sg | %ABUN    | ACTIVITY pCi/L | TPU 1.96-SIGMA | MDA pCi/L | Lc pCi/L | UNC pCi/L |
|---------|----------|------------|----------|----------|--------|----------|----------------|----------------|-----------|----------|-----------|
| U-3/4   | 4763.020 | 1148.000   | 1130.526 | 14.000   | 3.7417 | 100.0000 | 2.91E+00       | 4.35E-01       | 5.26E-02  | 2.24E-02 | 1.72E-01  |
| U232    | 5302.100 | 1156.000   | 1150.000 | 6.000    | 2.4495 | 100.0000 | 2.96E+00       | 4.42E-01       | 3.71E-02  | 1.47E-02 | 1.72E-01  |
| U-235   | 4391.000 | 63.000     | 62.000   | 1.000    | 1.0000 | 80.90000 | 1.97E-01       | 5.68E-02       | 2.44E-02  | 7.41E-03 | 4.99E-02  |
| U-238   | 4184.730 | 1165.000   | 1163.000 | 2.000    | 1.4142 | 100.0000 | 3.00E+00       | 4.46E-01       | 2.47E-02  | 8.47E-03 | 1.72E-01  |

NOTE: Corrections made to U-3/4 net area due to tracer impurity



### Radiochemistry Batch Checklist, Rev 9

Batch# 899595 Product: U Date: 9/9/09

| Criteria:  | Yes | No | Comments       |
|--|-----|----|----------------|
| Sample Solids are less than or equal to 100 mg for GAB.  |     |    | N/A            |
| Samples have been blank corrected (if required)  |     |    | N/A            |
| If activity less 10* MDA/ MDC, error is 150% or less of sample activity. If greater 10* MDA/ MDC, error is 40% or less. If below the MDA/ MDC, error is okay.  | ✓   |    |                |
| Instrument source check is within limits.  | ✓   |    |                |
| Instrument bkg check is within limits.   | ✓   |    |                |
| Method RDL/ LLD has been met.  | ✓   |    |                |
| If duplicate activities are less 5* MDA/ MDC, then RPD is 100% or less. If greater 5* MDA/ MDC, then RPD 20% or less. If below the MDA/ MDC, the RPD is 0%.<br>Or meets the client's required RER acceptance criteria. | ✓   |    |                |
| Tracer yield is 15-125% . Carrier yield 25-125%.<br>Or meets the client's contract acceptance criteria.  |     | ✓  | NCR 731127     |
| Method blank is less than the RDL/ LLD.<br>(If rad samples. < 5% of lowest activity)   | ✓   |    | Case narrative |
| Sample was run within hold time.   | ✓   |    |                |
| Sample was correctly preserved if required.  |     |    | N/A            |
| Smears Taken for Radioactive batches.  |     |    | N/A            |
| Method Spike and LCS are within 75-125% or meets the client's contract acceptance criteria.  | ✓   |    |                |
| No blank spaces on data forms.<br>All line outs initialed and dated.   | ✓   |    |                |
| No transcription errors are apparent.  |     |    |                |
| Aux data is correct.   |     |    | N/A            |
| Client Special requirements page has been checked.   | ✓   |    |                |
| Raw Data and/ or spectrum are included and properly stated.  | ✓   |    |                |
| QC data entered into QC database and batch is in REVW  | ✓   |    |                |
| Hit notification complete (if necessary)   |     |    | N/A            |
| Batch entered into Case Narrative.   | ✓   |    |                |
| Batch non-conformances completed, if applicable.   | ✓   |    | NCR 731127     |
| Batch non-conformances second reviewed and disposition verified to be completed.   | ✓   |    | NCR 731127     |
| Aliquot Correction completed if required.  |     |    | N/A            |
| Review sample historical results if available<br>(If REMP, results above MDC have been verified by historical results, recount or re-analysis.)  | ✓   |    |                |

GEL Laboratories, LLC

revised 8/1/08

Primary Review Performed By: JopLM/L- 9/9/09

Secondary Review Performed By: [Signature] 9/10/09

9/2 9/8

KERR



JP

# Uranium Que Sheet

02-SEP-09

Batch #: 899595      Analyst: KXM4      First Client Due Date: 08-SEP-09      Internal Due Date: 02-SEP-09

Tracer Isotope: U-232 U-232      Tracer Code: 183-G      Expiration Date: 1/15/10      Vol: 0.1ml

LCS Isotope: U-238      LCS Code: 183-G      Expiration Date: 4/10/10      Vol: 0.1ml

Spike Isotope: U-238      Spike Code: 183-G      Expiration Date: 4/10/10      Vol: 0.1ml

Prep Date: 9/2/09      Initials: MMK      Pipet ID: 2411058      Balance ID: 50410272

Witness: 09/02/09      MMK

| Sample ID    | Client Description     | Type   | Hazard Code | Min CRDL         | Matrix | Client     | Collection Date | Pos. | Label # | Wet (g) | Aliquot (g) | U Det # |
|--------------|------------------------|--------|-------------|------------------|--------|------------|-----------------|------|---------|---------|-------------|---------|
| 234964001-2  | RSAM8-10B              | SAMPLE |             | .04 pCi/g        | SOIL   | KERR003    | 07-AUG-09       | 1    | 1       | 0.504   |             | 9       |
| 234964002-2  | RSAM8-20B              | SAMPLE |             | .04 pCi/g        | SOIL   | KERR003    | 07-AUG-09       | 2    | 2       | 0.520   |             | 131     |
| 234964003-2  | RSAM8009-20B           | SAMPLE |             | .04 pCi/g        | SOIL   | KERR003    | 07-AUG-09       | 3    | 3       | 0.505   |             | 13      |
| 234964004-2  | RSAM8-31B              | SAMPLE |             | .04 pCi/g        | SOIL   | KERR003    | 07-AUG-09       | 4    | 4       | 0.513   |             | 14      |
| 234964005-2  | SA62-10B               | SAMPLE |             | .04 pCi/g        | SOIL   | KERR003    | 07-AUG-09       | 5    | 5       | 0.515   |             | 16      |
| 234964006-2  | SA62-24B               | SAMPLE |             | .04 pCi/g        | SOIL   | KERR003    | 07-AUG-09       | 6    | 6       | 0.511   |             | 17      |
| 234964007-2  | SA144-10B              | SAMPLE |             | .04 pCi/g        | SOIL   | KERR003    | 07-AUG-09       | 7    | 7       | 0.502   |             | 18      |
| 234964008-2  | SA144009-10B           | SAMPLE |             | .04 pCi/g        | SOIL   | KERR003    | 07-AUG-09       | 8    | 8       | 0.500   |             | 23      |
| 234964009-2  | SA144-28B              | SAMPLE |             | .04 pCi/g        | SOIL   | KERR003    | 07-AUG-09       | 9    | 9       | 0.502   |             | 114     |
| 234964010-2  | SA92-10B               | SAMPLE |             | .04 pCi/g        | SOIL   | KERR003    | 10-AUG-09       | 10   | 10      | 0.500   |             | 118     |
| 234964011-2  | SA92-20B               | SAMPLE |             | .04 pCi/g        | SOIL   | KERR003    | 10-AUG-09       | 11   | 11      | 0.501   |             | 118     |
| 234964012-2  | SA92-31B               | SAMPLE |             | .04 pCi/g        | SOIL   | KERR003    | 10-AUG-09       | 12   | 12      | 0.522   |             | 123     |
| 234964013-2  | SA119-0.5B             | SAMPLE |             | .04 pCi/g        | SOIL   | KERR003    | 10-AUG-09       | 13   | 13      | 0.504   |             | 127     |
| 234964014-2  | SA119-10B              | SAMPLE |             | .04 pCi/g        | SOIL   | KERR003    | 10-AUG-09       | 14   | 14      | 0.503   |             | 131     |
| 234964015-2  | SA119-30B              | SAMPLE |             | .04 pCi/g        | SOIL   | KERR003    | 10-AUG-09       | 15   | 15      | 0.530   |             | 151     |
| 234964016-2  | SA119-48B              | SAMPLE |             | .04 pCi/g        | SOIL   | KERR003    | 10-AUG-09       | 16   | 16      | 0.502   |             | 155     |
| 234964017-2  | SA158-10B              | SAMPLE |             | .04 pCi/g        | SOIL   | KERR003    | 10-AUG-09       | 17   | 17      | 0.521   |             | 161     |
| 234964018-2  | SA158-20B              | SAMPLE |             | .04 pCi/g        | SOIL   | KERR003    | 10-AUG-09       | 18   | 18      | 0.505   |             | 162     |
| 234964019-2  | SA158-31B              | SAMPLE |             | .04 pCi/g        | SOIL   | KERR003    | 10-AUG-09       | 19   | 19      | 0.508   |             | 165     |
| 1201916366-1 | MB for batch 899595    | MB     |             | UCF pCi/g to pCi | SOIL   | QC ACCOUNT |                 | 20   |         |         |             |         |
| 1201916367-2 | SA92-10B(234964010DUP) | DUP    |             | .04 pCi/g        | SOIL   | QC ACCOUNT | 10-AUG-09       | 21   |         |         |             |         |
| 1201916368-2 | SA92-10B(234964010MS)  | MS     |             | .04 pCi/g        | SOIL   | QC ACCOUNT | 10-AUG-09       | 22   |         |         |             |         |
| 1201916369-1 | LCS for batch 899595   | LCS    |             | UCF pCi/g to pCi | SOIL   | QC ACCOUNT |                 | 23   |         |         |             |         |

Choose SOP used: GL-RAD-A-011  
GL-RAD-A-038  
 GL-RAD-A-045  
 GL-RAD-A-043

Solid Sample Dissolution by: LEACH or DIGESTION  
 Circle One

Data Reviewed By: JPLMJS      9/9/09

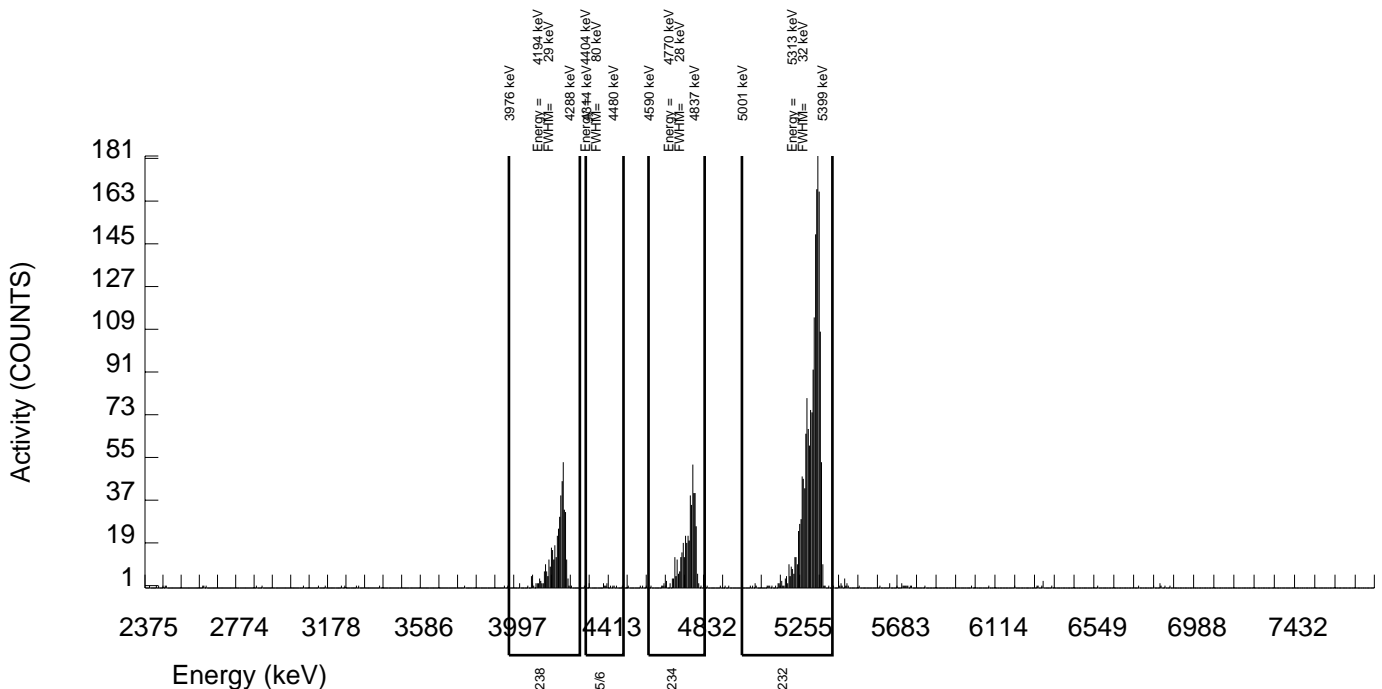
GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

|  |   |   |   |
|--|---|---|---|
| BATCH NUMBER: 899595<br>SAMPLE DATE : 7-AUG-2009 00:00:00.                 |   | SAMPLE ID : S0234964001_UU<br>SAMPLE QTY: 0.504 G   |   |
| DETECTOR NUMBER :72528<br>AVERAGE %EFFICIENCY :34.0291<br>% YIELD : 99.129 |   | COUNT DATE: 4-SEP-2009 14:41:52<br>ELAPSED LIVE TIME(SEC): 59999.99<br>ANALYST :KXM4      |   |
| MS/MSD<br>ID : 1163-G<br>ISOTOPE : U-238<br>PCI/G : 4.998E+00              | LCS/LCSD<br>ID : 1163-G<br>ISOTOPE : U-238<br>PCI/G : 4.998E+00 | TRACER<br>ID : 1283-E<br>ISOTOPE : U232<br>NOMINAL : 5.26303 dpm<br>RESULTS : 5.21717 dpm | LIB FILE : ENV_ALPHA_UU.N<br>BKG FILE : B009.CNF;1052<br>BKG DATE : 30-AUG-2009<br>EFF FILE : W009.CNF;295<br>CAL DATE : 4-SEP-2009 |

NUCLIDE ACTIVITY SUMMARY

| NUCLIDE | ENERGY   | GROSS AREA | NET AREA | BKG AREA | BKG Sg | %ABUN    | ACTIVITY pCi/G | TPU 1.96-SIGMA | MDA pCi/G | Lc pCi/G | UNC pCi/G |
|---------|----------|------------|----------|----------|--------|----------|----------------|----------------|-----------|----------|-----------|
| U-3/4   | 4763.020 | 446.000    | 434.640  | 6.000    | 2.4495 | 100.0000 | 1.15E+00       | 1.89E-01       | 3.81E-02  | 1.51E-02 | 1.10E-01  |
| U232    | 5302.100 | 1787.000   | 1774.000 | 13.000   | 3.6056 | 100.0000 | 4.70E+00       | 6.65E-01       | 5.24E-02  | 2.22E-02 | 2.20E-01  |
| U-235   | 4391.000 | 14.000     | 13.000   | 1.000    | 1.0000 | 80.90000 | 4.26E-02       | 2.55E-02       | 2.51E-02  | 7.62E-03 | 2.49E-02  |
| U-238   | 4184.730 | 452.000    | 446.000  | 6.000    | 2.4495 | 100.0000 | 1.18E+00       | 1.93E-01       | 3.81E-02  | 1.51E-02 | 1.11E-01  |

NOTE: Corrections made to U-3/4 net area due to tracer impurity



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BATCH NUMBER: 899595  
SAMPLE DATE : 7-AUG-2009 00:00:00.

SAMPLE ID : S0234964002\_UU  
SAMPLE QTY: 0.520 G

DETECTOR NUMBER :33448  
AVERAGE %EFFICIENCY :24.8669  
% YIELD : 59.192

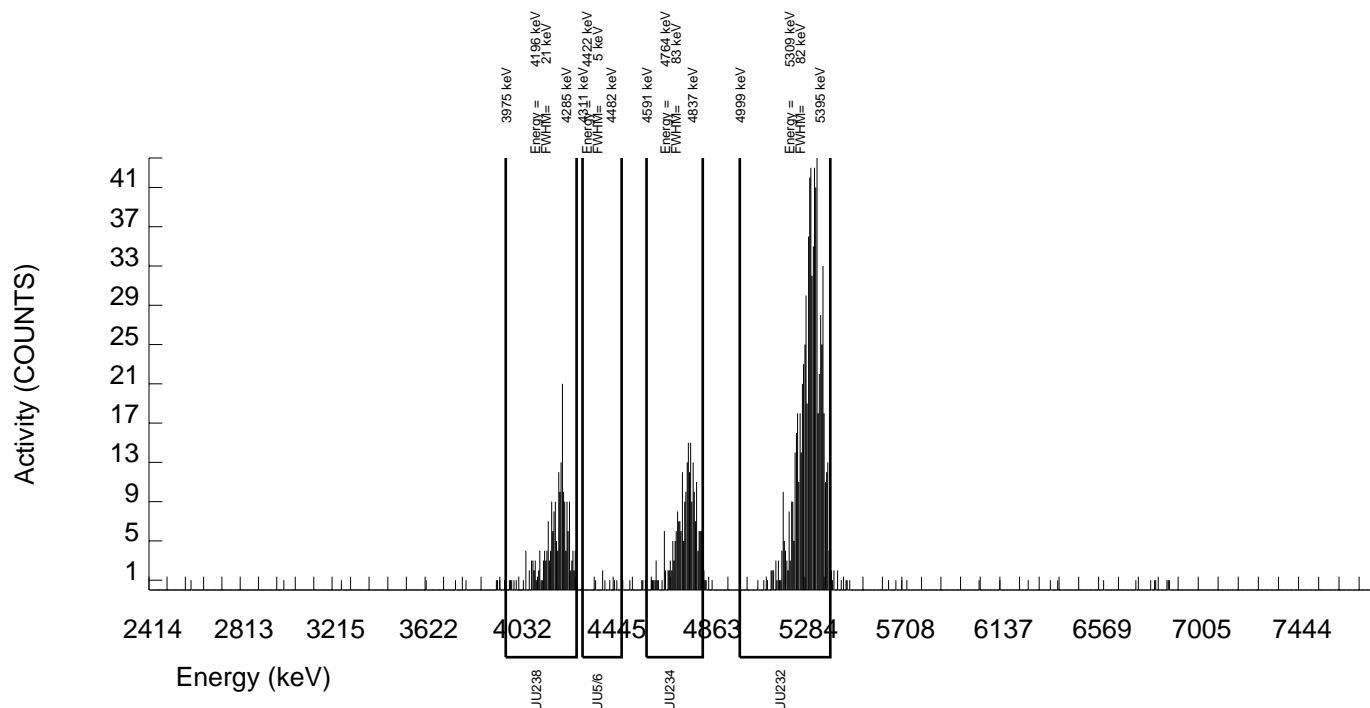
COUNT DATE: 8-SEP-2009 11:31:05  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :KXM4

|   |   |   |  |
|---|---|---|--|
| MS/MSD<br>ID : 1163-G<br>ISOTOPE : U-238<br>PCI/G : 4.844E+00 | LCS/LCSD<br>ID : 1163-G<br>ISOTOPE : U-238<br>PCI/G : 4.844E+00 | TRACER<br>ID : 1283-E<br>ISOTOPE : U232<br>NOMINAL : 5.26303 dpm<br>RESULTS : 3.11527 dpm | LIB FILE : ENV_ALPHA_UU.N<br>BKG FILE : B131.CNF;392<br>BKG DATE : 6-SEP-2009<br>EFF FILE : W131.CNF;116<br>CAL DATE : 17-AUG-2009 |
|---|---|---|--|

NUCLIDE ACTIVITY SUMMARY

| NUCLIDE | ENERGY   | GROSS AREA | NET AREA | BKG AREA | BKG Sg | %ABUN    | ACTIVITY pCi/G | TPU 1.96-SIGMA | MDA pCi/G | Lc pCi/G | UNC pCi/G |
|---------|----------|------------|----------|----------|--------|----------|----------------|----------------|-----------|----------|-----------|
| U-3/4   | 4763.020 | 238.000    | 234.661  | 1.000    | 1.0000 | 100.0000 | 1.38E+00       | 2.67E-01       | 4.50E-02  | 1.37E-02 | 1.77E-01  |
| U232    | 5302.100 | 789.000    | 774.000  | 15.000   | 3.8730 | 100.0000 | 4.56E+00       | 7.34E-01       | 1.24E-01  | 5.31E-02 | 3.27E-01  |
| U-235   | 4391.000 | 7.000      | 7.000    | 0.000    | 0.0000 | 80.90000 | 5.09E-02       | 3.84E-02       | 2.18E-02  | 0.00E+00 | 3.77E-02  |
| U-238   | 4184.730 | 221.000    | 220.000  | 1.000    | 1.0000 | 100.0000 | 1.29E+00       | 2.54E-01       | 4.50E-02  | 1.37E-02 | 1.72E-01  |

NOTE: Corrections made to U-3/4 net area due to tracer impurity



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BATCH NUMBER: 899595  
SAMPLE DATE : 7-AUG-2009 00:00:00.

SAMPLE ID : S0234964003\_UU  
SAMPLE QTY: 0.505 G

DETECTOR NUMBER :78790  
AVERAGE %EFFICIENCY :34.4179  
% YIELD : 78.728

COUNT DATE: 4-SEP-2009 14:41:54  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :KXM4

MS/MSD  
ID : 1163-G  
ISOTOPE : U-238  
PCI/G : 4.988E+00

LCS/LCSD  
ID : 1163-G  
ISOTOPE : U-238  
PCI/G : 4.988E+00

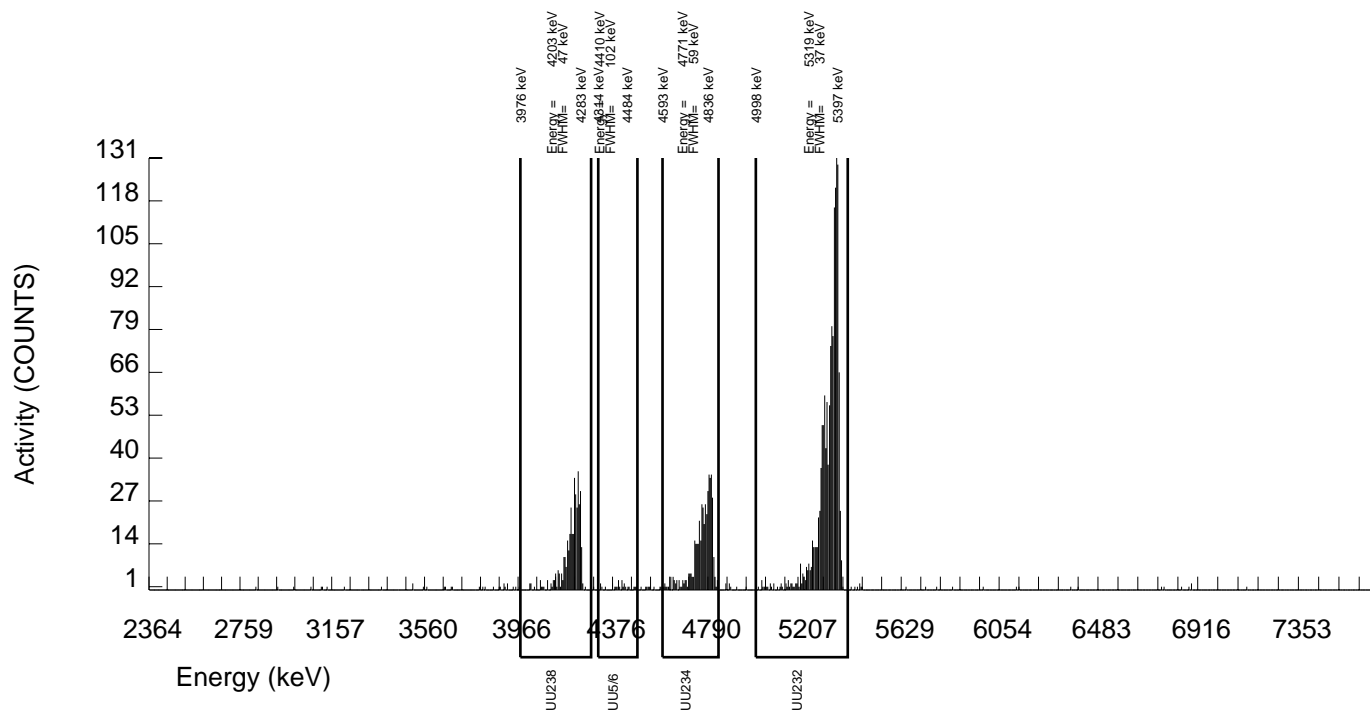
TRACER  
ID : 1283-E  
ISOTOPE : U232  
NOMINAL : 5.26303 dpm  
RESULTS : 4.14345 dpm

LIB FILE : ENV\_ALPHA\_UU.N  
BKG FILE : B013.CNF;1041  
BKG DATE : 30-AUG-2009  
EFF FILE : W013.CNF;315  
CAL DATE : 4-SEP-2009

NUCLIDE ACTIVITY SUMMARY

| NUCLIDE | ENERGY   | GROSS AREA | NET AREA | BKG AREA | BKG Sg | %ABUN    | ACTIVITY pCi/G | TPU 1.96-SIGMA | MDA pCi/G | Lc pCi/G | UNC pCi/G |
|---------|----------|------------|----------|----------|--------|----------|----------------|----------------|-----------|----------|-----------|
| U-3/4   | 4763.020 | 457.000    | 445.694  | 7.000    | 2.6458 | 100.0000 | 1.47E+00       | 2.42E-01       | 5.04E-02  | 2.03E-02 | 1.38E-01  |
| U232    | 5302.100 | 1430.000   | 1425.000 | 5.000    | 2.2361 | 100.0000 | 4.69E+00       | 6.80E-01       | 4.42E-02  | 1.71E-02 | 2.45E-01  |
| U-235   | 4391.000 | 25.000     | 21.000   | 4.000    | 2.0000 | 80.90000 | 8.55E-02       | 4.45E-02       | 5.01E-02  | 1.89E-02 | 4.29E-02  |
| U-238   | 4184.730 | 376.000    | 373.000  | 3.000    | 1.7321 | 100.0000 | 1.23E+00       | 2.08E-01       | 3.64E-02  | 1.33E-02 | 1.26E-01  |

NOTE: Corrections made to U-3/4 net area due to tracer impurity



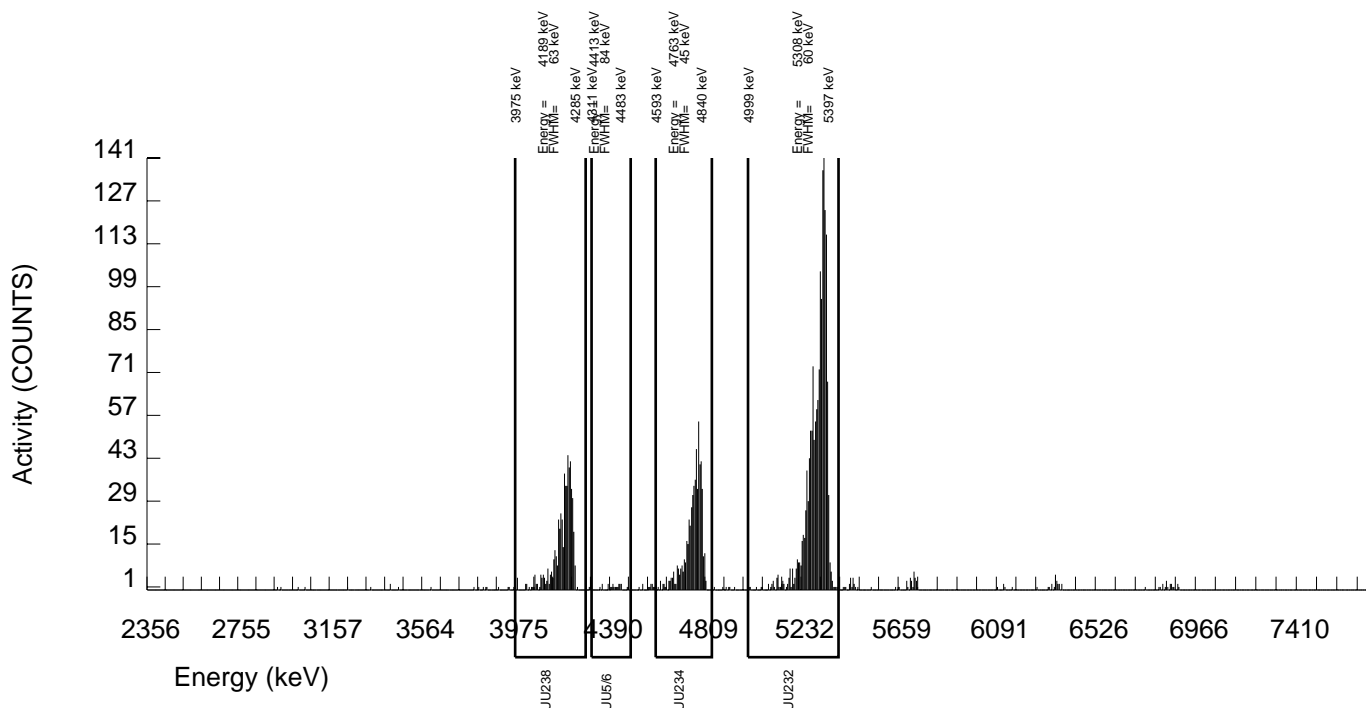
GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

|  |   |   |   |
|--|---|---|---|
| BATCH NUMBER: 899595<br>SAMPLE DATE : 7-AUG-2009 00:00:00.                 |   | SAMPLE ID : S0234964004_UU<br>SAMPLE QTY: 0.513 G   |   |
| DETECTOR NUMBER :67616<br>AVERAGE %EFFICIENCY :31.2653<br>% YIELD : 96.518 |   | COUNT DATE: 4-SEP-2009 14:41:54<br>ELAPSED LIVE TIME(SEC): 60000.00<br>ANALYST :KXM4      |   |
| MS/MSD<br>ID : 1163-G<br>ISOTOPE : U-238<br>PCI/G : 4.910E+00              | LCS/LCSD<br>ID : 1163-G<br>ISOTOPE : U-238<br>PCI/G : 4.910E+00 | TRACER<br>ID : 1283-E<br>ISOTOPE : U232<br>NOMINAL : 5.26303 dpm<br>RESULTS : 5.07979 dpm | LIB FILE : ENV_ALPHA_UU.N<br>BKG FILE : B014.CNF;1042<br>BKG DATE : 30-AUG-2009<br>EFF FILE : W014.CNF;314<br>CAL DATE : 4-SEP-2009 |

NUCLIDE ACTIVITY SUMMARY

| NUCLIDE | ENERGY   | GROSS AREA | NET AREA | BKG AREA | BKG Sg | %ABUN    | ACTIVITY pCi/G | TPU 1.96-SIGMA | MDA pCi/G | Lc pCi/G | UNC pCi/G |
|---------|----------|------------|----------|----------|--------|----------|----------------|----------------|-----------|----------|-----------|
| U-3/4   | 4763.020 | 575.000    | 564.205  | 6.000    | 2.4495 | 100.0000 | 1.64E+00       | 2.60E-01       | 4.19E-02  | 1.66E-02 | 1.37E-01  |
| U232    | 5302.100 | 1603.000   | 1587.000 | 16.000   | 4.0000 | 100.0000 | 4.62E+00       | 6.62E-01       | 6.29E-02  | 2.71E-02 | 2.30E-01  |
| U-235   | 4391.000 | 22.000     | 20.000   | 2.000    | 1.4142 | 80.90000 | 7.19E-02       | 3.59E-02       | 3.45E-02  | 1.18E-02 | 3.45E-02  |
| U-238   | 4184.730 | 542.000    | 540.000  | 2.000    | 1.4142 | 100.0000 | 1.57E+00       | 2.50E-01       | 2.79E-02  | 9.57E-03 | 1.33E-01  |

NOTE: Corrections made to U-3/4 net area due to tracer impurity



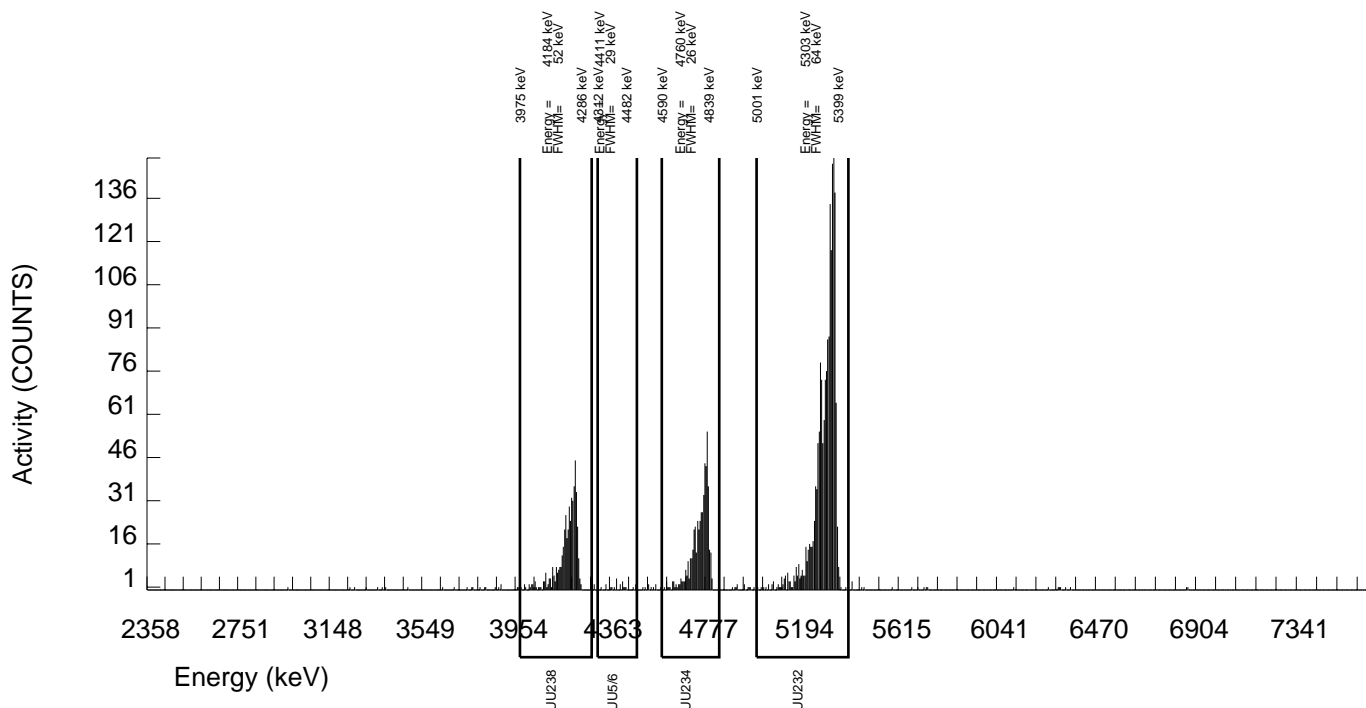
GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

|   |   |   |   |
|---|---|---|---|
| BATCH NUMBER: 899595<br>SAMPLE DATE : 7-AUG-2009 00:00:00.                  |   | SAMPLE ID : S0234964005_UU<br>SAMPLE QTY: 0.515 G   |   |
| DETECTOR NUMBER :78774<br>AVERAGE %EFFICIENCY :33.3718<br>% YIELD : 100.682 |   | COUNT DATE: 4-SEP-2009 14:41:54<br>ELAPSED LIVE TIME(SEC): 60000.00<br>ANALYST :KXM4      |   |
| MS/MSD<br>ID : 1163-G<br>ISOTOPE : U-238<br>PCI/G : 4.891E+00               | LCS/LCSD<br>ID : 1163-G<br>ISOTOPE : U-238<br>PCI/G : 4.891E+00 | TRACER<br>ID : 1283-E<br>ISOTOPE : U232<br>NOMINAL : 5.26303 dpm<br>RESULTS : 5.29894 dpm | LIB FILE : ENV_ALPHA_UU.N<br>BKG FILE : B016.CNF;1037<br>BKG DATE : 30-AUG-2009<br>EFF FILE : W016.CNF;300<br>CAL DATE : 4-SEP-2009 |

NUCLIDE ACTIVITY SUMMARY

| NUCLIDE | ENERGY   | GROSS AREA | NET AREA | BKG AREA | BKG Sg | %ABUN    | ACTIVITY pCi/G | TPU 1.96-SIGMA | MDA pCi/G | Lc pCi/G | UNC pCi/G |
|---------|----------|------------|----------|----------|--------|----------|----------------|----------------|-----------|----------|-----------|
| U-3/4   | 4763.020 | 519.000    | 511.661  | 2.000    | 1.4142 | 100.0000 | 1.33E+00       | 2.12E-01       | 2.49E-02  | 8.56E-03 | 1.16E-01  |
| U232    | 5302.100 | 1772.000   | 1767.000 | 5.000    | 2.2361 | 100.0000 | 4.60E+00       | 6.50E-01       | 3.49E-02  | 1.36E-02 | 2.15E-01  |
| U-235   | 4391.000 | 21.000     | 19.000   | 2.000    | 1.4142 | 80.90000 | 6.11E-02       | 3.13E-02       | 3.08E-02  | 1.06E-02 | 3.02E-02  |
| U-238   | 4184.730 | 481.000    | 478.000  | 3.000    | 1.7321 | 100.0000 | 1.24E+00       | 2.00E-01       | 2.88E-02  | 1.05E-02 | 1.12E-01  |

NOTE: Corrections made to U-3/4 net area due to tracer impurity



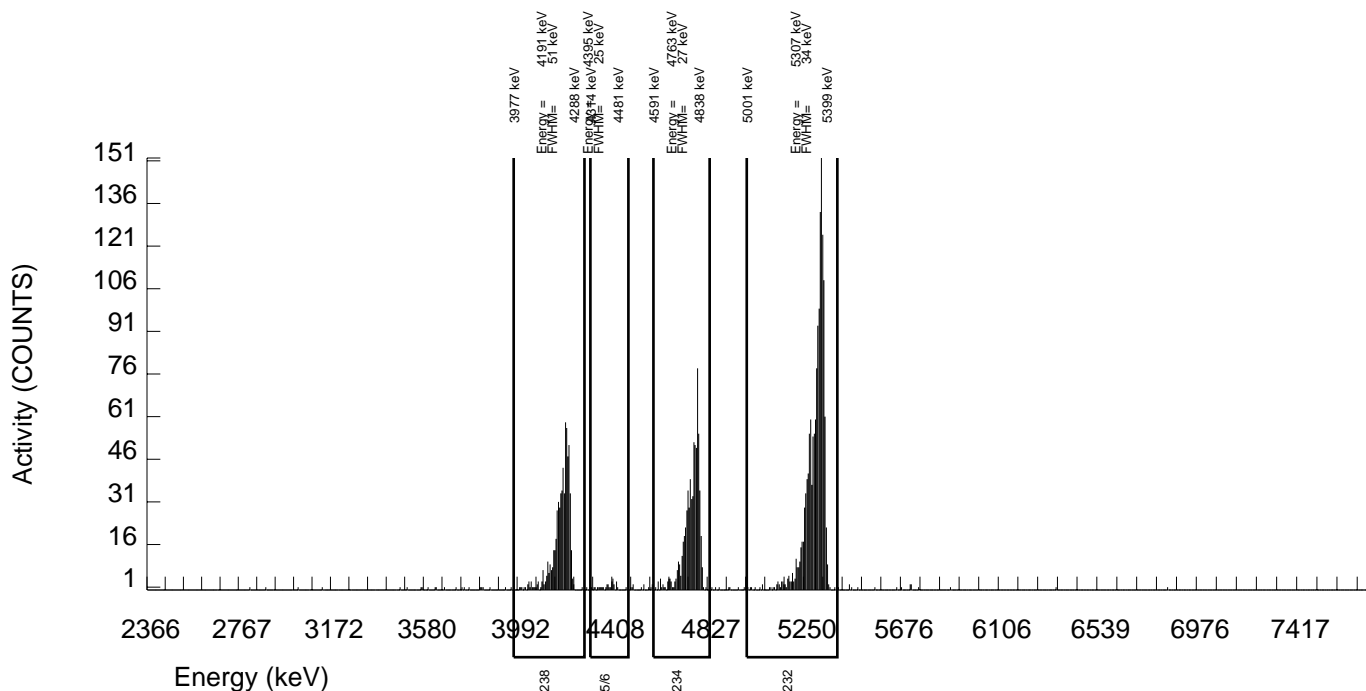
GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

|  |   |   |  |
|--|---|---|--|
| BATCH NUMBER: 899595<br>SAMPLE DATE : 7-AUG-2009 00:00:00.                 |   | SAMPLE ID : S0234964006_UU<br>SAMPLE QTY: 0.511 G   |  |
| DETECTOR NUMBER :78791<br>AVERAGE %EFFICIENCY :29.3251<br>% YIELD : 96.744 |   | COUNT DATE: 4-SEP-2009 14:41:54<br>ELAPSED LIVE TIME(SEC): 60000.00<br>ANALYST :KXM4      |  |
| MS/MSD<br>ID : 1163-G<br>ISOTOPE : U-238<br>PCI/G : 4.929E+00              | LCS/LCSD<br>ID : 1163-G<br>ISOTOPE : U-238<br>PCI/G : 4.929E+00 | TRACER<br>ID : 1283-E<br>ISOTOPE : U232<br>NOMINAL : 5.26303 dpm<br>RESULTS : 5.09167 dpm | LIB FILE : ENV_ALPHA_UU.N<br>BKG FILE : B017.CNF;1884<br>BKG DATE : 30-AUG-2009<br>EFF FILE : W017.CNF;1251<br>CAL DATE : 4-SEP-2009 |

NUCLIDE ACTIVITY SUMMARY

| NUCLIDE | ENERGY   | GROSS AREA | NET AREA | BKG AREA | BKG Sg | %ABUN    | ACTIVITY pCi/G | TPU 1.96-SIGMA | MDA pCi/G | Lc pCi/G | UNC pCi/G |
|---------|----------|------------|----------|----------|--------|----------|----------------|----------------|-----------|----------|-----------|
| U-3/4   | 4763.020 | 685.000    | 677.492  | 3.000    | 1.7321 | 100.0000 | 2.11E+00       | 3.25E-01       | 3.44E-02  | 1.25E-02 | 1.59E-01  |
| U232    | 5302.100 | 1493.000   | 1492.000 | 1.000    | 1.0000 | 100.0000 | 4.64E+00       | 6.68E-01       | 2.38E-02  | 7.23E-03 | 2.36E-01  |
| U-235   | 4391.000 | 31.000     | 31.000   | 0.000    | 0.0000 | 80.90000 | 1.19E-01       | 4.49E-02       | 1.15E-02  | 0.00E+00 | 4.19E-02  |
| U-238   | 4184.730 | 633.000    | 631.000  | 2.000    | 1.4142 | 100.0000 | 1.96E+00       | 3.06E-01       | 2.98E-02  | 1.02E-02 | 1.53E-01  |

NOTE: Corrections made to U-3/4 net area due to tracer impurity



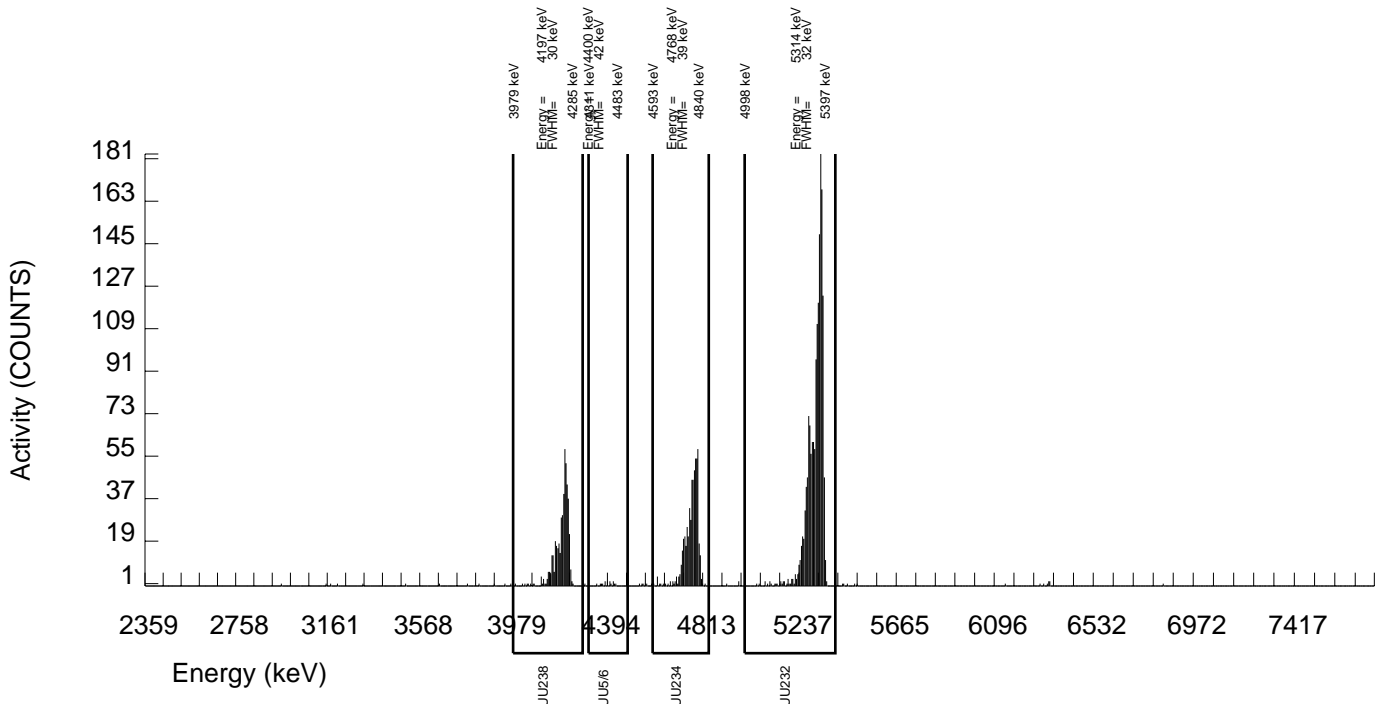
GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

|  |   |   |   |
|--|---|---|---|
| BATCH NUMBER: 899595<br>SAMPLE DATE : 7-AUG-2009 00:00:00.                 |   | SAMPLE ID : S0234964007_UU<br>SAMPLE QTY: 0.502 G   |   |
| DETECTOR NUMBER :78782<br>AVERAGE %EFFICIENCY :32.2929<br>% YIELD : 95.096 |   | COUNT DATE: 4-SEP-2009 14:41:54<br>ELAPSED LIVE TIME(SEC): 60000.00<br>ANALYST :KXM4      |   |
| MS/MSD<br>ID : 1163-G<br>ISOTOPE : U-238<br>PCI/G : 5.018E+00              | LCS/LCSD<br>ID : 1163-G<br>ISOTOPE : U-238<br>PCI/G : 5.018E+00 | TRACER<br>ID : 1283-E<br>ISOTOPE : U232<br>NOMINAL : 5.26303 dpm<br>RESULTS : 5.00492 dpm | LIB FILE : ENV_ALPHA_UU.N<br>BKG FILE : B018.CNF;1036<br>BKG DATE : 30-AUG-2009<br>EFF FILE : W018.CNF;295<br>CAL DATE : 4-SEP-2009 |

NUCLIDE ACTIVITY SUMMARY

| NUCLIDE | ENERGY   | GROSS AREA | NET AREA | BKG AREA | BKG Sg | %ABUN    | ACTIVITY pCi/G | TPU 1.96-SIGMA | MDA pCi/G | Lc pCi/G | UNC pCi/G |
|---------|----------|------------|----------|----------|--------|----------|----------------|----------------|-----------|----------|-----------|
| U-3/4   | 4763.020 | 563.000    | 554.120  | 4.000    | 2.0000 | 100.0000 | 1.62E+00       | 2.56E-01       | 3.60E-02  | 1.36E-02 | 1.36E-01  |
| U232    | 5302.100 | 1628.000   | 1615.000 | 13.000   | 3.6056 | 100.0000 | 4.72E+00       | 6.75E-01       | 5.78E-02  | 2.45E-02 | 2.32E-01  |
| U-235   | 4391.000 | 15.000     | 15.000   | 0.000    | 0.0000 | 80.90000 | 5.42E-02       | 2.84E-02       | 1.08E-02  | 0.00E+00 | 2.74E-02  |
| U-238   | 4184.730 | 474.000    | 472.000  | 2.000    | 1.4142 | 100.0000 | 1.38E+00       | 2.23E-01       | 2.80E-02  | 9.61E-03 | 1.25E-01  |

NOTE: Corrections made to U-3/4 net area due to tracer impurity





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ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 899595  
SAMPLE DATE : 7-AUG-2009 00:00:00.

SAMPLE ID : S0234964008\_UU  
SAMPLE QTY: 0.500 G

DETECTOR NUMBER :78264  
AVERAGE %EFFICIENCY :33.1983  
% YIELD : 92.445

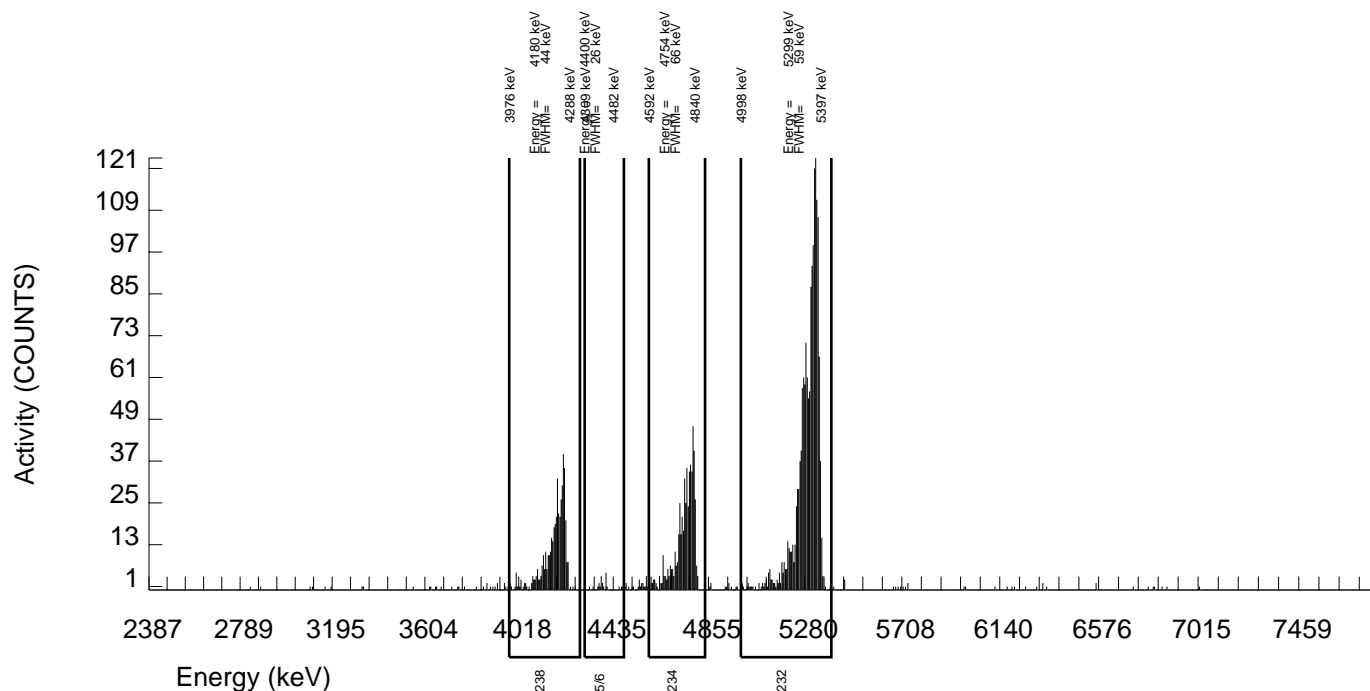
COUNT DATE: 4-SEP-2009 14:41:55  
ELAPSED LIVE TIME(SEC): 59999.99  
ANALYST :KXM4

|   |   |   |   |
|---|---|---|---|
| MS/MSD<br>ID : 1163-G<br>ISOTOPE : U-238<br>PCI/G : 5.038E+00 | LCS/LCSD<br>ID : 1163-G<br>ISOTOPE : U-238<br>PCI/G : 5.038E+00 | TRACER<br>ID : 1283-E<br>ISOTOPE : U232<br>NOMINAL : 5.26303 dpm<br>RESULTS : 4.86541 dpm | LIB FILE : ENV_ALPHA_UU.N<br>BKG FILE : B023.CNF;1056<br>BKG DATE : 30-AUG-2009<br>EFF FILE : W023.CNF;290<br>CAL DATE : 4-SEP-2009 |
|---|---|---|---|

NUCLIDE ACTIVITY SUMMARY

| NUCLIDE | ENERGY   | GROSS AREA | NET AREA | BKG AREA | BKG Sg | %ABUN    | ACTIVITY pCi/G | TPU 1.96-SIGMA | MDA pCi/G | Lc pCi/G | UNC pCi/G |
|---------|----------|------------|----------|----------|--------|----------|----------------|----------------|-----------|----------|-----------|
| U-3/4   | 4763.020 | 542.000    | 533.123  | 4.000    | 2.0000 | 100.0000 | 1.56E+00       | 2.49E-01       | 3.61E-02  | 1.37E-02 | 1.34E-01  |
| U232    | 5302.100 | 1621.000   | 1614.000 | 7.000    | 2.6458 | 100.0000 | 4.74E+00       | 6.77E-01       | 4.50E-02  | 1.81E-02 | 2.32E-01  |
| U-235   | 4391.000 | 22.000     | 21.000   | 1.000    | 1.0000 | 80.90000 | 7.62E-02       | 3.56E-02       | 2.78E-02  | 8.44E-03 | 3.41E-02  |
| U-238   | 4184.730 | 458.000    | 453.000  | 5.000    | 2.2361 | 100.0000 | 1.33E+00       | 2.17E-01       | 3.93E-02  | 1.53E-02 | 1.24E-01  |

NOTE: Corrections made to U-3/4 net area due to tracer impurity



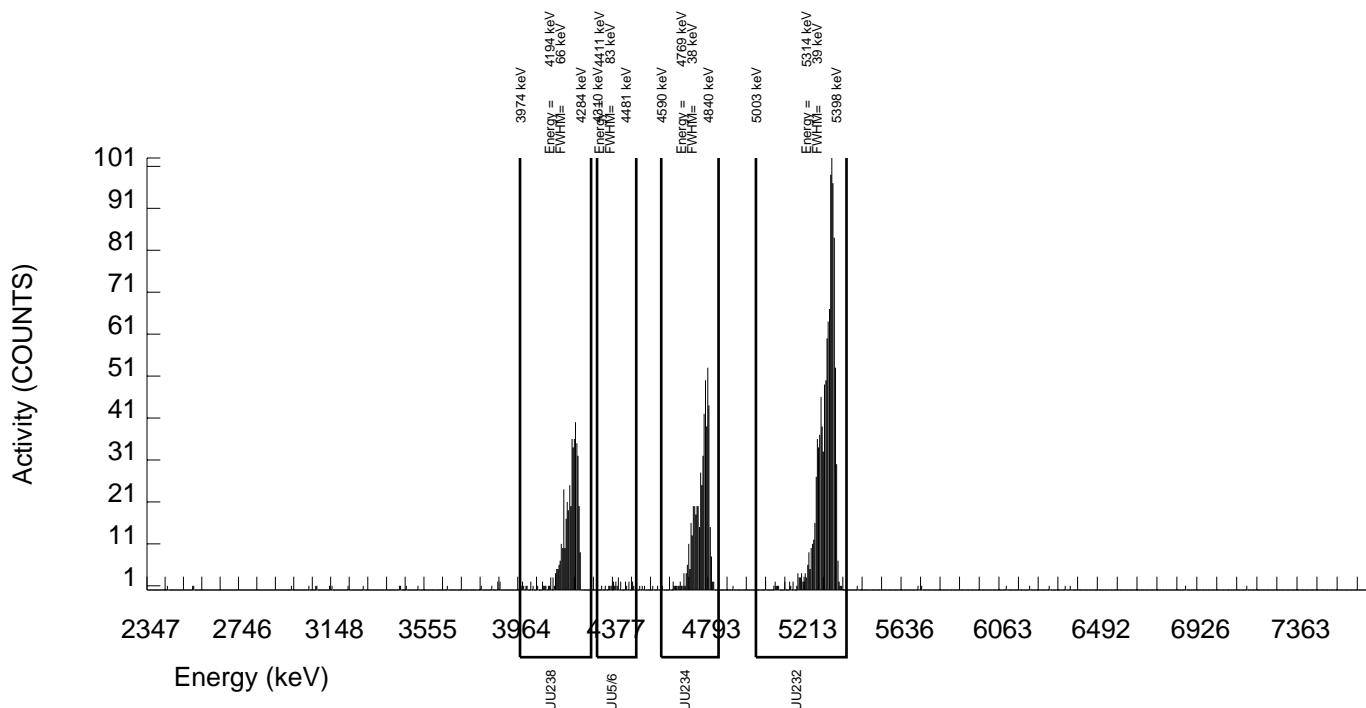
GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

|  |   |   |   |
|--|---|---|---|
| BATCH NUMBER: 899595<br>SAMPLE DATE : 7-AUG-2009 00:00:00.                 |   | SAMPLE ID : S0234964009_UU<br>SAMPLE QTY: 0.502 G   |   |
| DETECTOR NUMBER :78258<br>AVERAGE %EFFICIENCY :25.6694<br>% YIELD : 83.484 |   | COUNT DATE: 4-SEP-2009 14:22:23<br>ELAPSED LIVE TIME(SEC): 60000.00<br>ANALYST :KXM4      |   |
| MS/MSD<br>ID : 1163-G<br>ISOTOPE : U-238<br>PCI/G : 5.018E+00              | LCS/LCSD<br>ID : 1163-G<br>ISOTOPE : U-238<br>PCI/G : 5.018E+00 | TRACER<br>ID : 1283-E<br>ISOTOPE : U232<br>NOMINAL : 5.26303 dpm<br>RESULTS : 4.39380 dpm | LIB FILE : ENV_ALPHA_UU.N<br>BKG FILE : B114.CNF;391<br>BKG DATE : 30-AUG-2009<br>EFF FILE : W114.CNF;108<br>CAL DATE : 17-AUG-2009 |

NUCLIDE ACTIVITY SUMMARY

| NUCLIDE | ENERGY   | GROSS AREA | NET AREA | BKG AREA | BKG Sg | %ABUN    | ACTIVITY pCi/G | TPU 1.96-SIGMA | MDA pCi/G | Lc pCi/G | UNC pCi/G |
|---------|----------|------------|----------|----------|--------|----------|----------------|----------------|-----------|----------|-----------|
| U-3/4   | 4763.020 | 526.000    | 521.595  | 1.000    | 1.0000 | 100.0000 | 2.18E+00       | 3.55E-01       | 3.20E-02  | 9.74E-03 | 1.88E-01  |
| U232    | 5302.100 | 1129.000   | 1127.000 | 2.000    | 1.4142 | 100.0000 | 4.72E+00       | 7.07E-01       | 4.01E-02  | 1.38E-02 | 2.76E-01  |
| U-235   | 4391.000 | 24.000     | 24.000   | 0.000    | 0.0000 | 80.90000 | 1.24E-01       | 5.26E-02       | 1.55E-02  | 0.00E+00 | 4.97E-02  |
| U-238   | 4184.730 | 452.000    | 452.000  | 0.000    | 0.0000 | 100.0000 | 1.89E+00       | 3.14E-01       | 1.26E-02  | 0.00E+00 | 1.74E-01  |

NOTE: Corrections made to U-3/4 net area due to tracer impurity



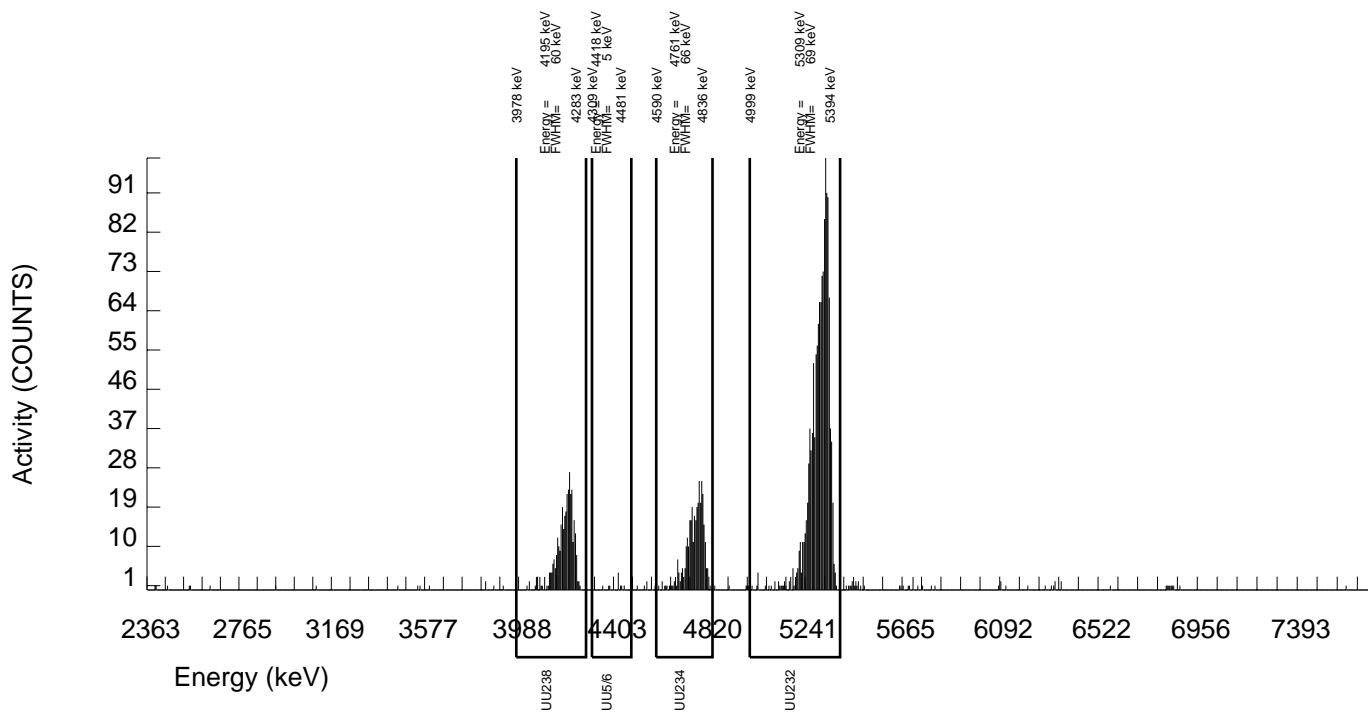
GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

|  |   |   |  |
|--|---|---|--|
| BATCH NUMBER: 899595<br>SAMPLE DATE : 10-AUG-2009 00:00:00                     |   | SAMPLE ID : S0234964010_UU<br>SAMPLE QTY: 0.500 G   |  |
| DETECTOR NUMBER :45-132FF2<br>AVERAGE %EFFICIENCY :26.1701<br>% YIELD : 97.000 |   | COUNT DATE: 4-SEP-2009 14:22:28<br>ELAPSED LIVE TIME(SEC): 60000.00<br>ANALYST :KXM4      |  |
| MS/MSD<br>ID : 1163-G<br>ISOTOPE : U-238<br>PCI/G : 5.038E+00                  | LCS/LCSD<br>ID : 1163-G<br>ISOTOPE : U-238<br>PCI/G : 5.038E+00 | TRACER<br>ID : 1283-E<br>ISOTOPE : U232<br>NOMINAL : 5.26261 dpm<br>RESULTS : 5.10472 dpm | LIB FILE : ENV_ALPHA_UU.N<br>BKG FILE : B116.CNF;385<br>BKG DATE : 30-AUG-2009<br>EFF FILE : W116.CNF;96<br>CAL DATE : 17-AUG-2009 |

NUCLIDE ACTIVITY SUMMARY

| NUCLIDE | ENERGY   | GROSS AREA | NET AREA | BKG AREA | BKG Sg | %ABUN    | ACTIVITY pCi/G | TPU 1.96-SIGMA | MDA pCi/G | Lc pCi/G | UNC pCi/G |
|---------|----------|------------|----------|----------|--------|----------|----------------|----------------|-----------|----------|-----------|
| U-3/4   | 4763.020 | 342.000    | 334.966  | 3.000    | 1.7321 | 100.0000 | 1.19E+00       | 2.07E-01       | 3.92E-02  | 1.43E-02 | 1.28E-01  |
| U232    | 5302.100 | 1342.000   | 1335.000 | 7.000    | 2.6458 | 100.0000 | 4.74E+00       | 6.94E-01       | 5.44E-02  | 2.19E-02 | 2.56E-01  |
| U-235   | 4391.000 | 11.000     | 10.000   | 1.000    | 1.0000 | 80.90000 | 4.39E-02       | 3.04E-02       | 3.36E-02  | 1.02E-02 | 2.98E-02  |
| U-238   | 4184.730 | 339.000    | 337.000  | 2.000    | 1.4142 | 100.0000 | 1.20E+00       | 2.07E-01       | 3.40E-02  | 1.17E-02 | 1.28E-01  |

NOTE: Corrections made to U-3/4 net area due to tracer impurity



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 899595  
SAMPLE DATE : 10-AUG-2009 00:00:00

SAMPLE ID : S0234964011\_UU  
SAMPLE QTY: 0.501 G

DETECTOR NUMBER :75544  
AVERAGE %EFFICIENCY :25.7630  
% YIELD : 100.525

COUNT DATE: 4-SEP-2009 14:22:33  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :KXM4

MS/MSD  
ID : 1163-G  
ISOTOPE : U-238  
PCI/G : 5.028E+00

LCS/LCSD  
ID : 1163-G  
ISOTOPE : U-238  
PCI/G : 5.028E+00

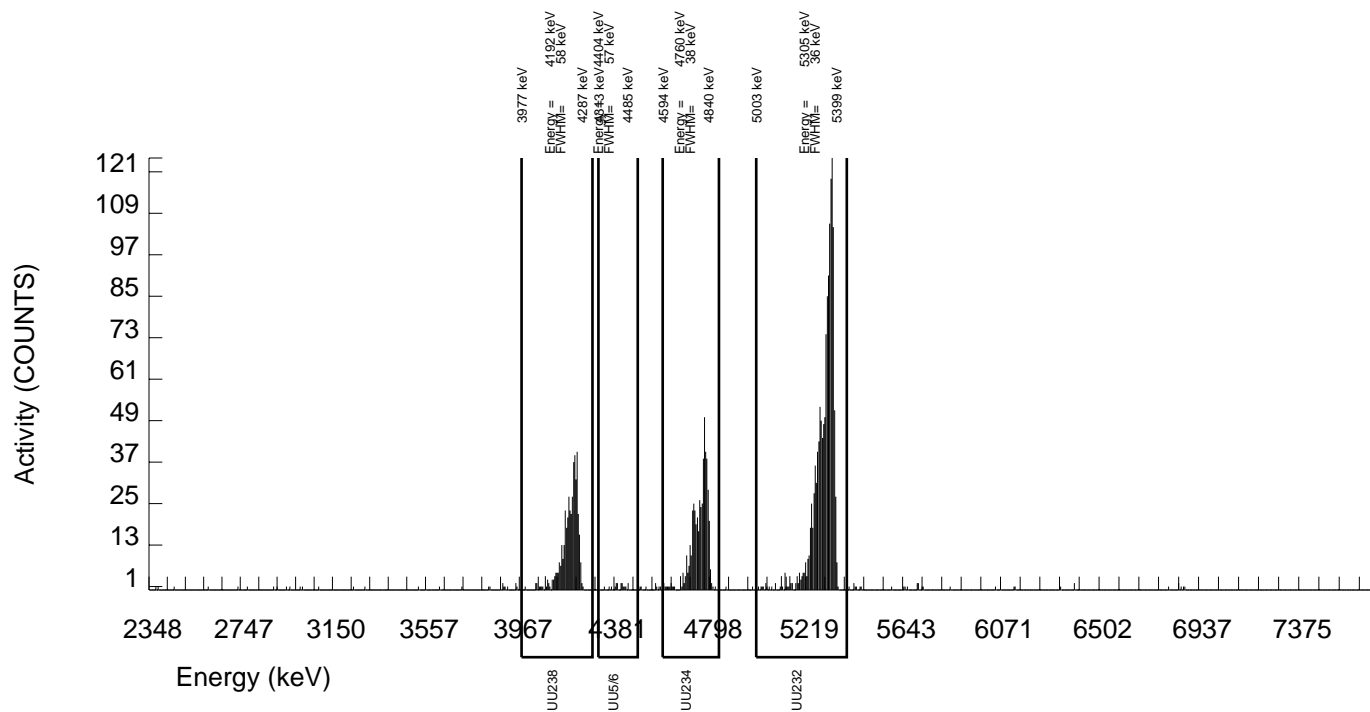
TRACER  
ID : 1283-E  
ISOTOPE : U232  
NOMINAL : 5.26261 dpm  
RESULTS : 5.29026 dpm

LIB FILE : ENV\_ALPHA\_UU.N  
BKG FILE : B118.CNF;394  
BKG DATE : 31-AUG-2009  
EFF FILE : W118.CNF;105  
CAL DATE : 17-AUG-2009

NUCLIDE ACTIVITY SUMMARY

| NUCLIDE | ENERGY   | GROSS AREA | NET AREA | BKG AREA | BKG Sg | %ABUN    | ACTIVITY pCi/G | TPU 1.96-SIGMA | MDA pCi/G | Lc pCi/G | UNC pCi/G |
|---------|----------|------------|----------|----------|--------|----------|----------------|----------------|-----------|----------|-----------|
| U-3/4   | 4763.020 | 502.000    | 497.885  | 0.000    | 0.0000 | 100.0000 | 1.73E+00       | 2.80E-01       | 1.04E-02  | 0.00E+00 | 1.52E-01  |
| U232    | 5302.100 | 1370.000   | 1362.000 | 8.000    | 2.8284 | 100.0000 | 4.73E+00       | 6.91E-01       | 5.61E-02  | 2.29E-02 | 2.53E-01  |
| U-235   | 4391.000 | 18.000     | 17.000   | 1.000    | 1.0000 | 80.90000 | 7.30E-02       | 3.80E-02       | 3.28E-02  | 9.98E-03 | 3.67E-02  |
| U-238   | 4184.730 | 453.000    | 453.000  | 0.000    | 0.0000 | 100.0000 | 1.57E+00       | 2.58E-01       | 1.04E-02  | 0.00E+00 | 1.45E-01  |

NOTE: Corrections made to U-3/4 net area due to tracer impurity



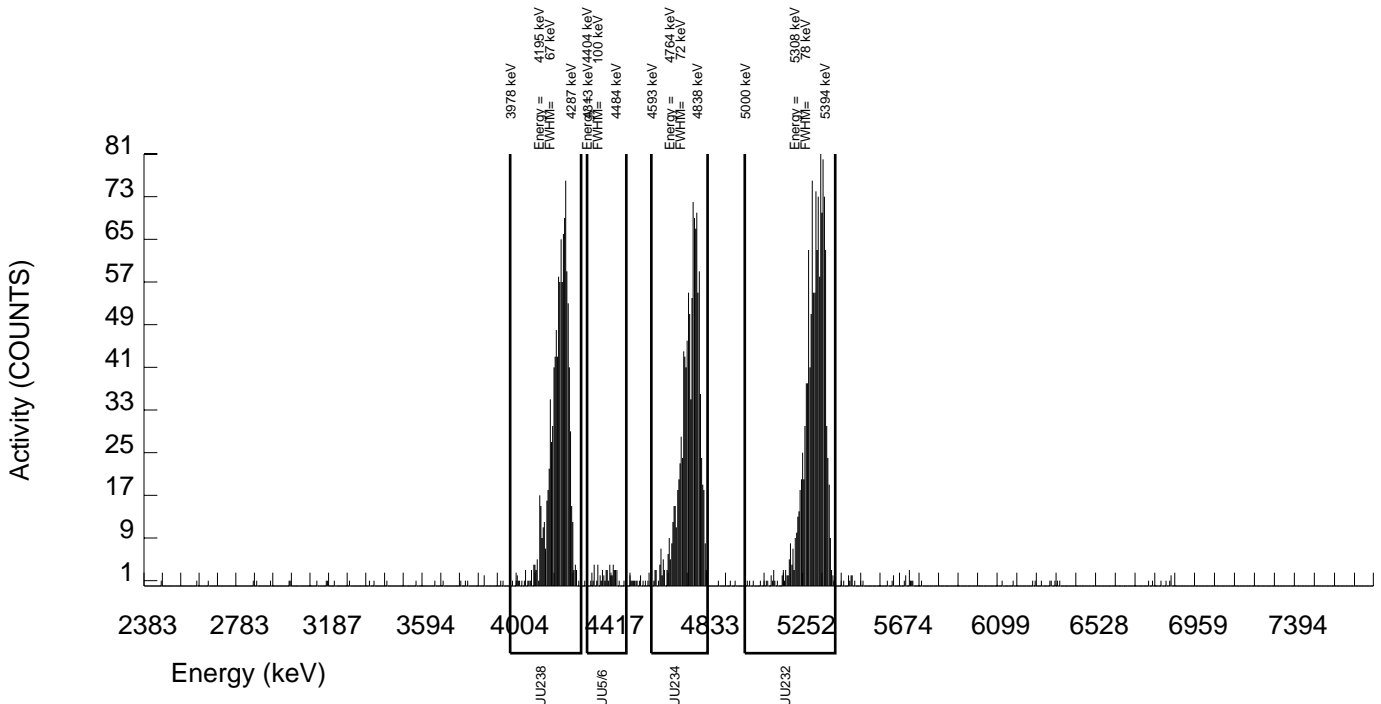
GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

|   |   |   |   |
|---|---|---|---|
| BATCH NUMBER: 899595<br>SAMPLE DATE : 10-AUG-2009 00:00:00                    |   | SAMPLE ID : S0234964012_UU<br>SAMPLE QTY: 0.522 G   |   |
| DETECTOR NUMBER :45-142V3<br>AVERAGE %EFFICIENCY :25.9433<br>% YIELD : 98.801 |   | COUNT DATE: 4-SEP-2009 14:22:46<br>ELAPSED LIVE TIME(SEC): 60000.00<br>ANALYST :KXM4      |   |
| MS/MSD<br>ID : 1163-G<br>ISOTOPE : U-238<br>PCI/G : 4.825E+00                 | LCS/LCSD<br>ID : 1163-G<br>ISOTOPE : U-238<br>PCI/G : 4.825E+00 | TRACER<br>ID : 1283-E<br>ISOTOPE : U232<br>NOMINAL : 5.26261 dpm<br>RESULTS : 5.19950 dpm | LIB FILE : ENV_ALPHA_UU.N<br>BKG FILE : B123.CNF;390<br>BKG DATE : 30-AUG-2009<br>EFF FILE : W123.CNF;105<br>CAL DATE : 17-AUG-2009 |

NUCLIDE ACTIVITY SUMMARY

| NUCLIDE | ENERGY   | GROSS AREA | NET AREA | BKG AREA | BKG Sg | %ABUN    | ACTIVITY pCi/G | TPU 1.96-SIGMA | MDA pCi/G | Lc pCi/G | UNC pCi/G |
|---------|----------|------------|----------|----------|--------|----------|----------------|----------------|-----------|----------|-----------|
| U-3/4   | 4763.020 | 1098.000   | 1090.927 | 3.000    | 1.7321 | 100.0000 | 3.67E+00       | 5.45E-01       | 3.72E-02  | 1.36E-02 | 2.19E-01  |
| U232    | 5302.100 | 1354.000   | 1348.000 | 6.000    | 2.4495 | 100.0000 | 4.54E+00       | 6.63E-01       | 4.85E-02  | 1.92E-02 | 2.44E-01  |
| U-235   | 4391.000 | 50.000     | 50.000   | 0.000    | 0.0000 | 80.90000 | 2.08E-01       | 6.42E-02       | 1.25E-02  | 0.00E+00 | 5.77E-02  |
| U-238   | 4184.730 | 1096.000   | 1095.000 | 1.000    | 1.0000 | 100.0000 | 3.69E+00       | 5.46E-01       | 2.58E-02  | 7.83E-03 | 2.19E-01  |

NOTE: Corrections made to U-3/4 net area due to tracer impurity



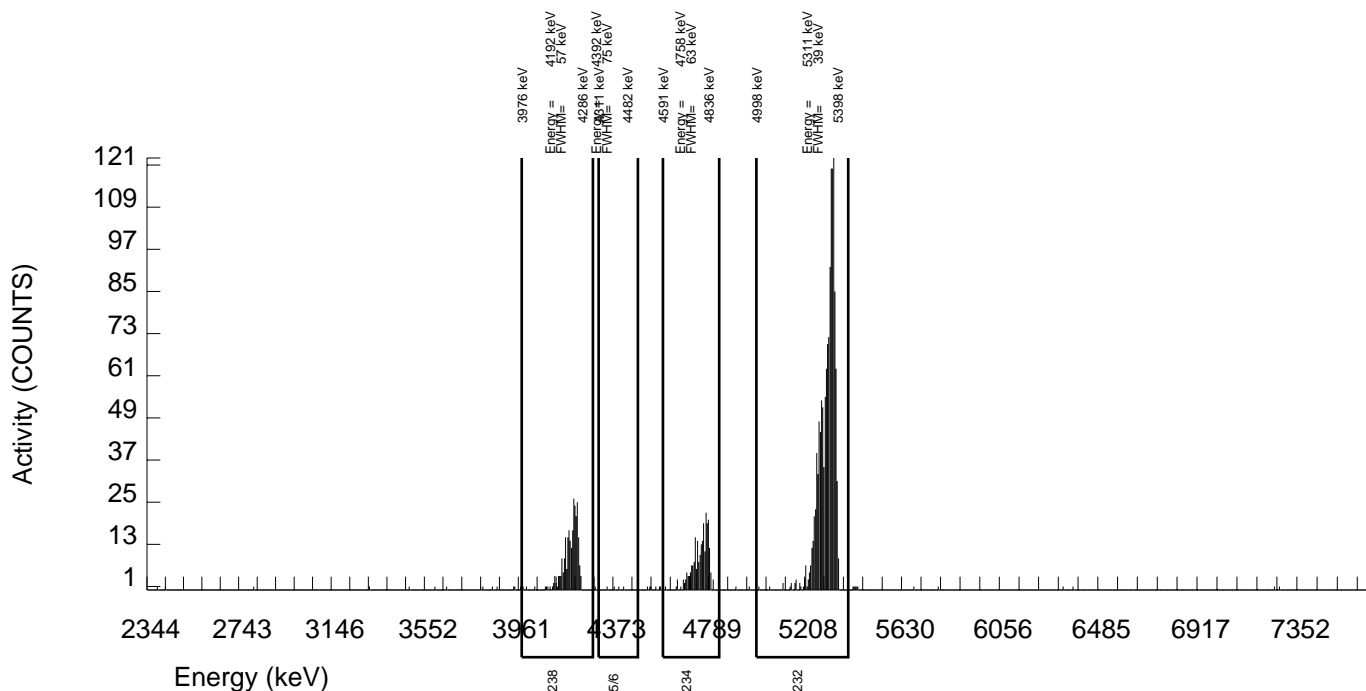
GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

|   |   |   |   |
|---|---|---|---|
| BATCH NUMBER: 899595<br>SAMPLE DATE : 10-AUG-2009 00:00:00                  |   | SAMPLE ID : S0234964013_UU<br>SAMPLE QTY: 0.504 G   |   |
| DETECTOR NUMBER :78770<br>AVERAGE %EFFICIENCY :24.6765<br>% YIELD : 101.638 |   | COUNT DATE: 4-SEP-2009 14:22:56<br>ELAPSED LIVE TIME(SEC): 60000.00<br>ANALYST :KXM4      |   |
| MS/MSD<br>ID : 1163-G<br>ISOTOPE : U-238<br>PCI/G : 4.998E+00               | LCS/LCSD<br>ID : 1163-G<br>ISOTOPE : U-238<br>PCI/G : 4.998E+00 | TRACER<br>ID : 1283-E<br>ISOTOPE : U232<br>NOMINAL : 5.26261 dpm<br>RESULTS : 5.34883 dpm | LIB FILE : ENV_ALPHA_UU.N<br>BKG FILE : B127.CNF;399<br>BKG DATE : 30-AUG-2009<br>EFF FILE : W127.CNF;112<br>CAL DATE : 17-AUG-2009 |

NUCLIDE ACTIVITY SUMMARY

| NUCLIDE | ENERGY   | GROSS AREA | NET AREA | BKG AREA | BKG Sg | %ABUN    | ACTIVITY pCi/G | TPU 1.96-SIGMA | MDA pCi/G | Lc pCi/G | UNC pCi/G |
|---------|----------|------------|----------|----------|--------|----------|----------------|----------------|-----------|----------|-----------|
| U-3/4   | 4763.020 | 246.000    | 240.015  | 2.000    | 1.4142 | 100.0000 | 8.55E-01       | 1.60E-01       | 3.41E-02  | 1.17E-02 | 1.09E-01  |
| U232    | 5302.100 | 1321.000   | 1319.000 | 2.000    | 1.4142 | 100.0000 | 4.70E+00       | 6.89E-01       | 3.42E-02  | 1.17E-02 | 2.54E-01  |
| U-235   | 4391.000 | 4.000      | 4.000    | 0.000    | 0.0000 | 80.90000 | 1.76E-02       | 1.74E-02       | 1.32E-02  | 0.00E+00 | 1.73E-02  |
| U-238   | 4184.730 | 271.000    | 269.000  | 2.000    | 1.4142 | 100.0000 | 9.59E-01       | 1.74E-01       | 3.41E-02  | 1.17E-02 | 1.15E-01  |

NOTE: Corrections made to U-3/4 net area due to tracer impurity



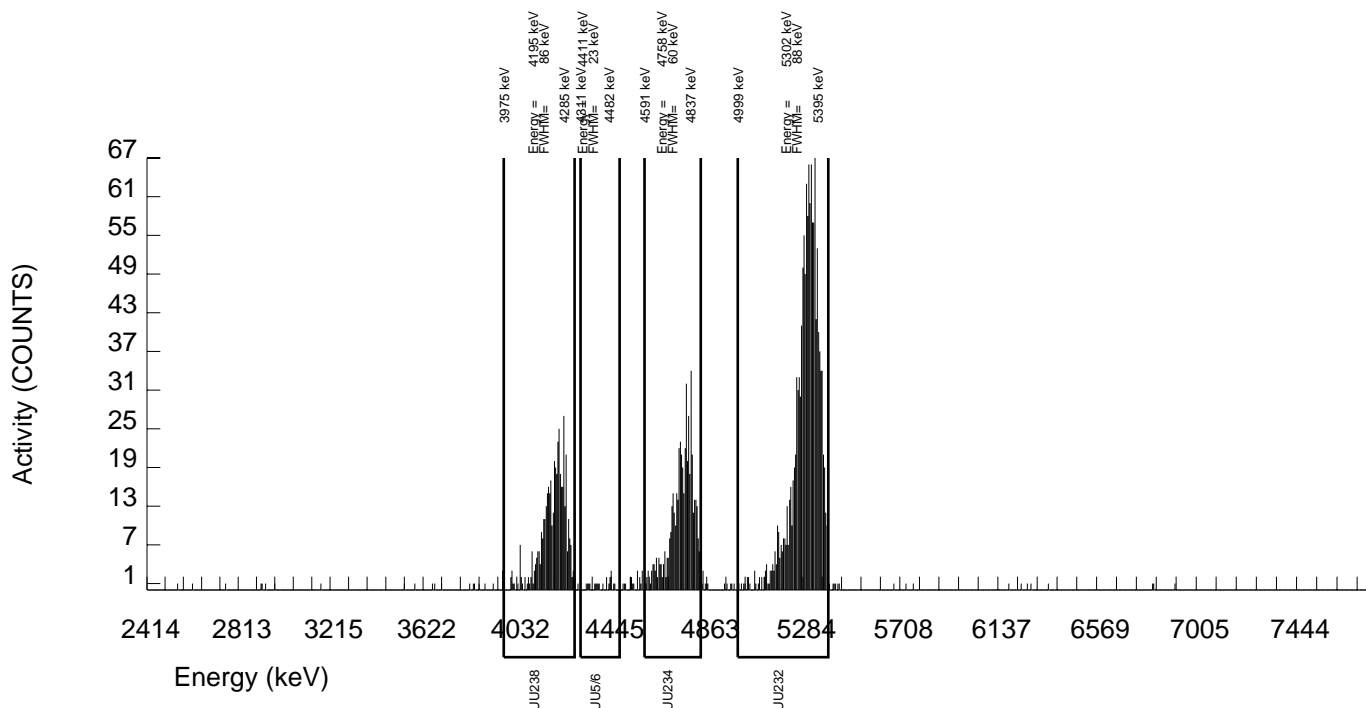
GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

|   |   |   |   |
|---|---|---|---|
| BATCH NUMBER: 899595<br>SAMPLE DATE : 10-AUG-2009 00:00:00                  |   | SAMPLE ID : S0234964014_UU<br>SAMPLE QTY: 0.503 G   |   |
| DETECTOR NUMBER :33448<br>AVERAGE %EFFICIENCY :24.8669<br>% YIELD : 102.389 |   | COUNT DATE: 4-SEP-2009 14:23:05<br>ELAPSED LIVE TIME(SEC): 60000.00<br>ANALYST :KXM4      |   |
| MS/MSD<br>ID : 1163-G<br>ISOTOPE : U-238<br>PCI/G : 5.008E+00               | LCS/LCSD<br>ID : 1163-G<br>ISOTOPE : U-238<br>PCI/G : 5.008E+00 | TRACER<br>ID : 1283-E<br>ISOTOPE : U232<br>NOMINAL : 5.26260 dpm<br>RESULTS : 5.38835 dpm | LIB FILE : ENV_ALPHA_UU.N<br>BKG FILE : B131.CNF;390<br>BKG DATE : 30-AUG-2009<br>EFF FILE : W131.CNF;116<br>CAL DATE : 17-AUG-2009 |

NUCLIDE ACTIVITY SUMMARY

| NUCLIDE | ENERGY   | GROSS AREA | NET AREA | BKG AREA | BKG Sg | %ABUN    | ACTIVITY pCi/G | TPU 1.96-SIGMA | MDA pCi/G | Lc pCi/G | UNC pCi/G |
|---------|----------|------------|----------|----------|--------|----------|----------------|----------------|-----------|----------|-----------|
| U-3/4   | 4763.020 | 503.000    | 495.954  | 3.000    | 1.7321 | 100.0000 | 1.74E+00       | 2.83E-01       | 3.89E-02  | 1.42E-02 | 1.54E-01  |
| U232    | 5302.100 | 1349.000   | 1339.000 | 10.000   | 3.1623 | 100.0000 | 4.71E+00       | 6.90E-01       | 6.23E-02  | 2.59E-02 | 2.54E-01  |
| U-235   | 4391.000 | 20.000     | 20.000   | 0.000    | 0.0000 | 80.90000 | 8.70E-02       | 3.99E-02       | 1.30E-02  | 0.00E+00 | 3.81E-02  |
| U-238   | 4184.730 | 454.000    | 452.000  | 2.000    | 1.4142 | 100.0000 | 1.59E+00       | 2.62E-01       | 3.37E-02  | 1.16E-02 | 1.47E-01  |

NOTE: Corrections made to U-3/4 net area due to tracer impurity



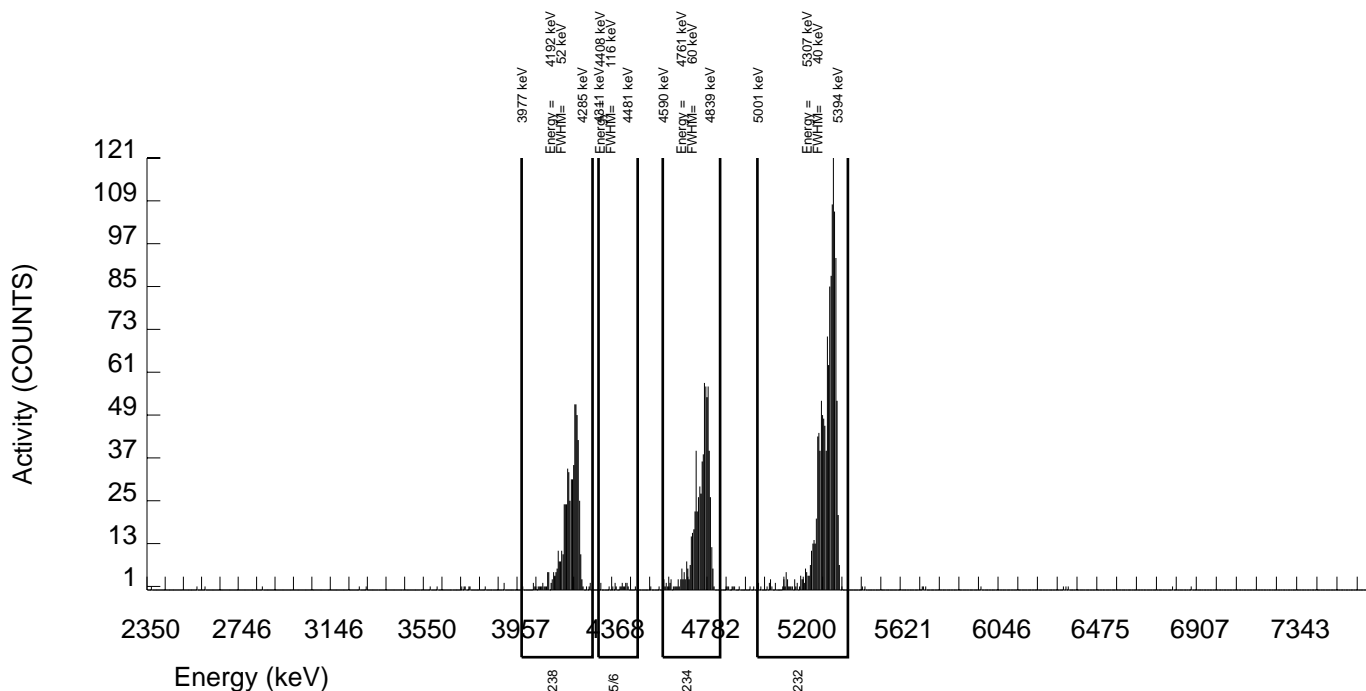
GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

|   |   |   |   |
|---|---|---|---|
| BATCH NUMBER: 899595<br>SAMPLE DATE : 10-AUG-2009 00:00:00                  |   | SAMPLE ID : S0234964015_UU<br>SAMPLE QTY: 0.530 G   |   |
| DETECTOR NUMBER :75556<br>AVERAGE %EFFICIENCY :24.5018<br>% YIELD : 102.363 |   | COUNT DATE: 4-SEP-2009 14:40:33<br>ELAPSED LIVE TIME(SEC): 60000.00<br>ANALYST :KXM4      |   |
| MS/MSD<br>ID : 1163-G<br>ISOTOPE : U-238<br>PCI/G : 4.753E+00               | LCS/LCSD<br>ID : 1163-G<br>ISOTOPE : U-238<br>PCI/G : 4.753E+00 | TRACER<br>ID : 1283-E<br>ISOTOPE : U232<br>NOMINAL : 5.26260 dpm<br>RESULTS : 5.38696 dpm | LIB FILE : ENV_ALPHA_UU.N<br>BKG FILE : B151.CNF;346<br>BKG DATE : 30-AUG-2009<br>EFF FILE : W151.CNF;108<br>CAL DATE : 17-AUG-2009 |

NUCLIDE ACTIVITY SUMMARY

| NUCLIDE | ENERGY   | GROSS AREA | NET AREA | BKG AREA | BKG Sg | %ABUN    | ACTIVITY pCi/G | TPU 1.96-SIGMA | MDA pCi/G | Lc pCi/G | UNC pCi/G |
|---------|----------|------------|----------|----------|--------|----------|----------------|----------------|-----------|----------|-----------|
| U-3/4   | 4763.020 | 662.000    | 656.015  | 2.000    | 1.4142 | 100.0000 | 2.22E+00       | 3.47E-01       | 3.25E-02  | 1.11E-02 | 1.71E-01  |
| U232    | 5302.100 | 1323.000   | 1319.000 | 4.000    | 2.0000 | 100.0000 | 4.47E+00       | 6.55E-01       | 4.17E-02  | 1.58E-02 | 2.42E-01  |
| U-235   | 4391.000 | 19.000     | 19.000   | 0.000    | 0.0000 | 80.90000 | 7.96E-02       | 3.74E-02       | 1.26E-02  | 0.00E+00 | 3.58E-02  |
| U-238   | 4184.730 | 597.000    | 595.000  | 2.000    | 1.4142 | 100.0000 | 2.02E+00       | 3.19E-01       | 3.25E-02  | 1.11E-02 | 1.63E-01  |

NOTE: Corrections made to U-3/4 net area due to tracer impurity





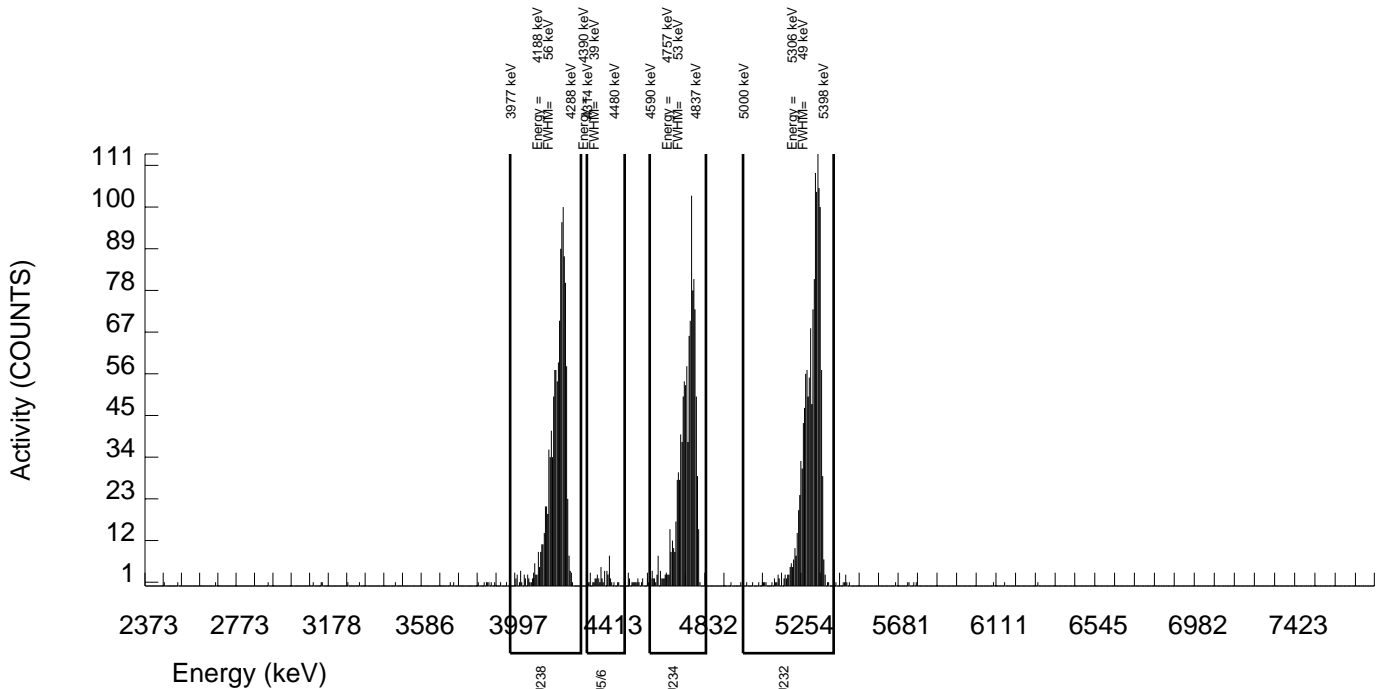
GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

|   |   |   |   |
|---|---|---|---|
| BATCH NUMBER: 899595<br>SAMPLE DATE : 10-AUG-2009 00:00:00                  |   | SAMPLE ID : S0234964016_UU<br>SAMPLE QTY: 0.502 G   |   |
| DETECTOR NUMBER :75553<br>AVERAGE %EFFICIENCY :26.0403<br>% YIELD : 102.084 |   | COUNT DATE: 4-SEP-2009 14:40:43<br>ELAPSED LIVE TIME(SEC): 60000.00<br>ANALYST :KXM4      |   |
| MS/MSD<br>ID : 1163-G<br>ISOTOPE : U-238<br>PCI/G : 5.018E+00               | LCS/LCSD<br>ID : 1163-G<br>ISOTOPE : U-238<br>PCI/G : 5.018E+00 | TRACER<br>ID : 1283-E<br>ISOTOPE : U232<br>NOMINAL : 5.26260 dpm<br>RESULTS : 5.37228 dpm | LIB FILE : ENV_ALPHA_UU.N<br>BKG FILE : B155.CNF;347<br>BKG DATE : 30-AUG-2009<br>EFF FILE : W155.CNF;105<br>CAL DATE : 17-AUG-2009 |

NUCLIDE ACTIVITY SUMMARY

| NUCLIDE | ENERGY   | GROSS AREA | NET AREA | BKG AREA | BKG Sg | %ABUN    | ACTIVITY pCi/G | TPU 1.96-SIGMA | MDA pCi/G | Lc pCi/G | UNC pCi/G |
|---------|----------|------------|----------|----------|--------|----------|----------------|----------------|-----------|----------|-----------|
| U-3/4   | 4763.020 | 1102.000   | 1094.776 | 3.000    | 1.7321 | 100.0000 | 3.70E+00       | 5.47E-01       | 3.73E-02  | 1.36E-02 | 2.20E-01  |
| U232    | 5302.100 | 1402.000   | 1398.000 | 4.000    | 2.0000 | 100.0000 | 4.72E+00       | 6.87E-01       | 4.16E-02  | 1.57E-02 | 2.48E-01  |
| U-235   | 4391.000 | 49.000     | 48.000   | 1.000    | 1.0000 | 80.90000 | 2.00E-01       | 6.39E-02       | 3.19E-02  | 9.71E-03 | 5.78E-02  |
| U-238   | 4184.730 | 1197.000   | 1195.000 | 2.000    | 1.4142 | 100.0000 | 4.03E+00       | 5.93E-01       | 3.23E-02  | 1.11E-02 | 2.29E-01  |

NOTE: Corrections made to U-3/4 net area due to tracer impurity



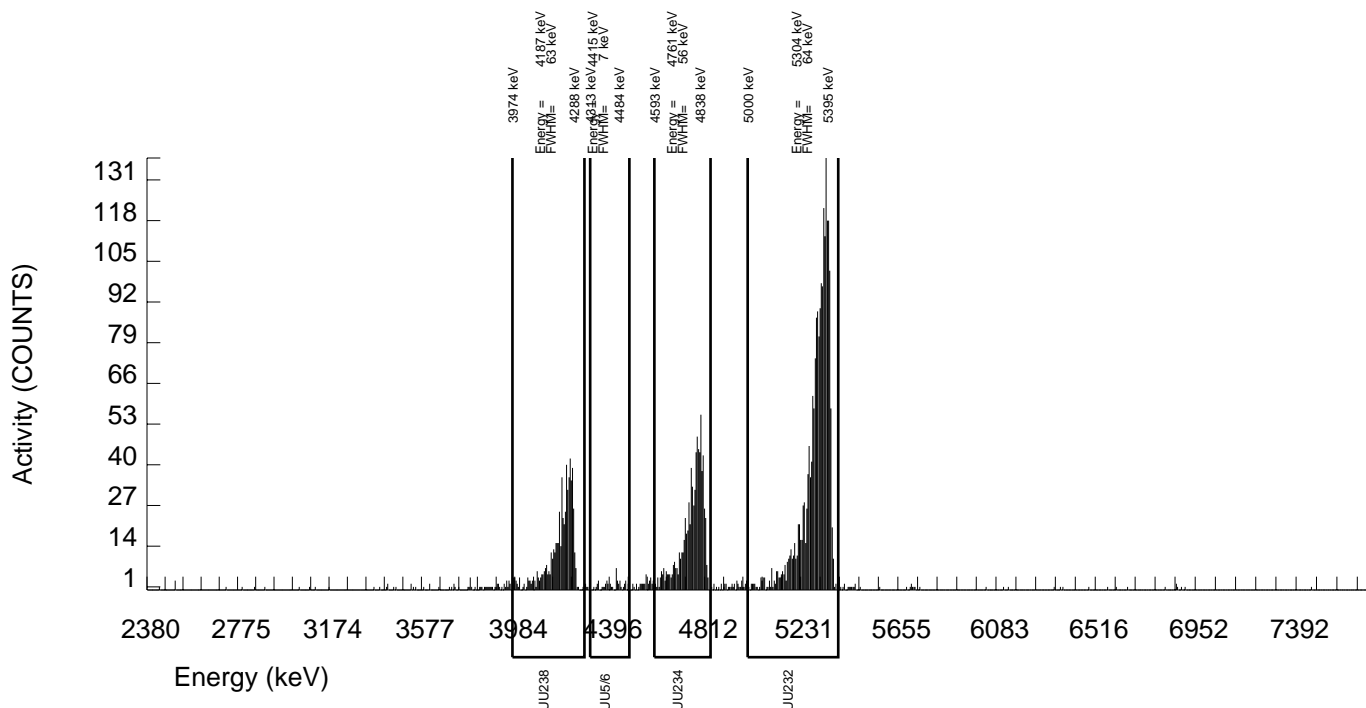
GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

|   |   |   |  |
|---|---|---|--|
| BATCH NUMBER: 899595<br>SAMPLE DATE : 10-AUG-2009 00:00:00                  |   | SAMPLE ID : S0234964017_UU<br>SAMPLE QTY: 0.521 G   |  |
| DETECTOR NUMBER :70321<br>AVERAGE %EFFICIENCY :37.3131<br>% YIELD : 105.132 |   | COUNT DATE: 4-SEP-2009 14:42:26<br>ELAPSED LIVE TIME(SEC): 60000.00<br>ANALYST :KXM4      |  |
| MS/MSD<br>ID : 1163-G<br>ISOTOPE : U-238<br>PCI/G : 4.835E+00               | LCS/LCSD<br>ID : 1163-G<br>ISOTOPE : U-238<br>PCI/G : 4.835E+00 | TRACER<br>ID : 1283-E<br>ISOTOPE : U232<br>NOMINAL : 5.26261 dpm<br>RESULTS : 5.53269 dpm | LIB FILE : ENV_ALPHA_UU.N<br>BKG FILE : B161.CNF;120<br>BKG DATE : 30-AUG-2009<br>EFF FILE : W161.CNF;43<br>CAL DATE : 24-AUG-2009 |

NUCLIDE ACTIVITY SUMMARY

| NUCLIDE | ENERGY   | GROSS AREA | NET AREA | BKG AREA | BKG Sg | %ABUN    | ACTIVITY pCi/G | TPU 1.96-SIGMA | MDA pCi/G | Lc pCi/G | UNC pCi/G |
|---------|----------|------------|----------|----------|--------|----------|----------------|----------------|-----------|----------|-----------|
| U-3/4   | 4763.020 | 789.000    | 778.767  | 4.000    | 2.0000 | 100.0000 | 1.72E+00       | 2.57E-01       | 2.71E-02  | 1.03E-02 | 1.21E-01  |
| U232    | 5302.100 | 2068.000   | 2063.000 | 5.000    | 2.2361 | 100.0000 | 4.55E+00       | 6.32E-01       | 2.96E-02  | 1.15E-02 | 1.97E-01  |
| U-235   | 4391.000 | 46.000     | 44.000   | 2.000    | 1.4142 | 80.90000 | 1.20E-01       | 4.02E-02       | 2.61E-02  | 8.96E-03 | 3.70E-02  |
| U-238   | 4184.730 | 617.000    | 616.000  | 1.000    | 1.0000 | 100.0000 | 1.36E+00       | 2.09E-01       | 1.69E-02  | 5.13E-03 | 1.07E-01  |

NOTE: Corrections made to U-3/4 net area due to tracer impurity



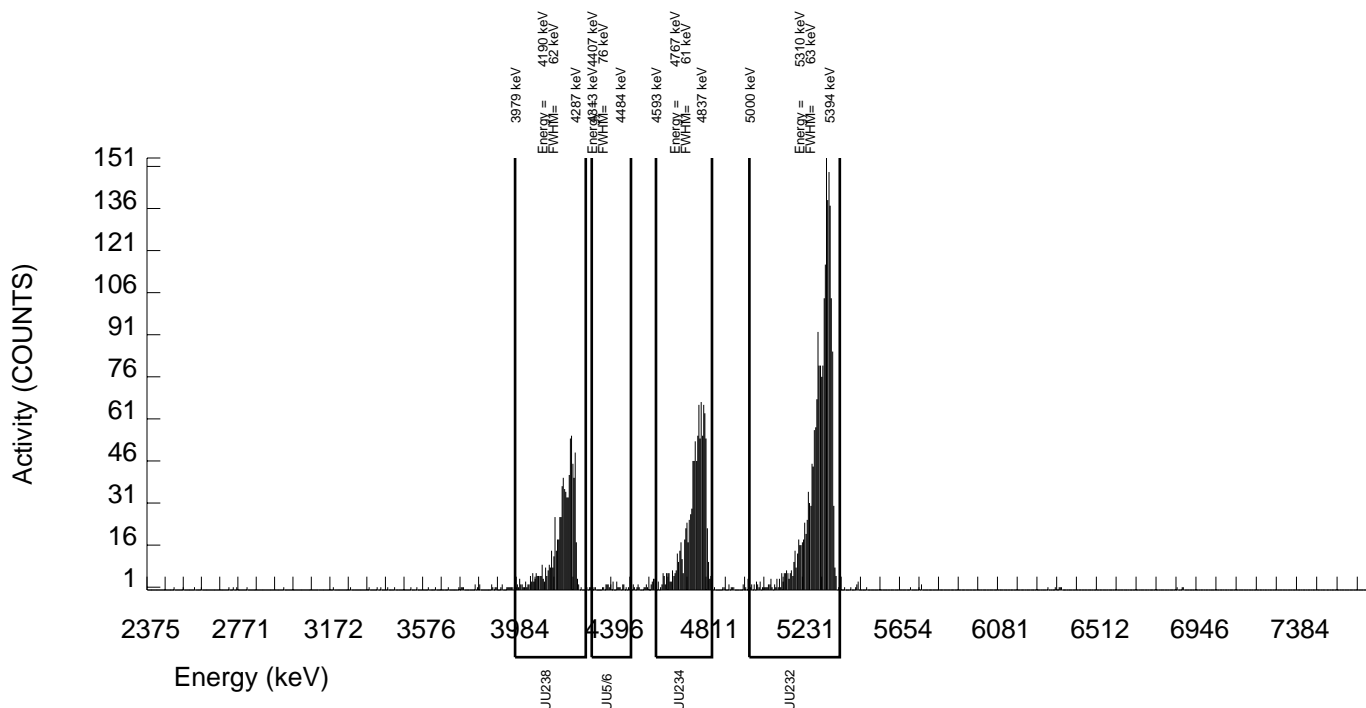
GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

|   |   |   |  |
|---|---|---|--|
| BATCH NUMBER: 899595<br>SAMPLE DATE : 10-AUG-2009 00:00:00                  |   | SAMPLE ID : S0234964018_UU<br>SAMPLE QTY: 0.505 G   |  |
| DETECTOR NUMBER :70323<br>AVERAGE %EFFICIENCY :37.2396<br>% YIELD : 107.382 |   | COUNT DATE: 4-SEP-2009 14:42:27<br>ELAPSED LIVE TIME(SEC): 60000.00<br>ANALYST :KXM4      |  |
| MS/MSD<br>ID : 1163-G<br>ISOTOPE : U-238<br>PCI/G : 4.988E+00               | LCS/LCSD<br>ID : 1163-G<br>ISOTOPE : U-238<br>PCI/G : 4.988E+00 | TRACER<br>ID : 1283-E<br>ISOTOPE : U232<br>NOMINAL : 5.26261 dpm<br>RESULTS : 5.65110 dpm | LIB FILE : ENV_ALPHA_UU.N<br>BKG FILE : B162.CNF;122<br>BKG DATE : 30-AUG-2009<br>EFF FILE : W162.CNF;52<br>CAL DATE : 24-AUG-2009 |

NUCLIDE ACTIVITY SUMMARY

| NUCLIDE | ENERGY   | GROSS AREA | NET AREA | BKG AREA | BKG Sg | %ABUN    | ACTIVITY pCi/G | TPU 1.96-SIGMA | MDA pCi/G | Lc pCi/G | UNC pCi/G |
|---------|----------|------------|----------|----------|--------|----------|----------------|----------------|-----------|----------|-----------|
| U-3/4   | 4763.020 | 1018.000   | 1009.646 | 2.000    | 1.4142 | 100.0000 | 2.25E+00       | 3.28E-01       | 2.14E-02  | 7.34E-03 | 1.39E-01  |
| U232    | 5302.100 | 2109.000   | 2103.000 | 6.000    | 2.4495 | 100.0000 | 4.69E+00       | 6.51E-01       | 3.21E-02  | 1.27E-02 | 2.01E-01  |
| U-235   | 4391.000 | 29.000     | 28.000   | 1.000    | 1.0000 | 80.90000 | 7.72E-02       | 3.13E-02       | 2.11E-02  | 6.41E-03 | 2.96E-02  |
| U-238   | 4184.730 | 806.000    | 805.000  | 1.000    | 1.0000 | 100.0000 | 1.80E+00       | 2.67E-01       | 1.71E-02  | 5.19E-03 | 1.24E-01  |

NOTE: Corrections made to U-3/4 net area due to tracer impurity



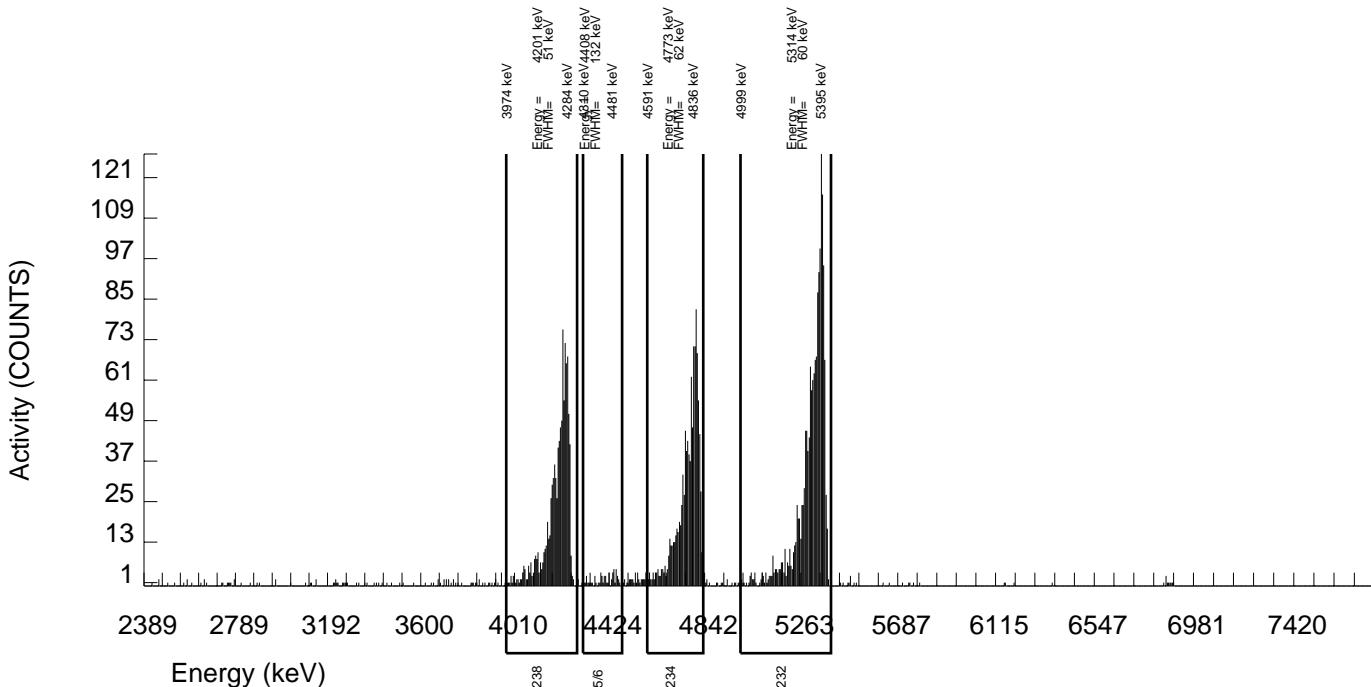
GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

|  |   |   |  |
|--|---|---|--|
| BATCH NUMBER: 899595<br>SAMPLE DATE : 10-AUG-2009 00:00:00                 |   | SAMPLE ID : S0234964019_UU<br>SAMPLE QTY: 0.508 G   |  |
| DETECTOR NUMBER :72544<br>AVERAGE %EFFICIENCY :38.1852<br>% YIELD : 81.019 |   | COUNT DATE: 4-SEP-2009 14:42:31<br>ELAPSED LIVE TIME(SEC): 60000.00<br>ANALYST :KXM4      |  |
| MS/MSD<br>ID : 1163-G<br>ISOTOPE : U-238<br>PCI/G : 4.958E+00              | LCS/LCSD<br>ID : 1163-G<br>ISOTOPE : U-238<br>PCI/G : 4.958E+00 | TRACER<br>ID : 1283-E<br>ISOTOPE : U232<br>NOMINAL : 5.26261 dpm<br>RESULTS : 4.26374 dpm | LIB FILE : ENV_ALPHA_UU.N<br>BKG FILE : B165.CNF;120<br>BKG DATE : 30-AUG-2009<br>EFF FILE : W165.CNF;40<br>CAL DATE : 24-AUG-2009 |

NUCLIDE ACTIVITY SUMMARY

| NUCLIDE | ENERGY   | GROSS AREA | NET AREA | BKG AREA | BKG Sg | %ABUN    | ACTIVITY pCi/G | TPU 1.96-SIGMA | MDA pCi/G | Lc pCi/G | UNC pCi/G |
|---------|----------|------------|----------|----------|--------|----------|----------------|----------------|-----------|----------|-----------|
| U-3/4   | 4763.020 | 1057.000   | 1044.084 | 8.000    | 2.8284 | 100.0000 | 2.99E+00       | 4.40E-01       | 4.63E-02  | 1.89E-02 | 1.83E-01  |
| U232    | 5302.100 | 1634.000   | 1627.000 | 7.000    | 2.6458 | 100.0000 | 4.67E+00       | 6.65E-01       | 4.39E-02  | 1.77E-02 | 2.28E-01  |
| U-235   | 4391.000 | 61.000     | 60.000   | 1.000    | 1.0000 | 80.90000 | 2.13E-01       | 6.16E-02       | 2.71E-02  | 8.24E-03 | 5.47E-02  |
| U-238   | 4184.730 | 1011.000   | 1006.000 | 5.000    | 2.2361 | 100.0000 | 2.88E+00       | 4.26E-01       | 3.84E-02  | 1.49E-02 | 1.79E-01  |

NOTE: Corrections made to U-3/4 net area due to tracer impurity



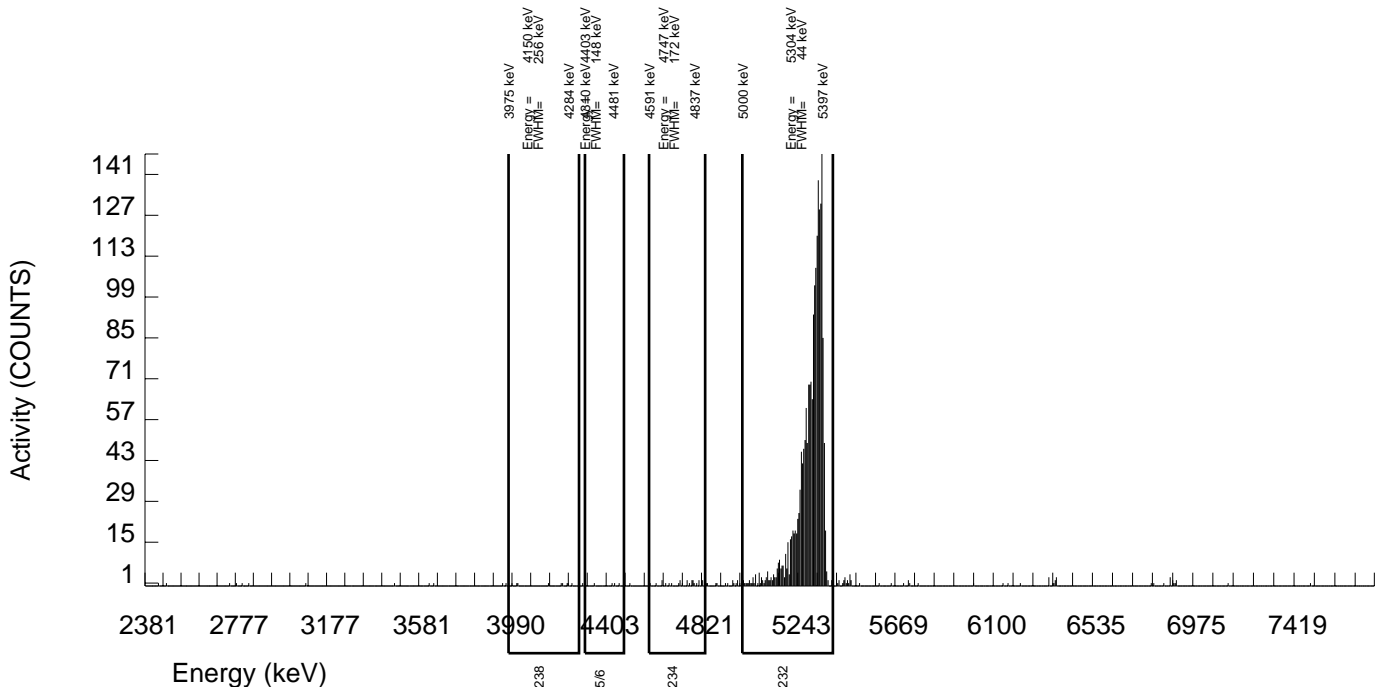
GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

|  |   |   |  |
|--|---|---|--|
| BATCH NUMBER: 899595<br>SAMPLE DATE : 2-SEP-2009 00:00:00.                 |   | SAMPLE ID : S1201916366_UU<br>SAMPLE QTY: 0.530 G   |  |
| DETECTOR NUMBER :74545<br>AVERAGE %EFFICIENCY :39.3094<br>% YIELD : 97.471 |   | COUNT DATE: 4-SEP-2009 14:42:33<br>ELAPSED LIVE TIME(SEC): 60000.00<br>ANALYST :KXM4      |  |
| MS/MSD<br>ID : 1163-G<br>ISOTOPE : U-238<br>PCI/G : 4.753E+00              | LCS/LCSD<br>ID : 1163-G<br>ISOTOPE : U-238<br>PCI/G : 4.753E+00 | TRACER<br>ID : 1283-E<br>ISOTOPE : U232<br>NOMINAL : 5.25942 dpm<br>RESULTS : 5.12640 dpm | LIB FILE : ENV_ALPHA_UU.N<br>BKG FILE : B166.CNF;121<br>BKG DATE : 30-AUG-2009<br>EFF FILE : W166.CNF;40<br>CAL DATE : 24-AUG-2009 |

NUCLIDE ACTIVITY SUMMARY

| NUCLIDE | ENERGY   | GROSS AREA | NET AREA | BKG AREA | BKG Sg | %ABUN    | ACTIVITY pCi/G | TPU 1.96-SIGMA | MDA pCi/G | Lc pCi/G | UNC pCi/G |
|---------|----------|------------|----------|----------|--------|----------|----------------|----------------|-----------|----------|-----------|
| U-3/4   | 4763.020 | 25.000     | 14.912   | 4.000    | 2.0000 | 100.0000 | 3.31E-02       | 2.13E-02       | 2.73E-02  | 1.03E-02 | 2.08E-02  |
| U232    | 5302.100 | 2027.000   | 2015.000 | 12.000   | 3.4641 | 100.0000 | 4.47E+00       | 6.22E-01       | 4.24E-02  | 1.79E-02 | 1.96E-01  |
| U-235   | 4391.000 | 5.000      | 3.000    | 2.000    | 1.4142 | 80.90000 | 8.23E-03       | 1.43E-02       | 2.63E-02  | 9.02E-03 | 1.42E-02  |
| U-238   | 4184.730 | 9.000      | 9.000    | 0.000    | 0.0000 | 100.0000 | 2.00E-02       | 1.33E-02       | 6.65E-03  | 0.00E+00 | 1.30E-02  |

NOTE: Corrections made to U-3/4 net area due to tracer impurity



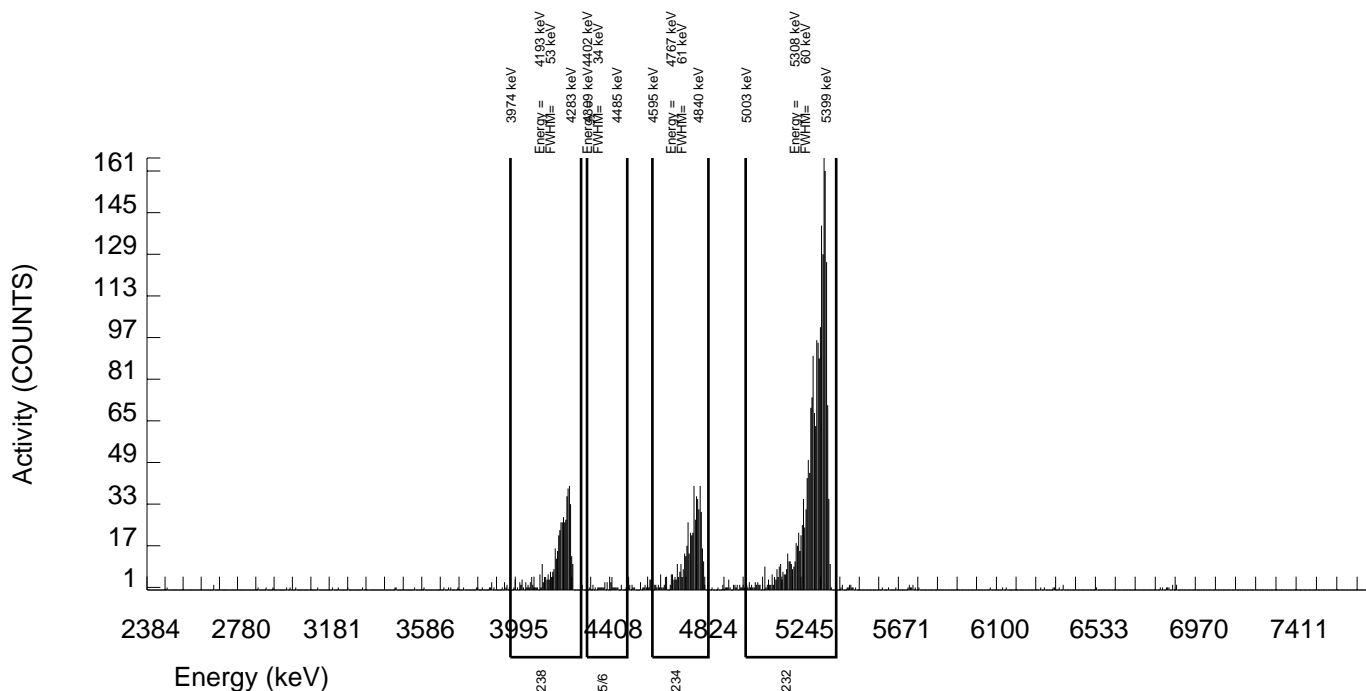
GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

|   |   |   |  |
|---|---|---|--|
| BATCH NUMBER: 899595<br>SAMPLE DATE : 10-AUG-2009 00:00:00                  |   | SAMPLE ID : S1201916367_UU<br>SAMPLE QTY: 0.508 G   |  |
| DETECTOR NUMBER :72546<br>AVERAGE %EFFICIENCY :38.9610<br>% YIELD : 103.516 |   | COUNT DATE: 4-SEP-2009 15:21:51<br>ELAPSED LIVE TIME(SEC): 60000.00<br>ANALYST :KXM4      |  |
| MS/MSD<br>ID : 1163-G<br>ISOTOPE : U-238<br>PCI/G : 4.958E+00               | LCS/LCSD<br>ID : 1163-G<br>ISOTOPE : U-238<br>PCI/G : 4.958E+00 | TRACER<br>ID : 1283-E<br>ISOTOPE : U232<br>NOMINAL : 5.26261 dpm<br>RESULTS : 5.44764 dpm | LIB FILE : ENV_ALPHA_UU.N<br>BKG FILE : B167.CNF;121<br>BKG DATE : 30-AUG-2009<br>EFF FILE : W167.CNF;40<br>CAL DATE : 24-AUG-2009 |

NUCLIDE ACTIVITY SUMMARY

| NUCLIDE | ENERGY   | GROSS AREA | NET AREA | BKG AREA | BKG Sg | %ABUN    | ACTIVITY pCi/G | TPU 1.96-SIGMA | MDA pCi/G | Lc pCi/G | UNC pCi/G |
|---------|----------|------------|----------|----------|--------|----------|----------------|----------------|-----------|----------|-----------|
| U-3/4   | 4763.020 | 519.000    | 504.592  | 8.000    | 2.8284 | 100.0000 | 1.11E+00       | 1.76E-01       | 3.55E-02  | 1.45E-02 | 9.83E-02  |
| U232    | 5302.100 | 2131.000   | 2121.000 | 10.000   | 3.1623 | 100.0000 | 4.67E+00       | 6.46E-01       | 3.90E-02  | 1.62E-02 | 2.00E-01  |
| U-235   | 4391.000 | 33.000     | 32.000   | 1.000    | 1.0000 | 80.90000 | 8.70E-02       | 3.31E-02       | 2.08E-02  | 6.32E-03 | 3.11E-02  |
| U-238   | 4184.730 | 500.000    | 496.000  | 4.000    | 2.0000 | 100.0000 | 1.09E+00       | 1.73E-01       | 2.71E-02  | 1.02E-02 | 9.67E-02  |

NOTE: Corrections made to U-3/4 net area due to tracer impurity



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 899595  
SAMPLE DATE : 10-AUG-2009 00:00:00

SAMPLE ID : S1201916368\_UU  
SAMPLE QTY: 0.509 G

DETECTOR NUMBER :78788  
AVERAGE %EFFICIENCY :32.0599  
% YIELD : 100.176

COUNT DATE: 4-SEP-2009 14:41:52  
ELAPSED LIVE TIME(SEC): 59999.99  
ANALYST :KXM4

MS/MSD  
ID : 1163-G  
ISOTOPE : U-238  
PCI/G : 4.949E+00

LCS/LCSD  
ID : 1163-G  
ISOTOPE : U-238  
PCI/G : 4.949E+00

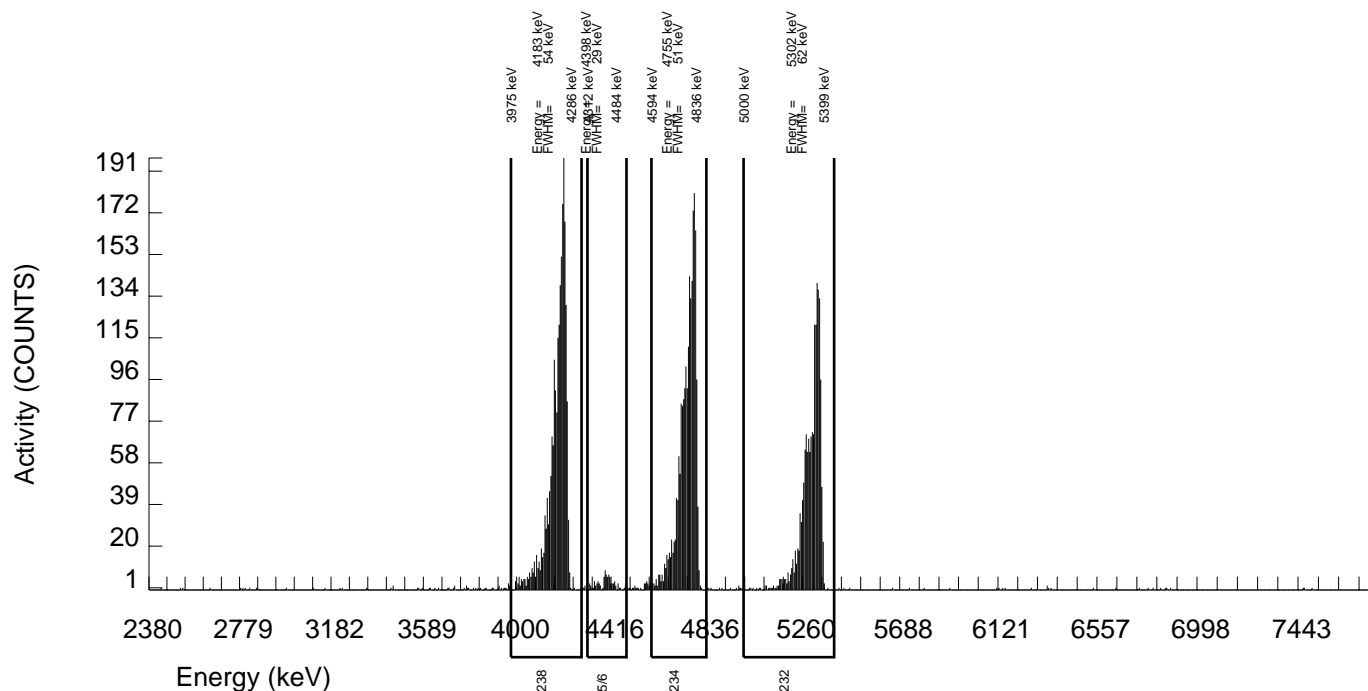
TRACER  
ID : 1283-E  
ISOTOPE : U232  
NOMINAL : 5.26261 dpm  
RESULTS : 5.27188 dpm

LIB FILE : ENV\_ALPHA\_UU.N  
BKG FILE : B008.CNF;1061  
BKG DATE : 30-AUG-2009  
EFF FILE : W008.CNF;331  
CAL DATE : 4-SEP-2009

NUCLIDE ACTIVITY SUMMARY

| NUCLIDE | ENERGY   | GROSS AREA | NET AREA | BKG AREA | BKG Sg | %ABUN    | ACTIVITY pCi/G | TPU 1.96-SIGMA | MDA pCi/G | Lc pCi/G | UNC pCi/G |
|---------|----------|------------|----------|----------|--------|----------|----------------|----------------|-----------|----------|-----------|
| U-3/4   | 4763.020 | 2150.000   | 2141.897 | 3.000    | 1.7321 | 100.0000 | 5.90E+00       | 8.28E-01       | 3.05E-02  | 1.11E-02 | 2.50E-01  |
| U232    | 5302.100 | 1692.000   | 1689.000 | 3.000    | 1.7321 | 100.0000 | 4.66E+00       | 6.61E-01       | 3.05E-02  | 1.11E-02 | 2.23E-01  |
| U-235   | 4391.000 | 91.000     | 88.000   | 3.000    | 1.7321 | 80.90000 | 3.00E-01       | 7.61E-02       | 3.77E-02  | 1.37E-02 | 6.47E-02  |
| U-238   | 4184.730 | 2171.000   | 2166.000 | 5.000    | 2.2361 | 100.0000 | 5.97E+00       | 8.37E-01       | 3.69E-02  | 1.43E-02 | 2.52E-01  |

NOTE: Corrections made to U-3/4 net area due to tracer impurity



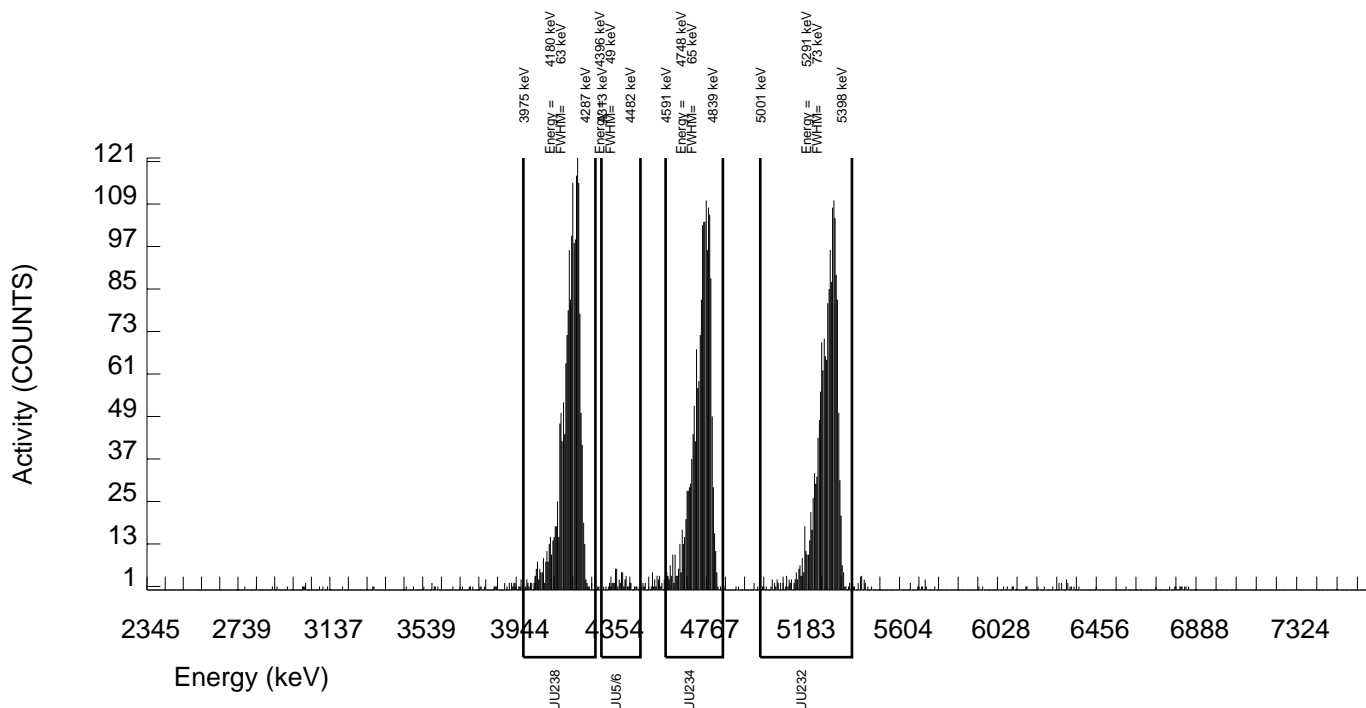
GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

|   |   |   |   |
|---|---|---|---|
| BATCH NUMBER: 899595<br>SAMPLE DATE : 2-SEP-2009 00:00:00.                  |   | SAMPLE ID : S1201916369_UU<br>SAMPLE QTY: 0.530 G   |   |
| DETECTOR NUMBER :61581<br>AVERAGE %EFFICIENCY :32.5047<br>% YIELD : 101.204 |   | COUNT DATE: 4-SEP-2009 14:41:54<br>ELAPSED LIVE TIME(SEC): 60000.00<br>ANALYST :KXM4      |   |
| MS/MSD<br>ID : 1163-G<br>ISOTOPE : U-238<br>PCI/G : 4.753E+00               | LCS/LCSD<br>ID : 1163-G<br>ISOTOPE : U-238<br>PCI/G : 4.753E+00 | TRACER<br>ID : 1283-E<br>ISOTOPE : U232<br>NOMINAL : 5.25942 dpm<br>RESULTS : 5.32272 dpm | LIB FILE : ENV_ALPHA_UU.N<br>BKG FILE : B015.CNF;1061<br>BKG DATE : 30-AUG-2009<br>EFF FILE : W015.CNF;318<br>CAL DATE : 4-SEP-2009 |

NUCLIDE ACTIVITY SUMMARY

| NUCLIDE | ENERGY   | GROSS AREA | NET AREA | BKG AREA | BKG Sg | %ABUN    | ACTIVITY pCi/G | TPU 1.96-SIGMA | MDA pCi/G | Lc pCi/G | UNC pCi/G |
|---------|----------|------------|----------|----------|--------|----------|----------------|----------------|-----------|----------|-----------|
| U-3/4   | 4763.020 | 1708.000   | 1694.773 | 8.000    | 2.8284 | 100.0000 | 4.38E+00       | 6.21E-01       | 4.18E-02  | 1.70E-02 | 2.09E-01  |
| U232    | 5302.100 | 1743.000   | 1730.000 | 13.000   | 3.6056 | 100.0000 | 4.47E+00       | 6.34E-01       | 5.11E-02  | 2.17E-02 | 2.12E-01  |
| U-235   | 4391.000 | 61.000     | 61.000   | 0.000    | 0.0000 | 80.90000 | 1.95E-01       | 5.54E-02       | 9.58E-03  | 0.00E+00 | 4.89E-02  |
| U-238   | 4184.730 | 1839.000   | 1835.000 | 4.000    | 2.0000 | 100.0000 | 4.74E+00       | 6.69E-01       | 3.18E-02  | 1.20E-02 | 2.17E-01  |

NOTE: Corrections made to U-3/4 net area due to tracer impurity





# RADIUM 228

### Radiochemistry Batch Checklist, Rev 9

Batch# 893087 Product: RA 228 Date: 8/25/09

| Criteria:   | Yes | No | Comments |
|---|-----|----|----------|
| Sample Solids are less than or equal to 100 mg for GAB.   | ✓   |    |          |
| Samples have been blank corrected (if required)   |     |    | N/A      |
| If activity less 10* MDA/ MDC, error is 150% or less of sample activity. If greater 10* MDA/ MDC, error is 40% or less. If below the MDA/ MDC, error is okay. | ✓   |    |          |
| Instrument source check is within limits.   | ✓   |    |          |
| Instrument bkg check is within limits.  | ✓   |    |          |
| Method RDL/ LLD has been met.   | ✓   |    |          |
| If duplicate activities are less 5* MDA/ MDC, then RPD is 100% or less. If greater 5* MDA/ MDC, then RPD 20% or less. If below the MDA/ MDC, the RPD is 0%.   | ✓   |    |          |
| Or meets the client's required RER acceptance criteria.   | ✓   |    |          |
| Tracer yield is 15-125% . Carrier yield 25-125%.  | ✓   |    |          |
| Or meets the client's contract acceptance criteria.   | ✓   |    |          |
| Method blank is less than the RDL/ LLD.<br>(If rad samples, < 5% of lowest activity)  | ✓   |    |          |
| Sample was run within hold time.  | ✓   |    |          |
| Sample was correctly preserved if required.   |     |    | N/A      |
| Smears Taken for Radioactive batches.   |     |    | N/A      |
| Method Spike and LCS are within 75-125% or meets the client's contract acceptance criteria.   | ✓   |    |          |
| No blank spaces on data forms.  |     |    |          |
| All line outs initialed and dated.  |     |    |          |
| No transcription errors are apparent.   | ✓   |    |          |
| Aux data is correct.  |     |    | N/A      |
| Client Special requirements page has been checked.  | ✓   |    |          |
| Raw Data and/ or spectrum are included and properly stasured.   |     |    | N/A      |
| QC data entered into QC database and batch is in REVW   | ✓   |    |          |
| Hit notification complete (if necessary)  |     |    | N/A      |
| Batch entered into Case Narrative.  | ✓   |    |          |
| Batch non-conformances completed, if applicable.  |     |    | N/A      |
| Batch non-conformances second reviewed and disposition verified to be completed.  |     |    | N/A      |
| Aliquot Correction completed if required.   |     |    | N/A      |
| Review sample historical results if available<br>(If REMF, results above MDC have been verified by historical results, recount or re-analysis.)               |     |    | N/A      |

GEL Laboratories, LLC

revised 8/1/08

Primary Review Performed By: Charles Seyler 8/25/09

Secondary Review Performed By: [Signature] 8/26/09

KERR 9/8

# Radium-228 Que Sheet

General Engineering Laboratories, Radiochemistry Division  
08/12/2009

Batch #: 893087 Analyst: JXC5 First Client Due Date: 09/08/2009 Internal Due Date: 8/28/2009  
 Spike Isotope: Radium-228 Spike Code: 0503-B Expiration Date: 9-13-09 Vol: 0.1 mL  
 LCS Isotope: Radium-228 LCS Code: 0503-B Expiration Date: 9-13-09 Vol: 0.1 mL  
 Tracer Isotope: Barium-133 Tracer Code: 0112-J Expiration Date: 2-17-10 Vol: 0.1 mL  
 Prep Date: 8-17-09 Initials: JVC Pipet ID: 2706953 Balance ID: 50410272

Ac-228 Ingrow: 8-20-09 | 1115

Ac-228 Separation Date/Time: 8-24-09 | 125  
 Witness: MS 8-17-09

Pos. # 9 Vol. (mL) 8.11-09 Ba Yield (%) Gamma Det. #

| Sample ID    | Client Description     | Type   | Hazard Code | Min CRDL | Matrix | Client     | Collect Date & Time | Pos. # | Vol. (mL) | Ba Yield (%) | Gamma Det. # |
|--------------|------------------------|--------|-------------|----------|--------|------------|---------------------|--------|-----------|--------------|--------------|
| 234964001-1  | RSAM8-10B              | SAMPLE |             | .5 pCi/g | SOIL   | KERR003    | 07-AUG-09 06:53 AM  | 1      | 1.009     | 81.72        |              |
| 234964002-1  | RSAM8-20B              | SAMPLE |             | .5 pCi/g | SOIL   | KERR003    | 07-AUG-09 07:24 AM  | 2      | 1.014     | 91.89        |              |
| 234964003-1  | RSAM8009-20B           | SAMPLE |             | .5 pCi/g | SOIL   | KERR003    | 07-AUG-09 07:24 AM  | 3      | 1.001     | 89.34        |              |
| 234964004-1  | RSAM8-31B              | SAMPLE |             | .5 pCi/g | SOIL   | KERR003    | 07-AUG-09 08:46 AM  | 4      | 1.012     | 91.04        |              |
| 234964005-1  | SA62-10B               | SAMPLE |             | .5 pCi/g | SOIL   | KERR003    | 07-AUG-09 11:44 AM  | 5      | 1.001     | 90.10        |              |
| 234964006-1  | SA62-24B               | SAMPLE |             | .5 pCi/g | SOIL   | KERR003    | 07-AUG-09 12:40 PM  | 6      | 1.015     | 86.20        |              |
| 234964007-1  | SA144-10B              | SAMPLE |             | .5 pCi/g | SOIL   | KERR003    | 07-AUG-09 09:57 AM  | 7      | 1.014     | 74.46        |              |
| 234964008-1  | SA144009-10B           | SAMPLE |             | .5 pCi/g | SOIL   | KERR003    | 07-AUG-09 09:57 AM  | 8      | 1.020     | 76.00        |              |
| 234964009-1  | SA144-28B              | SAMPLE |             | .5 pCi/g | SOIL   | KERR003    | 07-AUG-09 10:41 AM  | 9      | 1.015     | 82.30        |              |
| 234964010-1  | SA92-10B               | SAMPLE |             | .5 pCi/g | SOIL   | KERR003    | 10-AUG-09 11:17 AM  | 10     | 1.008     | 76.76        |              |
| 234964011-1  | SA92-20B               | SAMPLE |             | .5 pCi/g | SOIL   | KERR003    | 10-AUG-09 12:05 PM  | 11     | 1.015     | 74.615       |              |
| 234964012-1  | SA92-31B               | SAMPLE |             | .5 pCi/g | SOIL   | KERR003    | 10-AUG-09 12:28 PM  | 12     | 1.011     | 89.52        |              |
| 234964013-1  | SA119-0.5B             | SAMPLE |             | .5 pCi/g | SOIL   | KERR003    | 10-AUG-09 10:14 AM  | 13     | 1.008     | 70.64        |              |
| 234964014-1  | SA119-10B              | SAMPLE |             | .5 pCi/g | SOIL   | KERR003    | 10-AUG-09 10:41 AM  | 14     | 1.019     | 85.25        |              |
| 234964015-1  | SA119-30B              | SAMPLE |             | .5 pCi/g | SOIL   | KERR003    | 10-AUG-09 11:30 AM  | 15     | 1.018     | 80.29        |              |
| 234964016-1  | SA119-48B              | SAMPLE |             | .5 pCi/g | SOIL   | KERR003    | 10-AUG-09 12:05 PM  | 16     | 1.015     | 101.25       |              |
| 234964017-1  | SA158-10B              | SAMPLE |             | .5 pCi/g | SOIL   | KERR003    | 10-AUG-09 08:23 AM  | 17     | 1.007     | 88.80        |              |
| 234964018-1  | SA158-20B              | SAMPLE |             | .5 pCi/g | SOIL   | KERR003    | 10-AUG-09 10:02 AM  | 18     | 1.015     | 77.06        |              |
| 234964019-1  | SA158-31B              | SAMPLE |             | .5 pCi/g | SOIL   | KERR003    | 10-AUG-09 10:21 AM  | 19     | 1.007     | 81.36        |              |
| 1201899994-1 | MB for batch 893087    | MB     |             | .5 pCi/g | SOIL   | QC ACCOUNT |                     | 20     | 1.019     | 81.09        |              |
| 1201899995-1 | SA92-10B(234964010DUP) | DUP    |             | .5 pCi/g | SOIL   | QC ACCOUNT | 10-AUG-09 11:17 AM  | 21     | 1.000     | 81.78        |              |
| 1201899996-1 | SA92-10B(234964010MS)  | MS     |             | .5 pCi/g | SOIL   | QC ACCOUNT | 10-AUG-09 11:17 AM  | 22     | 0.100     | 83.83        |              |
| 1201899997-1 | LCS for batch 893087   | LCS    |             | .5 pCi/g | SOIL   | QC ACCOUNT |                     | 23     | 1.019     | 90.73        |              |

9/10 8-21-09  
9/10 8-21-09

de:lier ✓

Data Reviewed By: Charles Sample 8/25/09

Comments: N/A

Instrument Used: (Circle One) RIC S/N: 10751-4

# Radium-228 Solid

Filename : RA228.XLS  
 File type : Excel  
 Version # : 1.2.4

Spike S/N : 0503-B  
 Spike Exp Date : 9/13/2009  
 Spike Activity (dpm/ml) : 179.61  
 Spike Volume Added : 0.10

Pipet, 0.1 ml Stdev : +/- 0.000701 ml  
 Pipet, 0.5 ml Stdev : +/- 0.002564 ml  
 Pipet, 1 ml Stdev : +/- 0.005480 ml

Batch : 893087  
 Analyst : JXC5  
 Prep Date : 8/17/2009

Procedure Code : GFC28RAS  
 Parmname : Radium-228

Required MDA : 0.5 pCi/G  
 Half-life of Ra-228 : 5.75 years  
 Half-life of Ac-228 : 6.13 hours  
 Batch counted on : PIC  
 BKG Count time : 500 min

Ra-228 Abundance : 1  
 Ra-228 Method Uncertainty : 0

LCS S/N : 0503-B  
 LCS Exp Date : 9/13/2009  
 LCS Activity (dpm/ml) : 179.61  
 LCS Volume Added : 0.10

Tracer S/N : 0112-J  
 Tracer Exp Date : 2/17/2010  
 Tracer Volume Added : 0.10

Calibration Date : 7/2/2009  
 Calibration Due Date : 7/31/2010  
 Geometry: CeF on 25mm Filter

| Sample Characteristics |              |                  | Tracer Calculations     |  |                                     |   | Tracer Samp.                   |                     |                            |
|------------------------|--------------|------------------|-------------------------|--|-------------------------------------|---|--------------------------------|---------------------|----------------------------|
| Pos.                   | Sample ID    | Sample Aliquot G | Sample Aliquot StDev. G | Tracer Concentration (cpm) (Ba-133 Ref.) | Tracer Ref. Count Uncertainty (cpm) | Tracer Concentration (cpm) (Ba-133 Samp.) | Tracer Count Uncertainty (cpm) | Tracer Aliquot (mL) | Tracer Aliquot StDev. (mL) |
| 1                      | 234964001.1  | 1.0090           | 3.3243E-03              | 223.2                                    | 4.19%                               | 189.1                                     | 4.62%                          | 0.1                 | 0.000701                   |
| 2                      | 234964002.1  | 1.0140           | 3.3248E-03              | 223.2                                    | 4.19%                               | 205.1                                     | 4.40%                          | 0.1                 | 0.000701                   |
| 3                      | 234964003.1  | 1.0010           | 3.3234E-03              | 223.2                                    | 4.19%                               | 199.4                                     | 4.48%                          | 0.1                 | 0.000701                   |
| 4                      | 234964004.1  | 1.0120           | 3.3246E-03              | 223.2                                    | 4.19%                               | 203.2                                     | 4.43%                          | 0.1                 | 0.000701                   |
| 5                      | 234964005.1  | 1.0010           | 3.3234E-03              | 223.2                                    | 4.19%                               | 201.1                                     | 4.45%                          | 0.1                 | 0.000701                   |
| 6                      | 234964006.1  | 1.0150           | 3.3249E-03              | 223.2                                    | 4.19%                               | 192.4                                     | 4.57%                          | 0.1                 | 0.000701                   |
| 7                      | 234964007.1  | 1.0140           | 3.3248E-03              | 223.2                                    | 4.19%                               | 166.2                                     | 4.98%                          | 0.1                 | 0.000701                   |
| 8                      | 234964008.1  | 1.0200           | 3.3254E-03              | 223.2                                    | 4.19%                               | 174.1                                     | 4.85%                          | 0.1                 | 0.000701                   |
| 9                      | 234964009.1  | 1.0150           | 3.3249E-03              | 223.2                                    | 4.19%                               | 183.7                                     | 4.70%                          | 0.1                 | 0.000701                   |
| 10                     | 234964010.1  | 1.0080           | 3.3242E-03              | 223.2                                    | 4.19%                               | 184.7                                     | 4.68%                          | 0.1                 | 0.000701                   |
| 11                     | 234964011.1  | 1.0150           | 3.3249E-03              | 223.2                                    | 4.19%                               | 225.6                                     | 4.17%                          | 0.1                 | 0.000701                   |
| 12                     | 234964012.1  | 1.0110           | 3.3245E-03              | 223.2                                    | 4.19%                               | 193.2                                     | 4.56%                          | 0.1                 | 0.000701                   |
| 13                     | 234964013.1  | 1.0080           | 3.3242E-03              | 223.2                                    | 4.19%                               | 201.6                                     | 4.45%                          | 0.1                 | 0.000701                   |
| 14                     | 234964014.1  | 1.0190           | 3.3253E-03              | 223.2                                    | 4.19%                               | 223.6                                     | 4.19%                          | 0.1                 | 0.000701                   |
| 15                     | 234964015.1  | 1.0180           | 3.3252E-03              | 223.2                                    | 4.19%                               | 179.2                                     | 4.76%                          | 0.1                 | 0.000701                   |
| 16                     | 234964016.1  | 1.0150           | 3.3249E-03              | 223.2                                    | 4.19%                               | 226.0                                     | 4.16%                          | 0.1                 | 0.000701                   |
| 17                     | 234964017.1  | 1.0070           | 3.3241E-03              | 223.2                                    | 4.19%                               | 198.2                                     | 4.49%                          | 0.1                 | 0.000701                   |
| 18                     | 234964018.1  | 1.0150           | 3.3249E-03              | 223.2                                    | 4.19%                               | 172.0                                     | 4.88%                          | 0.1                 | 0.000701                   |
| 19                     | 234964019.1  | 1.0070           | 3.3241E-03              | 223.2                                    | 4.19%                               | 181.6                                     | 4.73%                          | 0.1                 | 0.000701                   |
| 20                     | 1201899994.1 | 1.0190           | 3.3253E-03              | 223.2                                    | 4.19%                               | 183.0                                     | 4.71%                          | 0.1                 | 0.000701                   |
| 21                     | 1201899995.1 | 1.0060           | 3.3240E-03              | 223.2                                    | 4.19%                               | 200.3                                     | 4.46%                          | 0.1                 | 0.000701                   |
| 22                     | 1201899996.1 | 0.1000           | 4.3713E-04              | 223.2                                    | 4.19%                               | 187.1                                     | 4.65%                          | 0.1                 | 0.000701                   |
| 23                     | 1201899997.1 | 1.0190           | 3.3253E-03              | 223.2                                    | 4.19%                               | 202.5                                     | 4.44%                          | 0.1                 | 0.000701                   |

| Count raw Data |             | Counting Time |       | Gross Counts |          | Beta   | Detector Efficiency (cpm/dpm) | Detector Efficiency Error (cpm/dpm) | Weekly Bkg Count Time (min.) | Separation Date/Time | Count Start Date/Time | Ra-228 Decay | Ac-228 Decay | Ac-228 Count Correction | Calculated Sample Recovery % | Sample Recovery Error % |
|----------------|-------------|---------------|-------|--------------|----------|--------|-------------------------------|-------------------------------------|------------------------------|----------------------|-----------------------|--------------|--------------|-------------------------|------------------------------|-------------------------|
| Pos.           | Detector ID | Time (min.)   | Alpha | Beta         | Beta cpm | cpm    | cpm/dpm                       | cpm/dpm                             | cpm                          | Date/Time            | Date/Time             |              |              |                         |                              |                         |
| 1              | 14B         | 390           | 116   | 436          | 1.118    | 0.6266 | 0.00816                       | 0.740                               | 500                          | 8/24/2009 11:25      | 8/24/2009 17:15       | 0.994        | 0.516        | 1.412                   | 84.72%                       | 3.27%                   |
| 2              | 2B          | 60            | 9     | 113          | 1.883    | 0.6167 | 0.00383                       | 1.278                               | 500                          | 8/24/2009 11:25      | 8/24/2009 13:55       | 0.994        | 0.753        | 1.058                   | 91.89%                       | 3.20%                   |
| 3              | 2C          | 90            | 4     | 91           | 1.011    | 0.5969 | 0.00575                       | 0.290                               | 500                          | 8/24/2009 11:25      | 8/24/2009 15:33       | 0.994        | 0.626        | 1.087                   | 89.34%                       | 3.22%                   |
| 4              | 5A          | 60            | 10    | 78           | 1.300    | 0.6258 | 0.00816                       | 0.560                               | 500                          | 8/24/2009 11:25      | 8/24/2009 13:56       | 0.994        | 0.752        | 1.058                   | 91.04%                       | 3.21%                   |
| 5              | 5B          | 60            | 11    | 106          | 1.767    | 0.6280 | 0.00816                       | 1.158                               | 500                          | 8/24/2009 11:25      | 8/24/2009 13:56       | 0.994        | 0.752        | 1.058                   | 90.10%                       | 3.21%                   |
| 6              | 5C          | 60            | 12    | 121          | 2.017    | 0.6368 | 0.00816                       | 0.722                               | 500                          | 8/24/2009 11:25      | 8/24/2009 13:56       | 0.994        | 0.752        | 1.058                   | 86.20%                       | 3.25%                   |
| 7              | 5D          | 60            | 8     | 116          | 1.933    | 0.6237 | 0.00816                       | 1.190                               | 500                          | 8/24/2009 11:25      | 8/24/2009 13:56       | 0.994        | 0.752        | 1.058                   | 74.46%                       | 3.40%                   |
| 8              | 6A          | 60            | 11    | 123          | 2.050    | 0.6221 | 0.00816                       | 1.280                               | 500                          | 8/24/2009 11:25      | 8/24/2009 13:56       | 0.994        | 0.752        | 1.058                   | 78.00%                       | 3.35%                   |
| 9              | 7C          | 90            | 8     | 90           | 1.000    | 0.6178 | 0.00816                       | 0.270                               | 500                          | 8/24/2009 11:25      | 8/24/2009 13:56       | 0.994        | 0.626        | 1.087                   | 82.30%                       | 3.30%                   |
| 10             | 9C          | 90            | 6     | 71           | 0.789    | 0.6273 | 0.00816                       | 0.348                               | 500                          | 8/24/2009 11:25      | 8/24/2009 13:56       | 0.995        | 0.626        | 1.087                   | 82.75%                       | 3.29%                   |
| 11             | 14C         | 390           | 11    | 215          | 0.551    | 0.6375 | 0.00816                       | 0.304                               | 500                          | 8/24/2009 11:25      | 8/24/2009 17:15       | 0.995        | 0.516        | 1.412                   | 101.08%                      | 3.12%                   |
| 12             | 7B          | 60            | 11    | 95           | 1.583    | 0.6280 | 0.00816                       | 0.358                               | 500                          | 8/24/2009 11:25      | 8/24/2009 13:56       | 0.995        | 0.752        | 1.058                   | 86.56%                       | 3.25%                   |
| 13             | 7C          | 60            | 9     | 46           | 0.767    | 0.6178 | 0.00816                       | 0.270                               | 500                          | 8/24/2009 11:25      | 8/24/2009 13:56       | 0.995        | 0.752        | 1.058                   | 90.32%                       | 3.21%                   |
| 14             | 12D         | 90            | 4     | 66           | 0.733    | 0.6320 | 0.00816                       | 0.352                               | 500                          | 8/24/2009 11:25      | 8/24/2009 15:27       | 0.995        | 0.633        | 1.087                   | 100.18%                      | 3.12%                   |
| 15             | 8A          | 60            | 7     | 80           | 1.333    | 0.6247 | 0.00816                       | 0.820                               | 500                          | 8/24/2009 11:25      | 8/24/2009 13:56       | 0.995        | 0.751        | 1.058                   | 80.29%                       | 3.32%                   |
| 16             | 8C          | 60            | 15    | 67           | 1.117    | 0.6339 | 0.00816                       | 0.548                               | 500                          | 8/24/2009 11:25      | 8/24/2009 13:56       | 0.995        | 0.751        | 1.058                   | 101.25%                      | 3.11%                   |
| 17             | 14D         | 390           | 78    | 416          | 1.067    | 0.6326 | 0.00816                       | 0.726                               | 500                          | 8/24/2009 11:25      | 8/24/2009 17:15       | 0.995        | 0.516        | 1.412                   | 88.80%                       | 3.23%                   |
| 18             | 1A          | 90            | 8     | 77           | 0.856    | 0.6303 | 0.00600                       | 0.370                               | 500                          | 8/24/2009 11:25      | 8/24/2009 15:34       | 0.995        | 0.625        | 1.087                   | 77.06%                       | 3.37%                   |
| 19             | 9C          | 60            | 8     | 51           | 0.850    | 0.6273 | 0.00816                       | 0.348                               | 500                          | 8/24/2009 11:25      | 8/24/2009 13:56       | 0.995        | 0.751        | 1.058                   | 81.36%                       | 3.31%                   |
| 20             | 2D          | 90            | 7     | 56           | 0.622    | 0.6119 | 0.00479                       | 0.366                               | 500                          | 8/24/2009 11:25      | 8/24/2009 15:34       | 0.997        | 0.625        | 1.087                   | 81.99%                       | 3.30%                   |
| 21             | 10B         | 60            | 7     | 120          | 2.000    | 0.6137 | 0.00816                       | 1.098                               | 500                          | 8/24/2009 11:25      | 8/24/2009 13:57       | 0.995        | 0.751        | 1.058                   | 89.74%                       | 3.22%                   |
| 22             | 10C         | 60            | 13    | 417          | 6.950    | 0.6250 | 0.00816                       | 0.366                               | 500                          | 8/24/2009 11:25      | 8/24/2009 13:57       | 0.995        | 0.751        | 1.058                   | 83.83%                       | 3.28%                   |
| 23             | 10D         | 60            | 37    | 499          | 8.317    | 0.6320 | 0.00816                       | 0.916                               | 500                          | 8/24/2009 11:25      | 8/24/2009 13:57       | 0.997        | 0.751        | 1.058                   | 90.73%                       | 3.21%                   |

- Notes:  
 1 - Results are decay corrected to Sample Date/Time  
 2 - Reference date for Spike Activity (dpm/ml) is the batch Prep Date  
 3 - Spike Nominals are decay corrected to Sample Date/Time

| Results<br>Pos. | Decision<br>Level<br>pCi/G | Critical<br>Level<br>pCi/G | Required<br>MDA<br>pCi/G | MDA<br>pCi/G | Sample Act.<br>Conc.<br>pCi/G | Sample Act.<br>Error<br>pCi/G | Net Count<br>Rate<br>CPM | Net Count<br>Rate Error<br>CPM | 2 SIGMA<br>Counting<br>Uncertainty<br>pCi/G | 2 SIGMA<br>Total Prop.<br>Uncertainty<br>pCi/G | Sample<br>QC | Sample<br>Type | RPD   | RER | Nominal<br>pCi/G | Recovery |
|-----------------|----------------------------|----------------------------|--------------------------|--------------|-------------------------------|-------------------------------|--------------------------|--------------------------------|---|--|--------------|----------------|-------|-----|------------------|----------|
|                 |                            |                            |                          |              |                               |                               |                          |                                |   |  |              |                |       |     |                  |          |
| 1               | 0.3133                     | 0.2212                     | 0.5                      | 0.4601       | 0.8743                        | 0.1777                        | 0.3779                   | 0.0659                         | 0.2989                                      | 0.3045   |              | SAMPLE         |       |     |                  |          |
| 2               | 0.3987                     | 0.2815                     | 0.5                      | 0.6184       | 0.6706                        | 0.3061                        | 0.6053                   | 0.1842                         | 0.4001                                      | 0.4023   |              | SAMPLE         |       |     |                  |          |
| 3               | 0.2117                     | 0.1495                     | 0.5                      | 0.3481       | 1.0628                        | 0.1543                        | 0.7211                   | 0.1087                         | 0.3140                                      | 0.3214   |              | SAMPLE         |       |     |                  |          |
| 4               | 0.2632                     | 0.1859                     | 0.5                      | 0.4270       | 0.8177                        | 0.2067                        | 0.7400                   | 0.1510                         | 0.3269                                      | 0.3313   |              | SAMPLE         |       |     |                  |          |
| 5               | 0.3853                     | 0.2720                     | 0.5                      | 0.6003       | 0.6846                        | 0.2947                        | 0.6087                   | 0.1782                         | 0.3929                                      | 0.3954   |              | SAMPLE         |       |     |                  |          |
| 6               | 0.3093                     | 0.2183                     | 0.5                      | 0.4939       | 1.4802                        | 0.1485                        | 1.2947                   | 0.1872                         | 0.4196                                      | 0.4308   |              | SAMPLE         |       |     |                  |          |
| 7               | 0.4697                     | 0.3316                     | 0.5                      | 0.7309       | 1.0055                        | 0.2527                        | 0.7433                   | 0.1860                         | 0.4932                                      | 0.4980   |              | SAMPLE         |       |     |                  |          |
| 8               | 0.4636                     | 0.3273                     | 0.5                      | 0.7190       | 0.9912                        | 0.2513                        | 0.7700                   | 0.1916                         | 0.4835                                      | 0.4882   |              | SAMPLE         |       |     |                  |          |
| 9               | 0.2114                     | 0.1492                     | 0.5                      | 0.3493       | 1.1131                        | 0.1518                        | 0.7300                   | 0.1079                         | 0.3226                                      | 0.3311   |              | SAMPLE         |       |     |                  |          |
| 10              | 0.2365                     | 0.1670                     | 0.5                      | 0.3841       | 0.6626                        | 0.2232                        | 0.4409                   | 0.0973                         | 0.2865                                      | 0.2899   |              | SAMPLE         |       |     |                  |          |
| 11              | 0.1643                     | 0.1160                     | 0.5                      | 0.2465       | 0.4681                        | 0.1847                        | 0.2473                   | 0.0450                         | 0.1668                                      | 0.1694   |              | SAMPLE         |       |     |                  |          |
| 12              | 0.2207                     | 0.1558                     | 0.5                      | 0.3696       | 1.4198                        | 0.1385                        | 1.2253                   | 0.1646                         | 0.3739                                      | 0.3855   |              | SAMPLE         |       |     |                  |          |
| 13              | 0.1873                     | 0.1322                     | 0.5                      | 0.3210       | 0.5623                        | 0.2347                        | 0.4967                   | 0.1154                         | 0.2561                                      | 0.2587   |              | SAMPLE         |       |     |                  |          |
| 14              | 0.1908                     | 0.1347                     | 0.5                      | 0.3096       | 0.4597                        | 0.2489                        | 0.3813                   | 0.0941                         | 0.2223                                      | 0.2242   |              | SAMPLE         |       |     |                  |          |
| 15              | 0.3597                     | 0.2539                     | 0.5                      | 0.5702       | 0.6405                        | 0.3029                        | 0.5133                   | 0.1545                         | 0.3777                                      | 0.3802   |              | SAMPLE         |       |     |                  |          |
| 16              | 0.2304                     | 0.1627                     | 0.5                      | 0.3742       | 0.5560                        | 0.2490                        | 0.5687                   | 0.1404                         | 0.2690                                      | 0.2713   |              | SAMPLE         |       |     |                  |          |
| 17              | 0.2936                     | 0.2073                     | 0.5                      | 0.4314       | 0.7457                        | 0.1929                        | 0.3407                   | 0.0647                         | 0.2776                                      | 0.2819   |              | SAMPLE         |       |     |                  |          |
| 18              | 0.2592                     | 0.1830                     | 0.5                      | 0.4193       | 0.7756                        | 0.2113                        | 0.4856                   | 0.1012                         | 0.3169                                      | 0.3212   |              | SAMPLE         |       |     |                  |          |
| 19              | 0.2328                     | 0.1644                     | 0.5                      | 0.3908       | 0.6224                        | 0.2453                        | 0.5020                   | 0.1219                         | 0.2963                                      | 0.2992   |              | SAMPLE         |       |     |                  |          |
| 20              | 0.2481                     | 0.1752                     | 0.5                      | 0.4016       | 0.3939                        | 0.3429                        | 0.2562                   | 0.0874                         | 0.2635                                      | 0.2647   |              | SAMPLE         |       |     |                  |          |
| 21              | 0.3838                     | 0.2710                     | 0.5                      | 0.5995       | 1.0378                        | 0.2116                        | 0.9020                   | 0.1885                         | 0.4251                                      | 0.4305   |              | MB             | 44.1% |     |                  | 98.0%    |
| 22              | 2.3434                     | 1.6544                     | 0.5                      | 3.9173       | 80.1124                       | 0.0621                        | 6.5840                   | 0.3414                         | 8.1424                                      | 9.7459   | 234964010.1  | DUP            |       |     | 81.0802          | 101.5%   |
| 23              | 0.3317                     | 0.2342                     | 0.5                      | 0.5228       | 8.0574                        | 0.0606                        | 7.4007                   | 0.3748                         | 0.7997                                      | 0.9569   | 234964010.1  | LCS            |       |     | 7.9397           |          |

| SampleID   | Instr | Time (min.) | Alpha Counts | Beta Counts | Count Start Time | Count End Time  | Machine |
|------------|-------|-------------|--------------|-------------|------------------|-----------------|---------|
| 234964001  | 14B   | 390         | 116          | 436         | 8/24/2009 17:15  | 8/24/2009 23:45 | Protean |
| 234964002  | 2B    | 60          | 9            | 113         | 8/24/2009 13:55  | 8/24/2009 14:55 | Protean |
| 234964003  | 2C    | 90          | 4            | 91          | 8/24/2009 15:33  | 8/24/2009 17:03 | Protean |
| 234964004  | 5A    | 60          | 10           | 78          | 8/24/2009 13:56  | 8/24/2009 14:56 | Protean |
| 234964005  | 5B    | 60          | 11           | 106         | 8/24/2009 13:56  | 8/24/2009 14:56 | Protean |
| 234964006  | 5C    | 60          | 12           | 121         | 8/24/2009 13:56  | 8/24/2009 14:56 | Protean |
| 234964007  | 5D    | 60          | 8            | 116         | 8/24/2009 13:56  | 8/24/2009 14:56 | Protean |
| 234964008  | 6A    | 60          | 11           | 123         | 8/24/2009 13:56  | 8/24/2009 14:56 | Protean |
| 234964009  | 7C    | 90          | 8            | 90          | 8/24/2009 15:33  | 8/24/2009 17:03 | Protean |
| 234964010  | 9C    | 90          | 6            | 71          | 8/24/2009 15:33  | 8/24/2009 17:03 | Protean |
| 234964011  | 14C   | 390         | 11           | 215         | 8/24/2009 17:15  | 8/24/2009 23:45 | Protean |
| 234964012  | 7B    | 60          | 11           | 95          | 8/24/2009 13:56  | 8/24/2009 14:56 | Protean |
| 234964013  | 7C    | 60          | 9            | 46          | 8/24/2009 13:56  | 8/24/2009 14:56 | Protean |
| 234964014  | 12D   | 90          | 4            | 66          | 8/24/2009 15:27  | 8/24/2009 16:57 | Protean |
| 234964015  | 8A    | 60          | 7            | 80          | 8/24/2009 13:56  | 8/24/2009 14:56 | Protean |
| 234964016  | 8C    | 60          | 15           | 67          | 8/24/2009 13:56  | 8/24/2009 14:56 | Protean |
| 234964017  | 14D   | 390         | 78           | 416         | 8/24/2009 17:15  | 8/24/2009 23:45 | Protean |
| 234964018  | 1A    | 90          | 8            | 77          | 8/24/2009 15:34  | 8/24/2009 17:04 | Protean |
| 234964019  | 9C    | 60          | 8            | 51          | 8/24/2009 13:56  | 8/24/2009 14:56 | Protean |
| 1201899994 | 2D    | 90          | 7            | 56          | 8/24/2009 15:34  | 8/24/2009 17:04 | Protean |
| 1201899995 | 10B   | 60          | 7            | 120         | 8/24/2009 13:57  | 8/24/2009 14:57 | Protean |
| 1201899996 | 10C   | 60          | 13           | 417         | 8/24/2009 13:57  | 8/24/2009 14:57 | Protean |
| 1201899997 | 10D   | 60          | 37           | 499         | 8/24/2009 13:57  | 8/24/2009 14:57 | Protean |

ASSAY 20-Aug-09 13:10:40

Protocol id 9 228\_REC2  
Time limit 180  
Count limit 50000  
Isotope Ba-133  
Protocol date 9-Apr-07 10:02:22  
Run id. 1

| POS | RACK | BATCH | TIME | COUNTS | CPM   | ERROR | % RECOVERY | COUNT TIME |
|-----|------|-------|------|--------|-------|-------|------------|------------|
| 1   | 72   | 1     | 180  | 761    | 223.2 | 4.19  |            | 13:10:47   |
| 2   | 72   | 2     | 180  | 658    | 189.1 | 4.62  | 84.72      | 13:13:59   |
| 3   | 72   | 3     | 180  | 706    | 205.1 | 4.4   | 91.89      | 13:17:10   |
| 4   | 72   | 4     | 180  | 689    | 199.4 | 4.48  | 89.34      | 13:20:21   |
| 5   | 72   | 5     | 180  | 701    | 203.2 | 4.43  | 91.04      | 13:23:33   |
| 6   | 66   | 6     | 180  | 694    | 201.1 | 4.45  | 90.10      | 13:26:57   |
| 7   | 66   | 7     | 180  | 669    | 192.4 | 4.57  | 86.20      | 13:30:09   |
| 8   | 66   | 8     | 180  | 590    | 166.2 | 4.98  | 74.46      | 13:33:20   |
| 9   | 66   | 9     | 180  | 613    | 174.1 | 4.85  | 78.00      | 13:36:31   |
| 10  | 66   | 10    | 180  | 642    | 183.7 | 4.7   | 82.30      | 13:39:43   |
| 11  | 92   | 11    | 180  | 619    | 175.8 | 4.82  | 78.76      | 13:43:13   |
| 12  | 92   | 12    | 180  | 735    | 214.6 | 4.29  | 96.15      | 13:46:24   |
| 13  | 92   | 13    | 180  | 691    | 199.8 | 4.47  | 89.52      | 13:49:36   |
| 14  | 92   | 14    | 180  | 698    | 202.3 | 4.44  | 90.64      | 13:52:47   |
| 15  | 92   | 15    | 180  | 729    | 212.6 | 4.31  | 95.25      | 13:55:58   |
| 16  | 77   | 16    | 180  | 629    | 179.2 | 4.76  | 80.29      | 13:59:17   |
| 17  | 77   | 17    | 180  | 769    | 226   | 4.16  | 101.25     | 14:02:29   |
| 18  | 77   | 18    | 180  | 686    | 198.2 | 4.49  | 88.80      | 14:05:40   |
| 19  | 77   | 19    | 180  | 607    | 172   | 4.88  | 77.06      | 14:08:51   |
| 20  | 77   | 20    | 180  | 636    | 181.6 | 4.73  | 81.36      | 14:12:03   |
| 21  | 66   | 21    | 180  | 640    | 183   | 4.71  | 81.99      | 14:15:27   |
| 22  | 66   | 22    | 180  | 692    | 200.3 | 4.46  | 89.74      | 14:18:39   |
| 23  | 66   | 23    | 180  | 653    | 187.1 | 4.65  | 83.83      | 14:21:50   |
| 24  | 66   | 24    | 180  | 699    | 202.5 | 4.44  | 90.73      | 14:25:01   |

END OF ASSAY



### Radiochemistry Batch Checklist, Rev 9

Batch# 894564      Product: Ra 228      Date: 8/20/09

| Criteria:   | Yes | No | Comments |
|---|-----|----|----------|
| Sample Solids are less than or equal to 100 mg for GAB.   |     |    | NA       |
| Samples have been blank corrected (if required)   |     |    | NA       |
| If activity less 10* MDA/ MDC, error is 150% or less of sample activity. If greater 10* MDA/ MDC, error is 40% or less. If below the MDA/ MDC, error is okay. | ✓   |    |          |
| Instrument source check is within limits.   | ✓   |    |          |
| Instrument bkg check is within limits.  | ✓   |    |          |
| Method RDL/ LLD has been met.   | ✓   |    |          |
| If duplicate activities are less 5* MDA/ MDC, then RPD is 100% or less. If greater 5* MDA/ MDC, then RPD 20% or less. If below the MDA/ MDC, the RPD is 0%.   |     |    |          |
| Or meets the client's required RER acceptance criteria.   | ✓   |    |          |
| Tracer yield is 15-125% . Carrier yield 25-125%.  |     |    |          |
| Or meets the client's contract acceptance criteria.   | ✓   |    |          |
| Method blank is less than the RDL/ LLD.<br>(If rad samples, < 5% of lowest activity)  | ✓   |    |          |
| Sample was run within hold time.  | ✓   |    |          |
| Sample was correctly preserved if required.   | ✓   |    |          |
| Smears Taken for Radioactive batches.   | ✓   |    |          |
| Method Spike and LCS are within 75-125% or meets the client's contract acceptance criteria.   | ✓   |    |          |
| No blank spaces on data forms.  |     |    |          |
| All line outs initialed and dated.  |     |    |          |
| No transcription errors are apparent.   | ✓   |    |          |
| Aux data is correct.  |     |    | NA       |
| Client Special requirements page has been checked.  | ✓   |    |          |
| Raw Data and/ or spectrum are included and properly stated.   | ✓   |    |          |
| QC data entered into QC database and batch is in REVW   | ✓   |    |          |
| Hit notification complete (if necessary)  |     |    | NA       |
| Batch entered into Case Narrative.  | ✓   |    |          |
| Batch non-conformances completed, if applicable.  |     |    | NA       |
| Batch non-conformances second reviewed and disposition verified to be completed.  |     |    | NA       |
| Aliquot Correction completed if required.   |     |    | NA       |
| Review sample historical results if available<br>(If REMP, results above MDC have been verified by historical results, recount or re-analysis.)               | ✓   |    |          |

GEL Laboratories, LLC

revised 8/1/08

Primary Review Performed By: Mary Muzzell

Secondary Review Performed By: [Signature]

KERR  
9/8

# Radium-228 Que Sheet

General Engineering Laboratories, Radiochemistry Division  
08/17/2009

Batch #: 894564    Analyst: MXS2    First Client Due Date: 09/08/2009    Internal Due Date: 08/28/2009  
 Spike Isotope: Radium-228    Spike Code: 0503-B    Expiration Date: 9-13-09    Ac-228 Ingrow: 8-18-09 / 1105  
 LCS Isotope: Radium-228    LCS Code: 0503-B    Expiration Date: 9-13-09  
 Tracer Isotope: Barium-133    Tracer Code: 0112-J    Expiration Date: 2-17-10    Ac-228 Separation Date/Time: 8-20-09 / 1320  
 Prep Date: 8-17-09    Initials: MS    Pipet ID: 2766953    Balance ID: 17955160    Witness: MUB 8-17-09

| Sample ID    | Client Description             | Type   | Hazard Code | Min CRDL | Matrix | Client     | Collect Date & Time | Pos. # | Vol (mL) | Det # | Ba Yield (%) | Gamma Det. # |
|--------------|--------------------------------|--------|-------------|----------|--------|------------|---------------------|--------|----------|-------|--------------|--------------|
| 234964020-1  | EB081009-SO2                   | SAMPLE |             | 3 pCi/L  | WATER  | KERR003    | 10-AUG-09 12:45 PM  | 1      | 200      | 2A    | 77.91        |              |
| 1201903941-1 | MB for batch 894564            | MB     |             | 3 pCi/L  | WATER  | QC ACCOUNT |                     | 2      | 200      | 2B    | 82.18        |              |
| 1201903942-1 | EB081009-SO2(234964020DUP) DUP | DUP    |             | 3 pCi/L  | WATER  | QC ACCOUNT | 10-AUG-09 12:45 PM  | 3      | 200      | 2C    | 75.55        |              |
| 1201903943-1 | EB081009-SO2(234964020MS) MS   | MS     |             | 3 pCi/L  | WATER  | QC ACCOUNT | 10-AUG-09 12:45 PM  | 4      | 200      | 2D    | 90.92        |              |
| 1201903944-1 | LCS for batch 894564           | LCS    |             | 3 pCi/L  | WATER  | QC ACCOUNT |                     | 5      | 200      | 3A    | 89.89        |              |

Jeddy ✓

Comments: \_\_\_\_\_  
 Data Reviewed By: Mary Maggall 8/20/09  
 Instrument Used: (Circle One) PIC S/N: 10751-A  
 Page 1 of 1

# Radium-228 Liquid

Filename : RA228.XLS  
 File type : Excel  
 Version # : 1.2.4

Spike S/N : 0503-B  
 Spike Exp Date : 9/13/2009  
 Spike Activity (dpm/ml) : 179.61  
 Spike Volume Added : 0.10

Pipet, 0.1 ml Stdev : +/- 0.000701 ml  
 Pipet, 0.5 ml Stdev : +/- 0.002564 ml  
 Pipet, 1 ml Stdev : +/- 0.005480 ml

Batch : 894564  
 Analyst : MXS2  
 Prep Date : 8/17/2009

LCS S/N : 0503-B  
 LCS Exp Date : 9/13/2009  
 LCS Activity (dpm/ml) : 179.61  
 LCS Volume Added : 0.10

Procedure Code : GFC28RAL  
 Parmname : Radium-228  
 Required MDA : 3 pCi/L  
 Half-life of Ra-228 : 5.75 years  
 Half-life of Ac-228 : 6.13 hours  
 Batch counted on : PIC  
 BKG Count time : 500 min

Ra-228 Abundance : 1  
 Ra-228 Method Uncertainty : 0.1268

Calibration Date : 7/2/2009  
 Calibration Due Date : 7/31/2010

Geometry: CeF on 25mm Filter

| Sample Characteristics |              | Sample           |                  | Sample           |                  | Sample                |                  | Tracer Calculations               |   | Tracer Ref.  |                                | Tracer                                    |                     | Tracer Samp. |                                | Tracer              |                            |
|------------------------|--------------|------------------|------------------|------------------|------------------|-----------------------|------------------|-----------------------------------|---|--------------|--------------------------------|---|---------------------|--------------|--------------------------------|---------------------|----------------------------|
| Pos.                   | Sample ID    | Sample Aliquot L | Sample Aliquot L | Sample Aliquot L | Sample Aliquot L | Sample Aliquot StDev. | Sample Date/Time | Concentration (cpm) (Ba-133 Ref.) | Tracer Concentration (cpm) (Ba-133 Samp.) | Tracer Count | Tracer Count Uncertainty (cpm) | Tracer Concentration (cpm) (Ba-133 Samp.) | Tracer Aliquot (mL) | Tracer Count | Tracer Count Uncertainty (cpm) | Tracer Aliquot (mL) | Tracer Aliquot StDev. (mL) |
| 1                      | 234964020.1  | 0.2000           | 1.6007E-05       | 1.6007E-05       | 1.6007E-05       | 1.6007E-05            | 8/10/2009 12:45  | 208.2                             | 162.2                                     | 4.37%        | 4.37%                          | 162.2                                     | 0.1                 | 5.06%        | 5.06%                          | 0.1                 | 0.000701                   |
| 2                      | 1201903941.1 | 0.2000           | 1.6007E-05       | 1.6007E-05       | 1.6007E-05       | 1.6007E-05            | 8/17/2009 0:00   | 208.2                             | 171.1                                     | 4.37%        | 4.90%                          | 171.1                                     | 0.1                 | 4.90%        | 4.90%                          | 0.1                 | 0.000701                   |
| 3                      | 1201903942.1 | 0.2000           | 1.6007E-05       | 1.6007E-05       | 1.6007E-05       | 1.6007E-05            | 8/10/2009 12:45  | 208.2                             | 157.3                                     | 4.37%        | 5.15%                          | 157.3                                     | 0.1                 | 5.15%        | 5.15%                          | 0.1                 | 0.000701                   |
| 4                      | 1201903943.1 | 0.2000           | 1.6007E-05       | 1.6007E-05       | 1.6007E-05       | 1.6007E-05            | 8/10/2009 12:45  | 208.2                             | 189.3                                     | 4.37%        | 4.61%                          | 189.3                                     | 0.1                 | 4.61%        | 4.61%                          | 0.1                 | 0.000701                   |
| 5                      | 1201903944.1 | 0.2000           | 1.6007E-05       | 1.6007E-05       | 1.6007E-05       | 1.6007E-05            | 8/17/2009 0:00   | 208.2                             | 186.1                                     | 4.37%        | 4.66%                          | 186.1                                     | 0.1                 | 4.66%        | 4.66%                          | 0.1                 | 0.000701                   |

| Pos. | Detector ID | Counting Time (min.) |      | Gross Counts |      | Beta cpm | Detector Efficiency (cpm/dpm) | Detector Efficiency Error (cpm/dpm) | Weekly Bkg Count Time (min.) | Separation Date/Time | Count Start Date/Time | Ra-228 Decay | Ac-228 Decay | Ac-228 Count Correction | Calculated Sample Recovery % | Sample Recovery Error % |
|------|-------------|----------------------|------|--------------|------|----------|-------------------------------|-------------------------------------|------------------------------|----------------------|-----------------------|--------------|--------------|-------------------------|------------------------------|-------------------------|
|      |             | Alpha                | Beta | Alpha        | Beta |          |                               |                                     |                              |                      |                       |              |              |                         |                              |                         |
| 1    | 2A          | 60                   | 43   | 3            | 43   | 0.717    | 0.6172                        | 0.00349                             | 500                          | 8/20/2009 13:20      | 8/20/2009 15:33       | 0.997        | 0.777        | 1.058                   | 77.91%                       | 3.49%                   |
| 2    | 2B          | 60                   | 82   | 1            | 82   | 1.367    | 0.6167                        | 0.00383                             | 500                          | 8/20/2009 13:20      | 8/20/2009 15:33       | 0.999        | 0.777        | 1.058                   | 82.18%                       | 3.43%                   |
| 3    | 2C          | 60                   | 35   | 7            | 35   | 0.583    | 0.5969                        | 0.00575                             | 500                          | 8/20/2009 13:20      | 8/20/2009 15:33       | 0.997        | 0.777        | 1.058                   | 75.55%                       | 3.52%                   |
|      | 2D          | 60                   | 399  | 22           | 399  | 6.650    | 0.6119                        | 0.00479                             | 500                          | 8/20/2009 13:20      | 8/20/2009 15:33       | 0.997        | 0.777        | 1.058                   | 90.92%                       | 3.33%                   |
|      | 3A          | 60                   | 408  | 50           | 408  | 6.800    | 0.5682                        | 0.00943                             | 500                          | 8/20/2009 13:20      | 8/20/2009 15:34       | 0.999        | 0.777        | 1.058                   | 89.39%                       | 3.34%                   |

- Notes:  
 1 - Results are decay corrected to Sample Date/Time  
 2 - Reference date for Spike Activity (dpm/ml) is the batch Prep Date  
 3 - Spike Nominals are decay corrected to Sample Date/Time

| Pos. | Decision Level pCi/L | Critical Level pCi/L | Required MDA pCi/L | MDA pCi/L | Sample Act. Conc. pCi/L | Sample Act. Error pCi/L | Net Count Rate CPM | Net Count Rate Error CPM | 2 SIGMA                    |                               | 2 SIGMA                    |                               | Sample QC   | Sample Type | RPD   | RER | Nominal pCi/L | Recovery |
|------|----------------------|----------------------|--------------------|-----------|-------------------------|-------------------------|--------------------|--------------------------|----------------------------|-------------------------------|----------------------------|-------------------------------|-------------|-------------|-------|-----|---------------|----------|
|      |                      |                      |                    |           |                         |                         |                    |                          | Counting Uncertainty pCi/L | Total Prop. Uncertainty pCi/L | Counting Uncertainty pCi/L | Total Prop. Uncertainty pCi/L |             |             |       |     |               |          |
| 1    | 1.3723               | 0.9688               | 3                  | 2.2576    | 1.6805                  | 0.4330                  | 0.2627             | 0.1194                   | 1.4216                     | 1.4862                        | 1.8968                     | 1.4726                        | 234964020.1 | MB          |       |     | 40.5393       | 85.4%    |
| 2    | 2.1507               | 1.5184               | 3                  | 3.3397    | 0.7430                  | 1.2963                  | 0.1227             | 0.1590                   | 1.8871                     | 1.8968                        | 1.8968                     | 1.4726                        | 234964020.1 | DUP         | 29.4% |     | 40.5393       | 85.4%    |
| 3    | 1.0901               | 0.7696               | 3                  | 1.8803    | 2.2602                  | 0.3073                  | 0.3313             | 0.1011                   | 1.3520                     | 1.4726                        | 1.4726                     | 1.4726                        | 234964020.1 | DUP         |       |     | 40.5393       | 85.4%    |
| 4    | 1.0965               | 0.7741               | 3                  | 1.8247    | 34.6268                 | 0.0631                  | 6.2620             | 0.3341                   | 3.6208                     | 9.6111                        | 9.6111                     | 9.6111                        | 234964020.1 | MS          |       |     | 40.5393       | 85.4%    |
| 5    | 2.1167               | 1.4944               | 3                  | 3.2911    | 33.7907                 | 0.0701                  | 5.5900             | 0.3402                   | 4.0310                     | 9.5953                        | 9.5953                     | 9.5953                        | LCS         |             |       |     | 40.4528       | 83.5%    |

894564

| SampleID   | Instr | Time (min.) | Alpha Counts | Beta Counts | Count Start Time | Count End Time  | Machine |
|------------|-------|-------------|--------------|-------------|------------------|-----------------|---------|
| 234964020  | 2A    | 60          | 3            | 43          | 8/20/2009 15:33  | 8/20/2009 16:33 | Protean |
| 1201903941 | 2B    | 60          | 1            | 82          | 8/20/2009 15:33  | 8/20/2009 16:33 | Protean |
| 1201903942 | 2C    | 60          | 7            | 35          | 8/20/2009 15:33  | 8/20/2009 16:33 | Protean |
| 1201903943 | 2D    | 60          | 22           | 399         | 8/20/2009 15:33  | 8/20/2009 16:33 | Protean |
| 1201903944 | 3A    | 60          | 50           | 408         | 8/20/2009 15:34  | 8/20/2009 16:34 | Protean |

ASSAY 18-Aug-09 11:48:14

Protocol id 9 228\_REC2  
Time limit 180  
Count limit 50000  
Isotope Ba-133  
Protocol date 9-Apr-07 10:02:22  
Run id. 84

| POS | RACK | BATCH | TIME | COUNTS | CPM   | ERROR | % RECOVERY | COUNT TIME |
|-----|------|-------|------|--------|-------|-------|------------|------------|
| 1   | 90   | 1     | 180  | 716    | 208.2 | 4.37  |            | 11:48:17   |
| 2   | 90   | 2     | 180  | 578    | 162.2 | 5.06  | 77.91      | 11:51:28   |
| 3   | 90   | 3     | 180  | 604    | 171.1 | 4.9   | 82.18      | 11:54:39   |
| 4   | 90   | 4     | 180  | 563    | 157.3 | 5.15  | 75.55      | 11:57:51   |
| 5   | 90   | 5     | 180  | 659    | 189.3 | 4.61  | 90.92      | 12:01:02   |
| 6   | 70   | 6     | 180  | 649    | 186.1 | 4.66  | 89.39      | 12:04:27   |

END OF ASSAY

# RADIUM 226



### Radiochemistry Batch Checklist, Rev 9

Batch# 893458 Product: Ta-226 Date: 9/4/09

| Criteria:  | Yes | No | Comments   |
|--|-----|----|------------|
| Sample Solids are less than or equal to 100 mg for GAB.  |     |    | NA         |
| Samples have been blank corrected (if required)  |     |    | NA         |
| If activity less 10* MDA/ MDC, error is 150% or less of sample activity. If greater 10* MDA/ MDC, error is 40% or less. If below the MDA/ MDC, error is okay.  | ✓   |    |            |
| Instrument source check is within limits   | ✓   |    |            |
| Instrument bkg check is within limits.   | ✓   |    |            |
| Method RDL/ LLD has been met.  | ✓   |    |            |
| If duplicate activities are less 5* MDA/ MDC, then RPD is 100% or less. If greater 5* MDA/ MDC, then RPD 20% or less. If below the MDA/ MDC, the RPD is 0%.<br>Or meets the client's required RER acceptance criteria. | ✓   |    |            |
| Tracer yield is 15-125% . Carrier yield 25-125%.<br>Or meets the client's contract acceptance criteria.  |     |    | NA         |
| Method blank is less than the RDL/ LLD.<br>(If rad samples, < 5% of lowest activity)   | ✓   |    |            |
| Sample was run within hold time.   | ✓   |    |            |
| Sample was correctly preserved if required.  |     |    | NA         |
| Smears Taken for Radioactive batches.  |     |    | NA         |
| Method Spike and LCS are within 75-125% or meets the client's contract acceptance criteria.  | ✓   |    |            |
| No blank spaces on data forms.<br>All line outs initialed and dated.<br>No transcription errors are apparent.  | ✓   |    |            |
| Aux data is correct.   |     |    | NA         |
| Client Special requirements page has been checked.   | ✓   |    |            |
| Raw Data and/ or spectrum are included and properly stated.  | ✓   |    |            |
| QC data entered into QC database and batch is in REVW  | ✓   |    |            |
| Hit notification complete (if necessary)   |     |    | NA         |
| Batch entered into Case Narrative.   | ✓   |    |            |
| Batch non-conformances completed. if applicable.   | ✓   |    | NCR 730321 |
| Batch non-conformances second reviewed and disposition verified to be completed.   | ✓   |    | NCR 730321 |
| Aliquot Correction completed if required.  |     |    | NA         |
| Review sample historical results if available<br>(If REMP. results above MDC have been verified by historical results, recount or re-analysis.)  | ✓   |    |            |

GEL Laboratories, LLC

revised 8/1/08

Primary Review Performed By:

*Lindsay Pare*  
*Lynch* 9/8/09

Secondary Review Performed By:

KETZ 9/8/09

# Radium-226 Que Sheet

08/13/2009

General Engineering Laboratories, Radiochemistry Division

Batch #: 893458

Analyst: KSD1

First Client Due Date: 09/08/2009

Internal Due Date: 08/28/2009

Spike Isotope: Radium-226

Spike Code: W28H

Expiration Date: 1/1/10

Nom Conc: 11.8692

LCS Isotope: Radium-226

LCS Code: 013641

Expiration Date: 1/1/10

Nom Conc: 11.1463

Sample Count Time: 30 (Min)

Bkg Count Time: 30 (Min)

Prep Date: 8/21/09

Pipet ID: 1429302

Witness: JL E-31-09

Initials: LC

| Sample I     | Client Description     | Type   | Hazard Code Matrix | Min CRDL | Client     | Vol (mL) | Degas Date/Tin | End LN De-em Date/Time | Start Count Date/Time | Cell # | Det # | Bkg counts | Total Counts |
|--------------|------------------------|--------|--------------------|----------|------------|----------|----------------|------------------------|-----------------------|--------|-------|------------|--------------|
| 234964001-1  | RSAM8-10B              | SAMPLE | SOIL               | .5 pCi/g | KERR003/1  | 1.035    | 9/11/09 1645   | 9/14/09 1615           | 9/14/09 1615          | 101    | 1     | 7          | 74           |
| 234964002-1  | RSAM8-20B              | SAMPLE | SOIL               | .5 pCi/g | KERR003/2  | 1.041    | 9/11/09 1645   | 9/14/09 1615           | 9/14/09 1615          | 101    | 2     | 7          | 95           |
| 234964003-1  | RSAM8009-20B           | SAMPLE | SOIL               | .5 pCi/g | KERR003/3  | 1.007    | 9/11/09 1645   | 9/14/09 1615           | 9/14/09 1615          | 309    | 3     | 8          | 60           |
| 234964004-1  | RSAM8-31B              | SAMPLE | SOIL               | .5 pCi/g | KERR003/4  | 1.016    | 9/11/09 1645   | 9/14/09 1615           | 9/14/09 1615          | 402    | 4     | 8          | 261          |
| 234964005-1  | SA62-10B               | SAMPLE | SOIL               | .5 pCi/g | KERR003/5  | 1.012    | 9/11/09 1645   | 9/14/09 1615           | 9/14/09 1615          | 504    | 5     | 8          | 77           |
| 234964006-1  | SA62-24B               | SAMPLE | SOIL               | .5 pCi/g | KERR003/6  | 1.003    | 9/11/09 1645   | 9/14/09 1615           | 9/14/09 1615          | 604    | 6     | 2          | 65           |
| 234964007-1  | SA144-10B              | SAMPLE | SOIL               | .5 pCi/g | KERR003/7  | 1.007    | 9/11/09 1645   | 9/14/09 1650           | 9/14/09 1650          | 104    | 1     | 4          | 65           |
| 234964008-1  | SA144009-10B           | SAMPLE | SOIL               | .5 pCi/g | KERR003/8  | 1.083    | 9/11/09 1645   | 9/14/09 1650           | 9/14/09 1650          | 211    | 2     | 3          | 52           |
| 234964009-1  | SA144-28B              | SAMPLE | SOIL               | .5 pCi/g | KERR003/9  | 1.084    | 9/11/09 1645   | 9/14/09 1650           | 9/14/09 1650          | 305    | 3     | 6          | 135          |
| 234964010-1  | SA92-10B               | SAMPLE | SOIL               | .5 pCi/g | KERR003/10 | 1.07     | 9/11/09 1645   | 9/14/09 1650           | 9/14/09 1650          | 411    | 4     | 8          | 92           |
| 234964011-1  | SA92-20B               | SAMPLE | SOIL               | .5 pCi/g | KERR003/11 | 1.026    | 9/11/09 1645   | 9/14/09 1650           | 9/14/09 1650          | 501    | 5     | 8          | 120          |
| 234964012-1  | SA92-31B               | SAMPLE | SOIL               | .5 pCi/g | KERR003/12 | 1.003    | 9/11/09 1645   | 9/14/09 1650           | 9/14/09 1650          | 605    | 6     | 8          | 101          |
| 234964013-1  | SA119-0.5B             | SAMPLE | SOIL               | .5 pCi/g | KERR003/13 | 1.004    | 9/11/09 1645   | 9/14/09 1720           | 9/14/09 1720          | 101    | 1     | 8          | 63           |
| 234964014-1  | SA119-10B              | SAMPLE | SOIL               | .5 pCi/g | KERR003/14 | 1.008    | 9/11/09 1645   | 9/14/09 1720           | 9/14/09 1720          | 209    | 2     | 8          | 68           |
| 234964015-1  | SA119-30B              | SAMPLE | SOIL               | .5 pCi/g | KERR003/15 | 1.012    | 9/11/09 1645   | 9/14/09 1720           | 9/14/09 1720          | 306    | 3     | 8          | 85           |
| 234964016-1  | SA119-48B              | SAMPLE | SOIL               | .5 pCi/g | KERR003/16 | 1.003    | 9/11/09 1645   | 9/14/09 1720           | 9/14/09 1720          | 410    | 4     | 8          | 100          |
| 234964017-1  | SA158-10B              | SAMPLE | SOIL               | .5 pCi/g | KERR003/17 | 1.004    | 9/11/09 1645   | 9/14/09 1720           | 9/14/09 1720          | 505    | 5     | 2          | 80           |
| 234964018-1  | SA158-20B              | SAMPLE | SOIL               | .5 pCi/g | KERR003/18 | 1.003    | 9/11/09 1645   | 9/14/09 1720           | 9/14/09 1720          | 611    | 6     | 8          | 116          |
| 234964019-1  | SA158-31B              | SAMPLE | SOIL               | .5 pCi/g | KERR003/19 | 1.007    | 9/11/09 1645   | 9/14/09 1755           | 9/14/09 1755          | 112    | 1     | 8          | 148          |
| 1201900998-1 | MB for batch 893458    | MB     | SOIL               | .5 pCi/g | QC ACCOUNT | 1.084    | 9/11/09 1645   | 9/14/09 1755           | 9/14/09 1755          | 206    | 2     | 8          | 18           |
| 1201900999-1 | SA92-10B(234964010DUP) | DUP    | SOIL               | .5 pCi/g | QC ACCOUNT | 1.006    | 9/11/09 1645   | 9/14/09 1755           | 9/14/09 1755          | 308    | 3     | 6          | 48           |
| 1201901000-1 | SA92-10B(234964010MS)  | MS     | SOIL               | .5 pCi/g | QC ACCOUNT | 1.018    | 9/11/09 1645   | 9/14/09 1755           | 9/14/09 1755          | 409    | 4     | 4          | 642          |
| 1201901001-1 | LCS for batch 893458   | LCS    | SOIL               | .5 pCi/g | QC ACCOUNT | 1.084    | 9/11/09 1645   | 9/14/09 1755           | 9/14/09 1755          | 510    | 5     | 8          | 613          |

151

1840 2/9/09

Data Reviewed By: Andrew Pale 9/14/09

# Radium-226 Solid

File name : RA226.XLS  
 File type : Excel  
 Version # : 1.2.4

Spike S/N : 0638-H  
 Spike Exp Date : 7/17/2010  
 Spike Activity (dpm/ml): 268.23  
 Spike Volume Added: 0.10

Pipet, 0.1 ml Stdev : +/- 0.000701 ml  
 Pipet, 0.5 ml Stdev : +/- 0.002564 ml  
 Pipet, 1 ml Stdev : +/- 0.005480 ml

Batch : 893458  
 Analyst : KSD1  
 Prep Date : 8/31/2009  
 Ra-226 Abundance : 1  
 Ra-226 Method Uncertainty : 0.1153

Procedure Code : LUC26RAS  
 Parmname : Radium-226  
 Required MDA : 0.5 pCi/g  
 Half-life of Ra-226 : 1600 years  
 Half-life of Rn-222 : 3.823 days  
 Batch counted on : LUCAS CELL DETECTOR  
 BKG Count time : 30 min

| Pos. | Sample Characteristics |                  | Sample Aliquot G | Sample Aliquot StDev. G | Sample Date/Time | Count Raw Data |                      |              | Weekly Background |        |     |                   |
|------|------------------------|------------------|------------------|-------------------------|------------------|----------------|----------------------|--------------|-------------------|--------|-----|-------------------|
|      | Sample ID              | Sample Aliquot G |                  |                         |                  | Cell Number    | Counting Time (min.) | Gross Counts | Gross CPM         | Counts | CPM | Count Time (min.) |
| 1    | 234964001.1            | 1.0350           | 3.3270E-03       | 8/7/2009 6:53           | 101              | 30             | 74                   | 2.467        | 7                 | 0.233  | 30  | 1.9560            |
| 2    | 234964002.1            | 1.0410           | 3.3276E-03       | 8/7/2009 7:24           | 201              | 30             | 95                   | 3.167        | 7                 | 0.233  | 30  | 1.9930            |
| 3    | 234964003.1            | 1.0070           | 3.3241E-03       | 8/7/2009 7:24           | 309              | 30             | 60                   | 2.000        | 8                 | 0.267  | 30  | 1.8770            |
| 4    | 234964004.1            | 1.0160           | 3.3250E-03       | 8/7/2009 8:46           | 402              | 30             | 261                  | 8.700        | 8                 | 0.267  | 30  | 2.1180            |
| 5    | 234964005.1            | 1.0120           | 3.3246E-03       | 8/7/2009 11:44          | 506              | 30             | 77                   | 2.567        | 8                 | 0.267  | 30  | 2.0040            |
| 6    | 234964006.1            | 1.0030           | 3.3237E-03       | 8/7/2009 12:40          | 604              | 30             | 65                   | 2.167        | 2                 | 0.067  | 30  | 2.1330            |
| 7    | 234964007.1            | 1.0070           | 3.3241E-03       | 8/7/2009 9:57           | 102              | 30             | 65                   | 2.167        | 4                 | 0.133  | 30  | 1.8550            |
| 8    | 234964008.1            | 1.0830           | 3.3320E-03       | 8/7/2009 9:57           | 211              | 30             | 52                   | 1.733        | 3                 | 0.100  | 30  | 2.1710            |
| 9    | 234964009.1            | 1.0840           | 3.3321E-03       | 8/7/2009 10:41          | 305              | 30             | 135                  | 4.500        | 6                 | 0.200  | 30  | 2.0570            |
| 10   | 234964010.1            | 1.0710           | 3.3307E-03       | 8/10/2009 11:17         | 411              | 30             | 92                   | 3.067        | 8                 | 0.267  | 30  | 1.8240            |
| 11   | 234964011.1            | 1.0260           | 3.3260E-03       | 8/10/2009 12:05         | 501              | 30             | 120                  | 4.000        | 8                 | 0.267  | 30  | 2.0870            |
| 12   | 234964012.1            | 1.0030           | 3.3237E-03       | 8/10/2009 12:28         | 605              | 30             | 101                  | 3.367        | 8                 | 0.267  | 30  | 2.1490            |
| 13   | 234964013.1            | 1.0040           | 3.3238E-03       | 8/10/2009 10:14         | 107              | 30             | 63                   | 2.100        | 8                 | 0.267  | 30  | 1.9810            |
| 14   | 234964014.1            | 1.0080           | 3.3242E-03       | 8/10/2009 10:41         | 209              | 30             | 68                   | 2.267        | 8                 | 0.267  | 30  | 2.2910            |
| 15   | 234964015.1            | 1.0120           | 3.3246E-03       | 8/10/2009 11:30         | 306              | 30             | 85                   | 2.833        | 8                 | 0.267  | 30  | 1.7470            |
| 16   | 234964016.1            | 1.0030           | 3.3237E-03       | 8/10/2009 12:05         | 410              | 30             | 100                  | 3.333        | 8                 | 0.267  | 30  | 1.8860            |
| 17   | 234964017.1            | 1.0240           | 3.3258E-03       | 8/10/2009 8:23          | 505              | 30             | 80                   | 2.667        | 2                 | 0.067  | 30  | 2.3310            |
| 18   | 234964018.1            | 1.0030           | 3.3237E-03       | 8/10/2009 10:02         | 611              | 30             | 116                  | 3.867        | 8                 | 0.267  | 30  | 2.3070            |
| 19   | 234964019.1            | 1.0070           | 3.3241E-03       | 8/10/2009 10:21         | 112              | 30             | 148                  | 4.933        | 8                 | 0.267  | 30  | 1.9310            |
| 20   | 1201900998.1           | 1.0840           | 3.3321E-03       | 8/31/2009 0:00          | 206              | 30             | 18                   | 0.600        | 8                 | 0.267  | 30  | 2.2590            |
| 21   | 1201900999.1           | 1.0060           | 3.3240E-03       | 8/10/2009 11:17         | 308              | 30             | 48                   | 1.600        | 6                 | 0.200  | 30  | 1.9500            |
| 22   | 1201901000.1           | 1.0180           | 3.3252E-03       | 8/10/2009 11:17         | 409              | 30             | 642                  | 21.400       | 4                 | 0.133  | 30  | 2.0360            |
| 23   | 1201901001.1           | 1.0840           | 3.3321E-03       | 8/31/2009 0:00          | 510              | 15             | 266                  | 17.733       | 8                 | 0.267  | 30  | 1.4580            |

| Detector Efficiency Error (cpm/dpm) | Cell Calibration Date | Cell Calibration Due Date | De-Gas Date/Time | Rn-222 Ingrowth |                    | Count Start Date/Time | Rn-222 Corrections |              | Ra-226 Decay |       |
|-------------------------------------|-----------------------|---------------------------|------------------|-----------------|--------------------|-----------------------|--------------------|--------------|--------------|-------|
|                                     |                       |                           |                  | End Date/Time   | De-Gas to Ingrowth |                       | Ingrowth to Count  | During Count |              |       |
| 0.05303                             | 8/31/2009             | 8/31/2010                 | 9/1/2009 16:45   | 9/4/2009 13:15  | 9/4/2009 16:15     | 9/4/2009 16:15        | 0.404              | 0.978        | 1.002        | 1.000 |
| 0.07722                             | 12/19/2008            | 12/19/2009                | 9/1/2009 16:45   | 9/4/2009 13:15  | 9/4/2009 16:15     | 9/4/2009 16:15        | 0.404              | 0.978        | 1.002        | 1.000 |
| 0.06082                             | 2/4/2009              | 2/4/2010                  | 9/1/2009 16:45   | 9/4/2009 13:15  | 9/4/2009 16:15     | 9/4/2009 16:15        | 0.404              | 0.978        | 1.002        | 1.000 |
| 0.12371                             | 3/2/2009              | 3/2/2010                  | 9/1/2009 16:45   | 9/4/2009 13:15  | 9/4/2009 16:15     | 9/4/2009 16:15        | 0.404              | 0.978        | 1.002        | 1.000 |
| 0.14377                             | 3/25/2009             | 3/25/2010                 | 9/1/2009 16:45   | 9/4/2009 13:15  | 9/4/2009 16:15     | 9/4/2009 16:15        | 0.404              | 0.978        | 1.002        | 1.000 |
| 0.06605                             | 8/4/2009              | 8/4/2010                  | 9/1/2009 16:45   | 9/4/2009 13:15  | 9/4/2009 16:15     | 9/4/2009 16:15        | 0.404              | 0.978        | 1.002        | 1.000 |
| 0.05303                             | 8/31/2009             | 8/31/2010                 | 9/1/2009 16:45   | 9/4/2009 13:40  | 9/4/2009 16:50     | 9/4/2009 16:50        | 0.406              | 0.976        | 1.002        | 1.000 |
| 0.07722                             | 12/19/2008            | 12/19/2009                | 9/1/2009 16:45   | 9/4/2009 13:40  | 9/4/2009 16:50     | 9/4/2009 16:50        | 0.406              | 0.976        | 1.002        | 1.000 |
| 0.06082                             | 2/4/2009              | 2/4/2010                  | 9/1/2009 16:45   | 9/4/2009 13:40  | 9/4/2009 16:50     | 9/4/2009 16:50        | 0.406              | 0.976        | 1.002        | 1.000 |
| 0.12371                             | 3/2/2009              | 3/2/2010                  | 9/1/2009 16:45   | 9/4/2009 13:40  | 9/4/2009 16:50     | 9/4/2009 16:50        | 0.406              | 0.976        | 1.002        | 1.000 |
| 0.14377                             | 3/25/2009             | 3/25/2010                 | 9/1/2009 16:45   | 9/4/2009 13:40  | 9/4/2009 16:50     | 9/4/2009 16:50        | 0.406              | 0.976        | 1.002        | 1.000 |
| 0.06605                             | 8/4/2009              | 8/4/2010                  | 9/1/2009 16:45   | 9/4/2009 13:40  | 9/4/2009 16:50     | 9/4/2009 16:50        | 0.406              | 0.976        | 1.002        | 1.000 |
| 0.05303                             | 8/31/2009             | 8/31/2010                 | 9/1/2009 16:45   | 9/4/2009 14:00  | 9/4/2009 17:20     | 9/4/2009 17:20        | 0.407              | 0.975        | 1.002        | 1.000 |
| 0.07722                             | 12/19/2008            | 12/19/2009                | 9/1/2009 16:45   | 9/4/2009 14:00  | 9/4/2009 17:20     | 9/4/2009 17:20        | 0.407              | 0.975        | 1.002        | 1.000 |
| 0.06082                             | 2/4/2009              | 2/4/2010                  | 9/1/2009 16:45   | 9/4/2009 14:00  | 9/4/2009 17:20     | 9/4/2009 17:20        | 0.407              | 0.975        | 1.002        | 1.000 |
| 0.12371                             | 3/2/2009              | 3/2/2010                  | 9/1/2009 16:45   | 9/4/2009 14:00  | 9/4/2009 17:20     | 9/4/2009 17:20        | 0.407              | 0.975        | 1.002        | 1.000 |
| 0.14377                             | 3/25/2009             | 3/25/2010                 | 9/1/2009 16:45   | 9/4/2009 14:00  | 9/4/2009 17:20     | 9/4/2009 17:20        | 0.407              | 0.975        | 1.002        | 1.000 |
| 0.06605                             | 8/4/2009              | 8/4/2010                  | 9/1/2009 16:45   | 9/4/2009 14:00  | 9/4/2009 17:20     | 9/4/2009 17:20        | 0.407              | 0.975        | 1.002        | 1.000 |
| 0.05303                             | 8/31/2009             | 8/31/2010                 | 9/1/2009 16:45   | 9/4/2009 14:30  | 9/4/2009 17:55     | 9/4/2009 17:55        | 0.410              | 0.975        | 1.002        | 1.000 |
| 0.07722                             | 12/19/2008            | 12/19/2009                | 9/1/2009 16:45   | 9/4/2009 14:30  | 9/4/2009 17:55     | 9/4/2009 17:55        | 0.410              | 0.975        | 1.002        | 1.000 |
| 0.06082                             | 2/4/2009              | 2/4/2010                  | 9/1/2009 16:45   | 9/4/2009 14:30  | 9/4/2009 17:55     | 9/4/2009 17:55        | 0.410              | 0.975        | 1.002        | 1.000 |
| 0.12371                             | 3/2/2009              | 3/2/2010                  | 9/1/2009 16:45   | 9/4/2009 14:30  | 9/4/2009 17:55     | 9/4/2009 17:55        | 0.410              | 0.975        | 1.002        | 1.000 |
| 0.14377                             | 3/25/2009             | 3/25/2010                 | 9/1/2009 16:45   | 9/4/2009 14:30  | 9/4/2009 18:40     | 9/4/2009 18:40        | 0.410              | 0.969        | 1.001        | 1.000 |

- Notes:  
 1 - Results are decay corrected to Sample Date/Time  
 2 - Reference date for Spike Activity (dpm/ml) is the batch Prep Date  
 3 - Spike Nominals are decay corrected to Sample Date/Time

| Results<br>Pos. | Decision<br>Level<br>pCi/G | Critical<br>Level<br>pCi/G | Required<br>MDA<br>pCi/G | MDA<br>pCi/G | Sample Act.<br>Conc.<br>pCi/G | Sample Act.<br>Error<br>pCi/G | Net Count<br>Rate<br>CPM | Net Count<br>Rate Error<br>CPM | 2 SIGMA                          |                                     | Sample<br>QC | Sample<br>Type | RPD   | RER    | Nominal<br>pCi/G | Recovery |
|-----------------|----------------------------|----------------------------|--------------------------|--------------|-------------------------------|-------------------------------|--------------------------|--------------------------------|----------------------------------|-------------------------------------|--------------|----------------|-------|--------|------------------|----------|
|                 |                            |                            |                          |              |                               |                               |                          |                                | Counting<br>Uncertainty<br>pCi/G | Total Prop.<br>Uncertainty<br>pCi/G |              |                |       |        |                  |          |
| 1               | 0.1634                     | 0.1154                     | 0.5                      | 0.2870       | 1.2559                        | 0.1445                        | 2.2333                   | 0.3000                         | 0.3307                           | 0.4550                              |              | SAMPLE         |       |        |                  |          |
| 2               | 0.1595                     | 0.1126                     | 0.5                      | 0.2800       | 1.6096                        | 0.1384                        | 2.9333                   | 0.3367                         | 0.3621                           | 0.5682                              |              | SAMPLE         |       |        |                  |          |
| 3               | 0.1871                     | 0.1321                     | 0.5                      | 0.3244       | 1.0440                        | 0.1699                        | 1.7333                   | 0.2749                         | 0.3245                           | 0.4201                              |              | SAMPLE         |       |        |                  |          |
| 4               | 0.1644                     | 0.1160                     | 0.5                      | 0.2850       | 4.4617                        | 0.1997                        | 8.4333                   | 0.5467                         | 0.5669                           | 1.5840                              |              | SAMPLE         |       |        |                  |          |
| 5               | 0.1744                     | 0.1231                     | 0.5                      | 0.3024       | 1.2911                        | 0.1963                        | 2.3000                   | 0.3073                         | 0.3381                           | 0.5761                              |              | SAMPLE         |       |        |                  |          |
| 6               | 0.0827                     | 0.0584                     | 0.5                      | 0.1699       | 1.1175                        | 0.1458                        | 2.1000                   | 0.2728                         | 0.2846                           | 0.4071                              |              | SAMPLE         |       |        |                  |          |
| 7               | 0.1334                     | 0.0942                     | 0.5                      | 0.2492       | 1.2351                        | 0.1462                        | 2.0333                   | 0.2769                         | 0.3296                           | 0.4507                              |              | SAMPLE         |       |        |                  |          |
| 8               | 0.0918                     | 0.0648                     | 0.5                      | 0.1779       | 0.7882                        | 0.1699                        | 1.6333                   | 0.2472                         | 0.2338                           | 0.3173                              |              | SAMPLE         |       |        |                  |          |
| 9               | 0.1369                     | 0.0967                     | 0.5                      | 0.2442       | 2.1881                        | 0.1104                        | 4.3000                   | 0.3958                         | 0.3948                           | 0.6845                              |              | SAMPLE         |       |        |                  |          |
| 10              | 0.1804                     | 0.1274                     | 0.5                      | 0.3129       | 1.6263                        | 0.1717                        | 2.8000                   | 0.3333                         | 0.3795                           | 0.6593                              |              | SAMPLE         |       |        |                  |          |
| 11              | 0.1646                     | 0.1162                     | 0.5                      | 0.2854       | 1.9783                        | 0.1757                        | 3.7333                   | 0.3771                         | 0.3917                           | 0.8150                              |              | SAMPLE         |       |        |                  |          |
| 12              | 0.1635                     | 0.1155                     | 0.5                      | 0.2836       | 1.6318                        | 0.1903                        | 3.1000                   | 0.3480                         | 0.3591                           | 0.5565                              |              | SAMPLE         |       |        |                  |          |
| 13              | 0.1768                     | 0.1248                     | 0.5                      | 0.3066       | 1.0433                        | 0.1622                        | 1.8333                   | 0.2809                         | 0.3133                           | 0.4069                              |              | SAMPLE         |       |        |                  |          |
| 14              | 0.1523                     | 0.1075                     | 0.5                      | 0.2640       | 0.9803                        | 0.1646                        | 2.0000                   | 0.2906                         | 0.2792                           | 0.3861                              |              | SAMPLE         |       |        |                  |          |
| 15              | 0.1989                     | 0.1404                     | 0.5                      | 0.3449       | 1.6432                        | 0.1993                        | 2.5667                   | 0.3215                         | 0.4034                           | 0.5823                              |              | SAMPLE         |       |        |                  |          |
| 16              | 0.1859                     | 0.1312                     | 0.5                      | 0.3223       | 1.8350                        | 0.1676                        | 3.0667                   | 0.3464                         | 0.4063                           | 0.7315                              |              | SAMPLE         |       |        |                  |          |
| 17              | 0.0737                     | 0.0520                     | 0.5                      | 0.1514       | 1.2329                        | 0.1848                        | 2.6000                   | 0.3018                         | 0.2805                           | 0.5264                              |              | SAMPLE         |       |        |                  |          |
| 18              | 0.1520                     | 0.1073                     | 0.5                      | 0.2635       | 1.7610                        | 0.1225                        | 3.6000                   | 0.3712                         | 0.3559                           | 0.5806                              |              | SAMPLE         |       |        |                  |          |
| 19              | 0.1800                     | 0.1271                     | 0.5                      | 0.3120       | 2.7033                        | 0.1038                        | 4.6667                   | 0.4163                         | 0.4727                           | 0.8221                              |              | SAMPLE         |       |        |                  |          |
| 20              | 0.1429                     | 0.1009                     | 0.5                      | 0.2478       | 0.1533                        | 0.5157                        | 0.3333                   | 0.1700                         | 0.1532                           | 0.1588                              |              | MB             |       |        |                  |          |
| 21              | 0.1545                     | 0.1091                     | 0.5                      | 0.2756       | 0.8039                        | 0.1853                        | 1.4000                   | 0.2449                         | 0.2757                           | 0.3438                              | 234964010.1  | DUP            | 67.7% | 2.1679 | 11.8692          | 83.7%    |
| 22              | 0.1194                     | 0.0843                     | 0.5                      | 0.2229       | 11.5578                       | 0.1300                        | 21.2667                  | 0.8472                         | 0.9025                           | 3.9364                              | 234964010.1  | MS             |       |        | 11.1463          | 112.4%   |
| 23              | 0.2730                     | 0.1927                     | 0.5                      | 0.5289       | 12.5310                       | 0.1568                        | 17.4667                  | 1.0914                         | 1.5346                           | 4.7800                              |              | LOS            |       |        |                  |          |

**Radiochemistry Batch Checklist, Rev 9**

Batch# 896543 Product: Ra-226 Date: 9/2/09

| Criteria:   | Yes | No | Comments |
|---|-----|----|----------|
| Sample Solids are less than or equal to 100 mg for GAB.   |     |    | NA       |
| Samples have been blank corrected (if required)   |     |    | NA       |
| If activity less 10* MDA/ MDC, error is 150% or less of sample activity. If greater 10* MDA/ MDC, error is 40% or less. If below the MDA/ MDC, error is okay. | ✓   |    |          |
| Instrument source check is within limits  | ✓   |    |          |
| Instrument bkg check is within limits.  | ✓   |    |          |
| Method RDL/ LLD has been met.   |     |    |          |
| If duplicate activities are less 5* MDA/ MDC, then RPD is 100% or less. If greater 5* MDA/ MDC, then RPD 20% or less. If below the MDA/ MDC, the RPD is 0%.   | ✓   |    |          |
| Or meets the client's required RER acceptance criteria.   |     |    |          |
| Tracer yield is 15-125% . Carrier yield 25-125%.  |     |    | NA       |
| Or meets the client's contract acceptance criteria.   |     |    |          |
| Method blank is less than the RDL/ LLD.<br>(If rad samples, < 5% of lowest activity)  | ✓   |    |          |
| Sample was run within hold time.  | ✓   |    |          |
| Sample was correctly preserved if required.   |     |    | NA       |
| Smears Taken for Radioactive batches.   |     |    | NA       |
| Method Spike and LCS are within 75-125% or meets the client's contract acceptance criteria.   | ✓   |    |          |
| No blank spaces on data forms.  | ✓   |    |          |
| All line outs initialed and dated.  | ✓   |    |          |
| No transcription errors are apparent.   |     |    |          |
| Aux data is correct.  |     |    | NA       |
| Client Special requirements page has been checked.  | ✓   |    |          |
| Raw Data and/ or spectrum are included and properly stated.   | ✓   |    |          |
| QC data entered into QC database and batch is in REVW   | ✓   |    |          |
| Hit notification complete (if necessary)  |     |    | NA       |
| Batch entered into Case Narrative.  | ✓   |    |          |
| Batch non-conformances completed, if applicable.  |     |    | NA       |
| Batch non-conformances second reviewed and disposition verified to be completed.  |     |    | NA       |
| Aliquot Correction completed if required.   |     |    | NA       |
| Review sample historical results if available<br>(If REMP, results above MDC have been verified by historical results, recount or re-analysis.)               | ✓   |    |          |

GEL Laboratories, LLC

revised 8/1/08

Primary Review Performed By:

*Lynndee Pore*

KERR 9/4/09

Secondary Review Performed By:

*Linda* 9/2/09

# Radium-226 Que Sheet

09/02/2009 General Engineering Laboratories, Radiochemistry Division

Batch #: 896543 Analyst: KSD1 First Client Due Date: 09/04/2009 Internal Due Date: 08/24/2009  
 Spike Isotope: Radium-226 Spike Code: 0638-H Expiration Date: 7/17/10 Vol: 0.1 Nom Conc: 20.8284  
 LCS Isotope: Radium-226 LCS Code: 0638-H Expiration Date: 7/17/10 Vol: 0.1 Nom Conc: 24.1653  
 Prep Date: 8/25/09 Pipet ID: 1429303 Initials: KD Witness: DL8-25-09 Sample Count Time: 30 (Min)  
 Bkg Count Time: 30 (Min)

| Sample I     | Client Description         | Type   | Hazard Code Matrix | Min CRDL | Client     | Vol (mL) | End LN De-em   | Start Count | Cell # | Det # | Bkg counts | Total Counts |
|--------------|----------------------------|--------|--------------------|----------|------------|----------|----------------|-------------|--------|-------|------------|--------------|
|              |                            |        |                    |          |            |          | Degas Date/Tin | Date/Time   |        |       |            |              |
| 234654021-1  | EB080609-SO                | SAMPLE | WATER              | 1 pCi/L  | KERR003    | 500      | 8/25/09 1100   | 9/2/09 750  | 101    | 1     | 8          | 28           |
| 234964020-1  | EB081009-SO2               | SAMPLE | WATER              | 1 pCi/L  | KERR003    | 500      | 8/25/09 1100   | 9/2/09 750  | 201    | 2     | 8          | 19           |
| 1201908843-1 | MB for batch 896543        | MB     | WATER              | 1 pCi/L  | QC ACCOUNT | 500      | 8/25/09 1100   | 9/2/09 750  | 301    | 3     | 6          | 17           |
| 1201908845-1 | EB081009-SO2(234964020DUP) | DUP    | WATER              | 1 pCi/L  | QC ACCOUNT | 500      | 8/25/09 1100   | 9/2/09 750  | 501    | 5     | 8          | 32           |
| 1201908847-1 | EB081009-SO2(234964020MS)  | MS     | WATER              | 1 pCi/L  | QC ACCOUNT | 100      | 8/25/09 1100   | 9/2/09 825  | 102    | 1     | 8          | 1044         |
| 1201908848-1 | LCS for batch 896543       | LCS    | WATER              | 1 pCi/L  | QC ACCOUNT | 500      | 8/25/09 1100   | 9/2/09 825  | 202    | 2     | 7          | 1141         |

Comments: \_\_\_\_\_  
 Instrument ID's: LUCASI:90988, LUCAS2:136917, LUCAS3:90989, LUCAS4:102753, LUC5:132286, LUC6:170055

Data Reviewed By: Andrew Paul 9/2/09

# Radium-226 Liquid

Filename : RA226.XLS  
 File type : Excel  
 Version # : 1.2.4

Pipet, 0.1 ml Stdev : +/- 0.000701 ml  
 Pipet, 0.5 ml Stdev : +/- 0.002564 ml  
 Pipet, 1 ml Stdev : +/- 0.005480 ml

Spike S/N : 0638-H  
 Spike Exp Date : 7/17/2010  
 Spike Activity (dpm/ml): 268.23  
 Spike Volume Added: 0.10

Batch : 896543

Analyst : KSD1  
 Prep Date : 8/25/2009

Ra-226 Abundance : 1  
 Ra-226 Method Uncertainty : 0.0918

Procedure Code : LUC26RAL  
 Pairname : Radium-226

Required MDA : 1 pCi/L  
 Half-life of Ra-226 : 1600 years  
 Half-life of Rn-222: 3.823 days  
 Batch counted on : LUCAS CELL DETECTOR  
 BKG Count time : 30 min

| Sample Characteristics |              |                  | Count Raw Data          |                  |             |                      | Weekly Background |           |        |       |                   |                               |
|------------------------|--------------|------------------|-------------------------|------------------|-------------|----------------------|-------------------|-----------|--------|-------|-------------------|-------------------------------|
| Pos.                   | Sample ID    | Sample Aliquot L | Sample Aliquot StDev. L | Sample Date/Time | Cell Number | Counting Time (min.) | Gross Counts      | Gross CPM | Counts | CPM   | Count Time (min.) | Detector Efficiency (cpm/dpm) |
| 1                      | 234654021.1  | 0.5000           | 2.0256E-05              | 8/6/2009 8:02    | 101         | 30                   | 28                | 0.933     | 8      | 0.267 | 30                | 1.9560                        |
| 2                      | 234964020.1  | 0.5000           | 2.0256E-05              | 8/10/2009 12:45  | 201         | 30                   | 19                | 0.633     | 8      | 0.267 | 30                | 1.9930                        |
| 3                      | 1201908843.1 | 0.5000           | 2.0256E-05              | 8/25/2009 0:00   | 301         | 30                   | 17                | 0.567     | 6      | 0.200 | 30                | 2.0210                        |
| 4                      | 1201908845.1 | 0.5000           | 2.0256E-05              | 8/10/2009 12:45  | 501         | 30                   | 32                | 1.067     | 8      | 0.267 | 30                | 2.0870                        |
| 5                      | 1201908847.1 | 0.1000           | 1.1370E-05              | 8/10/2009 12:45  | 102         | 30                   | 1044              | 34.800    | 8      | 0.267 | 30                | 1.8550                        |
| 6                      | 1201908848.1 | 0.5000           | 2.0256E-05              | 8/25/2009 0:00   | 202         | 30                   | 1141              | 38.033    | 4      | 0.133 | 30                | 2.2610                        |



| Detector Efficiency Error (cpm/dpm) | Cell Calibration Date | Cell Calibration Due Date | De-Gas Date/Time | Rn-222 Ingrow End Date/Time | Count Start Date/Time | De-Gas to Ingrowth | Rn-222 Corrections to Count | During Count | Ra-226 Decay |
|-------------------------------------|-----------------------|---------------------------|------------------|-----------------------------|-----------------------|--------------------|-----------------------------|--------------|--------------|
| 0.05303                             | 8/31/2009             | 8/31/2010                 | 8/25/2009 11:00  | 9/2/2009 4:50               | 9/2/2009 7:50         | 0.754              | 0.978                       | 1.002        | 1.000        |
| 0.07722                             | 12/19/2008            | 12/19/2009                | 8/25/2009 11:00  | 9/2/2009 4:50               | 9/2/2009 7:50         | 0.754              | 0.978                       | 1.002        | 1.000        |
| 0.06082                             | 2/4/2009              | 2/4/2010                  | 8/25/2009 11:00  | 9/2/2009 4:50               | 9/2/2009 7:50         | 0.754              | 0.978                       | 1.002        | 1.000        |
| 0.14377                             | 3/25/2009             | 3/25/2010                 | 8/25/2009 11:00  | 9/2/2009 4:50               | 9/2/2009 7:50         | 0.754              | 0.978                       | 1.002        | 1.000        |
| 0.05303                             | 8/31/2009             | 8/31/2010                 | 8/25/2009 11:00  | 9/2/2009 5:20               | 9/2/2009 8:25         | 0.755              | 0.977                       | 1.002        | 1.000        |
| 0.07722                             | 12/19/2008            | 12/19/2009                | 8/25/2009 11:00  | 9/2/2009 5:20               | 9/2/2009 8:25         | 0.755              | 0.977                       | 1.002        | 1.000        |

- Notes:  
 1 - Results are decay corrected to Sample Date/Time  
 2 - Reference date for Spike Activity (dpm/ml) is the batch Prep Date  
 3 - Spike Nominals are decay corrected to Sample Date/Time

| Pos. | Decision Level pCi/L | Critical Level pCi/L | Required MDA pCi/L | MDA pCi/L | Sample Act. Conc. pCi/L | Sample Act. Error pCi/L | Net Count Rate CPM | Net Count Rate Error CPM | 2 SIGMA                    |                               | Sample QC   | Sample Type | RPD   | RER | Nominal pCi/L | Recovery |
|------|----------------------|----------------------|--------------------|-----------|-------------------------|-------------------------|--------------------|--------------------------|----------------------------|-------------------------------|-------------|-------------|-------|-----|---------------|----------|
|      |                      |                      |                    |           |                         |                         |                    |                          | Counting Uncertainty pCi/L | Total Prop. Uncertainty pCi/L |             |             |       |     |               |          |
| 1    | 0.1937               | 0.1367               | 1                  | 0.3358    | 0.4156                  | 0.3047                  | 0.6667             | 0.2000                   | 0.2444                     | 0.2592                        |             | SAMPLE      |       |     |               |          |
| 2    | 0.1901               | 0.1342               | 1                  | 0.3296    | 0.2243                  | 0.4786                  | 0.3667             | 0.1732                   | 0.2077                     | 0.2143                        |             | SAMPLE      |       |     |               |          |
| 3    | 0.1623               | 0.1146               | 1                  | 0.2895    | 0.2212                  | 0.4402                  | 0.3667             | 0.1599                   | 0.1890                     | 0.1950                        |             | MB          |       |     |               |          |
| 4    | 0.1815               | 0.1281               | 1                  | 0.3147    | 0.4674                  | 0.3002                  | 0.8000             | 0.2108                   | 0.2414                     | 0.2876                        | 234964020.1 | DUP         | 70.3% |     |               |          |
| 5    | 1.0204               | 0.7204               | 1                  | 1.7694    | 113.4315                | 0.0616                  | 34.5333            | 1.0812                   | 6.9605                     | 24.5762                       | 234964020.1 | MS          |       |     | 120.8284      | 93.9%    |
| 6    | 0.1184               | 0.0836               | 1                  | 0.2211    | 20.4268                 | 0.0828                  | 37.9000            | 1.1279                   | 1.1915                     | 4.9484                        |             | LCS         |       |     | 24.1653       | 84.5%    |

# METHOD CALIBRATION DATA

# **GAS FLOW PROPORTIONAL COUNTERS**


**General Engineering Laboratories**

2040 Savage Road, Charleston, SC 29414  
 (843)556-8171

**Gas Flow Proportional Counter Calibration Package**

Method: Pa-228 (AC)

|  | YES                                 | NO | Comments           |
|--|-------------------------------------|----|--------------------|
| 1) Is all calibration standard information enclosed for:<br>primary standard certificate?<br>secondary standard(s) documentation?<br>standard preparation information?<br>standard < 1 Year old or verified? | <input checked="" type="checkbox"/> |    |                    |
|  | <input checked="" type="checkbox"/> |    |                    |
|  | <input checked="" type="checkbox"/> |    |                    |
|  | <input checked="" type="checkbox"/> |    |                    |
| 2) Are the detector graphs included?<br>beta absorption curves?<br>beta plateau?   |                                     |    | Average Efficiency |
|  | <input checked="" type="checkbox"/> |    |                    |
| 3) Is the raw count data included for:<br>the plateau generation?<br>the absorption curve generation?<br>the calibration verification?<br>the crosstalk calculations?  | <input checked="" type="checkbox"/> |    |                    |
|  | <input checked="" type="checkbox"/> |    |                    |
|  | <input checked="" type="checkbox"/> |    |                    |
|  | <input checked="" type="checkbox"/> |    |                    |
| 4) Are the calibration verification calculations included?<br>are verification recoveries 100% +/- 25%   | <input checked="" type="checkbox"/> |    |                    |
|  |                                     |    |                    |
| 5) Is the method Carrier Standardization included?   |                                     |    | N/A                |

Prepared By: 

Date: 7/2/09

Reviewed By: 

Date: 7/2/09

Effective Date: 7/2/09

# Ra-228 Calibration PROTEAN Detectors

| Detector # | Source # | Seperation date |                | Count date | Ac-228 decay (dec) | Spike Vol. Ra-228 (mL) | Std. Act. Ra-228 (dpm/mL) | Standard Nominal | raw beta counts | ct. time (min) | Beta cpm    | corrected* cpm | Ra-228 eff (cpm/dpm) | Average EFF |
|------------|----------|-----------------|----------------|------------|--------------------|------------------------|---------------------------|------------------|-----------------|----------------|-------------|----------------|----------------------|-------------|
|            |          | date            | time           |            |                    |                        |                           |                  |                 |                |             |                |                      |             |
| 1A         | 1        | 7/1/09 10:45    | 7/1/2009 13:36 | 0.7249     | 1.5                | 6363.2                 | 9544.8                    | 13564            | 3               | 4521.3         | 6237.434348 | 0.6535         |                      |             |
| 1A         | 2        | 7/1/09 10:45    | 7/1/2009 13:52 | 0.7032     | 1.5                | 6363.2                 | 9544.8                    | 12775            | 3               | 4258.3         | 6055.521583 | 0.6344         |                      |             |
| 1A         | 3        | 7/1/09 10:45    | 7/1/2009 13:48 | 0.7083     | 1.5                | 6363.2                 | 9544.8                    | 12750            | 3               | 4250.0         | 6000.085083 | 0.6286         |                      |             |
| 1A         | 4        | 7/1/09 10:45    | 7/1/2009 13:41 | 0.7170     | 1.5                | 6363.2                 | 9544.8                    | 12410            | 3               | 4136.7         | 5769.683602 | 0.6045         | Average EFF          |             |
| 1B         | 1        | 7/1/09 10:45    | 7/1/2009 13:41 | 0.7174     | 1.5                | 6363.2                 | 9544.8                    | 13292            | 3               | 4430.7         | 6176.07771  | 0.6471         | 0.6303               |             |
| 1B         | 2        | 7/1/09 10:45    | 7/1/2009 13:36 | 0.7246     | 1.5                | 6363.2                 | 9544.8                    | 13274            | 3               | 4424.7         | 6106.181463 | 0.6397         |                      |             |
| 1B         | 3        | 7/1/09 10:45    | 7/1/2009 13:52 | 0.7031     | 1.5                | 6363.2                 | 9544.8                    | 12699            | 3               | 4233.0         | 6020.43969  | 0.6308         | Average EFF          |             |
| 1B         | 4        | 7/1/09 10:45    | 7/1/2009 13:48 | 0.7082     | 1.5                | 6363.2                 | 9544.8                    | 12072            | 3               | 4024.0         | 5682.267909 | 0.5953         | 0.6282               |             |
| 1C         | 1        | 7/1/09 10:45    | 7/1/2009 13:48 | 0.7085     | 1.5                | 6363.2                 | 9544.8                    | 12813            | 3               | 4271.0         | 6028.410186 | 0.6316         |                      |             |
| 1C         | 2        | 7/1/09 10:45    | 7/1/2009 13:41 | 0.7172     | 1.5                | 6363.2                 | 9544.8                    | 12979            | 3               | 4326.3         | 6032.15531  | 0.6320         |                      |             |
| 1C         | 3        | 7/1/09 10:45    | 7/1/2009 13:36 | 0.7245     | 1.5                | 6363.2                 | 9544.8                    | 12755            | 3               | 4251.7         | 5868.722998 | 0.6149         | Average EFF          |             |
| 1C         | 4        | 7/1/09 10:45    | 7/1/2009 13:52 | 0.7030     | 1.5                | 6363.2                 | 9544.8                    | 11917            | 3               | 3972.3         | 5650.765354 | 0.5920         | 0.6176               |             |
| 1D         | 1        | 7/1/09 10:45    | 7/1/2009 13:52 | 0.7033     | 1.5                | 6363.2                 | 9544.8                    | 12473            | 3               | 4157.7         | 5911.258105 | 0.6193         |                      |             |
| 1D         | 2        | 7/1/09 10:45    | 7/1/2009 13:48 | 0.7084     | 1.5                | 6363.2                 | 9544.8                    | 12484            | 3               | 4161.3         | 5874.170562 | 0.6154         |                      |             |
| 1D         | 3        | 7/1/09 10:45    | 7/1/2009 13:41 | 0.7171     | 1.5                | 6363.2                 | 9544.8                    | 12289            | 3               | 4096.3         | 5712.363902 | 0.5985         | Average EFF          |             |
| 1D         | 4        | 7/1/09 10:45    | 7/1/2009 13:36 | 0.7243     | 1.5                | 6363.2                 | 9544.8                    | 12115            | 3               | 4038.3         | 5575.47435  | 0.5841         | 0.6043               |             |
| 2A         | 1        | 7/1/09 10:45    | 7/1/2009 13:57 | 0.6960     | 1.5                | 6363.2                 | 9544.8                    | 12499            | 3               | 4166.3         | 5986.085459 | 0.6272         |                      |             |
| 2A         | 2        | 7/1/09 10:45    | 7/1/2009 14:15 | 0.6728     | 1.5                | 6363.2                 | 9544.8                    | 12103            | 3               | 4034.3         | 5996.6905   | 0.6283         |                      |             |
| 2A         | 3        | 7/1/09 10:45    | 7/1/2009 14:09 | 0.6815     | 1.5                | 6363.2                 | 9544.8                    | 11968            | 3               | 3989.3         | 5854.110901 | 0.6133         | Average EFF          |             |
| 2A         | 4        | 7/1/09 10:45    | 7/1/2009 14:02 | 0.6899     | 1.5                | 6363.2                 | 9544.8                    | 11855            | 3               | 3951.7         | 5728.227222 | 0.6001         | 0.6172               |             |
| 2B         | 1        | 7/1/09 10:45    | 7/1/2009 14:02 | 0.6903     | 1.5                | 6363.2                 | 9544.8                    | 12471            | 3               | 4157.0         | 6022.266434 | 0.6309         |                      |             |
| 2B         | 2        | 7/1/09 10:45    | 7/1/2009 13:57 | 0.6958     | 1.5                | 6363.2                 | 9544.8                    | 12492            | 3               | 4164.0         | 5984.232843 | 0.6270         |                      |             |
| 2B         | 3        | 7/1/09 10:45    | 7/1/2009 14:15 | 0.6727     | 1.5                | 6363.2                 | 9544.8                    | 11892            | 3               | 3964.0         | 5892.884561 | 0.6174         | Average EFF          |             |
| 2B         | 4        | 7/1/09 10:45    | 7/1/2009 14:09 | 0.6814     | 1.5                | 6363.2                 | 9544.8                    | 11539            | 3               | 3846.3         | 5644.974311 | 0.5914         | 0.6167               |             |
| 2C         | 1        | 7/1/09 10:45    | 7/1/2009 14:08 | 0.6817     | 1.5                | 6363.2                 | 9544.8                    | 12050            | 3               | 4016.7         | 5892.005142 | 0.6173         |                      |             |
| 2C         | 2        | 7/1/09 10:45    | 7/1/2009 14:02 | 0.6901     | 1.5                | 6363.2                 | 9544.8                    | 11914            | 3               | 3971.3         | 5754.571355 | 0.6029         |                      |             |
| 2C         | 3        | 7/1/09 10:45    | 7/1/2009 13:58 | 0.6957     | 1.5                | 6363.2                 | 9544.8                    | 11994            | 3               | 3998.0         | 5746.92868  | 0.6021         | Average EFF          |             |
| 2C         | 4        | 7/1/09 10:45    | 7/1/2009 14:15 | 0.6726     | 1.5                | 6363.2                 | 9544.8                    | 10889            | 3               | 3629.7         | 5396.37168  | 0.5654         | 0.5989               |             |
| 2D         | 1        | 7/1/09 10:45    | 7/1/2009 14:15 | 0.6729     | 1.5                | 6363.2                 | 9544.8                    | 12010            | 3               | 4003.3         | 5949.493049 | 0.6233         |                      |             |
| 2D         | 2        | 7/1/09 10:45    | 7/1/2009 14:08 | 0.6816     | 1.5                | 6363.2                 | 9544.8                    | 12124            | 3               | 4041.3         | 5929.303014 | 0.6212         |                      |             |
| 2D         | 3        | 7/1/09 10:45    | 7/1/2009 14:02 | 0.6900     | 1.5                | 6363.2                 | 9544.8                    | 12168            | 3               | 4056.0         | 5878.380714 | 0.6159         | Average EFF          |             |
| 2D         | 4        | 7/1/09 10:45    | 7/1/2009 13:58 | 0.6954     | 1.5                | 6363.2                 | 9544.8                    | 11692            | 3               | 3897.3         | 5604.158523 | 0.5871         | 0.6119               |             |
| 3A         | 1        | 7/1/09 10:45    | 7/1/2009 14:19 | 0.6675     | 1.5                | 6363.2                 | 9544.8                    | 11194            | 3               | 3731.3         | 5589.748519 | 0.5856         |                      |             |
| 3A         | 2        | 7/1/09 10:45    | 7/1/2009 14:30 | 0.6482     | 1.5                | 6363.2                 | 9544.8                    | 14227            | 4               | 3556.8         | 5486.792678 | 0.5748         |                      |             |
| 3A         | 3        | 7/1/09 10:45    | 7/1/2009 14:35 | 0.6548     | 1.5                | 6363.2                 | 9544.8                    | 14180            | 4               | 3545.0         | 5414.108112 | 0.5672         | Average EFF          |             |
| 3A         | 4        | 7/1/09 10:45    | 7/1/2009 14:25 | 0.6608     | 1.5                | 6363.2                 | 9544.8                    | 13754            | 4               | 3438.5         | 5203.464549 | 0.5452         | 0.5682               |             |
| 3B         | 1        | 7/1/09 10:45    | 7/1/2009 14:25 | 0.6612     | 1.5                | 6363.2                 | 9544.8                    | 15370            | 4               | 3842.5         | 5811.010789 | 0.6088         |                      |             |
| 3B         | 2        | 7/1/09 10:45    | 7/1/2009 14:20 | 0.6673     | 1.5                | 6363.2                 | 9544.8                    | 11695            | 3               | 3898.3         | 5842.303251 | 0.6121         |                      |             |
| 3B         | 3        | 7/1/09 10:45    | 7/1/2009 14:35 | 0.6481     | 1.5                | 6363.2                 | 9544.8                    | 14905            | 4               | 3726.3         | 5749.171166 | 0.6023         | Average EFF          |             |
| 3B         | 4        | 7/1/09 10:45    | 7/1/2009 14:30 | 0.6547     | 1.5                | 6363.2                 | 9544.8                    | 14220            | 4               | 3555.0         | 5430.231301 | 0.5689         | 0.5980               |             |
| 3C         | 1        | 7/1/09 10:45    | 7/1/2009 14:29 | 0.6552     | 1.5                | 6363.2                 | 9544.8                    | 15644            | 4               | 3911.0         | 5969.527404 | 0.6254         |                      |             |
| 3C         | 2        | 7/1/09 10:45    | 7/1/2009 14:25 | 0.6611     | 1.5                | 6363.2                 | 9544.8                    | 15964            | 4               | 3991.0         | 6036.911214 | 0.6325         |                      |             |
| 3C         | 3        | 7/1/09 10:45    | 7/1/2009 14:20 | 0.6672     | 1.5                | 6363.2                 | 9544.8                    | 11701            | 3               | 3900.3         | 5846.033242 | 0.6125         | Average EFF          |             |
| 3C         | 4        | 7/1/09 10:45    | 7/1/2009 14:35 | 0.6480     | 1.5                | 6363.2                 | 9544.8                    | 14729            | 4               | 3682.3         | 5682.352456 | 0.5953         | 0.6164               |             |
| 3D         | 1        | 7/1/09 10:45    | 7/1/2009 14:35 | 0.6484     | 1.5                | 6363.2                 | 9544.8                    | 15152            | 4               | 3788.0         | 5842.430209 | 0.6121         |                      |             |
| 3D         | 2        | 7/1/09 10:45    | 7/1/2009 14:30 | 0.6550     | 1.5                | 6363.2                 | 9544.8                    | 15168            | 4               | 3792.0         | 5789.343603 | 0.6065         |                      |             |
| 3D         | 3        | 7/1/09 10:45    | 7/1/2009 14:25 | 0.6610     | 1.5                | 6363.2                 | 9544.8                    | 15295            | 4               | 3823.8         | 5785.011122 | 0.6061         | Average EFF          |             |
| 3D         | 4        | 7/1/09 10:45    | 7/1/2009 14:20 | 0.6670     | 1.5                | 6363.2                 | 9544.8                    | 10942            | 3               | 3647.3         | 5468.022172 | 0.5729         | 0.5994               |             |
| 4A         | 1        | 7/1/09 10:45    | 7/1/2009 14:40 | 0.6418     | 1.5                | 6363.2                 | 9544.8                    | 15298            | 4               | 3824.5         | 5959.288371 | 0.6243         |                      |             |
| 4A         | 2        | 7/1/09 10:45    | 7/1/2009 15:00 | 0.6187     | 1.5                | 6363.2                 | 9544.8                    | 14897            | 4               | 3724.3         | 6019.957238 | 0.6307         |                      |             |
| 4A         | 3        | 7/1/09 10:45    | 7/1/2009 14:53 | 0.6266     | 1.5                | 6363.2                 | 9544.8                    | 15050            | 4               | 3762.5         | 6005.095127 | 0.6291         | Average EFF          |             |
| 4A         | 4        | 7/1/09 10:45    | 7/1/2009 14:48 | 0.6325     | 1.5                | 6363.2                 | 9544.8                    | 14462            | 4               | 3615.5         | 5715.951787 | 0.5989         | 0.6208               |             |
| 4B         | 1        | 7/1/09 10:45    | 7/1/2009 14:48 | 0.6329     | 1.5                | 6363.2                 | 9544.8                    | 15335            | 4               | 3833.8         | 6057.768128 | 0.6347         |                      |             |
| 4B         | 2        | 7/1/09 10:45    | 7/1/2009 14:41 | 0.6416     | 1.5                | 6363.2                 | 9544.8                    | 15513            | 4               | 3878.3         | 6044.745331 | 0.6333         |                      |             |
| 4B         | 3        | 7/1/09 10:45    | 7/1/2009 15:00 | 0.6186     | 1.5                | 6363.2                 | 9544.8                    | 14521            | 4               | 3630.3         | 5868.58525  | 0.6148         | Average EFF          |             |
| 4B         | 4        | 7/1/09 10:45    | 7/1/2009 14:53 | 0.6265     | 1.5                | 6363.2                 | 9544.8                    | 14328            | 4               | 3582.0         | 5717.547589 | 0.5990         | 0.6205               |             |
| 4C         | 1        | 7/1/09 10:45    | 7/1/2009 14:53 | 0.6268     | 1.5                | 6363.2                 | 9544.8                    | 14733            | 4               | 3683.3         | 5876.583259 | 0.6157         |                      |             |
| 4C         | 2        | 7/1/09 10:45    | 7/1/2009 14:48 | 0.6327     | 1.5                | 6363.2                 | 9544.8                    | 14902            | 4               | 3725.5         | 5888.011911 | 0.6169         |                      |             |
| 4C         | 3        | 7/1/09 10:45    | 7/1/2009 14:41 | 0.6414     | 1.5                | 6363.2                 | 9544.8                    | 14856            | 4               | 3714.0         | 5790.010642 | 0.6066         | Average EFF          |             |
| 4C         | 4        | 7/1/09 10:45    | 7/1/2009 15:00 | 0.6185     | 1.5                | 6363.2                 | 9544.8                    | 13733            | 4               | 3433.3         | 5550.795964 | 0.5816         | 0.6052               |             |
| 4D         | 1        | 7/1/09 10:45    | 7/1/2009 15:00 | 0.6188     | 1.5                | 6363.2                 | 9544.8                    | 14167            | 4               | 3541.8         | 5723.884149 | 0.5997         |                      |             |
| 4D         | 2        | 7/1/09 10:45    | 7/1/2009 14:53 | 0.6267     | 1.5                | 6363.2                 | 9544.8                    | 14204            | 4               | 3551.0         | 5866.467573 | 0.5937         |                      |             |
| 4D         | 3        | 7/1/09 10:45    | 7/1/2009 14:48 | 0.6326     | 1.5                | 6363.2                 | 9544.8                    | 14131            | 4               | 3532.8         | 5584.07765  | 0.5850         | Average EFF          |             |
| 4D         | 4        | 7/1/09 10:45    | 7/1/2009 14:41 | 0.6413     | 1.5                | 6363.2                 | 9544.8                    | 13978            | 4               | 3494.5         | 5449.182717 | 0.5709         | 0.5873               |             |
| 5A         | 1        | 7/1/09 10:45    | 7/1/2009 15:06 | 0.6112     | 1.5                | 6363.2                 | 9544.8                    | 14870            | 4               | 3717.5         | 6082.165089 | 0.6372         |                      |             |
| 5A         | 2        | 7/1/09 10:45    | 7/1/2009 15:21 | 0.5943     | 1.5                | 6363.2                 | 9544.8                    | 14487            | 4               | 3621.8         | 6094.223373 | 0.6385         |                      |             |
| 5A         | 3        | 7/1/09 10:45    | 7/1/2009 15:17 | 0.5996     | 1.5                | 6363.2                 | 9544.8                    | 14259            | 4               | 3564.8         | 5945.170793 | 0.6229         | Average EFF          |             |
| 5A         | 4        | 7/1/09 10:45    | 7/1/2009 15:12 | 0.6047     | 1.5                | 6363.2                 | 9544.8                    | 13957            | 4               | 3489.3         | 5770.592799 | 0.6046         | 0.6258               |             |
| 5B         | 1        | 7/1/09 10:45    | 7/1/2009 15:12 | 0.6050     | 1.5                | 6363.2                 | 9544.8                    | 14869            | 4               | 3717.3         | 6144.005028 | 0.6437         |                      |             |
| 5B         | 2        | 7/1/09 10:45    | 7/1/2009 15:06 | 0.6111     | 1.5                | 6363.2                 | 9544.8                    | 14821            | 4               | 3705.3         | 6063.072791 | 0.6352         |                      |             |
| 5B         | 3        | 7/1/09 10:45    | 7/1/2009 15:21 | 0.5942     | 1.5                | 6363.2                 | 9544.8                    | 14289            | 4               | 3572.3         | 6011.872812 | 0.6299         | Average EFF          |             |
| 5B         | 4        | 7/1/09 10:45    | 7/1/2009 15:17 | 0.5995     | 1.5                | 6363.2                 | 9544.8                    | 13809            | 4               | 3452.3         | 5758.629577 | 0.6033         | 0.6280               |             |
| 5C         | 1        | 7/1/09 10:45    | 7/1/2009 15:17 | 0.5994     | 1.5                | 6363.2                 | 9544.8                    | 14676            | 4               | 3669.0         | 6120.953053 | 0.6413         |                      |             |
| 5C         | 2        | 7/1/09 10:45    | 7/1/2009 15:12 | 0.6049     | 1.5                | 6363.2                 | 9544.8                    | 15122            | 4               | 3780.5         | 6249.917577 | 0.6548         |                      |             |
| 5C         | 3        | 7/1/09 10:45    | 7/1/2009 15:07 | 0.6108     | 1.5                | 6363.2                 | 9544.8                    | 14958            | 4               | 3739.5         | 6121.8025   | 0.6414         | Average EFF          |             |

7/21/09

|     |   |              |                |        |     |        |        |       |     |        |             |        |             |
|-----|---|--------------|----------------|--------|-----|--------|--------|-------|-----|--------|-------------|--------|-------------|
| 5C  | 4 | 7/1/09 10:45 | 7/1/2009 15:21 | 0.5941 | 1.5 | 6363.2 | 9544.8 | 13831 | 4   | 3457.8 | 5819.905873 | 0.6097 | 0.6368      |
| 5D  | 1 | 7/1/09 10:45 | 7/1/2009 15:21 | 0.5943 | 1.5 | 6363.2 | 9544.8 | 14321 | 4   | 3580.3 | 6024.014899 | 0.6311 |             |
| 5D  | 2 | 7/1/09 10:45 | 7/1/2009 15:17 | 0.5993 | 1.5 | 6363.2 | 9544.8 | 14642 | 4   | 3660.5 | 6107.538025 | 0.6399 |             |
| 5D  | 3 | 7/1/09 10:45 | 7/1/2009 15:12 | 0.6048 | 1.5 | 6363.2 | 9544.8 | 14443 | 4   | 3610.8 | 5970.409434 | 0.6255 | Average EFF |
| 5D  | 4 | 7/1/09 10:45 | 7/1/2009 15:07 | 0.6107 | 1.5 | 6363.2 | 9544.8 | 13954 | 4   | 3488.5 | 5711.973074 | 0.5984 | 0.6237      |
| 6A  | 1 | 7/1/09 10:45 | 7/1/2009 15:27 | 0.5885 | 1.5 | 6363.2 | 9544.8 | 14018 | 4   | 3504.5 | 5955.42076  | 0.6239 |             |
| 6A  | 2 | 7/1/09 10:45 | 7/1/2009 15:40 | 0.5735 | 1.5 | 6363.2 | 9544.8 | 12283 | 3.5 | 3509.4 | 6118.819734 | 0.6411 |             |
| 6A  | 3 | 7/1/09 10:45 | 7/1/2009 15:36 | 0.5779 | 1.5 | 6363.2 | 9544.8 | 12111 | 3.5 | 3460.3 | 5987.187856 | 0.6273 | Average EFF |
| 6A  | 4 | 7/1/09 10:45 | 7/1/2009 15:32 | 0.5826 | 1.5 | 6363.2 | 9544.8 | 11598 | 3.5 | 3313.7 | 5687.952648 | 0.5959 | 0.6221      |
| 6B  | 1 | 7/1/09 10:45 | 7/1/2009 15:32 | 0.5824 | 1.5 | 6363.2 | 9544.8 | 12151 | 3.5 | 3471.7 | 5961.398905 | 0.6246 |             |
| 6B  | 2 | 7/1/09 10:45 | 7/1/2009 15:27 | 0.5885 | 1.5 | 6363.2 | 9544.8 | 14371 | 4   | 3592.8 | 6105.369624 | 0.6397 |             |
| 6B  | 3 | 7/1/09 10:45 | 7/1/2009 15:40 | 0.5734 | 1.5 | 6363.2 | 9544.8 | 11705 | 3.5 | 3344.3 | 5831.983307 | 0.6110 | Average EFF |
| 6B  | 4 | 7/1/09 10:45 | 7/1/2009 15:36 | 0.5779 | 1.5 | 6363.2 | 9544.8 | 11388 | 3.5 | 3253.7 | 5630.295163 | 0.5899 | 0.6163      |
| 6C  | 1 | 7/1/09 10:45 | 7/1/2009 15:36 | 0.5778 | 1.5 | 6363.2 | 9544.8 | 12161 | 3.5 | 3474.6 | 6013.224586 | 0.6300 |             |
| 6C  | 2 | 7/1/09 10:45 | 7/1/2009 15:32 | 0.5821 | 1.5 | 6363.2 | 9544.8 | 12083 | 3.5 | 3452.3 | 5930.638446 | 0.6213 |             |
| 6C  | 3 | 7/1/09 10:45 | 7/1/2009 15:27 | 0.5883 | 1.5 | 6363.2 | 9544.8 | 13638 | 4   | 3409.5 | 5795.433731 | 0.6072 | Average EFF |
| 6C  | 4 | 7/1/09 10:45 | 7/1/2009 15:40 | 0.5733 | 1.5 | 6363.2 | 9544.8 | 11218 | 3.5 | 3205.1 | 5590.212659 | 0.5857 | 0.6111      |
| 6D  | 1 | 7/1/09 10:45 | 7/1/2009 15:40 | 0.5732 | 1.5 | 6363.2 | 9544.8 | 11987 | 3.5 | 3424.9 | 5974.547886 | 0.6259 |             |
| 6D  | 2 | 7/1/09 10:45 | 7/1/2009 15:36 | 0.5777 | 1.5 | 6363.2 | 9544.8 | 12183 | 3.5 | 3480.9 | 6025.235519 | 0.6313 |             |
| 6D  | 3 | 7/1/09 10:45 | 7/1/2009 15:32 | 0.5819 | 1.5 | 6363.2 | 9544.8 | 11882 | 3.5 | 3394.9 | 5833.810262 | 0.6112 | Average EFF |
| 6D  | 4 | 7/1/09 10:45 | 7/1/2009 15:27 | 0.5881 | 1.5 | 6363.2 | 9544.8 | 13018 | 4   | 3254.5 | 5533.899914 | 0.5798 | 0.6120      |
| 7A  | 1 | 7/1/09 10:45 | 7/1/2009 15:46 | 0.5673 | 1.5 | 6363.2 | 9544.8 | 12007 | 3.5 | 3430.6 | 6047.285806 | 0.6336 |             |
| 7A  | 2 | 7/1/09 10:45 | 7/1/2009 16:00 | 0.5525 | 1.5 | 6363.2 | 9544.8 | 11655 | 3.5 | 3330.0 | 6027.30696  | 0.6315 |             |
| 7A  | 3 | 7/1/09 10:45 | 7/1/2009 15:56 | 0.5569 | 1.5 | 6363.2 | 9544.8 | 11445 | 3.5 | 3270.0 | 5871.972756 | 0.6152 | Average EFF |
| 7A  | 4 | 7/1/09 10:45 | 7/1/2009 15:50 | 0.5627 | 1.5 | 6363.2 | 9544.8 | 11121 | 3.5 | 3177.4 | 5846.694018 | 0.5916 | 0.6180      |
| 7B  | 1 | 7/1/09 10:45 | 7/1/2009 15:51 | 0.5622 | 1.5 | 6363.2 | 9544.8 | 11988 | 3.5 | 3419.4 | 6082.664171 | 0.6373 |             |
| 7B  | 2 | 7/1/09 10:45 | 7/1/2009 15:46 | 0.5673 | 1.5 | 6363.2 | 9544.8 | 12050 | 3.5 | 3442.9 | 6069.322745 | 0.6359 |             |
| 7B  | 3 | 7/1/09 10:45 | 7/1/2009 16:00 | 0.5524 | 1.5 | 6363.2 | 9544.8 | 11675 | 3.5 | 3335.7 | 6038.785014 | 0.6327 | Average EFF |
| 7B  | 4 | 7/1/09 10:45 | 7/1/2009 15:56 | 0.5567 | 1.5 | 6363.2 | 9544.8 | 11271 | 3.5 | 3220.3 | 5784.331251 | 0.6060 | 0.6280      |
| 7C  | 1 | 7/1/09 10:45 | 7/1/2009 15:56 | 0.5566 | 1.5 | 6363.2 | 9544.8 | 11781 | 3.5 | 3366.0 | 6047.202464 | 0.6336 |             |
| 7C  | 2 | 7/1/09 10:45 | 7/1/2009 15:51 | 0.5621 | 1.5 | 6363.2 | 9544.8 | 11760 | 3.5 | 3360.0 | 5978.073192 | 0.6263 |             |
| 7C  | 3 | 7/1/09 10:45 | 7/1/2009 15:46 | 0.5670 | 1.5 | 6363.2 | 9544.8 | 11766 | 3.5 | 3361.7 | 5928.878357 | 0.6212 | Average EFF |
| 7C  | 4 | 7/1/09 10:45 | 7/1/2009 16:00 | 0.5523 | 1.5 | 6363.2 | 9544.8 | 10888 | 3.5 | 3110.9 | 5632.598965 | 0.5901 | 0.6178      |
| 7D  | 1 | 7/1/09 10:45 | 7/1/2009 16:00 | 0.5522 | 1.5 | 6363.2 | 9544.8 | 11805 | 3.5 | 3315.7 | 6004.271132 | 0.6291 |             |
| 7D  | 2 | 7/1/09 10:45 | 7/1/2009 15:56 | 0.5565 | 1.5 | 6363.2 | 9544.8 | 11920 | 3.5 | 3405.7 | 6119.509991 | 0.6411 |             |
| 7D  | 3 | 7/1/09 10:45 | 7/1/2009 15:51 | 0.5619 | 1.5 | 6363.2 | 9544.8 | 11933 | 3.5 | 3409.4 | 6067.346561 | 0.6357 | Average EFF |
| 7D  | 4 | 7/1/09 10:45 | 7/1/2009 15:46 | 0.5668 | 1.5 | 6363.2 | 9544.8 | 11305 | 3.5 | 3230.0 | 5698.366602 | 0.5970 | 0.6257      |
| 8A  | 1 | 7/1/09 10:45 | 7/1/2009 16:06 | 0.5466 | 1.5 | 6363.2 | 9544.8 | 11673 | 3.5 | 3335.1 | 6101.651756 | 0.6393 |             |
| 8A  | 2 | 7/1/09 10:45 | 7/1/2009 16:19 | 0.5333 | 1.5 | 6363.2 | 9544.8 | 11172 | 3.5 | 3192.0 | 5985.379105 | 0.6271 |             |
| 8A  | 3 | 7/1/09 10:45 | 7/1/2009 16:15 | 0.5377 | 1.5 | 6363.2 | 9544.8 | 11258 | 3.5 | 3216.6 | 5982.329368 | 0.6268 | Average EFF |
| 8A  | 4 | 7/1/09 10:45 | 7/1/2009 16:10 | 0.5424 | 1.5 | 6363.2 | 9544.8 | 10977 | 3.5 | 3136.3 | 5782.059146 | 0.6058 | 0.6247      |
| 8B  | 1 | 7/1/09 10:45 | 7/1/2009 16:10 | 0.5423 | 1.5 | 6363.2 | 9544.8 | 11583 | 3.5 | 3309.4 | 6102.412618 | 0.6393 |             |
| 8B  | 2 | 7/1/09 10:45 | 7/1/2009 16:06 | 0.5466 | 1.5 | 6363.2 | 9544.8 | 11758 | 3.5 | 3359.4 | 6146.082528 | 0.6439 |             |
| 8B  | 3 | 7/1/09 10:45 | 7/1/2009 16:19 | 0.5332 | 1.5 | 6363.2 | 9544.8 | 11499 | 3.5 | 3285.4 | 6161.727069 | 0.6456 | Average EFF |
| 8B  | 4 | 7/1/09 10:45 | 7/1/2009 16:15 | 0.5376 | 1.5 | 6363.2 | 9544.8 | 10844 | 3.5 | 3098.3 | 5763.600098 | 0.6038 | 0.6332      |
| 8C  | 1 | 7/1/09 10:45 | 7/1/2009 16:15 | 0.5375 | 1.5 | 6363.2 | 9544.8 | 11539 | 3.5 | 3296.9 | 6133.782218 | 0.6426 |             |
| 8C  | 2 | 7/1/09 10:45 | 7/1/2009 16:10 | 0.5422 | 1.5 | 6363.2 | 9544.8 | 11774 | 3.5 | 3364.0 | 6204.011354 | 0.6500 |             |
| 8C  | 3 | 7/1/09 10:45 | 7/1/2009 16:06 | 0.5465 | 1.5 | 6363.2 | 9544.8 | 11611 | 3.5 | 3317.4 | 6070.574762 | 0.6380 | Average EFF |
| 8C  | 4 | 7/1/09 10:45 | 7/1/2009 16:19 | 0.5331 | 1.5 | 6363.2 | 9544.8 | 10809 | 3.5 | 3088.3 | 5793.080291 | 0.6069 | 0.6339      |
| 8D  | 1 | 7/1/09 10:45 | 7/1/2009 16:19 | 0.5330 | 1.5 | 6363.2 | 9544.8 | 11301 | 3.5 | 3228.9 | 6057.336905 | 0.6346 |             |
| 8D  | 2 | 7/1/09 10:45 | 7/1/2009 16:15 | 0.5374 | 1.5 | 6363.2 | 9544.8 | 11412 | 3.5 | 3260.6 | 6067.58377  | 0.6357 |             |
| 8D  | 3 | 7/1/09 10:45 | 7/1/2009 16:10 | 0.5421 | 1.5 | 6363.2 | 9544.8 | 11660 | 3.5 | 3331.4 | 6145.874775 | 0.6439 | Average EFF |
| 8D  | 4 | 7/1/09 10:45 | 7/1/2009 16:06 | 0.5464 | 1.5 | 6363.2 | 9544.8 | 10918 | 3.5 | 3119.4 | 5709.327085 | 0.5982 | 0.6281      |
| 9A  | 1 | 7/1/09 10:45 | 7/1/2009 16:24 | 0.5280 | 1.5 | 6363.2 | 9544.8 | 11805 | 3.5 | 3315.7 | 6280.207813 | 0.6580 |             |
| 9A  | 2 | 7/1/09 10:45 | 7/1/2009 16:42 | 0.5106 | 1.5 | 6363.2 | 9544.8 | 11281 | 3.5 | 3223.1 | 6313.016372 | 0.6614 |             |
| 9A  | 3 | 7/1/09 10:45 | 7/1/2009 16:33 | 0.5196 | 1.5 | 6363.2 | 9544.8 | 11301 | 3.5 | 3228.9 | 6214.402502 | 0.6511 | Average EFF |
| 9A  | 4 | 7/1/09 10:45 | 7/1/2009 16:29 | 0.5236 | 1.5 | 6363.2 | 9544.8 | 10987 | 3.5 | 3139.1 | 5995.155865 | 0.6281 | 0.6496      |
| 9B  | 1 | 7/1/09 10:45 | 7/1/2009 16:29 | 0.5235 | 1.5 | 6363.2 | 9544.8 | 11151 | 3.5 | 3186.0 | 6085.406803 | 0.6376 |             |
| 9B  | 2 | 7/1/09 10:45 | 7/1/2009 16:24 | 0.5280 | 1.5 | 6363.2 | 9544.8 | 11462 | 3.5 | 3274.9 | 6202.821366 | 0.6499 |             |
| 9B  | 3 | 7/1/09 10:45 | 7/1/2009 16:42 | 0.5104 | 1.5 | 6363.2 | 9544.8 | 11004 | 3.5 | 3144.0 | 6180.125852 | 0.6454 | Average EFF |
| 9B  | 4 | 7/1/09 10:45 | 7/1/2009 16:33 | 0.5195 | 1.5 | 6363.2 | 9544.8 | 10581 | 3.5 | 3023.1 | 5819.569586 | 0.6097 | 0.6356      |
| 9C  | 1 | 7/1/09 10:45 | 7/1/2009 16:33 | 0.5194 | 1.5 | 6363.2 | 9544.8 | 11026 | 3.5 | 3150.3 | 6064.890483 | 0.6354 |             |
| 9C  | 2 | 7/1/09 10:45 | 7/1/2009 16:29 | 0.5235 | 1.5 | 6363.2 | 9544.8 | 11281 | 3.5 | 3223.1 | 6157.122814 | 0.6451 |             |
| 9C  | 3 | 7/1/09 10:45 | 7/1/2009 16:24 | 0.5279 | 1.5 | 6363.2 | 9544.8 | 11016 | 3.5 | 3147.4 | 5962.583098 | 0.6247 | Average EFF |
| 9C  | 4 | 7/1/09 10:45 | 7/1/2009 16:42 | 0.5103 | 1.5 | 6363.2 | 9544.8 | 10297 | 3.5 | 2942.0 | 5765.244836 | 0.6040 | 0.6273      |
| 9D  | 1 | 7/1/09 10:45 | 7/1/2009 16:38 | 0.5146 | 1.5 | 6363.2 | 9544.8 | 11135 | 3.5 | 3181.4 | 6182.4976   | 0.6477 |             |
| 9D  | 2 | 7/1/09 10:45 | 7/1/2009 16:33 | 0.5193 | 1.5 | 6363.2 | 9544.8 | 11412 | 3.5 | 3260.6 | 6278.391381 | 0.6578 |             |
| 9D  | 3 | 7/1/09 10:45 | 7/1/2009 16:29 | 0.5234 | 1.5 | 6363.2 | 9544.8 | 11340 | 3.5 | 3240.0 | 6190.682442 | 0.6486 | Average EFF |
| 9D  | 4 | 7/1/09 10:45 | 7/1/2009 16:24 | 0.5278 | 1.5 | 6363.2 | 9544.8 | 10912 | 3.5 | 3117.7 | 5907.401951 | 0.6189 | 0.6433      |
| 10A | 1 | 7/1/09 10:45 | 7/1/2009 16:47 | 0.5057 | 1.5 | 6363.2 | 9544.8 | 10991 | 3.5 | 3140.3 | 6209.984837 | 0.6506 |             |
| 10A | 2 | 7/1/09 10:45 | 7/1/2009 17:12 | 0.4824 | 1.5 | 6363.2 | 9544.8 | 11959 | 4   | 2889.8 | 6198.168046 | 0.6494 |             |
| 10A | 3 | 7/1/09 10:45 | 7/1/2009 16:58 | 0.4958 | 1.5 | 6363.2 | 9544.8 | 10553 | 3.5 | 3015.1 | 6081.381423 | 0.6371 | Average EFF |
| 10A | 4 | 7/1/09 10:45 | 7/1/2009 16:53 | 0.5003 | 1.5 | 6363.2 | 9544.8 | 10338 | 3.5 | 2953.7 | 5903.409852 | 0.6185 | 0.6389      |
| 10B | 1 | 7/1/09 10:45 | 7/1/2009 17:03 | 0.4910 | 1.5 | 6363.2 | 9544.8 | 11110 | 4   | 2777.5 | 5856.748417 | 0.5927 |             |
| 10B | 2 | 7/1/09 10:45 | 7/1/2009 16:47 | 0.5057 | 1.5 | 6363.2 | 9544.8 | 10812 | 3.5 | 3089.1 | 6109.231533 | 0.6401 |             |
| 10B | 3 | 7/1/09 10:45 | 7/1/2009 17:12 | 0.4822 | 1.5 | 6363.2 | 9544.8 | 11422 | 4   | 2855.5 | 5921.333197 | 0.6204 | Average EFF |
| 10B | 4 | 7/1/09 10:45 | 7/1/2009 16:58 | 0.4957 | 1.5 | 6363.2 | 9544.8 | 9967  | 3.5 | 2847.7 | 5744.946895 | 0.6019 | 0.6137      |
| 10C | 1 | 7/1/09 10:45 | 7/1/2009 16:58 | 0.4956 | 1.5 | 6363.2 | 9544.8 | 10482 | 3.5 | 2994.9 | 6042.548531 | 0.6331 |             |
| 10C | 2 | 7/1/09 10:45 | 7/             |        |     |        |        |       |     |        |             |        |             |

|     |   |              |                |        |     |        |        |       |     |        |             |        |             |
|-----|---|--------------|----------------|--------|-----|--------|--------|-------|-----|--------|-------------|--------|-------------|
| 10D | 3 | 7/1/09 10:45 | 7/1/2009 16:53 | 0.5000 | 1.5 | 6363.2 | 9544.8 | 10643 | 3.5 | 3040.9 | 6081.577364 | 0.6372 | Average EFF |
| 10D | 4 | 7/1/09 10:45 | 7/1/2009 16:48 | 0.5053 | 1.5 | 6363.2 | 9544.8 | 10064 | 3.5 | 2875.4 | 5690.501596 | 0.5962 | 0.6320      |
| 11A | 1 | 7/1/09 10:45 | 7/1/2009 11:56 | 0.8745 | 1.5 | 6363.2 | 9544.8 | 14773 | 3   | 4924.3 | 5631.22443  | 0.5900 |             |
| 11A | 2 | 7/1/09 10:45 | 7/1/2009 12:08 | 0.8547 | 1.5 | 6363.2 | 9544.8 | 14429 | 3   | 4809.7 | 5627.17636  | 0.5896 |             |
| 11A | 3 | 7/1/09 10:45 | 7/1/2009 12:04 | 0.8607 | 1.5 | 6363.2 | 9544.8 | 14454 | 3   | 4818.0 | 5597.851728 | 0.5865 | Average EFF |
| 11A | 4 | 7/1/09 10:45 | 7/1/2009 12:00 | 0.8677 | 1.5 | 6363.2 | 9544.8 | 14013 | 3   | 4671.0 | 5383.193838 | 0.5640 | 0.5825      |
| 11B | 1 | 7/1/09 10:45 | 7/1/2009 12:00 | 0.8681 | 1.5 | 6363.2 | 9544.8 | 16203 | 3   | 5401.0 | 6221.768068 | 0.6518 |             |
| 11B | 2 | 7/1/09 10:45 | 7/1/2009 11:56 | 0.8742 | 1.5 | 6363.2 | 9544.8 | 16106 | 3   | 5368.7 | 6141.073627 | 0.6434 |             |
| 11B | 3 | 7/1/09 10:45 | 7/1/2009 12:08 | 0.8545 | 1.5 | 6363.2 | 9544.8 | 15643 | 3   | 5214.3 | 6102.154531 | 0.6393 | Average EFF |
| 11B | 4 | 7/1/09 10:45 | 7/1/2009 12:04 | 0.8606 | 1.5 | 6363.2 | 9544.8 | 15133 | 3   | 5044.3 | 5861.738123 | 0.6141 | 0.6372      |
| 11C | 1 | 7/1/09 10:45 | 7/1/2009 12:04 | 0.8609 | 1.5 | 6363.2 | 9544.8 | 15637 | 3   | 5212.3 | 6054.305139 | 0.6343 |             |
| 11C | 2 | 7/1/09 10:45 | 7/1/2009 12:00 | 0.8680 | 1.5 | 6363.2 | 9544.8 | 15919 | 3   | 5308.3 | 6113.481467 | 0.6405 |             |
| 11C | 3 | 7/1/09 10:45 | 7/1/2009 11:56 | 0.8740 | 1.5 | 6363.2 | 9544.8 | 16452 | 3   | 5484.0 | 6274.376359 | 0.6574 | Average EFF |
| 11C | 4 | 7/1/09 10:45 | 7/1/2009 12:08 | 0.8544 | 1.5 | 6363.2 | 9544.8 | 14887 | 3   | 4962.3 | 5808.157492 | 0.6085 | 0.6352      |
| 11D | 1 | 7/1/09 10:45 | 7/1/2009 12:08 | 0.8548 | 1.5 | 6363.2 | 9544.8 | 15607 | 3   | 5202.3 | 6085.822645 | 0.6376 |             |
| 11D | 2 | 7/1/09 10:45 | 7/1/2009 12:04 | 0.8608 | 1.5 | 6363.2 | 9544.8 | 15944 | 3   | 5314.7 | 6174.138045 | 0.6469 |             |
| 11D | 3 | 7/1/09 10:45 | 7/1/2009 12:00 | 0.8679 | 1.5 | 6363.2 | 9544.8 | 16098 | 3   | 5366.0 | 6182.989937 | 0.6478 | Average EFF |
| 11D | 4 | 7/1/09 10:45 | 7/1/2009 11:56 | 0.8738 | 1.5 | 6363.2 | 9544.8 | 15191 | 3   | 5063.7 | 5794.733717 | 0.6071 | 0.6348      |
| 12A | 1 | 7/1/09 10:45 | 7/1/2009 12:15 | 0.8437 | 1.5 | 6363.2 | 9544.8 | 15450 | 3   | 5150.0 | 6104.026984 | 0.6395 |             |
| 12A | 2 | 7/1/09 10:45 | 7/1/2009 12:28 | 0.8234 | 1.5 | 6363.2 | 9544.8 | 15016 | 3   | 5005.3 | 6078.958269 | 0.6369 |             |
| 12A | 3 | 7/1/09 10:45 | 7/1/2009 12:24 | 0.8296 | 1.5 | 6363.2 | 9544.8 | 14984 | 3   | 4994.7 | 6020.558384 | 0.6308 | Average EFF |
| 12A | 4 | 7/1/09 10:45 | 7/1/2009 12:20 | 0.8358 | 1.5 | 6363.2 | 9544.8 | 14530 | 3   | 4843.3 | 5794.58497  | 0.6071 | 0.6286      |
| 12B | 1 | 7/1/09 10:45 | 7/1/2009 12:20 | 0.8362 | 1.5 | 6363.2 | 9544.8 | 15404 | 3   | 5134.7 | 6140.635636 | 0.6433 |             |
| 12B | 2 | 7/1/09 10:45 | 7/1/2009 12:15 | 0.8437 | 1.5 | 6363.2 | 9544.8 | 15607 | 3   | 5202.3 | 6166.05496  | 0.6460 |             |
| 12B | 3 | 7/1/09 10:45 | 7/1/2009 12:28 | 0.8232 | 1.5 | 6363.2 | 9544.8 | 15060 | 3   | 5020.0 | 6097.91718  | 0.6389 | Average EFF |
| 12B | 4 | 7/1/09 10:45 | 7/1/2009 12:24 | 0.8295 | 1.5 | 6363.2 | 9544.8 | 14553 | 3   | 4851.0 | 5848.11587  | 0.6127 | 0.6352      |
| 12C | 1 | 7/1/09 10:45 | 7/1/2009 12:24 | 0.8300 | 1.5 | 6363.2 | 9544.8 | 15183 | 3   | 5061.0 | 6097.649845 | 0.6388 |             |
| 12C | 2 | 7/1/09 10:45 | 7/1/2009 12:20 | 0.8361 | 1.5 | 6363.2 | 9544.8 | 15651 | 3   | 5217.0 | 6239.881493 | 0.6537 |             |
| 12C | 3 | 7/1/09 10:45 | 7/1/2009 12:15 | 0.8436 | 1.5 | 6363.2 | 9544.8 | 15216 | 3   | 5072.0 | 6012.519531 | 0.6299 | Average EFF |
| 12C | 4 | 7/1/09 10:45 | 7/1/2009 12:28 | 0.8231 | 1.5 | 6363.2 | 9544.8 | 14117 | 3   | 4705.7 | 5716.805229 | 0.5989 | 0.6304      |
| 12D | 1 | 7/1/09 10:45 | 7/1/2009 12:28 | 0.8235 | 1.5 | 6363.2 | 9544.8 | 15174 | 3   | 5056.0 | 6141.959419 | 0.6435 |             |
| 12D | 2 | 7/1/09 10:45 | 7/1/2009 12:24 | 0.8298 | 1.5 | 6363.2 | 9544.8 | 15137 | 3   | 5045.7 | 6080.699807 | 0.6371 |             |
| 12D | 3 | 7/1/09 10:45 | 7/1/2009 12:20 | 0.8359 | 1.5 | 6363.2 | 9544.8 | 15418 | 3   | 5139.3 | 6148.142699 | 0.6441 | Average EFF |
| 12D | 4 | 7/1/09 10:45 | 7/1/2009 12:15 | 0.8434 | 1.5 | 6363.2 | 9544.8 | 14566 | 3   | 4855.3 | 5756.75774  | 0.6031 | 0.6320      |
| 13A | 1 | 7/1/09 10:45 | 7/1/2009 12:33 | 0.8153 | 1.5 | 6363.2 | 9544.8 | 15230 | 3   | 5076.7 | 6226.552932 | 0.6524 |             |
| 13A | 2 | 7/1/09 10:45 | 7/1/2009 12:50 | 0.7902 | 1.5 | 6363.2 | 9544.8 | 14784 | 3   | 4928.0 | 6236.596242 | 0.6534 |             |
| 13A | 3 | 7/1/09 10:45 | 7/1/2009 12:41 | 0.8031 | 1.5 | 6363.2 | 9544.8 | 14851 | 3   | 4950.3 | 6164.384216 | 0.6458 | Average EFF |
| 13A | 4 | 7/1/09 10:45 | 7/1/2009 12:37 | 0.8090 | 1.5 | 6363.2 | 9544.8 | 14183 | 3   | 4727.7 | 5843.553624 | 0.6122 | 0.6410      |
| 13B | 1 | 7/1/09 10:45 | 7/1/2009 12:37 | 0.8094 | 1.5 | 6363.2 | 9544.8 | 15625 | 3   | 5208.3 | 6434.850276 | 0.6742 |             |
| 13B | 2 | 7/1/09 10:45 | 7/1/2009 12:33 | 0.8153 | 1.5 | 6363.2 | 9544.8 | 15450 | 3   | 5150.0 | 6316.496573 | 0.6618 |             |
| 13B | 3 | 7/1/09 10:45 | 7/1/2009 12:50 | 0.7901 | 1.5 | 6363.2 | 9544.8 | 14689 | 3   | 4896.3 | 6197.297391 | 0.6493 | Average EFF |
| 13B | 4 | 7/1/09 10:45 | 7/1/2009 12:41 | 0.8029 | 1.5 | 6363.2 | 9544.8 | 14377 | 3   | 4792.3 | 5968.757323 | 0.6253 | 0.6526      |
| 13C | 1 | 7/1/09 10:45 | 7/1/2009 12:41 | 0.8033 | 1.5 | 6363.2 | 9544.8 | 15426 | 3   | 5142.0 | 6401.251014 | 0.6707 |             |
| 13C | 2 | 7/1/09 10:45 | 7/1/2009 12:37 | 0.8093 | 1.5 | 6363.2 | 9544.8 | 15315 | 3   | 5105.0 | 6307.973396 | 0.6609 |             |
| 13C | 3 | 7/1/09 10:45 | 7/1/2009 12:33 | 0.8152 | 1.5 | 6363.2 | 9544.8 | 15288 | 3   | 5096.0 | 6251.048762 | 0.6549 | Average EFF |
| 13C | 4 | 7/1/09 10:45 | 7/1/2009 12:50 | 0.7900 | 1.5 | 6363.2 | 9544.8 | 14222 | 3   | 4740.7 | 6001.209943 | 0.6287 | 0.6538      |
| 13D | 1 | 7/1/09 10:45 | 7/1/2009 12:50 | 0.7903 | 1.5 | 6363.2 | 9544.8 | 14492 | 3   | 4830.7 | 6112.65055  | 0.6404 |             |
| 13D | 2 | 7/1/09 10:45 | 7/1/2009 12:46 | 0.7958 | 1.5 | 6363.2 | 9544.8 | 14858 | 3   | 4952.7 | 6223.19528  | 0.6520 |             |
| 13D | 3 | 7/1/09 10:45 | 7/1/2009 12:37 | 0.8082 | 1.5 | 6363.2 | 9544.8 | 14873 | 3   | 4957.7 | 6126.881339 | 0.6419 | Average EFF |
| 13D | 4 | 7/1/09 10:45 | 7/1/2009 12:33 | 0.8151 | 1.5 | 6363.2 | 9544.8 | 14389 | 3   | 4796.3 | 5884.197712 | 0.6165 | 0.6377      |
| 14A | 1 | 7/1/09 10:45 | 7/1/2009 12:54 | 0.7834 | 1.5 | 6363.2 | 9544.8 | 14463 | 3   | 4821.0 | 6153.596507 | 0.6447 |             |
| 14A | 2 | 7/1/09 10:45 | 7/1/2009 13:17 | 0.7507 | 1.5 | 6363.2 | 9544.8 | 14137 | 3   | 4712.3 | 6277.53373  | 0.6577 |             |
| 14A | 3 | 7/1/09 10:45 | 7/1/2009 13:13 | 0.7571 | 1.5 | 6363.2 | 9544.8 | 14022 | 3   | 4674.0 | 6173.627369 | 0.6468 | Average EFF |
| 14A | 4 | 7/1/09 10:45 | 7/1/2009 13:02 | 0.7727 | 1.5 | 6363.2 | 9544.8 | 13451 | 3   | 4483.7 | 5802.830587 | 0.6080 | 0.6393      |
| 14B | 1 | 7/1/09 10:45 | 7/1/2009 13:01 | 0.7730 | 1.5 | 6363.2 | 9544.8 | 14039 | 3   | 4679.7 | 6054.030301 | 0.6343 |             |
| 14B | 2 | 7/1/09 10:45 | 7/1/2009 12:54 | 0.7834 | 1.5 | 6363.2 | 9544.8 | 14398 | 3   | 4799.3 | 6126.324754 | 0.6418 |             |
| 14B | 3 | 7/1/09 10:45 | 7/1/2009 13:17 | 0.7505 | 1.5 | 6363.2 | 9544.8 | 13475 | 3   | 4491.7 | 5984.510182 | 0.6270 | Average EFF |
| 14B | 4 | 7/1/09 10:45 | 7/1/2009 13:13 | 0.7569 | 1.5 | 6363.2 | 9544.8 | 13077 | 3   | 4359.0 | 5758.643863 | 0.6033 | 0.6266      |
| 14C | 1 | 7/1/09 10:45 | 7/1/2009 13:12 | 0.7573 | 1.5 | 6363.2 | 9544.8 | 14116 | 3   | 4705.3 | 6213.281445 | 0.6510 |             |
| 14C | 2 | 7/1/09 10:45 | 7/1/2009 13:02 | 0.7729 | 1.5 | 6363.2 | 9544.8 | 14187 | 3   | 4729.0 | 6118.427365 | 0.6410 |             |
| 14C | 3 | 7/1/09 10:45 | 7/1/2009 12:55 | 0.7832 | 1.5 | 6363.2 | 9544.8 | 14409 | 3   | 4803.0 | 6132.734423 | 0.6425 | Average EFF |
| 14C | 4 | 7/1/09 10:45 | 7/1/2009 13:17 | 0.7505 | 1.5 | 6363.2 | 9544.8 | 13229 | 3   | 4409.7 | 5875.993199 | 0.6156 | 0.6375      |
| 14D | 1 | 7/1/09 10:45 | 7/1/2009 13:17 | 0.7508 | 1.5 | 6363.2 | 9544.8 | 13927 | 3   | 4642.3 | 6183.314452 | 0.6478 |             |
| 14D | 2 | 7/1/09 10:45 | 7/1/2009 13:12 | 0.7572 | 1.5 | 6363.2 | 9544.8 | 14089 | 3   | 4696.3 | 6202.348821 | 0.6498 |             |
| 14D | 3 | 7/1/09 10:45 | 7/1/2009 13:02 | 0.7728 | 1.5 | 6363.2 | 9544.8 | 13912 | 3   | 4637.3 | 6000.768164 | 0.6287 | Average EFF |
| 14D | 4 | 7/1/09 10:45 | 7/1/2009 12:55 | 0.7830 | 1.5 | 6363.2 | 9544.8 | 13545 | 3   | 4515.0 | 5766.084113 | 0.6041 | 0.6326      |

\*Background is considered negligible



| SampleID | Instr | Time (min.) | Alpha Counts | Beta Counts | Count Start Time | Count End Time |
|----------|-------|-------------|--------------|-------------|------------------|----------------|
| 1 1A     |       | 3           | 126          | 13564       | 7/1/2009 13:36   | 7/1/2009 13:39 |
| 2 1A     |       | 3           | 136          | 12775       | 7/1/2009 13:52   | 7/1/2009 13:55 |
| 3 1A     |       | 3           | 135          | 12750       | 7/1/2009 13:48   | 7/1/2009 13:51 |
| 4 1A     |       | 3           | 142          | 12410       | 7/1/2009 13:41   | 7/1/2009 13:44 |
| 1 1B     |       | 3           | 115          | 13292       | 7/1/2009 13:41   | 7/1/2009 13:44 |
| 2 1B     |       | 3           | 136          | 13274       | 7/1/2009 13:36   | 7/1/2009 13:39 |
| 3 1B     |       | 3           | 131          | 12699       | 7/1/2009 13:52   | 7/1/2009 13:55 |
| 4 1B     |       | 3           | 129          | 12072       | 7/1/2009 13:48   | 7/1/2009 13:51 |
| 1 1C     |       | 3           | 207          | 12813       | 7/1/2009 13:48   | 7/1/2009 13:51 |
| 2 1C     |       | 3           | 221          | 12979       | 7/1/2009 13:41   | 7/1/2009 13:44 |
| 3 1C     |       | 3           | 189          | 12755       | 7/1/2009 13:36   | 7/1/2009 13:39 |
| 4 1C     |       | 3           | 179          | 11917       | 7/1/2009 13:52   | 7/1/2009 13:55 |
| 1 1D     |       | 3           | 558          | 12473       | 7/1/2009 13:52   | 7/1/2009 13:55 |
| 2 1D     |       | 3           | 582          | 12484       | 7/1/2009 13:48   | 7/1/2009 13:51 |
| 3 1D     |       | 3           | 632          | 12289       | 7/1/2009 13:41   | 7/1/2009 13:44 |
| 4 1D     |       | 3           | 568          | 12115       | 7/1/2009 13:36   | 7/1/2009 13:39 |
| 1 2A     |       | 3           | 424          | 12499       | 7/1/2009 13:57   | 7/1/2009 14:00 |
| 2 2A     |       | 3           | 449          | 12103       | 7/1/2009 14:15   | 7/1/2009 14:18 |
| 3 2A     |       | 3           | 419          | 11968       | 7/1/2009 14:09   | 7/1/2009 14:12 |
| 4 2A     |       | 3           | 417          | 11855       | 7/1/2009 14:02   | 7/1/2009 14:05 |
| 1 2B     |       | 3           | 42           | 12471       | 7/1/2009 14:02   | 7/1/2009 14:05 |
| 2 2B     |       | 3           | 39           | 12492       | 7/1/2009 13:57   | 7/1/2009 14:00 |
| 3 2B     |       | 3           | 54           | 11892       | 7/1/2009 14:15   | 7/1/2009 14:18 |
| 4 2B     |       | 3           | 69           | 11539       | 7/1/2009 14:09   | 7/1/2009 14:12 |
| 1 2C     |       | 3           | 504          | 12050       | 7/1/2009 14:08   | 7/1/2009 14:11 |
| 2 2C     |       | 3           | 527          | 11914       | 7/1/2009 14:02   | 7/1/2009 14:05 |
| 3 2C     |       | 3           | 496          | 11994       | 7/1/2009 13:58   | 7/1/2009 14:01 |
| 4 2C     |       | 3           | 499          | 10889       | 7/1/2009 14:15   | 7/1/2009 14:18 |
| 1 2D     |       | 3           | 543          | 12010       | 7/1/2009 14:15   | 7/1/2009 14:18 |
| 2 2D     |       | 3           | 508          | 12124       | 7/1/2009 14:08   | 7/1/2009 14:11 |
| 3 2D     |       | 3           | 542          | 12168       | 7/1/2009 14:02   | 7/1/2009 14:05 |
| 4 2D     |       | 3           | 544          | 11692       | 7/1/2009 13:58   | 7/1/2009 14:01 |
| 1 3A     |       | 3           | 1397         | 11194       | 7/1/2009 14:19   | 7/1/2009 14:22 |
| 2 3A     |       | 4           | 1809         | 14227       | 7/1/2009 14:35   | 7/1/2009 14:39 |
| 3 3A     |       | 4           | 1757         | 14180       | 7/1/2009 14:30   | 7/1/2009 14:34 |
| 4 3A     |       | 4           | 1725         | 13754       | 7/1/2009 14:25   | 7/1/2009 14:29 |
| 1 3B     |       | 4           | 914          | 15370       | 7/1/2009 14:25   | 7/1/2009 14:29 |
| 2 3B     |       | 3           | 731          | 11695       | 7/1/2009 14:20   | 7/1/2009 14:23 |
| 3 3B     |       | 4           | 960          | 14905       | 7/1/2009 14:35   | 7/1/2009 14:39 |
| 4 3B     |       | 4           | 922          | 14220       | 7/1/2009 14:30   | 7/1/2009 14:34 |
| 1 3C     |       | 4           | 671          | 15644       | 7/1/2009 14:29   | 7/1/2009 14:33 |
| 2 3C     |       | 4           | 722          | 15964       | 7/1/2009 14:25   | 7/1/2009 14:29 |
| 3 3C     |       | 3           | 558          | 11701       | 7/1/2009 14:20   | 7/1/2009 14:23 |
| 4 3C     |       | 4           | 647          | 14729       | 7/1/2009 14:35   | 7/1/2009 14:39 |
| 1 3D     |       | 4           | 651          | 15152       | 7/1/2009 14:35   | 7/1/2009 14:39 |
| 2 3D     |       | 4           | 722          | 15168       | 7/1/2009 14:30   | 7/1/2009 14:34 |
| 3 3D     |       | 4           | 684          | 15295       | 7/1/2009 14:25   | 7/1/2009 14:29 |
| 4 3D     |       | 3           | 466          | 10942       | 7/1/2009 14:20   | 7/1/2009 14:23 |
| 1 4A     |       | 4           | 412          | 15298       | 7/1/2009 14:40   | 7/1/2009 14:44 |
| 2 4A     |       | 4           | 407          | 14897       | 7/1/2009 15:00   | 7/1/2009 15:04 |
| 3 4A     |       | 4           | 389          | 15050       | 7/1/2009 14:53   | 7/1/2009 14:57 |

419  
7/2/09

|      |     |      |       |                |                |
|------|-----|------|-------|----------------|----------------|
| 4 4A | 4   | 417  | 14462 | 7/1/2009 14:48 | 7/1/2009 14:52 |
| 1 4B | 4   | 58   | 15335 | 7/1/2009 14:48 | 7/1/2009 14:52 |
| 2 4B | 4   | 61   | 15513 | 7/1/2009 14:41 | 7/1/2009 14:45 |
| 3 4B | 4   | 53   | 14521 | 7/1/2009 15:00 | 7/1/2009 15:04 |
| 4 4B | 4   | 72   | 14328 | 7/1/2009 14:53 | 7/1/2009 14:57 |
| 1 4C | 4   | 532  | 14733 | 7/1/2009 14:53 | 7/1/2009 14:57 |
| 2 4C | 4   | 545  | 14902 | 7/1/2009 14:48 | 7/1/2009 14:52 |
| 3 4C | 4   | 486  | 14856 | 7/1/2009 14:41 | 7/1/2009 14:45 |
| 4 4C | 4   | 540  | 13733 | 7/1/2009 15:00 | 7/1/2009 15:04 |
| 1 4D | 4   | 1158 | 14167 | 7/1/2009 15:00 | 7/1/2009 15:04 |
| 2 4D | 4   | 1192 | 14204 | 7/1/2009 14:53 | 7/1/2009 14:57 |
| 3 4D | 4   | 1136 | 14131 | 7/1/2009 14:48 | 7/1/2009 14:52 |
| 4 4D | 4   | 1149 | 13978 | 7/1/2009 14:41 | 7/1/2009 14:45 |
| 1 5A | 4   | 424  | 14870 | 7/1/2009 15:06 | 7/1/2009 15:10 |
| 2 5A | 4   | 395  | 14487 | 7/1/2009 15:21 | 7/1/2009 15:25 |
| 3 5A | 4   | 403  | 14259 | 7/1/2009 15:17 | 7/1/2009 15:21 |
| 4 5A | 4   | 389  | 13957 | 7/1/2009 15:12 | 7/1/2009 15:16 |
| 1 5B | 4   | 428  | 14869 | 7/1/2009 15:12 | 7/1/2009 15:16 |
| 2 5B | 4   | 440  | 14821 | 7/1/2009 15:06 | 7/1/2009 15:10 |
| 3 5B | 4   | 420  | 14289 | 7/1/2009 15:21 | 7/1/2009 15:25 |
| 4 5B | 4   | 414  | 13809 | 7/1/2009 15:17 | 7/1/2009 15:21 |
| 1 5C | 4   | 436  | 14676 | 7/1/2009 15:17 | 7/1/2009 15:21 |
| 2 5C | 4   | 443  | 15122 | 7/1/2009 15:12 | 7/1/2009 15:16 |
| 3 5C | 4   | 433  | 14958 | 7/1/2009 15:07 | 7/1/2009 15:11 |
| 4 5C | 4   | 416  | 13831 | 7/1/2009 15:21 | 7/1/2009 15:25 |
| 1 5D | 4   | 451  | 14321 | 7/1/2009 15:21 | 7/1/2009 15:25 |
| 2 5D | 4   | 452  | 14642 | 7/1/2009 15:17 | 7/1/2009 15:21 |
| 3 5D | 4   | 444  | 14443 | 7/1/2009 15:12 | 7/1/2009 15:16 |
| 4 5D | 4   | 414  | 13954 | 7/1/2009 15:07 | 7/1/2009 15:11 |
| 1 6A | 4   | 272  | 14018 | 7/1/2009 15:27 | 7/1/2009 15:31 |
| 2 6A | 3.5 | 246  | 12283 | 7/1/2009 15:40 | 7/1/2009 15:44 |
| 3 6A | 3.5 | 231  | 12111 | 7/1/2009 15:36 | 7/1/2009 15:40 |
| 4 6A | 3.5 | 229  | 11598 | 7/1/2009 15:32 | 7/1/2009 15:35 |
| 1 6B | 3.5 | 540  | 12151 | 7/1/2009 15:32 | 7/1/2009 15:36 |
| 2 6B | 4   | 592  | 14371 | 7/1/2009 15:27 | 7/1/2009 15:31 |
| 3 6B | 3.5 | 498  | 11705 | 7/1/2009 15:40 | 7/1/2009 15:44 |
| 4 6B | 3.5 | 498  | 11388 | 7/1/2009 15:36 | 7/1/2009 15:40 |
| 1 6C | 3.5 | 462  | 12161 | 7/1/2009 15:36 | 7/1/2009 15:40 |
| 2 6C | 3.5 | 468  | 12083 | 7/1/2009 15:32 | 7/1/2009 15:36 |
| 3 6C | 4   | 534  | 13638 | 7/1/2009 15:27 | 7/1/2009 15:31 |
| 4 6C | 3.5 | 455  | 11218 | 7/1/2009 15:40 | 7/1/2009 15:44 |
| 1 6D | 3.5 | 456  | 11987 | 7/1/2009 15:40 | 7/1/2009 15:44 |
| 2 6D | 3.5 | 468  | 12183 | 7/1/2009 15:36 | 7/1/2009 15:40 |
| 3 6D | 3.5 | 496  | 11882 | 7/1/2009 15:32 | 7/1/2009 15:36 |
| 4 6D | 4   | 525  | 13018 | 7/1/2009 15:27 | 7/1/2009 15:31 |
| 1 7A | 3.5 | 466  | 12007 | 7/1/2009 15:46 | 7/1/2009 15:50 |
| 2 7A | 3.5 | 491  | 11655 | 7/1/2009 16:00 | 7/1/2009 16:04 |
| 3 7A | 3.5 | 444  | 11445 | 7/1/2009 15:56 | 7/1/2009 15:59 |
| 4 7A | 3.5 | 477  | 11121 | 7/1/2009 15:50 | 7/1/2009 15:54 |
| 1 7B | 3.5 | 418  | 11968 | 7/1/2009 15:51 | 7/1/2009 15:54 |
| 2 7B | 3.5 | 448  | 12050 | 7/1/2009 15:46 | 7/1/2009 15:50 |
| 3 7B | 3.5 | 460  | 11675 | 7/1/2009 16:00 | 7/1/2009 16:04 |

|       |     |     |       |                |                |
|-------|-----|-----|-------|----------------|----------------|
| 4 7B  | 3.5 | 413 | 11271 | 7/1/2009 15:56 | 7/1/2009 16:00 |
| 1 7C  | 3.5 | 471 | 11781 | 7/1/2009 15:56 | 7/1/2009 16:00 |
| 2 7C  | 3.5 | 457 | 11760 | 7/1/2009 15:51 | 7/1/2009 15:54 |
| 3 7C  | 3.5 | 454 | 11766 | 7/1/2009 15:46 | 7/1/2009 15:50 |
| 4 7C  | 3.5 | 406 | 10888 | 7/1/2009 16:00 | 7/1/2009 16:04 |
| 1 7D  | 3.5 | 359 | 11605 | 7/1/2009 16:00 | 7/1/2009 16:04 |
| 2 7D  | 3.5 | 391 | 11920 | 7/1/2009 15:56 | 7/1/2009 16:00 |
| 3 7D  | 3.5 | 386 | 11933 | 7/1/2009 15:51 | 7/1/2009 15:55 |
| 4 7D  | 3.5 | 400 | 11305 | 7/1/2009 15:46 | 7/1/2009 15:50 |
| 1 8A  | 3.5 | 348 | 11673 | 7/1/2009 16:06 | 7/1/2009 16:09 |
| 2 8A  | 3.5 | 340 | 11172 | 7/1/2009 16:19 | 7/1/2009 16:22 |
| 3 8A  | 3.5 | 298 | 11258 | 7/1/2009 16:15 | 7/1/2009 16:18 |
| 4 8A  | 3.5 | 327 | 10977 | 7/1/2009 16:10 | 7/1/2009 16:13 |
| 1 8B  | 3.5 | 124 | 11583 | 7/1/2009 16:10 | 7/1/2009 16:13 |
| 2 8B  | 3.5 | 112 | 11758 | 7/1/2009 16:06 | 7/1/2009 16:09 |
| 3 8B  | 3.5 | 110 | 11499 | 7/1/2009 16:19 | 7/1/2009 16:23 |
| 4 8B  | 3.5 | 102 | 10844 | 7/1/2009 16:15 | 7/1/2009 16:18 |
| 1 8C  | 3.5 | 202 | 11539 | 7/1/2009 16:15 | 7/1/2009 16:18 |
| 2 8C  | 3.5 | 196 | 11774 | 7/1/2009 16:10 | 7/1/2009 16:14 |
| 3 8C  | 3.5 | 203 | 11611 | 7/1/2009 16:06 | 7/1/2009 16:09 |
| 4 8C  | 3.5 | 207 | 10809 | 7/1/2009 16:19 | 7/1/2009 16:23 |
| 1 8D  | 3.5 | 240 | 11301 | 7/1/2009 16:19 | 7/1/2009 16:23 |
| 2 8D  | 3.5 | 248 | 11412 | 7/1/2009 16:15 | 7/1/2009 16:18 |
| 3 8D  | 3.5 | 233 | 11660 | 7/1/2009 16:10 | 7/1/2009 16:14 |
| 4 8D  | 3.5 | 235 | 10918 | 7/1/2009 16:06 | 7/1/2009 16:10 |
| 1 9A  | 3.5 | 39  | 11605 | 7/1/2009 16:24 | 7/1/2009 16:28 |
| 2 9A  | 3.5 | 49  | 11281 | 7/1/2009 16:42 | 7/1/2009 16:46 |
| 3 9A  | 3.5 | 47  | 11301 | 7/1/2009 16:33 | 7/1/2009 16:36 |
| 4 9A  | 3.5 | 64  | 10987 | 7/1/2009 16:29 | 7/1/2009 16:32 |
| 1 9B  | 3.5 | 53  | 11151 | 7/1/2009 16:29 | 7/1/2009 16:32 |
| 2 9B  | 3.5 | 39  | 11462 | 7/1/2009 16:24 | 7/1/2009 16:28 |
| 3 9B  | 3.5 | 45  | 11004 | 7/1/2009 16:42 | 7/1/2009 16:46 |
| 4 9B  | 3.5 | 51  | 10581 | 7/1/2009 16:33 | 7/1/2009 16:36 |
| 1 9C  | 3.5 | 49  | 11026 | 7/1/2009 16:33 | 7/1/2009 16:36 |
| 2 9C  | 3.5 | 49  | 11281 | 7/1/2009 16:29 | 7/1/2009 16:32 |
| 3 9C  | 3.5 | 40  | 11016 | 7/1/2009 16:24 | 7/1/2009 16:28 |
| 4 9C  | 3.5 | 60  | 10297 | 7/1/2009 16:42 | 7/1/2009 16:46 |
| 1 9D  | 3.5 | 65  | 11135 | 7/1/2009 16:38 | 7/1/2009 16:41 |
| 2 9D  | 3.5 | 53  | 11412 | 7/1/2009 16:33 | 7/1/2009 16:37 |
| 3 9D  | 3.5 | 54  | 11340 | 7/1/2009 16:29 | 7/1/2009 16:32 |
| 4 9D  | 3.5 | 77  | 10912 | 7/1/2009 16:24 | 7/1/2009 16:28 |
| 1 10A | 3.5 | 71  | 10991 | 7/1/2009 16:47 | 7/1/2009 16:51 |
| 2 10A | 4   | 106 | 11959 | 7/1/2009 17:12 | 7/1/2009 17:16 |
| 3 10A | 3.5 | 70  | 10553 | 7/1/2009 16:58 | 7/1/2009 17:01 |
| 4 10A | 3.5 | 95  | 10338 | 7/1/2009 16:53 | 7/1/2009 16:56 |
| 1 10B | 4   | 139 | 11110 | 7/1/2009 17:03 | 7/1/2009 17:07 |
| 2 10B | 3.5 | 102 | 10812 | 7/1/2009 16:47 | 7/1/2009 16:51 |
| 3 10B | 4   | 103 | 11422 | 7/1/2009 17:12 | 7/1/2009 17:16 |
| 4 10B | 3.5 | 110 | 9967  | 7/1/2009 16:58 | 7/1/2009 17:01 |
| 1 10C | 3.5 | 74  | 10482 | 7/1/2009 16:58 | 7/1/2009 17:01 |
| 2 10C | 3.5 | 79  | 10535 | 7/1/2009 16:53 | 7/1/2009 16:57 |
| 3 10C | 3.5 | 87  | 10723 | 7/1/2009 16:47 | 7/1/2009 16:51 |

|       |     |     |       |                |                |
|-------|-----|-----|-------|----------------|----------------|
| 4 10C | 4   | 95  | 11066 | 7/1/2009 17:13 | 7/1/2009 17:17 |
| 1 10D | 4   | 102 | 12021 | 7/1/2009 17:13 | 7/1/2009 17:17 |
| 2 10D | 3.5 | 75  | 10614 | 7/1/2009 16:58 | 7/1/2009 17:01 |
| 3 10D | 3.5 | 78  | 10643 | 7/1/2009 16:53 | 7/1/2009 16:57 |
| 4 10D | 3.5 | 81  | 10064 | 7/1/2009 16:48 | 7/1/2009 16:51 |
| 1 11A | 3   | 31  | 14773 | 7/1/2009 11:56 | 7/1/2009 11:59 |
| 2 11A | 3   | 23  | 14429 | 7/1/2009 12:08 | 7/1/2009 12:11 |
| 3 11A | 3   | 33  | 14454 | 7/1/2009 12:04 | 7/1/2009 12:07 |
| 4 11A | 3   | 49  | 14013 | 7/1/2009 12:00 | 7/1/2009 12:03 |
| 1 11B | 3   | 43  | 16203 | 7/1/2009 12:00 | 7/1/2009 12:03 |
| 2 11B | 3   | 53  | 16106 | 7/1/2009 11:56 | 7/1/2009 11:59 |
| 3 11B | 3   | 46  | 15643 | 7/1/2009 12:08 | 7/1/2009 12:11 |
| 4 11B | 3   | 42  | 15133 | 7/1/2009 12:04 | 7/1/2009 12:07 |
| 1 11C | 3   | 27  | 15637 | 7/1/2009 12:04 | 7/1/2009 12:07 |
| 2 11C | 3   | 38  | 15919 | 7/1/2009 12:00 | 7/1/2009 12:03 |
| 3 11C | 3   | 33  | 16452 | 7/1/2009 11:56 | 7/1/2009 11:59 |
| 4 11C | 3   | 46  | 14887 | 7/1/2009 12:08 | 7/1/2009 12:11 |
| 1 11D | 3   | 43  | 15607 | 7/1/2009 12:08 | 7/1/2009 12:11 |
| 2 11D | 3   | 42  | 15944 | 7/1/2009 12:04 | 7/1/2009 12:07 |
| 3 11D | 3   | 32  | 16098 | 7/1/2009 12:00 | 7/1/2009 12:03 |
| 4 11D | 3   | 39  | 15191 | 7/1/2009 11:56 | 7/1/2009 11:59 |
| 1 12A | 3   | 29  | 15450 | 7/1/2009 12:15 | 7/1/2009 12:18 |
| 2 12A | 3   | 28  | 15016 | 7/1/2009 12:28 | 7/1/2009 12:31 |
| 3 12A | 3   | 31  | 14984 | 7/1/2009 12:24 | 7/1/2009 12:27 |
| 4 12A | 3   | 46  | 14530 | 7/1/2009 12:20 | 7/1/2009 12:23 |
| 1 12B | 3   | 26  | 15404 | 7/1/2009 12:20 | 7/1/2009 12:23 |
| 2 12B | 3   | 31  | 15607 | 7/1/2009 12:15 | 7/1/2009 12:18 |
| 3 12B | 3   | 34  | 15060 | 7/1/2009 12:28 | 7/1/2009 12:31 |
| 4 12B | 3   | 49  | 14553 | 7/1/2009 12:24 | 7/1/2009 12:27 |
| 1 12C | 3   | 24  | 15183 | 7/1/2009 12:24 | 7/1/2009 12:27 |
| 2 12C | 3   | 44  | 15651 | 7/1/2009 12:20 | 7/1/2009 12:23 |
| 3 12C | 3   | 46  | 15216 | 7/1/2009 12:15 | 7/1/2009 12:18 |
| 4 12C | 3   | 60  | 14117 | 7/1/2009 12:28 | 7/1/2009 12:31 |
| 1 12D | 3   | 48  | 15174 | 7/1/2009 12:28 | 7/1/2009 12:31 |
| 2 12D | 3   | 37  | 15137 | 7/1/2009 12:24 | 7/1/2009 12:27 |
| 3 12D | 3   | 25  | 15418 | 7/1/2009 12:20 | 7/1/2009 12:23 |
| 4 12D | 3   | 59  | 14566 | 7/1/2009 12:15 | 7/1/2009 12:18 |
| 1 13A | 3   | 50  | 15230 | 7/1/2009 12:33 | 7/1/2009 12:36 |
| 2 13A | 3   | 36  | 14784 | 7/1/2009 12:50 | 7/1/2009 12:53 |
| 3 13A | 3   | 41  | 14851 | 7/1/2009 12:41 | 7/1/2009 12:44 |
| 4 13A | 3   | 49  | 14183 | 7/1/2009 12:37 | 7/1/2009 12:40 |
| 1 13B | 3   | 39  | 15625 | 7/1/2009 12:37 | 7/1/2009 12:40 |
| 2 13B | 3   | 41  | 15450 | 7/1/2009 12:33 | 7/1/2009 12:36 |
| 3 13B | 3   | 37  | 14689 | 7/1/2009 12:50 | 7/1/2009 12:53 |
| 4 13B | 3   | 47  | 14377 | 7/1/2009 12:41 | 7/1/2009 12:44 |
| 1 13C | 3   | 54  | 15426 | 7/1/2009 12:41 | 7/1/2009 12:44 |
| 2 13C | 3   | 41  | 15315 | 7/1/2009 12:37 | 7/1/2009 12:40 |
| 3 13C | 3   | 36  | 15288 | 7/1/2009 12:33 | 7/1/2009 12:36 |
| 4 13C | 3   | 34  | 14222 | 7/1/2009 12:50 | 7/1/2009 12:53 |
| 1 13D | 3   | 47  | 14492 | 7/1/2009 12:50 | 7/1/2009 12:53 |
| 2 13D | 3   | 50  | 14858 | 7/1/2009 12:46 | 7/1/2009 12:49 |
| 3 13D | 3   | 43  | 14873 | 7/1/2009 12:37 | 7/1/2009 12:40 |

|       |   |    |       |                |                |
|-------|---|----|-------|----------------|----------------|
| 4 13D | 3 | 47 | 14389 | 7/1/2009 12:33 | 7/1/2009 12:36 |
| 1 14A | 3 | 44 | 14463 | 7/1/2009 12:54 | 7/1/2009 12:57 |
| 2 14A | 3 | 41 | 14137 | 7/1/2009 13:17 | 7/1/2009 13:20 |
| 3 14A | 3 | 45 | 14022 | 7/1/2009 13:13 | 7/1/2009 13:16 |
| 4 14A | 3 | 51 | 13451 | 7/1/2009 13:02 | 7/1/2009 13:05 |
| 1 14B | 3 | 42 | 14039 | 7/1/2009 13:01 | 7/1/2009 13:04 |
| 2 14B | 3 | 36 | 14398 | 7/1/2009 12:54 | 7/1/2009 12:57 |
| 3 14B | 3 | 47 | 13475 | 7/1/2009 13:17 | 7/1/2009 13:20 |
| 4 14B | 3 | 47 | 13077 | 7/1/2009 13:13 | 7/1/2009 13:16 |
| 1 14C | 3 | 26 | 14116 | 7/1/2009 13:12 | 7/1/2009 13:15 |
| 2 14C | 3 | 35 | 14187 | 7/1/2009 13:02 | 7/1/2009 13:05 |
| 3 14C | 3 | 37 | 14409 | 7/1/2009 12:55 | 7/1/2009 12:58 |
| 4 14C | 3 | 38 | 13229 | 7/1/2009 13:17 | 7/1/2009 13:20 |
| 1 14D | 3 | 16 | 13927 | 7/1/2009 13:17 | 7/1/2009 13:20 |
| 2 14D | 3 | 32 | 14089 | 7/1/2009 13:12 | 7/1/2009 13:15 |
| 3 14D | 3 | 16 | 13912 | 7/1/2009 13:02 | 7/1/2009 13:05 |
| 4 14D | 3 | 47 | 13545 | 7/1/2009 12:55 | 7/1/2009 12:58 |

# Radium-228 Liquid

Filename : RA228.XLS  
 File Type : Excel  
 Version # : 1.2.3  
  
 Batch : 595514  
 Analyst : AFI  
 Prep Date : 7/12/2009  
  
 LCS SN : 0503-B  
 LCS Exp Date : 9/13/2009  
 LCS Activity (dpm/ml) : 182.42  
 LCS Volume Added : 2.00  
  
 Tracer SN : 0112-J  
 Tracer Exp Date : 2/17/2010  
 Tracer Volume Added : 0.10  
  
 Re-228 Abundance : 1  
 Re-228 Method Uncertainty : 0.0784  
  
 Calibration Date : 6/2/2008  
 Calibration Due Date : 6/30/2009

Spike SN : N/A  
 Spike Exp Date : N/A  
 Spike Activity (dpm/ml) : N/A  
 Spike Volume Added : N/A  
  
 Procedure Code : GFC060SRL  
 Pararmete : Radium-228  
 Required MDA : 1 pCi/L  
 Half-life of Re-228 : 5.75 years  
 Half-life of Ac-228 : 6.13 hours  
 Batch counted on : PIC  
 BKG Count time : 500 min

Pipet, 0.1 ml Stdev : +/- 0.000701 ml  
 Pipet, 0.5 ml Stdev : +/- 0.002564 ml  
 Pipet, 1 ml Stdev : +/- 0.005480 ml

| Pos. | Sample Characteristics |                  |                  | Count raw Data |      |                  | Counting Time (min.) | Gross Counts Alpha | Beta cpm | Detector Efficiency Error (cpm/dpm) | Weekly Bkg Count Time (min.) | Separation Date/Time | Count Start Date/Time | Ra-228 Decay | Ac-228 Count Correction | Calculated Sample Recovery % | Sample Recovery Error % | Results Pos. |    |
|------|------------------------|------------------|------------------|----------------|------|------------------|----------------------|--------------------|----------|-------------------------------------|------------------------------|----------------------|-----------------------|--------------|-------------------------|------------------------------|-------------------------|--------------|----|
|      | Sample ID              | Sample Aliquot L | Sample Aliquot L | Detector ID    | Pos. | Sample Date/Time |                      |                    |          |                                     |                              |                      |                       |              |                         |                              |                         |              |    |
| 1    | 1201245712.1           | 1.0000           | 2.0399E-05       | 1A             | 1    | 15               | 36                   | 1980               | 132.000  | 0.6303                              | 500                          | 7/2/2009 5:40        | 7/2/2009 8:39         | 1.000        | 0.713                   | 1.014                        | 100.83%                 | 1.00%        | 1  |
| 2    | 1201245713.1           | 1.0000           | 2.0399E-05       | 1B             | 2    | 15               | 27                   | 1959               | 130.600  | 0.6292                              | 500                          | 7/2/2009 5:40        | 7/2/2009 8:40         | 1.000        | 0.712                   | 1.014                        | 108.20%                 | 1.00%        | 2  |
| 3    | 1201245714.1           | 1.0000           | 2.0399E-05       | 1C             | 3    | 15               | 44                   | 2108               | 140.533  | 0.6176                              | 500                          | 7/2/2009 5:40        | 7/2/2009 8:40         | 1.000        | 0.712                   | 1.014                        | 114.22%                 | 1.00%        | 3  |
| 4    | 1201245715.1           | 1.0000           | 2.0399E-05       | 1D             | 4    | 15               | 108                  | 2265               | 151.000  | 0.6043                              | 500                          | 7/2/2009 5:40        | 7/2/2009 8:40         | 1.000        | 0.712                   | 1.014                        | 120.58%                 | 1.00%        | 4  |
| 5    | 1201245716.1           | 1.0000           | 2.0399E-05       | 2A             | 5    | 15               | 69                   | 1838               | 122.533  | 0.6172                              | 500                          | 7/2/2009 5:40        | 7/2/2009 8:40         | 1.000        | 0.712                   | 1.014                        | 105.84%                 | 1.00%        | 5  |
| 6    | 1201245717.1           | 1.0000           | 2.0399E-05       | 2B             | 6    | 15               | 8                    | 2053               | 136.867  | 0.6167                              | 500                          | 7/2/2009 5:40        | 7/2/2009 8:40         | 1.000        | 0.712                   | 1.014                        | 102.70%                 | 1.00%        | 6  |
| 7    | 1201245718.1           | 1.0000           | 2.0399E-05       | 2C             | 7    | 15               | 96                   | 1982               | 132.133  | 0.5969                              | 500                          | 7/2/2009 5:40        | 7/2/2009 8:40         | 1.000        | 0.711                   | 1.014                        | 112.82%                 | 1.00%        | 7  |
| 8    | 1201245719.1           | 1.0000           | 2.0399E-05       | 3A             | 8    | 15               | 233                  | 1645               | 109.667  | 0.5682                              | 500                          | 7/2/2009 5:40        | 7/2/2009 9:08         | 1.000        | 0.675                   | 1.014                        | 111.91%                 | 1.00%        | 8  |
| 9    | 1201245720.1           | 1.0000           | 2.0399E-05       | 3B             | 9    | 15               | 99                   | 1821               | 121.400  | 0.5980                              | 500                          | 7/2/2009 5:40        | 7/2/2009 9:08         | 1.000        | 0.675                   | 1.014                        | 108.20%                 | 1.00%        | 9  |
| 10   | 1201245721.1           | 1.0000           | 2.0399E-05       | 3C             | 10   | 15               | 96                   | 1942               | 129.467  | 0.60535                             | 500                          | 7/2/2009 5:40        | 7/2/2009 9:08         | 1.000        | 0.675                   | 1.014                        | 114.22%                 | 1.00%        | 10 |
| 11   | 1201245722.1           | 1.0000           | 2.0399E-05       | 3D             | 11   | 15               | 90                   | 2076               | 138.400  | 0.5994                              | 500                          | 7/2/2009 5:40        | 7/2/2009 9:08         | 1.000        | 0.675                   | 1.014                        | 110.91%                 | 1.00%        | 11 |
| 12   | 1201245723.1           | 1.0000           | 2.0399E-05       | 4A             | 12   | 15               | 79                   | 1877               | 125.133  | 0.6208                              | 500                          | 7/2/2009 5:40        | 7/2/2009 9:08         | 1.000        | 0.675                   | 1.014                        | 105.84%                 | 1.00%        | 12 |
| 13   | 1201245724.1           | 1.0000           | 2.0399E-05       | 4B             | 13   | 15               | 13                   | 1909               | 127.267  | 0.6205                              | 500                          | 7/2/2009 5:40        | 7/2/2009 9:08         | 1.000        | 0.674                   | 1.014                        | 102.70%                 | 1.00%        | 13 |
| 14   | 1201245725.1           | 1.0000           | 2.0399E-05       | 4C             | 14   | 15               | 45                   | 1974               | 131.600  | 0.6052                              | 500                          | 7/2/2009 5:40        | 7/2/2009 9:08         | 1.000        | 0.674                   | 1.014                        | 112.82%                 | 1.00%        | 14 |
| 15   | 1201245726.1           | 1.0000           | 2.0399E-05       | 4D             | 15   | 15               | 181                  | 1880               | 125.333  | 0.5673                              | 500                          | 7/2/2009 5:40        | 7/2/2009 9:26         | 1.000        | 0.654                   | 1.014                        | 111.91%                 | 1.00%        | 15 |
| 16   | 1201245727.1           | 1.0000           | 2.0399E-05       | 5A             | 16   | 15               | 53                   | 1818               | 121.200  | 0.6258                              | 500                          | 7/2/2009 5:40        | 7/2/2009 9:26         | 1.000        | 0.651                   | 1.014                        | 100.83%                 | 1.00%        | 16 |
| 17   | 1201245728.1           | 1.0000           | 2.0399E-05       | 5B             | 17   | 15               | 59                   | 1785               | 119.000  | 0.6280                              | 500                          | 7/2/2009 5:40        | 7/2/2009 9:26         | 1.000        | 0.653                   | 1.014                        | 108.20%                 | 1.00%        | 17 |
| 18   | 1201245729.1           | 1.0000           | 2.0399E-05       | 5C             | 18   | 15               | 43                   | 2009               | 133.933  | 0.6368                              | 500                          | 7/2/2009 5:40        | 7/2/2009 9:26         | 1.000        | 0.652                   | 1.014                        | 114.22%                 | 1.00%        | 18 |
| 19   | 1201245730.1           | 1.0000           | 2.0399E-05       | 5D             | 19   | 15               | 59                   | 2107               | 140.467  | 0.6237                              | 500                          | 7/2/2009 5:40        | 7/2/2009 9:26         | 1.000        | 0.652                   | 1.014                        | 105.84%                 | 1.00%        | 19 |
| 20   | 1201245731.1           | 1.0000           | 2.0399E-05       | 6A             | 20   | 15               | 35                   | 1800               | 120.000  | 0.6221                              | 500                          | 7/2/2009 5:40        | 7/2/2009 9:27         | 1.000        | 0.651                   | 1.014                        | 108.20%                 | 1.00%        | 20 |
| 21   | 1201245732.1           | 1.0000           | 2.0399E-05       | 6B             | 21   | 15               | 71                   | 1816               | 121.067  | 0.6163                              | 500                          | 7/2/2009 5:40        | 7/2/2009 9:27         | 1.000        | 0.651                   | 1.014                        | 102.70%                 | 1.00%        | 21 |
| 22   | 1201245733.1           | 1.0000           | 2.0399E-05       | 6C             | 22   | 15               | 81                   | 1833               | 128.867  | 0.6111                              | 500                          | 7/2/2009 5:40        | 7/2/2009 9:27         | 1.000        | 0.651                   | 1.014                        | 112.82%                 | 1.00%        | 22 |
| 23   | 1201245734.1           | 1.0000           | 2.0399E-05       | 6D             | 23   | 15               | 81                   | 1826               | 121.733  | 0.6120                              | 500                          | 7/2/2009 5:40        | 7/2/2009 9:47         | 1.000        | 0.627                   | 1.014                        | 111.91%                 | 1.00%        | 23 |
| 24   | 1201245735.1           | 1.0000           | 2.0399E-05       | 7A             | 24   | 15               | 75                   | 1711               | 114.067  | 0.60816                             | 500                          | 7/2/2009 5:40        | 7/2/2009 9:48         | 1.000        | 0.627                   | 1.014                        | 100.83%                 | 1.00%        | 24 |
| 25   | 1201245736.1           | 1.0000           | 2.0399E-05       | 7B             | 25   | 15               | 59                   | 1783               | 118.867  | 0.6280                              | 500                          | 7/2/2009 5:40        | 7/2/2009 9:48         | 1.000        | 0.627                   | 1.014                        | 108.20%                 | 1.00%        | 25 |
| 26   | 1201245737.1           | 1.0000           | 2.0399E-05       | 7C             | 26   | 15               | 74                   | 1934               | 128.933  | 0.6178                              | 500                          | 7/2/2009 5:40        | 7/2/2009 9:48         | 1.000        | 0.627                   | 1.014                        | 114.22%                 | 1.00%        | 26 |
| 27   | 1201245738.1           | 1.0000           | 2.0399E-05       | 7D             | 27   | 15               | 83                   | 1963               | 130.867  | 0.6257                              | 500                          | 7/2/2009 5:40        | 7/2/2009 9:48         | 1.000        | 0.626                   | 1.014                        | 105.84%                 | 1.00%        | 27 |
| 28   | 1201245739.1           | 1.0000           | 2.0399E-05       | 8A             | 28   | 15               | 49                   | 1653               | 110.200  | 0.6247                              | 500                          | 7/2/2009 5:40        | 7/2/2009 9:48         | 1.000        | 0.626                   | 1.014                        | 102.70%                 | 1.00%        | 28 |
| 29   | 1201245740.1           | 1.0000           | 2.0399E-05       | 8B             | 29   | 15               | 20                   | 1788               | 119.200  | 0.6332                              | 500                          | 7/2/2009 5:40        | 7/2/2009 9:48         | 1.000        | 0.626                   | 1.014                        | 108.20%                 | 1.00%        | 29 |
| 30   | 1201245741.1           | 1.0000           | 2.0399E-05       | 8C             | 30   | 15               | 34                   | 1820               | 128.000  | 0.6339                              | 500                          | 7/2/2009 5:40        | 7/2/2009 10:07        | 1.000        | 0.604                   | 1.014                        | 102.70%                 | 1.00%        | 30 |
| 31   | 1201245742.1           | 1.0000           | 2.0399E-05       | 8D             | 31   | 15               | 45                   | 1782               | 118.800  | 0.6281                              | 500                          | 7/2/2009 5:40        | 7/2/2009 10:07        | 1.000        | 0.604                   | 1.014                        | 112.82%                 | 1.00%        | 31 |
| 32   | 1201245743.1           | 1.0000           | 2.0399E-05       | 9A             | 32   | 15               | 17                   | 1689               | 112.800  | 0.6496                              | 500                          | 7/2/2009 5:40        | 7/2/2009 10:06        | 1.000        | 0.605                   | 1.014                        | 100.83%                 | 1.00%        | 32 |
| 33   | 1201490021.1           | 1.0000           | 2.0399E-05       | 9B             | 33   | 15               | 13                   | 1706               | 113.733  | 0.6356                              | 500                          | 7/2/2009 5:40        | 7/2/2009 10:06        | 1.000        | 0.605                   | 1.014                        | 111.91%                 | 1.00%        | 33 |
| 34   | 1201490022.1           | 1.0000           | 2.0399E-05       | 9C             | 34   | 15               | 13                   | 1802               | 120.133  | 0.6273                              | 500                          | 7/2/2009 5:40        | 7/2/2009 10:22        | 1.000        | 0.587                   | 1.014                        | 108.20%                 | 1.00%        | 34 |
| 35   | 1201490023.1           | 1.0000           | 2.0399E-05       | 9D             | 35   | 15               | 15                   | 1945               | 128.667  | 0.6433                              | 500                          | 7/2/2009 5:40        | 7/2/2009 10:06        | 1.000        | 0.604                   | 1.014                        | 114.22%                 | 1.00%        | 35 |
| 36   | 1201490024.1           | 1.0000           | 2.0399E-05       | 10A            | 36   | 15               | 10                   | 1708               | 113.867  | 0.6389                              | 500                          | 7/2/2009 5:40        | 7/2/2009 10:07        | 1.000        | 0.604                   | 1.014                        | 105.84%                 | 1.00%        | 36 |
| 37   | 1201490025.1           | 1.0000           | 2.0399E-05       | 10B            | 37   | 15               | 19                   | 1743               | 116.200  | 0.6137                              | 500                          | 7/2/2009 5:40        | 7/2/2009 10:07        | 1.000        | 0.604                   | 1.014                        | 102.70%                 | 1.00%        | 37 |
| 38   | 1201490026.1           | 1.0000           | 2.0399E-05       | 10C            | 38   | 15               | 15                   | 1826               | 121.733  | 0.6250                              | 500                          | 7/2/2009 5:40        | 7/2/2009 10:06        | 1.000        | 0.604                   | 1.014                        | 108.20%                 | 1.00%        | 38 |
| 39   | 1201490027.1           | 1.0000           | 2.0399E-05       | 10D            | 39   | 15               | 14                   | 1769               | 117.933  | 0.6320                              | 500                          | 7/2/2009 5:40        | 7/2/2009 10:06        | 1.000        | 0.587                   | 1.014                        | 111.91%                 | 1.00%        | 39 |
| 40   | 1201490028.1           | 1.0000           | 2.0399E-05       | 11A            | 40   | 15               | 19                   | 2125               | 141.667  | 0.5825                              | 500                          | 7/2/2009 5:40        | 7/2/2009 7:26         | 1.000        | 0.819                   | 1.014                        | 100.83%                 | 1.00%        | 40 |
| 41   | 1201245737.1           | 1.0000           | 2.0399E-05       | 11B            | 41   | 15               | 22                   | 2260               | 160.667  | 0.6372                              | 500                          | 7/2/2009 5:40        | 7/2/2009 7:26         | 1.000        | 0.819                   | 1.014                        | 108.20%                 | 1.00%        | 41 |
| 42   | 1201245738.1           | 1.0000           | 2.0399E-05       | 11C            | 42   | 15               | 13                   | 2544               | 169.600  | 0.6352                              | 500                          | 7/2/2009 5:40        | 7/2/2009 7:26         | 1.000        | 0.819                   | 1.014                        | 114.22%                 | 1.00%        | 42 |
| 43   | 1201245739.1           | 1.0000           | 2.0399E-05       | 11D            | 43   | 15               | 14                   | 2596               | 173.067  | 0.6348                              | 500                          | 7/2/2009 5:40        | 7/2/2009 7:26         | 1.000        | 0.818                   | 1.014                        | 105.84%                 | 1.00%        | 43 |
| 44   | 1201245740.1           | 1.0000           | 2.0399E-05       | 12A            | 44   | 15               | 17                   | 2235               | 149.000  | 0.6286                              | 500                          | 7/2/2009 5:40        | 7/2/2009 7:26         | 1.000        | 0.818                   | 1.014                        | 102.70%                 | 1.00%        | 44 |
| 45   | 1201245741.1           | 1.0000           | 2.0399E-05       | 12B            | 45   | 15               | 10                   | 2330               | 155.333  | 0.6352                              | 500                          | 7/2/2009 5:40        | 7/2/2009 7:26         | 1.000        | 0.818                   | 1.014                        | 108.20%                 | 1.00%        | 45 |
| 46   | 1201245742.1           | 1.0000           | 2.0399E-05       | 12C            | 46   | 15               | 16                   | 2530               | 168.667  | 0.6304                              | 500                          | 7/2/2009 5:40        | 7/2/2009 7:26         | 1.000        | 0.818                   | 1.014                        | 111.91%                 | 1.00%        | 46 |
| 47   | 1201245743.1           | 1.0000           | 2.0399E-05       | 12D            | 47   | 15               | 15                   | 2463               | 164.200  | 0.6300                              | 500                          | 7/2/2009 5:40        | 7/2/2009 7:49         | 1.000        | 0.783                   | 1.014                        | 105.84%                 | 1.00%        | 47 |
| 48   | 1201245744.1           | 1.0000           | 2.0399E-05       | 13A            | 48   | 15               | 11                   | 2231               | 148.733  | 0.6410                              | 500                          | 7/2/2009 5:40        | 7/2/2009 7:49         | 1.000        | 0.783                   | 1.014                        | 108.20%                 | 1.00%        | 48 |
| 49   | 1201490021.1           | 1.0000           | 2.0399E-05       | 13B            | 49   | 15               | 13                   | 2190               | 148.000  | 0.6326                              | 500                          | 7/2/2009 5:40        | 7/2/2009 7:49         | 1.000        | 0.783                   | 1.014                        | 114.22%                 | 1.00%        | 49 |
| 50   | 1201490022.1           | 1.0000           | 2.0399E-05       | 13C            | 50   | 15               | 11                   | 2458               | 163.867  | 0.6358                              | 500                          | 7/2/2009 5:40        | 7/2/2009 7:50         | 1.000        | 0.783                   | 1.014                        | 105.84%                 | 1.00%        | 50 |
| 51   | 1201490023.1           | 1.0000           | 2.0399E-05       | 13D            | 51   | 15               | 12                   | 2635               | 175.667  | 0.6377                              | 500                          | 7/2/2009 5:40        | 7/2/2009 7:50         | 1.000        | 0.782                   | 1.014                        | 102.70%                 | 1.00%        | 51 |
| 52   | 1201490024.1           | 1.0000           | 2.0399E-05       | 14A            | 52   | 15               | 11                   | 2173               | 144.867  | 0.6266                              | 500                          | 7/2/2009 5:40        | 7/2/2009 7:50         | 1.000        | 0.782                   | 1.014                        | 108.20%                 | 1.00%        | 52 |
| 53   | 1201490025.1           | 1.0000           | 2.0399E-05       | 14B            | 53   | 15               | 11                   | 2281               | 152.067  | 0.6266                              | 500                          | 7/2/2009 5:40        | 7/2/2009 7:50         |              |                         |                              |                         |              |    |

July 7/2/09

Notes:

- 1 - Results are decay corrected to Sample Date/Time
- 2 - Reference date for Spike Activity (dpm/ml) is the batch Prep Date
- 3 - Spike Normalis are Decay corrected to Sample Date/Time

\* indicates results calculated at 100% recovery

| Decision Level | Critical Level | Required MDA | Sample Act. Conc. | Sample Act. Error | Net Count Rate |          | Net Count Rate |        | Counting Uncertainty |       | Sample Type | Nominal pCi/L | Recovery |
|----------------|----------------|--------------|-------------------|-------------------|----------------|----------|----------------|--------|----------------------|-------|-------------|---------------|----------|
|                |                |              |                   |                   | MDA            | pCi/L    | CPM            | CPM    | pCi/L                | pCi/L |             |               |          |
| 0.3471         | 0.2451         | 1            | 0.6937            | 134.0279          | 0.0254         | 131.6880 | 2.9666         | 5.9178 | 21.6466              | LCS   | 164.3409    | 81.6%         |          |
| 0.3647         | 0.2575         | 1            | 0.7192            | 133.0399          | 0.0251         | 130.2590 | 2.9508         | 5.9071 | 21.4655              | LCS   | 164.3409    | 81.0%         |          |
| 0.5889         | 0.3790         | 1            | 0.9659            | 145.2921          | 0.0243         | 139.8173 | 3.0611         | 6.2347 | 23.3752              | LCS   | 164.3409    | 88.4%         |          |
| 0.4695         | 0.3314         | 1            | 0.8755            | 159.8828          | 0.0239         | 150.4760 | 3.1730         | 6.6057 | 25.6756              | LCS   | 164.3409    | 97.3%         |          |
| 0.4261         | 0.3008         | 1            | 0.8097            | 127.0000          | 0.0257         | 122.0633 | 2.8583         | 5.8279 | 20.5368              | LCS   | 164.3409    | 77.3%         |          |
| 0.7599         | 0.5395         | 1            | 1.2813            | 141.0616          | 0.0247         | 135.4387 | 3.0211         | 6.1673 | 22.7300              | LCS   | 164.3409    | 85.8%         |          |
| 0.3798         | 0.2681         | 1            | 0.7515            | 141.8559          | 0.0253         | 131.7993 | 2.9681         | 6.2613 | 22.9053              | LCS   | 164.3409    | 86.3%         |          |
| 0.4150         | 0.2830         | 1            | 0.8072            | 145.8182          | 0.0251         | 131.8887 | 2.9696         | 6.4352 | 23.5274              | LCS   | 164.3409    | 88.7%         |          |
| 0.6347         | 0.4481         | 1            | 1.1343            | 129.9854          | 0.0284         | 108.9047 | 2.7042         | 6.3116 | 21.1935              | LCS   | 164.3409    | 78.9%         |          |
| 0.9035         | 0.6379         | 1            | 1.5022            | 135.4510          | 0.0266         | 119.6900 | 2.8455         | 6.3115 | 21.9803              | LCS   | 164.3409    | 82.4%         |          |
| 0.6078         | 0.4291         | 1            | 1.0779            | 141.2594          | 0.0255         | 128.6447 | 2.9382         | 6.3235 | 22.8259              | LCS   | 164.3409    | 86.0%         |          |
| 0.5473         | 0.3864         | 1            | 0.9987            | 155.5960          | 0.0247         | 137.7700 | 3.0378         | 6.7244 | 25.0636              | LCS   | 164.3409    | 94.7%         |          |
| 0.6283         | 0.4436         | 1            | 1.1054            | 135.5336          | 0.0264         | 124.2433 | 2.8986         | 6.1761 | 21.9739              | LCS   | 164.3409    | 83.3%         |          |
| 0.9036         | 0.6379         | 1            | 1.4942            | 136.9155          | 0.0254         | 125.4287 | 2.9134         | 6.2333 | 22.1127              | LCS   | 164.3409    | 88.8%         |          |
| 0.7676         | 0.5419         | 1            | 1.3079            | 145.9826          | 0.0252         | 130.3400 | 2.9624         | 6.5032 | 23.5621              | LCS   | 164.3409    | 90.0%         |          |
| 0.7520         | 0.5309         | 1            | 1.3000            | 147.9661          | 0.0266         | 124.2633 | 2.8910         | 6.7471 | 24.0105              | LCS   | 164.3409    | 82.1%         |          |
| 0.4809         | 0.3395         | 1            | 0.9027            | 134.9611          | 0.0269         | 120.7040 | 2.8427         | 6.2312 | 21.9265              | LCS   | 164.3409    | 80.0%         |          |
| 0.8974         | 0.4924         | 1            | 1.2076            | 131.4742          | 0.0271         | 117.9500 | 2.8170         | 6.1544 | 21.3797              | LCS   | 164.3409    | 89.0%         |          |
| 0.6530         | 0.4610         | 1            | 1.1419            | 148.2299          | 0.0259         | 132.9873 | 2.9894         | 6.4406 | 23.6659              | LCS   | 164.3409    | 95.2%         |          |
| 0.7661         | 0.5409         | 1            | 1.3064            | 156.3706          | 0.0255         | 139.2187 | 3.0605         | 6.7377 | 25.2668              | LCS   | 164.3409    | 81.7%         |          |
| 0.6899         | 0.4871         | 1            | 1.1997            | 134.1863          | 0.0270         | 118.9960 | 2.8288         | 6.2523 | 21.8127              | LCS   | 164.3409    | 83.4%         |          |
| 0.6079         | 0.4292         | 1            | 1.0862            | 137.0396          | 0.0269         | 120.3027 | 2.8412         | 6.3436 | 22.2643              | LCS   | 164.3409    | 88.8%         |          |
| 0.9509         | 0.6713         | 1            | 1.5725            | 146.0056          | 0.0264         | 127.0307 | 2.9317         | 6.6044 | 23.6775              | LCS   | 164.3409    | 88.0%         |          |
| 0.4376         | 0.3090         | 1            | 0.8562            | 144.5849          | 0.0276         | 113.7227 | 2.7577         | 6.3903 | 21.8573              | LCS   | 164.3409    | 89.8%         |          |
| 0.4227         | 0.2984         | 1            | 0.8330            | 134.2390          | 0.0275         | 118.4887 | 2.8152         | 6.4094 | 22.3723              | LCS   | 164.3409    | 92.4%         |          |
| 0.4360         | 0.3079         | 1            | 0.8480            | 137.6373          | 0.0270         | 118.4887 | 2.8152         | 6.7858 | 24.6068              | LCS   | 164.3409    | 92.6%         |          |
| 0.3962         | 0.2797         | 1            | 0.7956            | 151.8935          | 0.0262         | 128.6313 | 2.9319         | 6.6518 | 23.4785              | LCS   | 164.3409    | 77.8%         |          |
| 0.4480         | 0.3163         | 1            | 0.8657            | 152.1131          | 0.0261         | 130.4707 | 2.9539         | 6.7499 | 24.6318              | LCS   | 164.3409    | 82.2%         |          |
| 0.8917         | 0.6931         | 1            | 1.1278            | 127.8251          | 0.0279         | 109.4120 | 2.7108         | 6.2072 | 20.8618              | LCS   | 164.3409    | 89.2%         |          |
| 0.6179         | 0.4080         | 1            | 1.1617            | 135.1471          | 0.0273         | 117.2540 | 2.8197         | 6.3699 | 21.9896              | LCS   | 164.3409    | 86.1%         |          |
| 0.5779         | 0.3896         | 1            | 1.0463            | 146.5864          | 0.0263         | 127.3240 | 2.9214         | 6.5922 | 23.7610              | LCS   | 164.3409    | 86.1%         |          |
| 0.8422         | 0.5946         | 1            | 1.4301            | 141.4935          | 0.0272         | 117.4880 | 2.8147         | 6.6441 | 23.0149              | LCS   | 164.3409    | 79.4%         |          |
| 0.4379         | 0.3091         | 1            | 0.8509            | 130.5505          | 0.0276         | 112.2200 | 2.7400         | 6.2478 | 21.2682              | LCS   | 164.3409    | 81.4%         |          |
| 0.7972         | 0.5629         | 1            | 1.3635            | 133.7974          | 0.0277         | 112.5273 | 2.7540         | 6.4182 | 21.9026              | LCS   | 164.3409    | 87.8%         |          |
| 0.4475         | 0.3159         | 1            | 0.8728            | 144.2924          | 0.0269         | 119.7633 | 2.8301         | 6.6832 | 23.4437              | LCS   | 164.3409    | 91.8%         |          |
| 0.8154         | 0.5757         | 1            | 1.3863            | 150.8313          | 0.0263         | 128.3747 | 2.9406         | 6.7718 | 24.4459              | LCS   | 164.3409    | 81.8%         |          |
| 0.4063         | 0.2868         | 1            | 0.8104            | 134.4151          | 0.0285         | 118.5507 | 2.7553         | 6.3927 | 21.8871              | LCS   | 164.3409    | 82.2%         |          |
| 0.4205         | 0.2969         | 1            | 0.8358            | 146.9063          | 0.0268         | 121.4093 | 2.8489         | 6.7565 | 23.8548              | LCS   | 164.3409    | 89.4%         |          |
| 0.4437         | 0.3182         | 1            | 0.8728            | 144.8386          | 0.0271         | 117.5853 | 2.8041         | 6.7699 | 23.5500              | LCS   | 164.3409    | 86.1%         |          |
| 0.3432         | 0.2423         | 1            | 0.6763            | 135.4546          | 0.0253         | 141.3227 | 3.0730         | 5.7736 | 21.8705              | LCS   | 164.3409    | 82.4%         |          |
| 0.3289         | 0.2322         | 1            | 0.6397            | 131.8931          | 0.0247         | 150.2887 | 3.1684         | 5.4434 | 21.2189              | LCS   | 164.3409    | 80.1%         |          |
| 0.2949         | 0.2082         | 1            | 0.5922            | 148.3038          | 0.0237         | 169.2980 | 3.3626         | 5.7929 | 23.8966              | LCS   | 164.3409    | 90.5%         |          |
| 0.3379         | 0.2365         | 1            | 0.6530            | 151.8473          | 0.0235         | 172.6707 | 3.3968         | 5.8549 | 24.3615              | LCS   | 164.3409    | 92.4%         |          |
| 0.4616         | 0.3400         | 1            | 0.8577            | 131.6889          | 0.0249         | 148.2120 | 3.2186         | 5.4891 | 21.2301              | LCS   | 164.3409    | 80.1%         |          |
| 0.7498         | 0.5287         | 1            | 1.2332            | 134.8966          | 0.0246         | 153.3873 | 3.3053         | 5.6483 | 21.7215              | LCS   | 164.3409    | 82.1%         |          |
| 0.4447         | 0.3140         | 1            | 0.8052            | 148.8317          | 0.0238         | 167.9907 | 3.3535         | 5.8232 | 23.8982              | LCS   | 164.3409    | 90.8%         |          |
| 0.6180         | 0.4363         | 1            | 1.0494            | 143.9479          | 0.0241         | 162.8890 | 3.3090         | 5.7315 | 23.1384              | LCS   | 164.3409    | 87.6%         |          |
| 0.3427         | 0.2420         | 1            | 0.6680            | 135.0873          | 0.0248         | 148.3533 | 3.1490         | 5.6202 | 21.7752              | LCS   | 164.3409    | 82.2%         |          |
| 0.5997         | 0.4234         | 1            | 1.0256            | 129.5009          | 0.0251         | 144.7940 | 3.1202         | 5.4697 | 20.8960              | LCS   | 164.3409    | 78.9%         |          |
| 0.3316         | 0.2341         | 1            | 0.6469            | 146.0021          | 0.0240         | 163.4967 | 3.3053         | 5.7852 | 23.4616              | LCS   | 164.3409    | 88.8%         |          |
| 0.6355         | 0.4487         | 1            | 1.0805            | 159.6717          | 0.0235         | 174.3747 | 3.4225         | 6.1425 | 25.6134              | LCS   | 164.3409    | 97.2%         |          |
| 0.3136         | 0.2214         | 1            | 0.6255            | 132.0625          | 0.0251         | 144.5507 | 3.1078         | 5.5650 | 21.3060              | LCS   | 164.3409    | 80.4%         |          |
| 1.4618         | 1.0321         | 1            | 2.2506            | 135.6135          | 0.0254         | 145.4707 | 3.1861         | 5.8215 | 22.7970              | LCS   | 164.3409    | 86.2%         |          |
| 0.3185         | 0.2249         | 1            | 0.6330            | 141.6298          | 0.0245         | 154.5427 | 3.2193         | 5.7718 | 21.9090              | LCS   | 164.3409    | 82.5%         |          |
| 0.3327         | 0.2349         | 1            | 0.6546            | 146.7439          | 0.0242         | 158.8520 | 3.2579         | 5.8988 | 23.6017              | LCS   | 164.3409    | 89.3%         |          |

| SampleID | Instr | Time (min.) | Alpha Counts | Beta Counts | Count Start Time | Count End Time | Machine |
|----------|-------|-------------|--------------|-------------|------------------|----------------|---------|
| 1        | 1A    | 15          | 36           | 1980        | 7/2/2009 8:39    | 7/2/2009 8:54  | Protean |
| 2        | 1B    | 15          | 27           | 1959        | 7/2/2009 8:40    | 7/2/2009 8:55  | Protean |
| 3        | 1C    | 15          | 44           | 2108        | 7/2/2009 8:40    | 7/2/2009 8:55  | Protean |
| 4        | 1D    | 15          | 108          | 2265        | 7/2/2009 8:40    | 7/2/2009 8:55  | Protean |
| 5        | 2A    | 15          | 69           | 1838        | 7/2/2009 8:40    | 7/2/2009 8:55  | Protean |
| 6        | 2B    | 15          | 8            | 2053        | 7/2/2009 8:40    | 7/2/2009 8:55  | Protean |
| 7        | 2C    | 15          | 96           | 1982        | 7/2/2009 8:40    | 7/2/2009 8:55  | Protean |
| 8        | 2D    | 15          | 93           | 1984        | 7/2/2009 9:08    | 7/2/2009 9:23  | Protean |
| 1        | 3A    | 15          | 233          | 1645        | 7/2/2009 9:08    | 7/2/2009 9:23  | Protean |
| 2        | 3B    | 15          | 99           | 1821        | 7/2/2009 9:08    | 7/2/2009 9:23  | Protean |
| 3        | 3C    | 15          | 96           | 1942        | 7/2/2009 9:08    | 7/2/2009 9:23  | Protean |
| 4        | 3D    | 15          | 90           | 2076        | 7/2/2009 9:08    | 7/2/2009 9:23  | Protean |
| 5        | 4A    | 15          | 79           | 1877        | 7/2/2009 9:08    | 7/2/2009 9:23  | Protean |
| 6        | 4B    | 15          | 13           | 1909        | 7/2/2009 9:08    | 7/2/2009 9:23  | Protean |
| 7        | 4C    | 15          | 97           | 1974        | 7/2/2009 9:09    | 7/2/2009 9:24  | Protean |
| 8        | 4D    | 15          | 181          | 1880        | 7/2/2009 9:25    | 7/2/2009 9:40  | Protean |
| 1        | 5A    | 15          | 53           | 1818        | 7/2/2009 9:26    | 7/2/2009 9:41  | Protean |
| 2        | 5B    | 15          | 59           | 1785        | 7/2/2009 9:26    | 7/2/2009 9:41  | Protean |
| 3        | 5C    | 15          | 43           | 2009        | 7/2/2009 9:26    | 7/2/2009 9:41  | Protean |
| 4        | 5D    | 15          | 59           | 2107        | 7/2/2009 9:26    | 7/2/2009 9:41  | Protean |
| 5        | 6A    | 15          | 35           | 1800        | 7/2/2009 9:27    | 7/2/2009 9:42  | Protean |
| 6        | 6B    | 15          | 71           | 1816        | 7/2/2009 9:27    | 7/2/2009 9:42  | Protean |
| 7        | 6C    | 15          | 81           | 1933        | 7/2/2009 9:27    | 7/2/2009 9:42  | Protean |
| 8        | 6D    | 15          | 81           | 1826        | 7/2/2009 9:47    | 7/2/2009 10:02 | Protean |
| 1        | 7A    | 15          | 75           | 1711        | 7/2/2009 9:48    | 7/2/2009 10:03 | Protean |
| 2        | 7B    | 15          | 59           | 1783        | 7/2/2009 9:48    | 7/2/2009 10:03 | Protean |
| 3        | 7C    | 15          | 74           | 1934        | 7/2/2009 9:48    | 7/2/2009 10:03 | Protean |
| 4        | 7D    | 15          | 83           | 1963        | 7/2/2009 9:48    | 7/2/2009 10:03 | Protean |
| 5        | 8A    | 15          | 49           | 1653        | 7/2/2009 9:48    | 7/2/2009 10:03 | Protean |
| 6        | 8B    | 15          | 20           | 1788        | 7/2/2009 9:48    | 7/2/2009 10:03 | Protean |
| 7        | 8C    | 15          | 34           | 1920        | 7/2/2009 9:48    | 7/2/2009 10:03 | Protean |
| 8        | 8D    | 15          | 45           | 1782        | 7/2/2009 10:07   | 7/2/2009 10:22 | Protean |
| 1        | 9A    | 15          | 17           | 1689        | 7/2/2009 10:06   | 7/2/2009 10:21 | Protean |
| 2        | 9B    | 15          | 13           | 1706        | 7/2/2009 10:06   | 7/2/2009 10:21 | Protean |
| 3        | 9C    | 15          | 13           | 1802        | 7/2/2009 10:06   | 7/2/2009 10:21 | Protean |
| 4        | 9D    | 15          | 15           | 1945        | 7/2/2009 10:06   | 7/2/2009 10:21 | Protean |
| 5        | 10A   | 15          | 10           | 1708        | 7/2/2009 10:07   | 7/2/2009 10:22 | Protean |
| 6        | 10B   | 15          | 19           | 1743        | 7/2/2009 10:07   | 7/2/2009 10:22 | Protean |
| 7        | 10C   | 15          | 15           | 1826        | 7/2/2009 10:07   | 7/2/2009 10:22 | Protean |
| 8        | 10D   | 15          | 14           | 1769        | 7/2/2009 10:22   | 7/2/2009 10:37 | Protean |
| 1        | 11A   | 15          | 19           | 2125        | 7/2/2009 7:26    | 7/2/2009 7:41  | Protean |
| 2        | 11B   | 15          | 22           | 2260        | 7/2/2009 7:26    | 7/2/2009 7:41  | Protean |
| 3        | 11C   | 15          | 13           | 2544        | 7/2/2009 7:26    | 7/2/2009 7:41  | Protean |
| 4        | 11D   | 15          | 14           | 2596        | 7/2/2009 7:26    | 7/2/2009 7:41  | Protean |
| 5        | 12A   | 15          | 17           | 2235        | 7/2/2009 7:26    | 7/2/2009 7:41  | Protean |
| 6        | 12B   | 15          | 10           | 2330        | 7/2/2009 7:26    | 7/2/2009 7:41  | Protean |
| 7        | 12C   | 15          | 16           | 2530        | 7/2/2009 7:26    | 7/2/2009 7:41  | Protean |
| 8        | 12D   | 15          | 10           | 2463        | 7/2/2009 7:26    | 7/2/2009 7:41  | Protean |
| 1        | 13A   | 15          | 11           | 2231        | 7/2/2009 7:49    | 7/2/2009 8:04  | Protean |
| 2        | 13B   | 15          | 13           | 2190        | 7/2/2009 7:49    | 7/2/2009 8:04  | Protean |
| 3        | 13C   | 15          | 11           | 2458        | 7/2/2009 7:49    | 7/2/2009 8:04  | Protean |

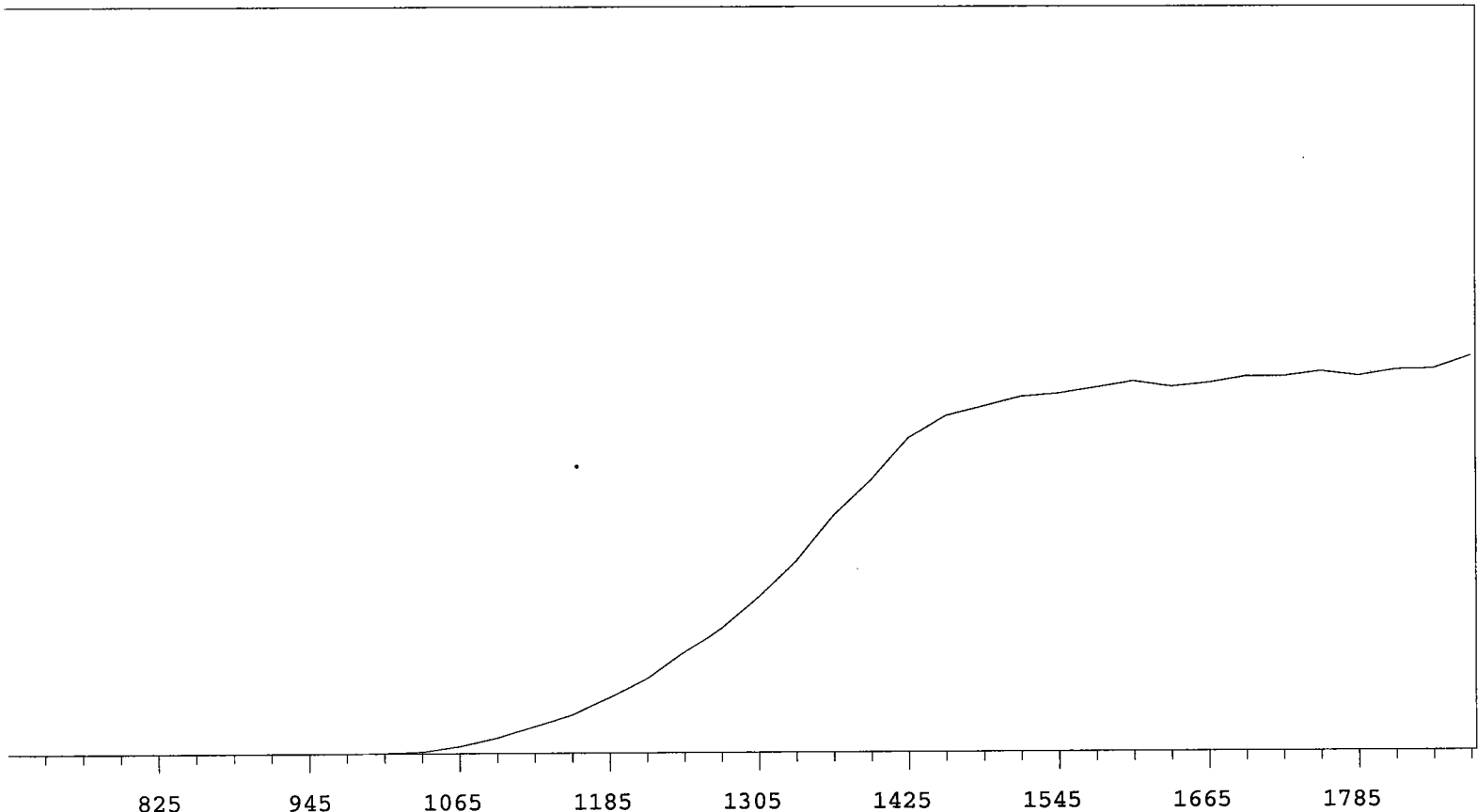
219  
7/2/09



|   |     |    |    |      |               |               |         |
|---|-----|----|----|------|---------------|---------------|---------|
| 4 | 13D | 15 | 12 | 2635 | 7/2/2009 7:50 | 7/2/2009 8:05 | Protean |
| 5 | 14A | 15 | 11 | 2173 | 7/2/2009 7:50 | 7/2/2009 8:05 | Protean |
| 6 | 14B | 15 | 11 | 2281 | 7/2/2009 7:50 | 7/2/2009 8:05 | Protean |
| 7 | 14C | 15 | 14 | 2323 | 7/2/2009 7:50 | 7/2/2009 8:05 | Protean |
| 8 | 14D | 15 | 14 | 2388 | 7/2/2009 7:50 | 7/2/2009 8:05 | Protean |

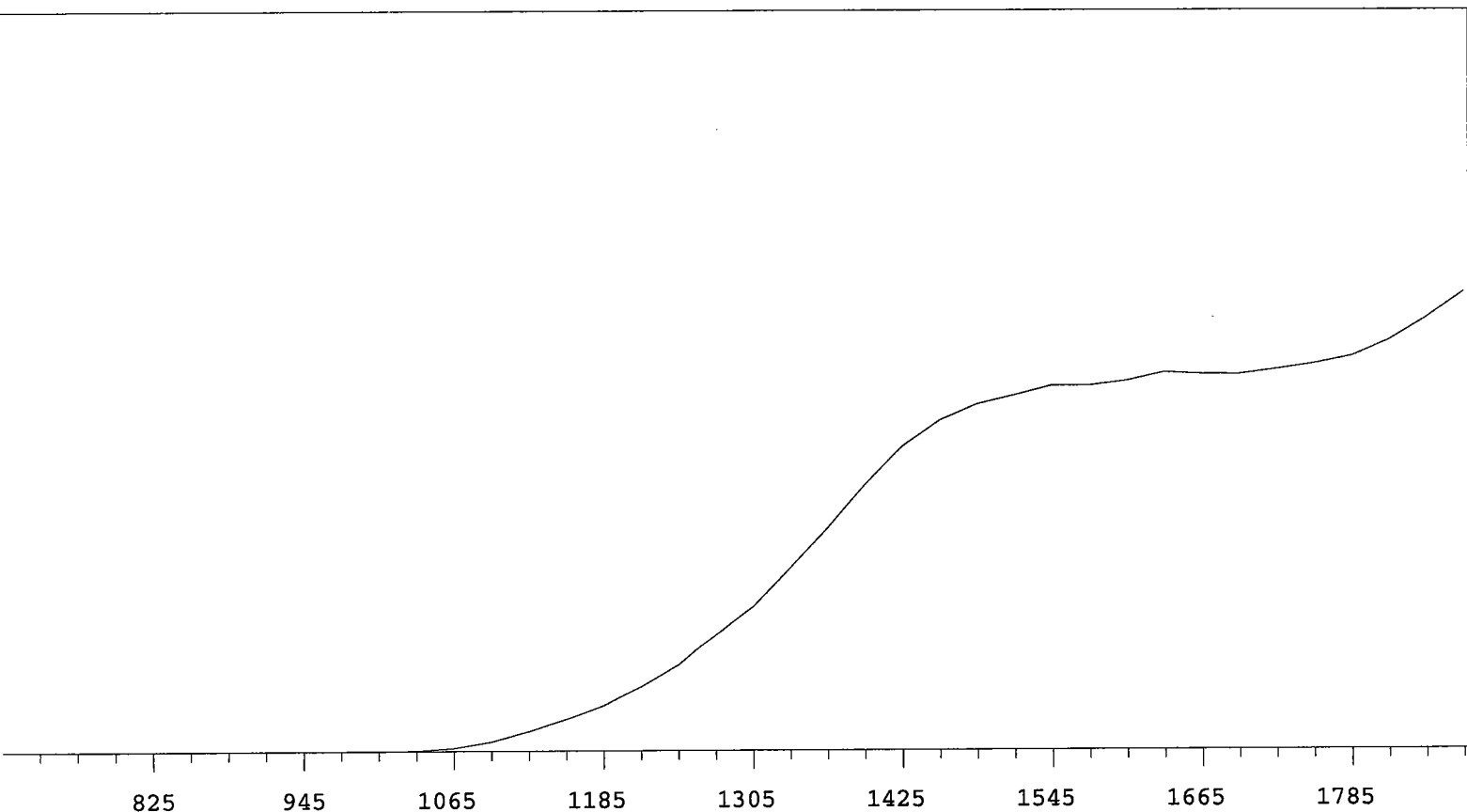
| Ra-228<br>Protean | Cal Date<br>A0 | 7/2/2009<br>A1 | Exp Date<br>A2 | 7/31/2009<br>A3 | A4 |
|-------------------|----------------|----------------|----------------|-----------------|----|
| 1A                | 6.30258E-01    |                |                |                 |    |
| 1B                | 6.28221E-01    |                |                |                 |    |
| 1C                | 6.17615E-01    |                |                |                 |    |
| 1D                | 6.04341E-01    |                |                |                 |    |
| 2A                | 6.17224E-01    |                |                |                 |    |
| 2B                | 6.16681E-01    |                |                |                 |    |
| 2C                | 5.96919E-01    |                |                |                 |    |
| 2D                | 6.11886E-01    |                |                |                 |    |
| 3A                | 5.68218E-01    |                |                |                 |    |
| 3B                | 5.98041E-01    |                |                |                 |    |
| 3C                | 6.16431E-01    |                |                |                 |    |
| 3D                | 5.99405E-01    |                |                |                 |    |
| 4A                | 6.20765E-01    |                |                |                 |    |
| 4B                | 6.20459E-01    |                |                |                 |    |
| 4C                | 6.05183E-01    |                |                |                 |    |
| 4D                | 5.87325E-01    |                |                |                 |    |
| 5A                | 6.25790E-01    |                |                |                 |    |
| 5B                | 6.28027E-01    |                |                |                 |    |
| 5C                | 6.36802E-01    |                |                |                 |    |
| 5D                | 6.23741E-01    |                |                |                 |    |
| 6A                | 6.22050E-01    |                |                |                 |    |
| 6B                | 6.16280E-01    |                |                |                 |    |
| 6C                | 6.11053E-01    |                |                |                 |    |
| 6D                | 6.12043E-01    |                |                |                 |    |
| 7A                | 6.17961E-01    |                |                |                 |    |
| 7B                | 6.27962E-01    |                |                |                 |    |
| 7C                | 6.17791E-01    |                |                |                 |    |
| 7D                | 6.25720E-01    |                |                |                 |    |
| 8A                | 6.24723E-01    |                |                |                 |    |
| 8B                | 6.33167E-01    |                |                |                 |    |
| 8C                | 6.33890E-01    |                |                |                 |    |
| 8D                | 6.28089E-01    |                |                |                 |    |
| 9A                | 6.496412E-01   |                |                |                 |    |
| 9B                | 6.356321E-01   |                |                |                 |    |
| 9C                | 6.273008E-01   |                |                |                 |    |
| 9D                | 6.432553E-01   |                |                |                 |    |
| 10A               | 6.389066E-01   |                |                |                 |    |
| 10B               | 6.137441E-01   |                |                |                 |    |
| 10C               | 6.249999E-01   |                |                |                 |    |
| 10D               | 6.319781E-01   |                |                |                 |    |
| 11A               | 5.82502E-01    |                |                |                 |    |
| 11B               | 6.37172E-01    |                |                |                 |    |
| 11C               | 6.35171E-01    |                |                |                 |    |
| 11D               | 6.34840E-01    |                |                |                 |    |
| 12A               | 6.28566E-01    |                |                |                 |    |
| 12B               | 6.35234E-01    |                |                |                 |    |
| 12C               | 6.30366E-01    |                |                |                 |    |
| 12D               | 6.31956E-01    |                |                |                 |    |
| 13A               | 6.40953E-01    |                |                |                 |    |

|            |             |
|------------|-------------|
| <b>13B</b> | 6.52643E-01 |
| <b>13C</b> | 6.53798E-01 |
| <b>13D</b> | 6.37701E-01 |
| <b>14A</b> | 6.39290E-01 |
| <b>14B</b> | 6.26611E-01 |
| <b>14C</b> | 6.37531E-01 |
| <b>14D</b> | 6.32609E-01 |



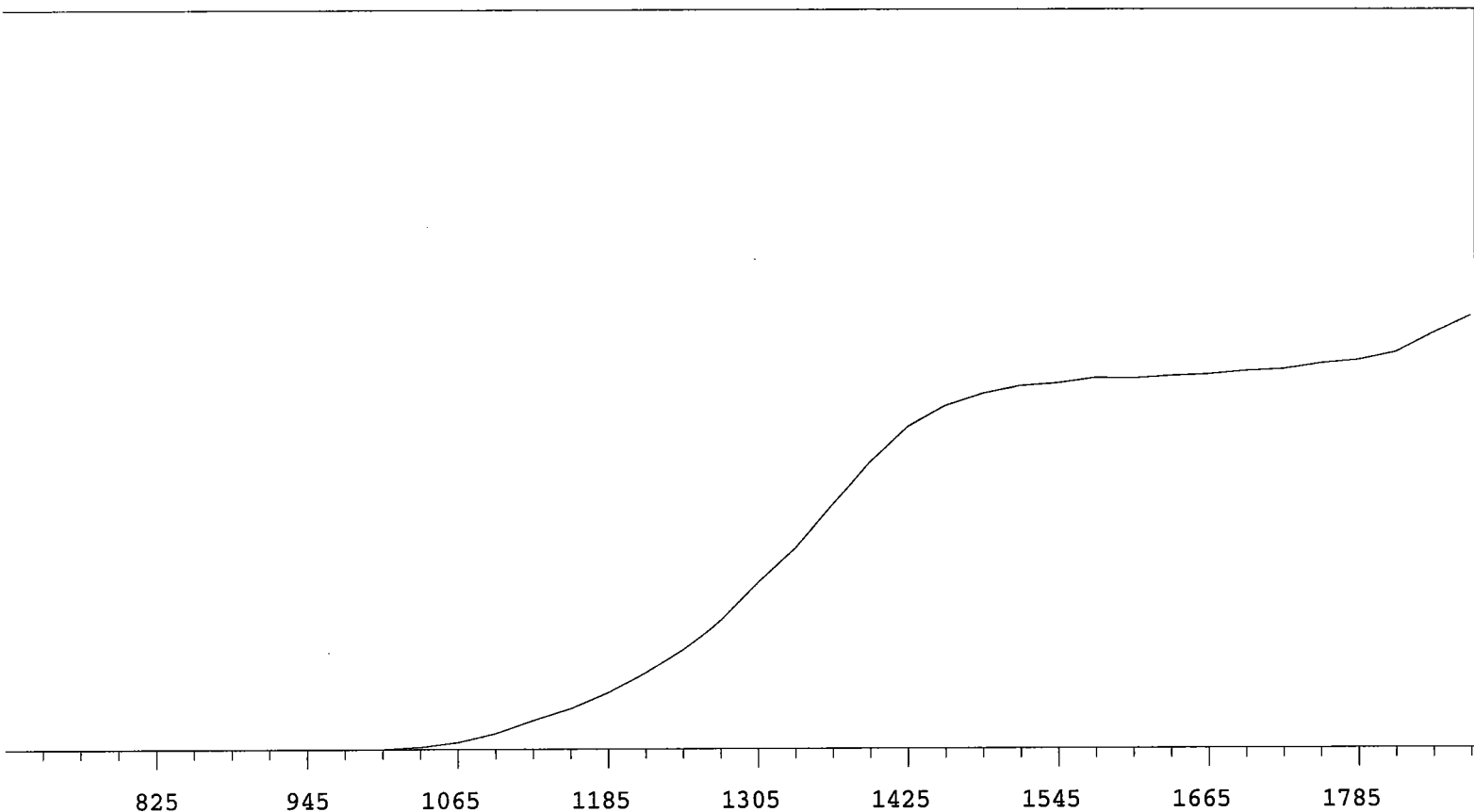
| VOLTS | COUNTS | %/100 Volts | VOLTS | COUNTS | %/100 Volts |
|-------|--------|-------------|-------|--------|-------------|
| 705   | 1      |             | 1305  | 11640  | +69.78      |
| 735   | 1      |             | 1335  | 14241  | +62.88      |
| 765   | 0      |             | 1365  | 17534  | +55.91      |
| 795   | 0      | +0.00       | 1395  | 20127  | +45.04      |
| 825   | 0      | >100        | 1425  | 23254  | +31.29      |
| 855   | 1      | >100        | 1455  | 24902  | +20.41      |
| 885   | 0      | +55.56      | 1485  | 25605  | +10.49      |
| 915   | 2      | +66.67      | 1515  | 26310  | +6.44       |
| 945   | 0      | >100        | 1545  | 26535  | +5.31       |
| 975   | 2      | >100        | 1575  | 26953  | +2.79       |
| 1005  | 42     | >100        | 1605  | 27399  | +1.83       |
| 1035  | 145    | >100        | 1635  | 27000  | +1.71       |
| 1065  | 544    | >100        | 1665  | 27255  | +1.62       |
| 1095  | 1136   | >100        | 1695  | 27723  | +3.14       |
| 1125  | 1967   | >100        | 1725  | 27705  | +1.56       |
| 1155  | 2845   | >100        | 1755  | 28072  | +1.15       |
| 1185  | 4078   | >100        | 1785  | 27729  | +1.43       |
| 1215  | 5483   | +93.18      | 1815  | 28194  | +3.24       |
| 1245  | 7400   | +83.35      | 1845  | 28243  |             |
| 1275  | 9328   | +75.40      | 1875  | 29191  |             |

Alpha Volts: 1575 Beta Volts: 1575

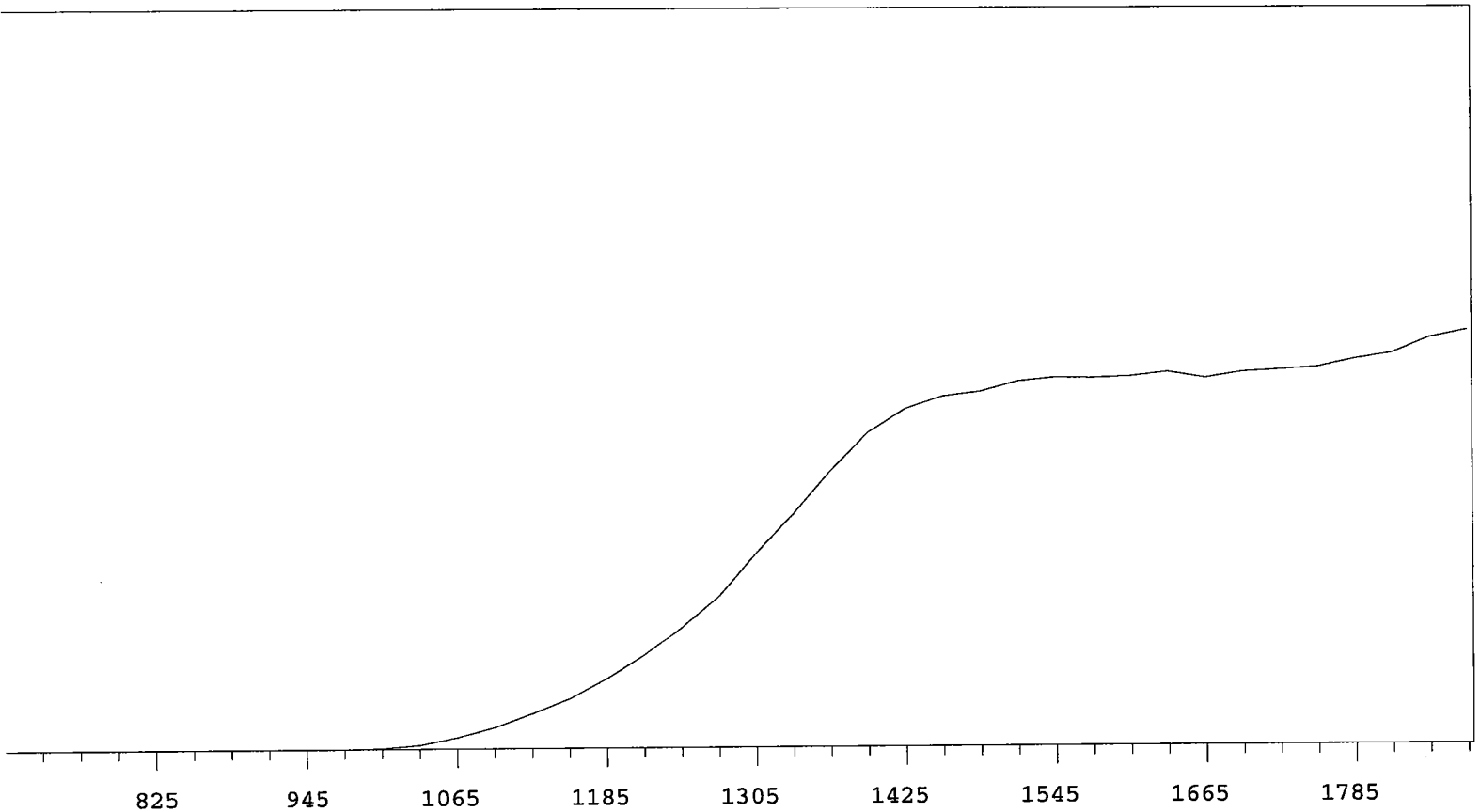


| VOLTS | COUNTS | %/100 Volts | VOLTS | COUNTS | %/100 Volts |
|-------|--------|-------------|-------|--------|-------------|
| 705   | 1      |             | 1305  | 13188  | +75.92      |
| 735   | 0      |             | 1335  | 16818  | +67.60      |
| 765   | 0      | +55.56      | 1365  | 20420  | +59.86      |
| 795   | 1      | +83.33      | 1395  | 24341  | +47.85      |
| 825   | 1      | +55.56      | 1425  | 27854  | +35.51      |
| 855   | 0      | >100        | 1455  | 30288  | +23.26      |
| 885   | 1      | +0.00       | 1485  | 31798  | +14.54      |
| 915   | 0      | +0.00       | 1515  | 32622  | +8.32       |
| 945   | 1      | >100        | 1545  | 33496  | +5.11       |
| 975   | 0      | >100        | 1575  | 33475  | +4.43       |
| 1005  | 4      | >100        | 1605  | 33903  | +3.09       |
| 1035  | 56     | >100        | 1635  | 34654  | +2.46       |
| 1065  | 292    | >100        | 1665  | 34485  | +1.74       |
| 1095  | 890    | >100        | 1695  | 34445  | +1.84       |
| 1125  | 1841   | >100        | 1725  | 34908  | +3.91       |
| 1155  | 2936   | >100        | 1755  | 35401  | +6.80       |
| 1185  | 4179   | >100        | 1785  | 36062  | +10.27      |
| 1215  | 5837   | >100        | 1815  | 37505  | +14.30      |
| 1245  | 7821   | +91.28      | 1845  | 39508  |             |
| 1275  | 10638  | +83.88      | 1875  | 41843  |             |

Alpha Volts: 1575 Beta Volts: 1575



| VOLTS | COUNTS | %/100 Volts | VOLTS | COUNTS | %/100 Volts |
|-------|--------|-------------|-------|--------|-------------|
| 705   | 1      |             | 1305  | 14817  | +71.06      |
| 735   | 0      |             | 1335  | 17823  | +63.34      |
| 765   | 1      | +0.00       | 1365  | 21704  | +53.63      |
| 795   | 0      | >100        | 1395  | 25422  | +42.55      |
| 825   | 1      | -55.56      | 1425  | 28424  | +29.21      |
| 855   | 1      | +55.56      | 1455  | 30244  | +18.11      |
| 885   | 0      | >100        | 1485  | 31305  | +10.10      |
| 915   | 1      | >100        | 1515  | 31989  | +6.07       |
| 945   | 0      | >100        | 1545  | 32223  | +3.43       |
| 975   | 4      | >100        | 1575  | 32671  | +2.15       |
| 1005  | 32     | >100        | 1605  | 32621  | +1.68       |
| 1035  | 206    | >100        | 1635  | 32837  | +1.52       |
| 1065  | 639    | >100        | 1665  | 32961  | +2.01       |
| 1095  | 1416   | >100        | 1695  | 33249  | +2.64       |
| 1125  | 2551   | >100        | 1725  | 33409  | +3.21       |
| 1155  | 3619   | >100        | 1755  | 33931  | +4.07       |
| 1185  | 5037   | +98.68      | 1785  | 34234  | +7.20       |
| 1215  | 6875   | +91.19      | 1815  | 34909  | +10.28      |
| 1245  | 8915   | +85.53      | 1845  | 36660  |             |
| 1275  | 11519  | +77.28      | 1875  | 38205  |             |

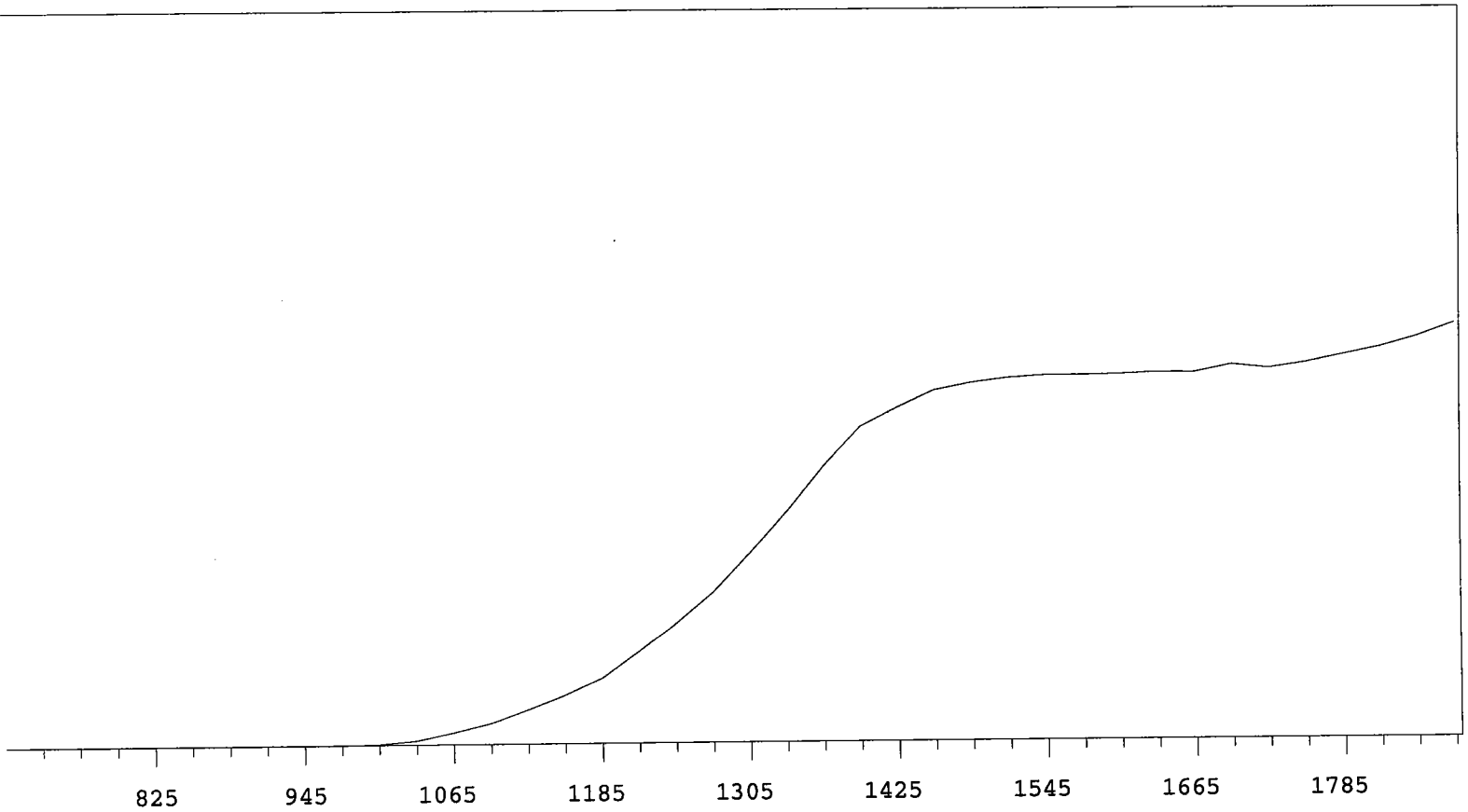


| VOLTS | COUNTS | %/100 Volts | VOLTS | COUNTS | %/100 Volts |
|-------|--------|-------------|-------|--------|-------------|
| 705   | 0      |             | 1305  | 15202  | +66.36      |
| 735   | 1      |             | 1335  | 18216  | +57.86      |
| 765   | 0      | +0.00       | 1365  | 21597  | +45.58      |
| 795   | 1      | +0.00       | 1395  | 24648  | +32.96      |
| 825   | 0      | +0.00       | 1425  | 26505  | +19.92      |
| 855   | 1      | >100        | 1455  | 27475  | +11.42      |
| 885   | 0      | >100        | 1485  | 27836  | +7.08       |
| 915   | 0      | >100        | 1515  | 28609  | +4.51       |
| 945   | 0      | >100        | 1545  | 28896  | +2.93       |
| 975   | 8      | >100        | 1575  | 28862  | +1.66       |
| 1005  | 75     | >100        | 1605  | 28969  | +0.36       |
| 1035  | 303    | >100        | 1635  | 29292  | +0.80       |
| 1065  | 872    | >100        | 1665  | 28836  | +1.06       |
| 1095  | 1656   | >100        | 1695  | 29279  | +1.48       |
| 1125  | 2729   | >100        | 1725  | 29439  | +3.59       |
| 1155  | 3862   | >100        | 1755  | 29642  | +4.07       |
| 1185  | 5425   | +98.19      | 1785  | 30243  | +6.51       |
| 1215  | 7256   | +88.82      | 1815  | 30699  | +7.79       |
| 1245  | 9510   | +81.89      | 1845  | 31876  |             |
| 1275  | 11944  | +74.07      | 1875  | 32444  |             |

MPC 9600 Plateau  
 Alpha Volts: 705

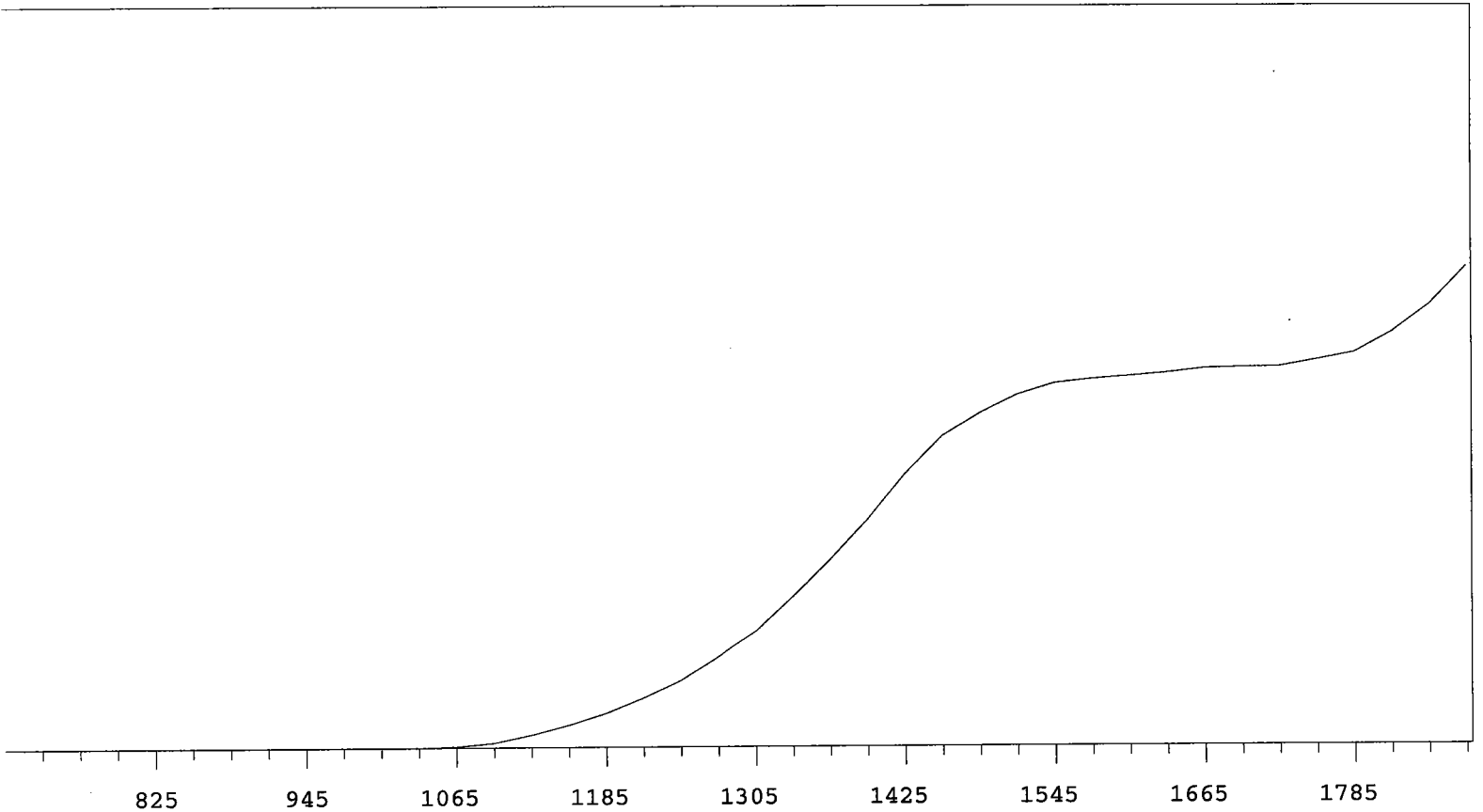
Instrument 2 MPC 9604 Detector A  
 Beta Volts: 1575

7/1/2009

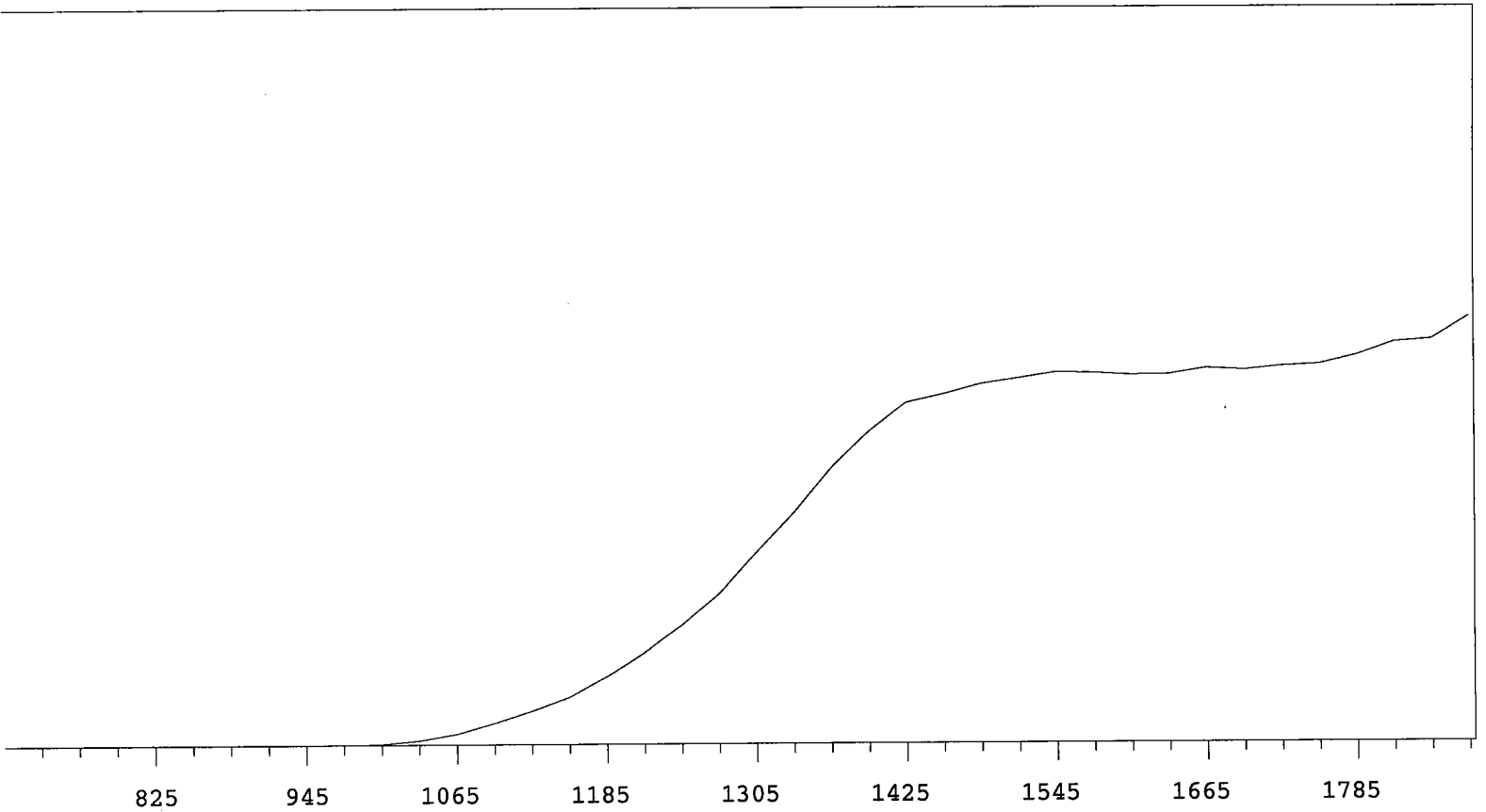


| VOLTS | COUNTS | %/100 Volts | VOLTS | COUNTS | %/100 Volts |
|-------|--------|-------------|-------|--------|-------------|
| 705   | 0      |             | 1305  | 19017  | +67.45      |
| 735   | 1      |             | 1335  | 23157  | +59.23      |
| 765   | 0      | +83.33      | 1365  | 27625  | +45.78      |
| 795   | 0      | -83.33      | 1395  | 31465  | +32.72      |
| 825   | 1      | >100        | 1425  | 33352  | +20.41      |
| 855   | 0      | >100        | 1455  | 35084  | +11.74      |
| 885   | 1      | +100.00     | 1485  | 35819  | +7.11       |
| 915   | 1      | >100        | 1515  | 36292  | +3.35       |
| 945   | 2      | >100        | 1545  | 36527  | +1.63       |
| 975   | 12     | >100        | 1575  | 36540  | +0.87       |
| 1005  | 91     | >100        | 1605  | 36585  | +0.48       |
| 1035  | 421    | >100        | 1635  | 36742  | +1.76       |
| 1065  | 1239   | >100        | 1665  | 36691  | +1.53       |
| 1095  | 2155   | >100        | 1695  | 37461  | +1.89       |
| 1125  | 3527   | >100        | 1725  | 37073  | +3.07       |
| 1155  | 4974   | >100        | 1755  | 37603  | +4.02       |
| 1185  | 6647   | +97.44      | 1785  | 38346  | +6.58       |
| 1215  | 9250   | +89.00      | 1815  | 39111  | +7.95       |
| 1245  | 12041  | +82.15      | 1845  | 40115  |             |
| 1275  | 15094  | +73.81      | 1875  | 41409  |             |





| VOLTS | COUNTS | %/100 Volts | VOLTS | COUNTS | %/100 Volts |
|-------|--------|-------------|-------|--------|-------------|
| 705   | 0      |             | 1305  | 12541  | +83.18      |
| 735   | 1      |             | 1335  | 16192  | +74.48      |
| 765   | 0      |             | 1365  | 20083  | +67.17      |
| 795   | 0      | >100        | 1395  | 24273  | +58.43      |
| 825   | 0      | >100        | 1425  | 29090  | +46.86      |
| 855   | 0      | >100        | 1455  | 33223  | +34.56      |
| 885   | 0      | >100        | 1485  | 35608  | +22.67      |
| 915   | 0      | >100        | 1515  | 37581  | +13.63      |
| 945   | 1      | >100        | 1545  | 38762  | +8.18       |
| 975   | 2      | >100        | 1575  | 39185  | +4.42       |
| 1005  | 3      | >100        | 1605  | 39484  | +3.06       |
| 1035  | 14     | >100        | 1635  | 39806  | +2.61       |
| 1065  | 127    | >100        | 1665  | 40264  | +2.03       |
| 1095  | 500    | >100        | 1695  | 40353  | +2.32       |
| 1125  | 1332   | >100        | 1725  | 40431  | +3.28       |
| 1155  | 2373   | >100        | 1755  | 41127  | +7.09       |
| 1185  | 3614   | >100        | 1785  | 41882  | +12.40      |
| 1215  | 5227   | >100        | 1815  | 44049  | +18.52      |
| 1245  | 7060   | +97.33      | 1845  | 46950  |             |
| 1275  | 9574   | +90.30      | 1875  | 51097  |             |

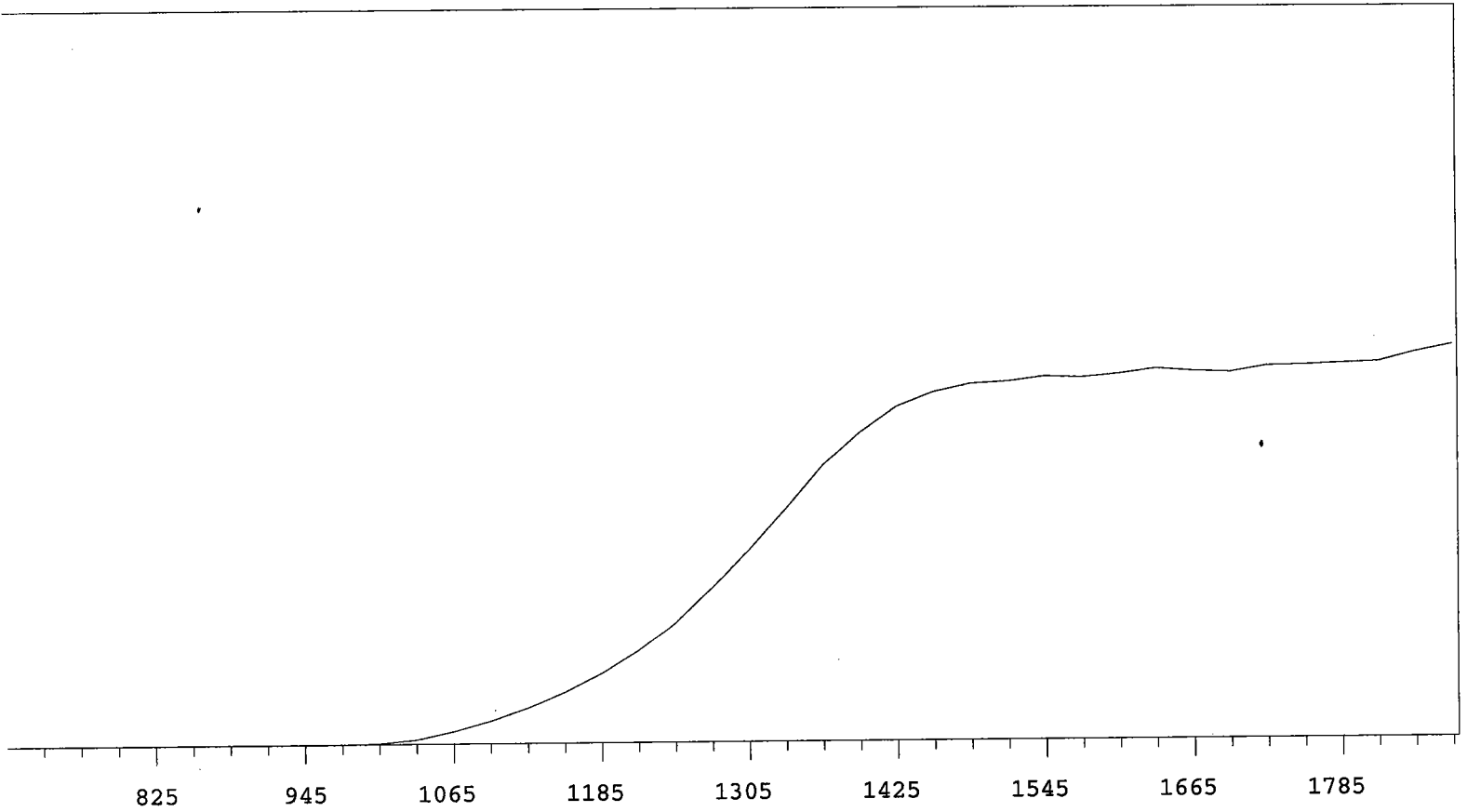


| VOLTS | COUNTS | %/100 Volts | VOLTS | COUNTS | %/100 Volts |
|-------|--------|-------------|-------|--------|-------------|
| 705   | 1      |             | 1305  | 18216  | +67.74      |
| 735   | 0      |             | 1335  | 21995  | +58.11      |
| 765   | 0      |             | 1365  | 26173  | +46.11      |
| 795   | 0      | >100        | 1395  | 29479  | +32.75      |
| 825   | 0      | >100        | 1425  | 32186  | +20.62      |
| 855   | 0      | >100        | 1455  | 33022  | +12.13      |
| 885   | 0      | >100        | 1485  | 33981  | +7.22       |
| 915   | 1      | >100        | 1515  | 34520  | +4.95       |
| 945   | 0      | >100        | 1545  | 35095  | +2.07       |
| 975   | 17     | >100        | 1575  | 35014  | +0.38       |
| 1005  | 87     | >100        | 1605  | 34812  | +0.55       |
| 1035  | 438    | >100        | 1635  | 34859  | +1.11       |
| 1065  | 1055   | >100        | 1665  | 35460  | +1.94       |
| 1095  | 2114   | >100        | 1695  | 35273  | +1.95       |
| 1125  | 3282   | >100        | 1725  | 35629  | +2.73       |
| 1155  | 4625   | >100        | 1755  | 35811  | +5.77       |
| 1185  | 6554   | +97.66      | 1785  | 36656  | +6.44       |
| 1215  | 8743   | +88.09      | 1815  | 37896  | +9.21       |
| 1245  | 11345  | +81.31      | 1845  | 38145  |             |
| 1275  | 14261  | +74.60      | 1875  | 40283  |             |

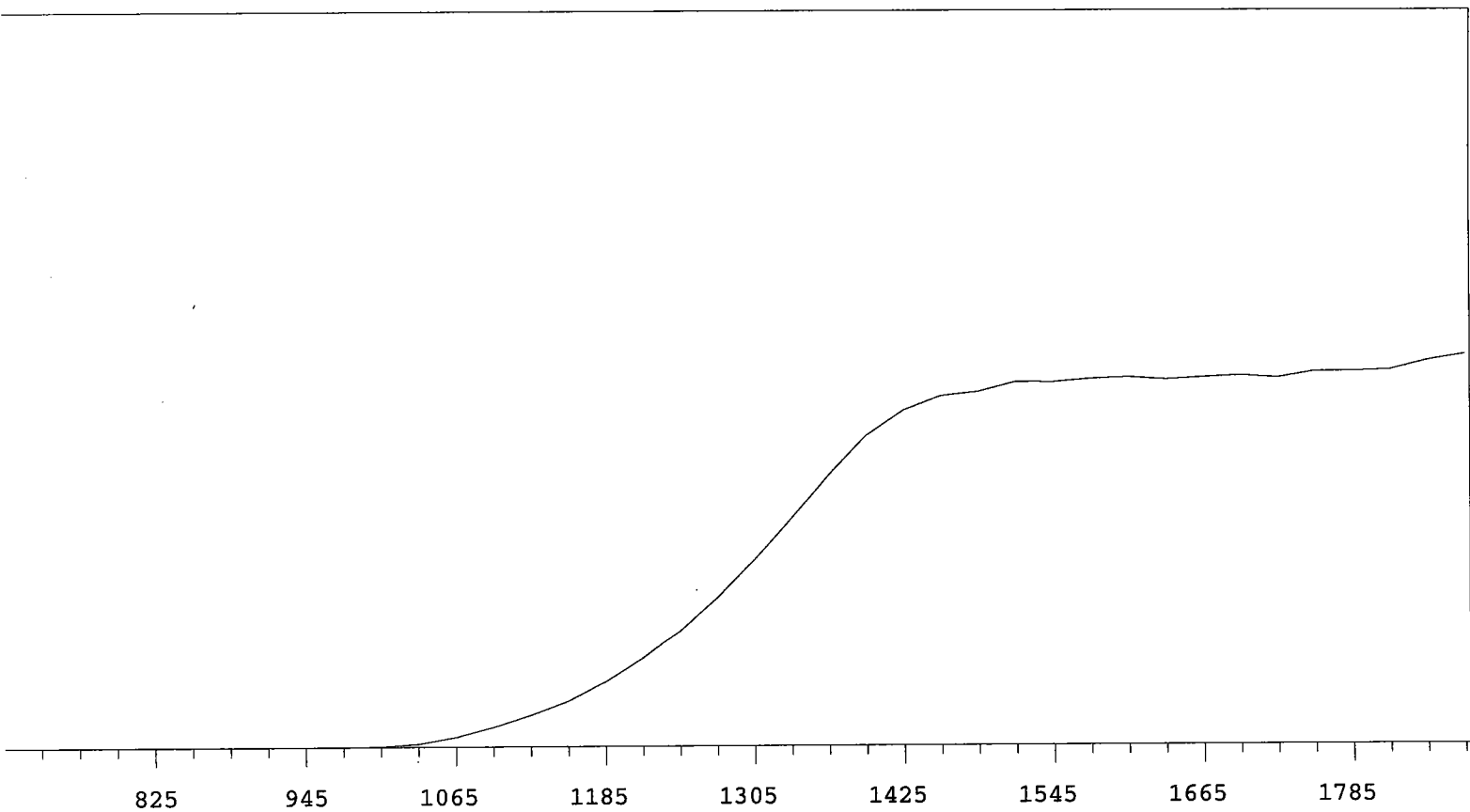
MPC 9600 Plateau  
Alpha Volts: 705

Instrument 2 MPC 9604 Detector D  
Beta Volts: 1575

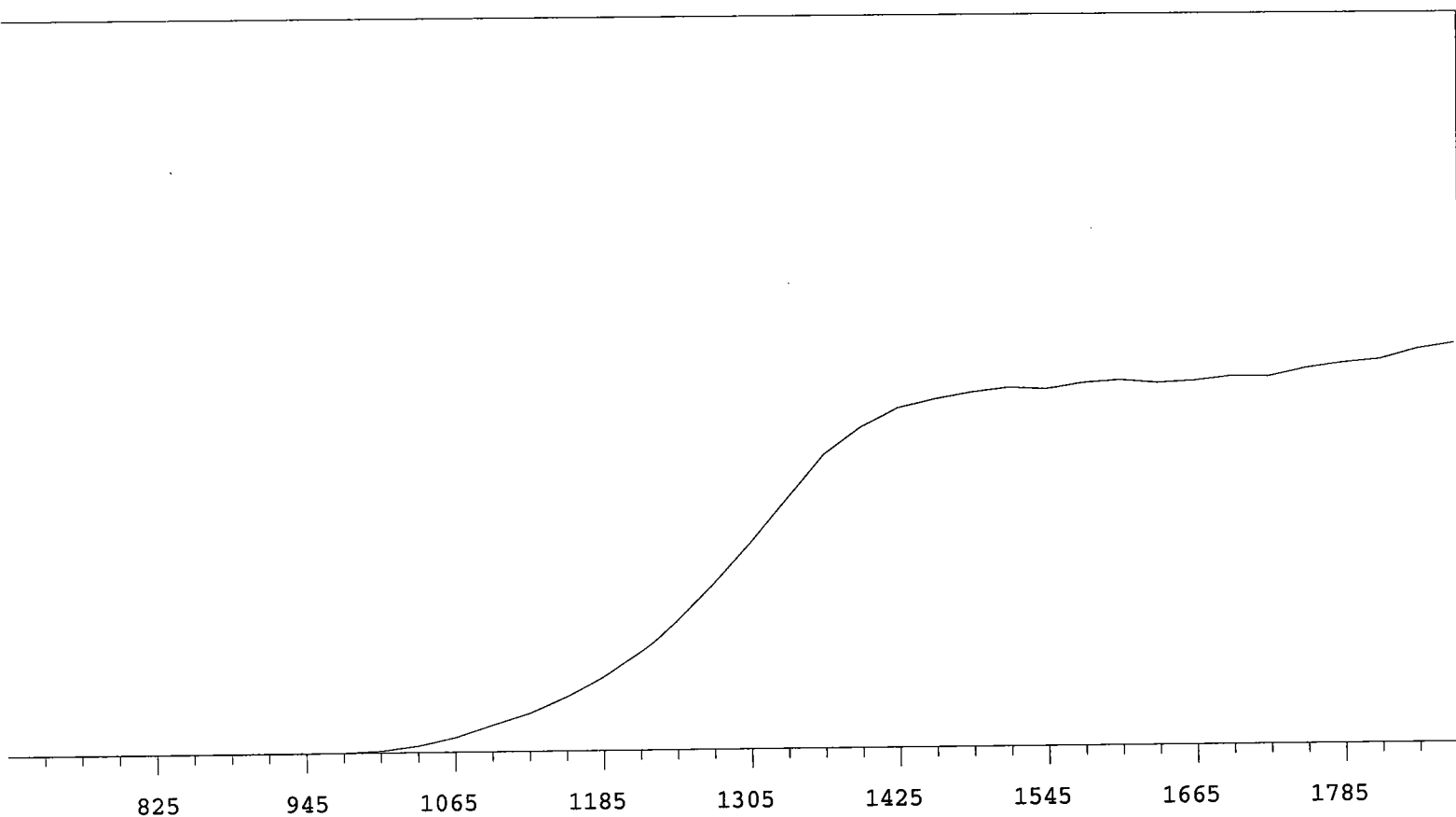
7/1/2009



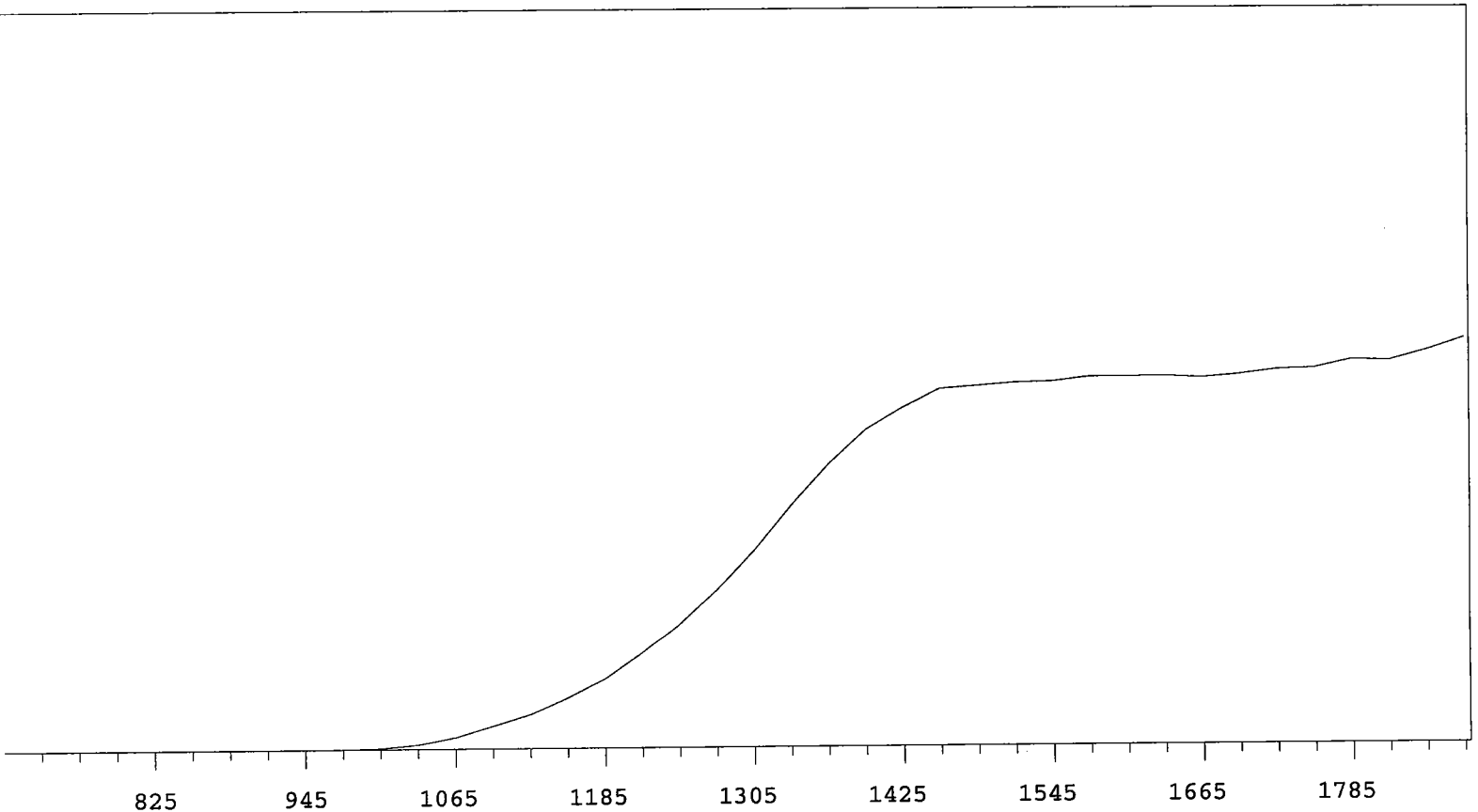
| VOLTS | COUNTS | %/100 Volts | VOLTS | COUNTS | %/100 Volts |
|-------|--------|-------------|-------|--------|-------------|
| 705   | 1      |             | 1305  | 18675  | +65.94      |
| 735   | 0      |             | 1335  | 22620  | +55.69      |
| 765   | 0      | +83.33      | 1365  | 26869  | +44.63      |
| 795   | 2      | +55.56      | 1395  | 29957  | +32.08      |
| 825   | 1      | >100        | 1425  | 32494  | +20.49      |
| 855   | 0      | >100        | 1455  | 33836  | +11.98      |
| 885   | 0      | >100        | 1485  | 34627  | +6.45       |
| 915   | 0      | >100        | 1515  | 34849  | +3.22       |
| 945   | 2      | >100        | 1545  | 35298  | +1.98       |
| 975   | 9      | >100        | 1575  | 35180  | +2.37       |
| 1005  | 89     | >100        | 1605  | 35503  | +1.57       |
| 1035  | 439    | >100        | 1635  | 36006  | +0.99       |
| 1065  | 1198   | >100        | 1665  | 35722  | +0.89       |
| 1095  | 2164   | >100        | 1695  | 35597  | +0.93       |
| 1125  | 3436   | >100        | 1725  | 36188  | +1.86       |
| 1155  | 4917   | >100        | 1755  | 36272  | +1.90       |
| 1185  | 6762   | +96.59      | 1785  | 36389  | +2.55       |
| 1215  | 9006   | +89.14      | 1815  | 36529  | +4.39       |
| 1245  | 11800  | +81.34      | 1845  | 37459  |             |
| 1275  | 15132  | +73.59      | 1875  | 38170  |             |



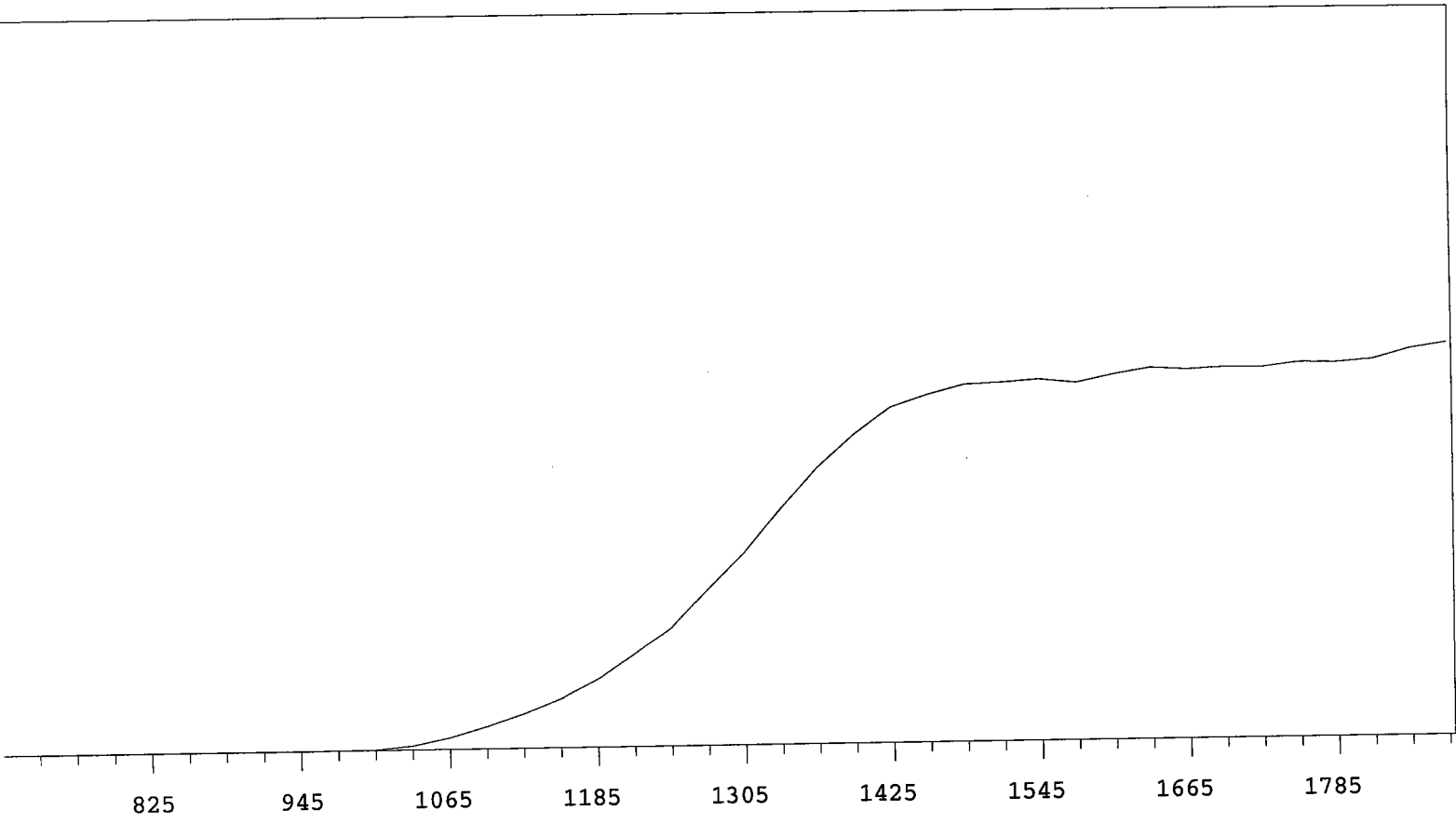
| VOLTS | COUNTS | %/100 Volts | VOLTS | COUNTS | %/100 Volts |
|-------|--------|-------------|-------|--------|-------------|
| 705   | 1      |             | 1305  | 16654  | +68.57      |
| 735   | 0      |             | 1335  | 20416  | +59.26      |
| 765   | 0      | +55.56      | 1365  | 24191  | +47.28      |
| 795   | 1      | >100        | 1395  | 27643  | +34.04      |
| 825   | 1      | +0.00       | 1425  | 29891  | +21.08      |
| 855   | 1      | >100        | 1455  | 31183  | +12.30      |
| 885   | 0      | >100        | 1485  | 31558  | +6.67       |
| 915   | 0      | >100        | 1515  | 32444  | +4.05       |
| 945   | 0      | >100        | 1545  | 32413  | +2.90       |
| 975   | 9      | >100        | 1575  | 32704  | +0.81       |
| 1005  | 53     | >100        | 1605  | 32837  | +0.71       |
| 1035  | 302    | >100        | 1635  | 32629  | +0.49       |
| 1065  | 878    | >100        | 1665  | 32797  | +0.16       |
| 1095  | 1805   | >100        | 1695  | 32964  | +1.32       |
| 1125  | 2887   | >100        | 1725  | 32746  | +1.40       |
| 1155  | 4163   | >100        | 1755  | 33308  | +1.56       |
| 1185  | 5842   | +99.81      | 1785  | 33318  | +3.21       |
| 1215  | 7959   | +90.90      | 1815  | 33456  | +3.92       |
| 1245  | 10323  | +83.03      | 1845  | 34283  |             |
| 1275  | 13250  | +75.91      | 1875  | 34815  |             |



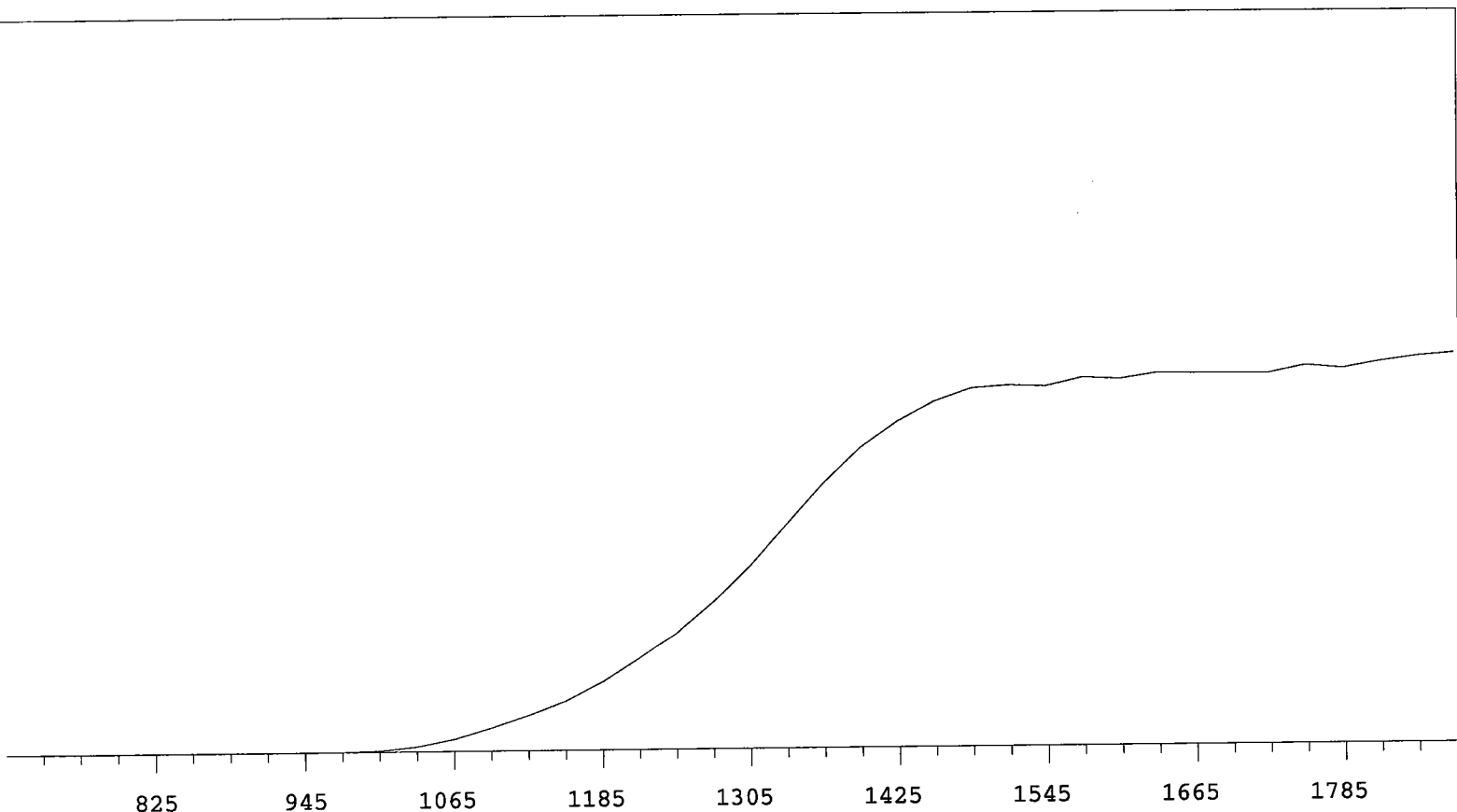
| VOLTS | COUNTS | %/100 Volts | VOLTS | COUNTS | %/100 Volts |
|-------|--------|-------------|-------|--------|-------------|
| 705   | 1      |             | 1305  | 19810  | +64.73      |
| 735   | 1      |             | 1335  | 23962  | +52.62      |
| 765   | 0      | -55.56      | 1365  | 28091  | +39.27      |
| 795   | 0      | >100        | 1395  | 30594  | +25.61      |
| 825   | 1      | >100        | 1425  | 32381  | +14.86      |
| 855   | 3      | +33.33      | 1455  | 33206  | +8.91       |
| 885   | 0      | +0.00       | 1485  | 33832  | +4.41       |
| 915   | 1      | >100        | 1515  | 34260  | +3.01       |
| 945   | 2      | >100        | 1545  | 34071  | +2.33       |
| 975   | 29     | >100        | 1575  | 34623  | +1.34       |
| 1005  | 165    | >100        | 1605  | 34848  | +1.22       |
| 1035  | 613    | >100        | 1635  | 34564  | +0.89       |
| 1065  | 1394   | >100        | 1665  | 34733  | +1.01       |
| 1095  | 2558   | >100        | 1695  | 35144  | +2.76       |
| 1125  | 3702   | >100        | 1725  | 35084  | +3.66       |
| 1155  | 5222   | >100        | 1755  | 35839  | +3.97       |
| 1185  | 7161   | +96.06      | 1785  | 36332  | +5.39       |
| 1215  | 9507   | +89.18      | 1815  | 36654  | +5.35       |
| 1245  | 12552  | +81.52      | 1845  | 37609  |             |
| 1275  | 16030  | +73.64      | 1875  | 38164  |             |



| VOLTS | COUNTS | %/100 Volts | VOLTS | COUNTS | %/100 Volts |
|-------|--------|-------------|-------|--------|-------------|
| 705   | 1      |             | 1305  | 21412  | +66.80      |
| 735   | 1      |             | 1335  | 26262  | +56.32      |
| 765   | 1      |             | 1365  | 30679  | +43.71      |
| 795   | 0      | >100        | 1395  | 34466  | +31.61      |
| 825   | 0      | +0.00       | 1425  | 36949  | +20.14      |
| 855   | 0      | >100        | 1455  | 38998  | +11.16      |
| 885   | 1      | >100        | 1485  | 39313  | +5.34       |
| 915   | 1      | >100        | 1515  | 39625  | +2.44       |
| 945   | 1      | >100        | 1545  | 39751  | +2.04       |
| 975   | 17     | >100        | 1575  | 40227  | +1.45       |
| 1005  | 122    | >100        | 1605  | 40228  | +0.56       |
| 1035  | 533    | >100        | 1635  | 40255  | +0.13       |
| 1065  | 1287   | >100        | 1665  | 40075  | +1.22       |
| 1095  | 2493   | >100        | 1695  | 40384  | +1.95       |
| 1125  | 3753   | >100        | 1725  | 40900  | +3.50       |
| 1155  | 5482   | >100        | 1755  | 41028  | +3.05       |
| 1185  | 7538   | +99.39      | 1785  | 41899  | +3.71       |
| 1215  | 10305  | +90.31      | 1815  | 41767  | +5.64       |
| 1245  | 13415  | +82.57      | 1845  | 42852  |             |
| 1275  | 17141  | +75.13      | 1875  | 44132  |             |

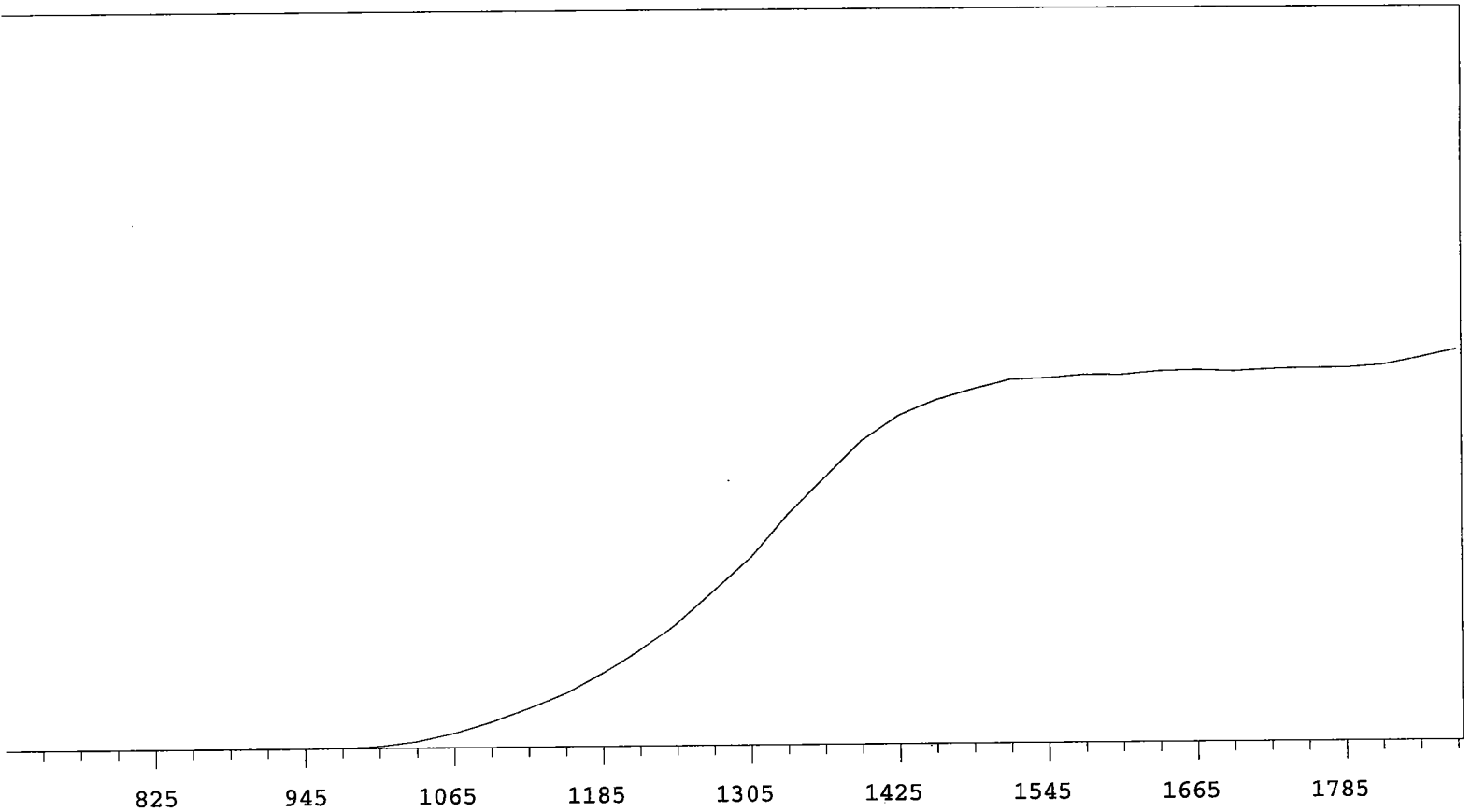


| VOLTS | COUNTS | %/100 Volts | VOLTS | COUNTS | %/100 Volts |
|-------|--------|-------------|-------|--------|-------------|
| 705   | 0      |             | 1305  | 14171  | +66.45      |
| 735   | 1      |             | 1335  | 17362  | +54.90      |
| 765   | 0      | +0.00       | 1365  | 20310  | +43.83      |
| 795   | 1      | >100        | 1395  | 22647  | +30.82      |
| 825   | 0      | +83.33      | 1425  | 24551  | +20.19      |
| 855   | 0      | -83.33      | 1455  | 25440  | +11.69      |
| 885   | 1      | >100        | 1485  | 26124  | +5.90       |
| 915   | 0      | >100        | 1515  | 26245  | +2.21       |
| 945   | 1      | >100        | 1545  | 26428  | +1.39       |
| 975   | 12     | >100        | 1575  | 26151  | +2.69       |
| 1005  | 51     | >100        | 1605  | 26721  | +2.72       |
| 1035  | 298    | >100        | 1635  | 27168  | +2.80       |
| 1065  | 848    | >100        | 1665  | 27007  | +0.87       |
| 1095  | 1649   | >100        | 1695  | 27135  | +0.70       |
| 1125  | 2535   | >100        | 1725  | 27089  | +1.24       |
| 1155  | 3602   | >100        | 1755  | 27414  | +1.43       |
| 1185  | 5036   | +98.31      | 1785  | 27373  | +3.21       |
| 1215  | 6880   | +91.37      | 1815  | 27581  | +4.34       |
| 1245  | 8822   | +82.29      | 1845  | 28332  |             |
| 1275  | 11546  | +74.61      | 1875  | 28750  |             |

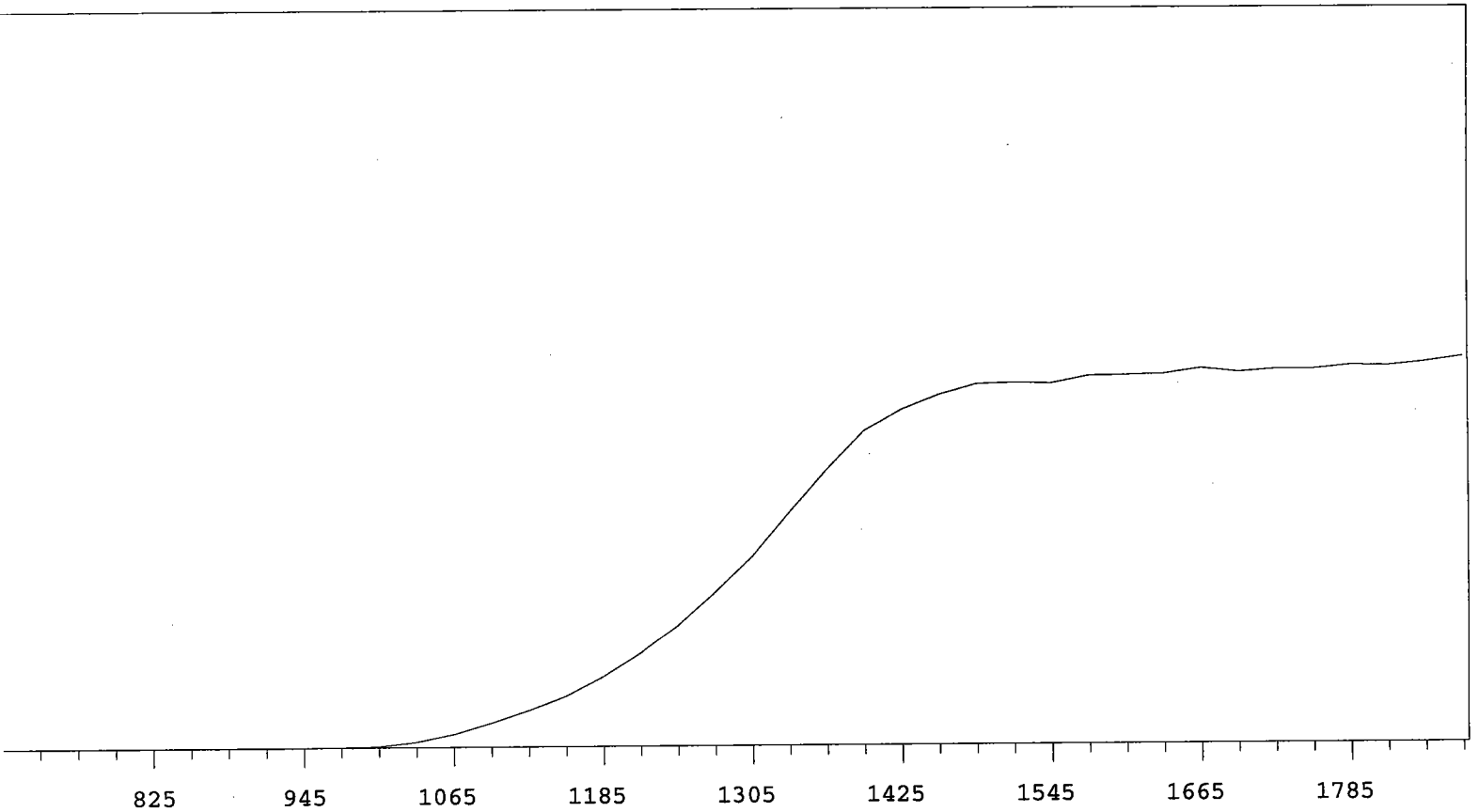


| VOLTS | COUNTS | %/100 Volts | VOLTS | COUNTS | %/100 Volts |
|-------|--------|-------------|-------|--------|-------------|
| 705   | 0      |             | 1305  | 16442  | +66.24      |
| 735   | 0      |             | 1335  | 20146  | +57.40      |
| 765   | 0      |             | 1365  | 23769  | +46.40      |
| 795   | 0      | >100        | 1395  | 26926  | +34.68      |
| 825   | 2      | +55.56      | 1425  | 29276  | +24.40      |
| 855   | 1      | >100        | 1455  | 31037  | +15.28      |
| 885   | 0      | -55.56      | 1485  | 32197  | +7.91       |
| 915   | 3      | >100        | 1515  | 32425  | +4.33       |
| 945   | 0      | >100        | 1545  | 32314  | +2.14       |
| 975   | 16     | >100        | 1575  | 33071  | +2.66       |
| 1005  | 114    | >100        | 1605  | 32918  | +2.52       |
| 1035  | 451    | >100        | 1635  | 33435  | +1.02       |
| 1065  | 1100   | >100        | 1665  | 33382  | +0.73       |
| 1095  | 2068   | >100        | 1695  | 33349  | +1.07       |
| 1125  | 3189   | >100        | 1725  | 33324  | +1.28       |
| 1155  | 4386   | >100        | 1755  | 34001  | +2.26       |
| 1185  | 6094   | +94.81      | 1785  | 33701  | +3.08       |
| 1215  | 8184   | +87.09      | 1815  | 34304  | +2.97       |
| 1245  | 10489  | +78.88      | 1845  | 34744  |             |
| 1275  | 13273  | +72.66      | 1875  | 35012  |             |





| VOLTS | COUNTS | %/100 Volts | VOLTS | COUNTS | %/100 Volts |
|-------|--------|-------------|-------|--------|-------------|
| 705   | 0      |             | 1305  | 15747  | +62.38      |
| 735   | 1      |             | 1335  | 19230  | +54.19      |
| 765   | 0      | +0.00       | 1365  | 22255  | +44.46      |
| 795   | 1      | >100        | 1395  | 25299  | +32.45      |
| 825   | 0      | >100        | 1425  | 27370  | +22.24      |
| 855   | 0      | >100        | 1455  | 28625  | +14.10      |
| 885   | 0      | >100        | 1485  | 29467  | +8.56       |
| 915   | 0      | >100        | 1515  | 30213  | +5.29       |
| 945   | 2      | >100        | 1545  | 30326  | +2.77       |
| 975   | 31     | >100        | 1575  | 30564  | +1.57       |
| 1005  | 176    | >100        | 1605  | 30548  | +1.52       |
| 1035  | 550    | >100        | 1635  | 30820  | +0.85       |
| 1065  | 1218   | >100        | 1665  | 30898  | +0.79       |
| 1095  | 2114   | >100        | 1695  | 30779  | +0.44       |
| 1125  | 3212   | >100        | 1725  | 30934  | +0.45       |
| 1155  | 4416   | >100        | 1755  | 31008  | +0.96       |
| 1185  | 6066   | +92.28      | 1785  | 30991  | +2.01       |
| 1215  | 7936   | +85.60      | 1815  | 31196  | +3.80       |
| 1245  | 10288  | +76.79      | 1845  | 31781  |             |
| 1275  | 13020  | +70.59      | 1875  | 32406  |             |

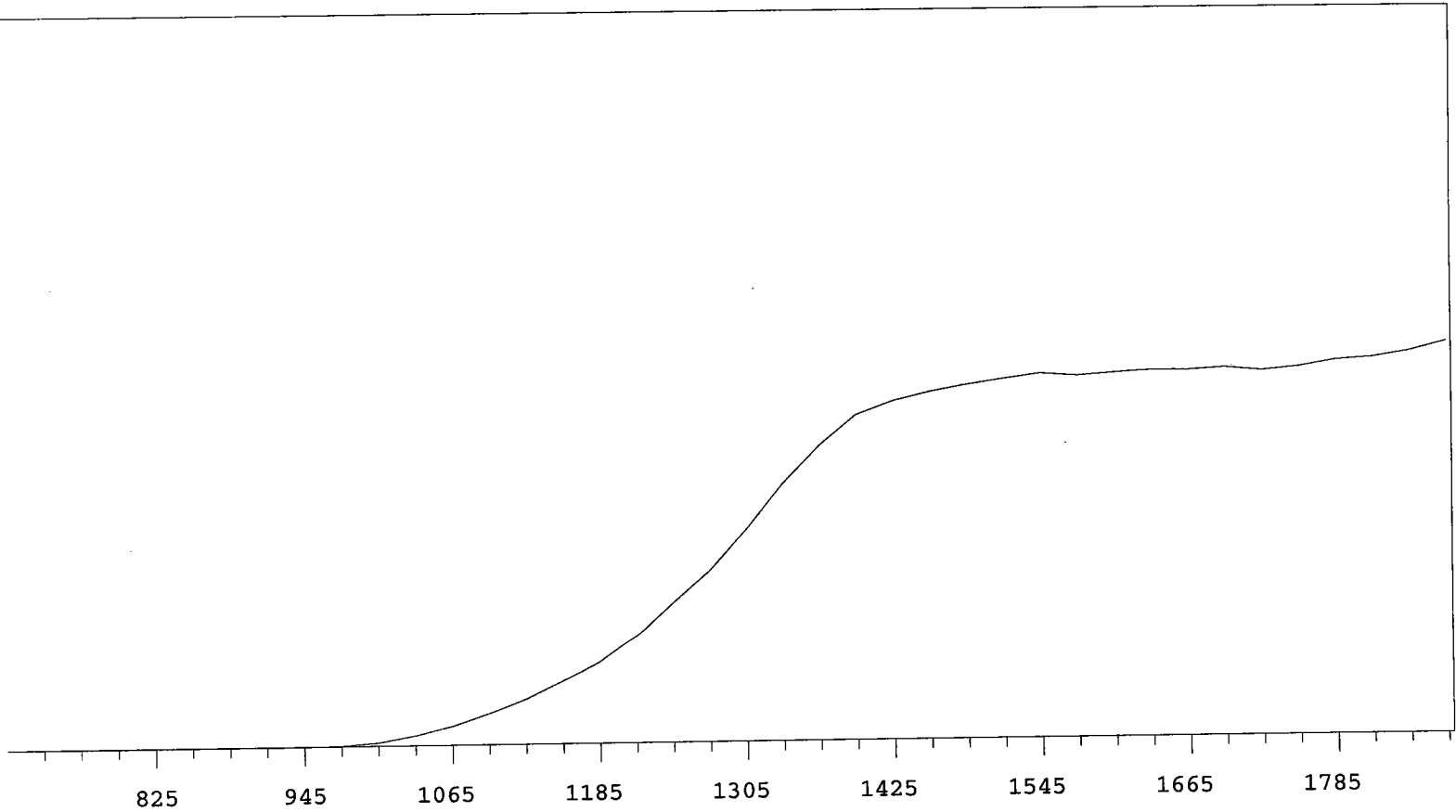


| VOLTS | COUNTS | %/100 Volts | VOLTS | COUNTS | %/100 Volts |
|-------|--------|-------------|-------|--------|-------------|
| 705   | 0      |             | 1305  | 19796  | +65.77      |
| 735   | 1      |             | 1335  | 24338  | +57.55      |
| 765   | 0      | +55.56      | 1365  | 28686  | +45.86      |
| 795   | 2      | +0.00       | 1395  | 32750  | +32.27      |
| 825   | 0      | -55.56      | 1425  | 34919  | +20.83      |
| 855   | 1      | >100        | 1455  | 36434  | +11.45      |
| 885   | 0      | >100        | 1485  | 37487  | +5.80       |
| 915   | 0      | >100        | 1515  | 37623  | +3.32       |
| 945   | 2      | >100        | 1545  | 37528  | +2.07       |
| 975   | 24     | >100        | 1575  | 38277  | +2.12       |
| 1005  | 134    | >100        | 1605  | 38338  | +2.70       |
| 1035  | 558    | >100        | 1635  | 38426  | +1.12       |
| 1065  | 1361   | >100        | 1665  | 39007  | +1.06       |
| 1095  | 2511   | >100        | 1695  | 38592  | +0.64       |
| 1125  | 3762   | >100        | 1725  | 38870  | +0.63       |
| 1155  | 5246   | >100        | 1755  | 38868  | +1.30       |
| 1185  | 7268   | +96.29      | 1785  | 39238  | +1.45       |
| 1215  | 9733   | +88.98      | 1815  | 39169  | +2.34       |
| 1245  | 12701  | +79.94      | 1845  | 39570  |             |
| 1275  | 16176  | +73.13      | 1875  | 40086  |             |

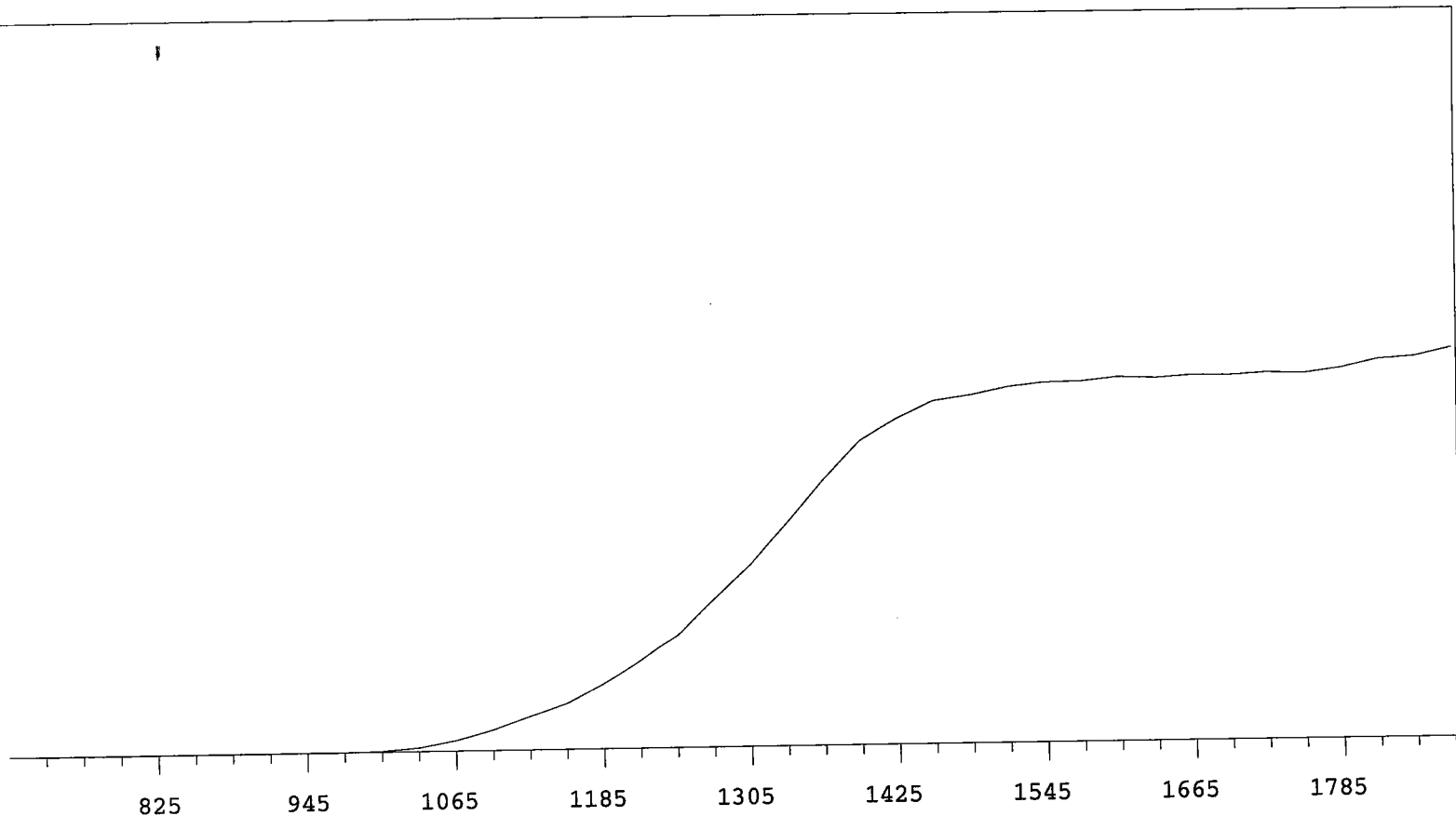
MPC 9600 Plateau  
Alpha Volts: 705

Instrument 4 MPC 9604 Detector D  
Beta Volts: 1575

7/1/2009



| VOLTS | COUNTS | %/100 Volts | VOLTS | COUNTS | %/100 Volts |
|-------|--------|-------------|-------|--------|-------------|
| 705   | 1      |             | 1305  | 18491  | +61.09      |
| 735   | 0      |             | 1335  | 22444  | +51.56      |
| 765   | 0      | +0.00       | 1365  | 25756  | +37.44      |
| 795   | 0      | >100        | 1395  | 28379  | +23.82      |
| 825   | 1      | +83.33      | 1425  | 29517  | +14.00      |
| 855   | 1      | +55.56      | 1455  | 30309  | +8.08       |
| 885   | 0      | +0.00       | 1485  | 30874  | +6.03       |
| 915   | 1      | >100        | 1515  | 31345  | +3.66       |
| 945   | 1      | >100        | 1545  | 31782  | +2.17       |
| 975   | 60     | >100        | 1575  | 31567  | +1.31       |
| 1005  | 297    | >100        | 1605  | 31789  | +0.78       |
| 1035  | 855    | >100        | 1635  | 31963  | +1.34       |
| 1065  | 1647   | >100        | 1665  | 31956  | +0.29       |
| 1095  | 2700   | >100        | 1695  | 32123  | +0.20       |
| 1125  | 3921   | >100        | 1725  | 31850  | +1.46       |
| 1155  | 5471   | +96.54      | 1755  | 32114  | +2.39       |
| 1185  | 7042   | +90.21      | 1785  | 32665  | +3.95       |
| 1215  | 9405   | +82.23      | 1815  | 32876  | +4.96       |
| 1245  | 12266  | +76.33      | 1845  | 33399  |             |
| 1275  | 14989  | +69.38      | 1875  | 34206  |             |

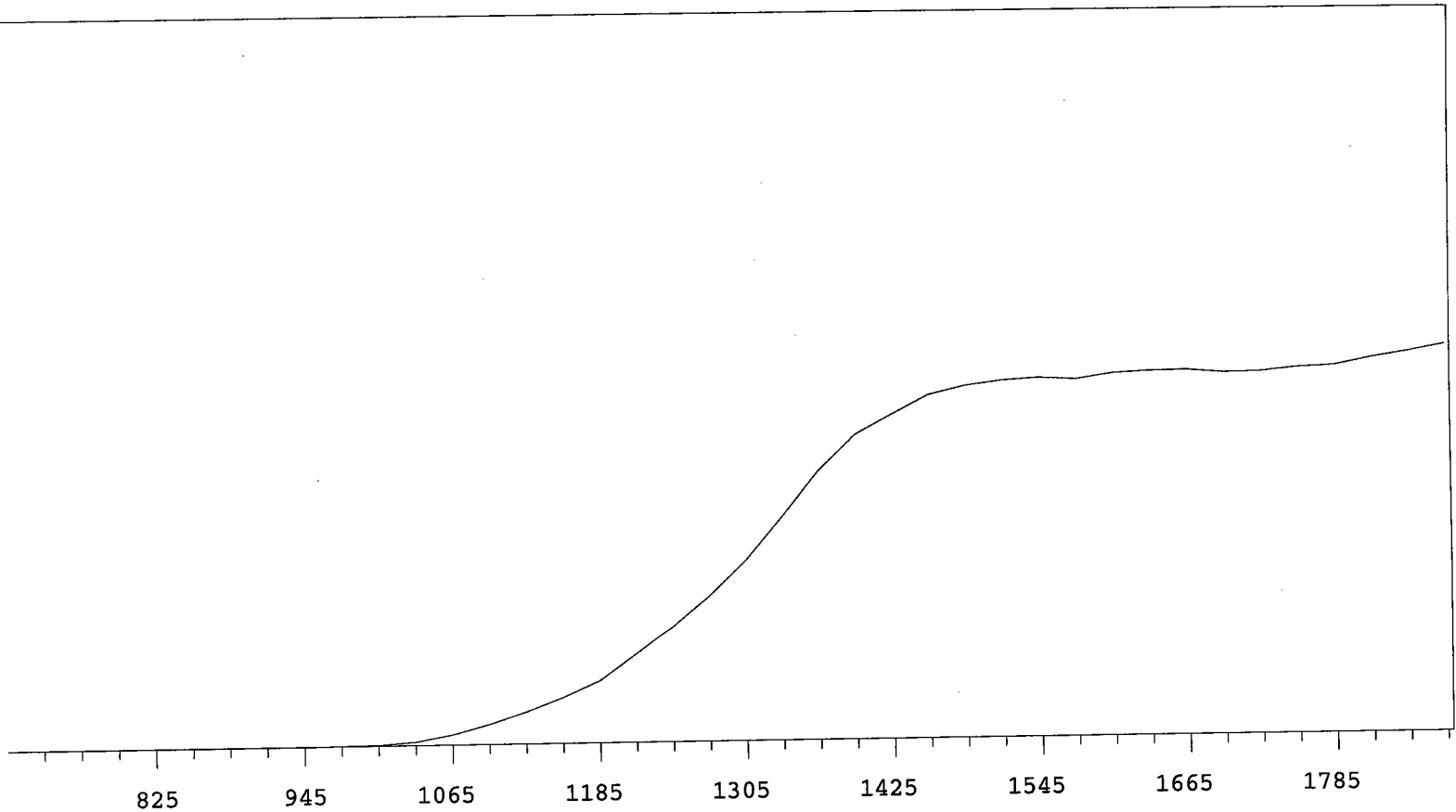


| VOLTS | COUNTS | %/100 Volts | VOLTS | COUNTS | %/100 Volts |
|-------|--------|-------------|-------|--------|-------------|
| 705   | 0      |             | 1305  | 13974  | +68.00      |
| 735   | 0      |             | 1335  | 17170  | +58.62      |
| 765   | 1      |             | 1365  | 20456  | +47.04      |
| 795   | 1      | +83.33      | 1395  | 23332  | +33.83      |
| 825   | 1      | -83.33      | 1425  | 24996  | +21.10      |
| 855   | 1      | >100        | 1455  | 26290  | +12.40      |
| 885   | 0      | -55.56      | 1485  | 26683  | +7.74       |
| 915   | 0      | >100        | 1515  | 27270  | +4.43       |
| 945   | 1      | >100        | 1545  | 27590  | +3.48       |
| 975   | 9      | >100        | 1575  | 27635  | +1.71       |
| 1005  | 76     | >100        | 1605  | 27932  | +1.20       |
| 1035  | 308    | >100        | 1635  | 27807  | +0.88       |
| 1065  | 814    | >100        | 1665  | 28006  | +0.62       |
| 1095  | 1600   | >100        | 1695  | 27964  | +0.63       |
| 1125  | 2598   | >100        | 1725  | 28112  | +0.98       |
| 1155  | 3596   | >100        | 1755  | 28020  | +2.84       |
| 1185  | 5065   | +96.05      | 1785  | 28392  | +3.76       |
| 1215  | 6773   | +90.23      | 1815  | 29028  | +5.17       |
| 1245  | 8717   | +81.43      | 1845  | 29220  |             |
| 1275  | 11391  | +74.83      | 1875  | 29849  |             |

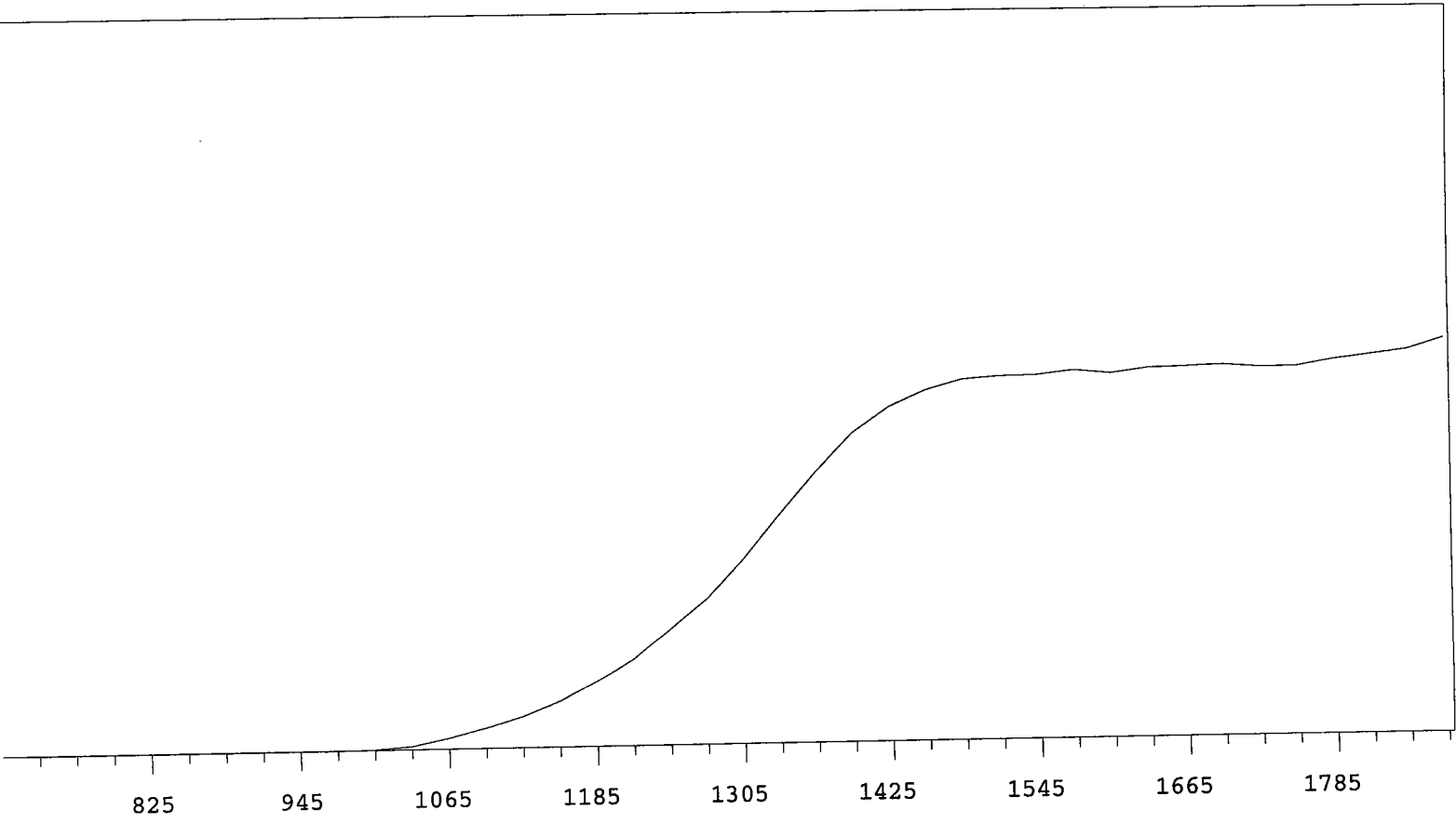
MPC 9600 Plateau  
Alpha Volts: 705

Instrument 5 MPC 9604 Detector B  
Beta Volts: 1575

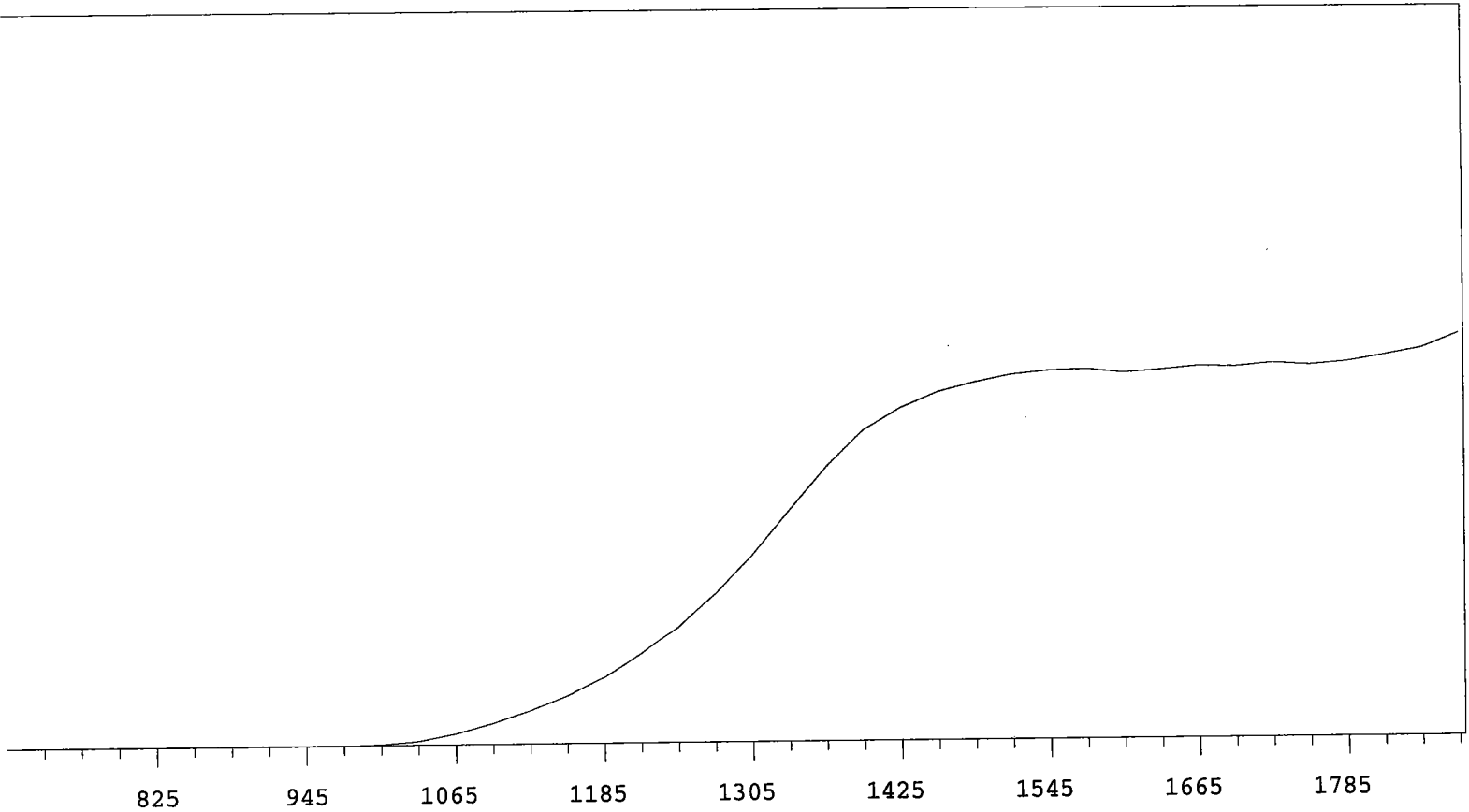
7/1/2009



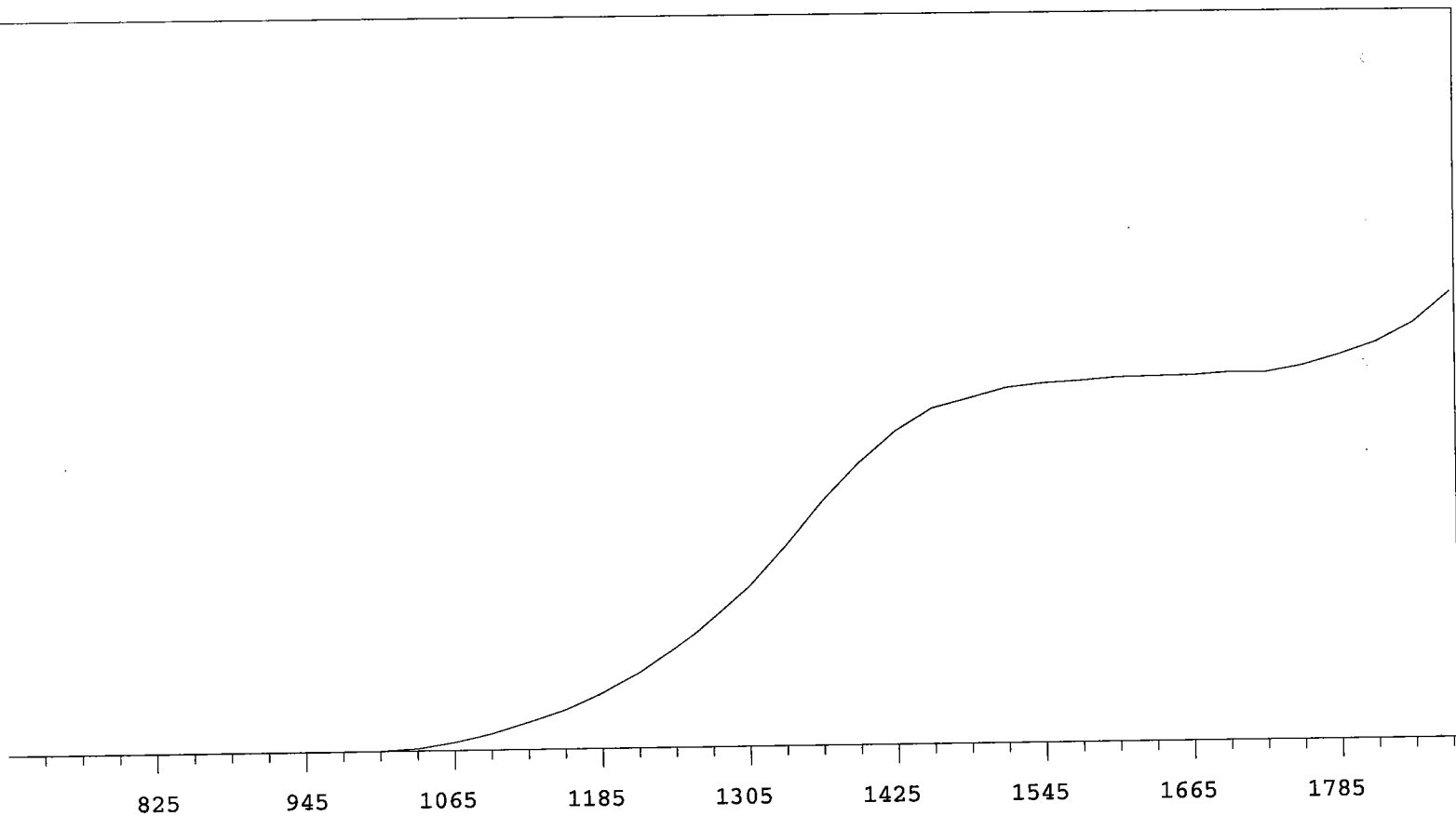
| VOLTS | COUNTS | %/100 Volts | VOLTS | COUNTS | %/100 Volts |
|-------|--------|-------------|-------|--------|-------------|
| 705   | 0      |             | 1305  | 17414  | +68.46      |
| 735   | 0      |             | 1335  | 21540  | +59.98      |
| 765   | 0      |             | 1365  | 25854  | +46.75      |
| 795   | 0      | >100        | 1395  | 29222  | +33.38      |
| 825   | 1      | >100        | 1425  | 31128  | +21.52      |
| 855   | 1      | +41.67      | 1455  | 32995  | +13.26      |
| 885   | 2      | -33.33      | 1485  | 33846  | +8.09       |
| 915   | 0      | >100        | 1515  | 34289  | +3.25       |
| 945   | 1      | >100        | 1545  | 34528  | +2.00       |
| 975   | 17     | >100        | 1575  | 34311  | +1.78       |
| 1005  | 87     | >100        | 1605  | 34866  | +1.78       |
| 1035  | 336    | >100        | 1635  | 35046  | +1.14       |
| 1065  | 1010   | >100        | 1665  | 35087  | -0.26       |
| 1095  | 1955   | >100        | 1695  | 34795  | +0.11       |
| 1125  | 3124   | >100        | 1725  | 34857  | +0.93       |
| 1155  | 4486   | >100        | 1755  | 35220  | +2.81       |
| 1185  | 6017   | >100        | 1785  | 35363  | +3.98       |
| 1215  | 8507   | +91.20      | 1815  | 36028  | +4.79       |
| 1245  | 11148  | +82.59      | 1845  | 36577  |             |
| 1275  | 14003  | +74.21      | 1875  | 37207  |             |



| VOLTS | COUNTS | %/100 Volts | VOLTS | COUNTS | %/100 Volts |
|-------|--------|-------------|-------|--------|-------------|
| 705   | 0      |             | 1305  | 17085  | +68.24      |
| 735   | 0      |             | 1335  | 21135  | +59.99      |
| 765   | 0      |             | 1365  | 25066  | +47.39      |
| 795   | 0      | >100        | 1395  | 28530  | +33.93      |
| 825   | 0      | >100        | 1425  | 30823  | +22.30      |
| 855   | 1      | >100        | 1455  | 32287  | +12.93      |
| 885   | 0      | >100        | 1485  | 33217  | +6.71       |
| 915   | 1      | >100        | 1515  | 33474  | +3.57       |
| 945   | 2      | >100        | 1545  | 33517  | +1.17       |
| 975   | 7      | >100        | 1575  | 33921  | +1.13       |
| 1005  | 56     | >100        | 1605  | 33584  | +1.27       |
| 1035  | 305    | >100        | 1635  | 34014  | +1.12       |
| 1065  | 982    | >100        | 1665  | 34116  | +0.98       |
| 1095  | 1874   | >100        | 1695  | 34225  | -0.22       |
| 1125  | 2890   | >100        | 1725  | 33980  | +0.58       |
| 1155  | 4260   | >100        | 1755  | 33971  | +1.96       |
| 1185  | 6001   | >100        | 1785  | 34541  | +3.64       |
| 1215  | 8050   | +91.54      | 1815  | 34954  | +5.38       |
| 1245  | 10895  | +82.98      | 1845  | 35375  |             |
| 1275  | 13556  | +76.26      | 1875  | 36384  |             |

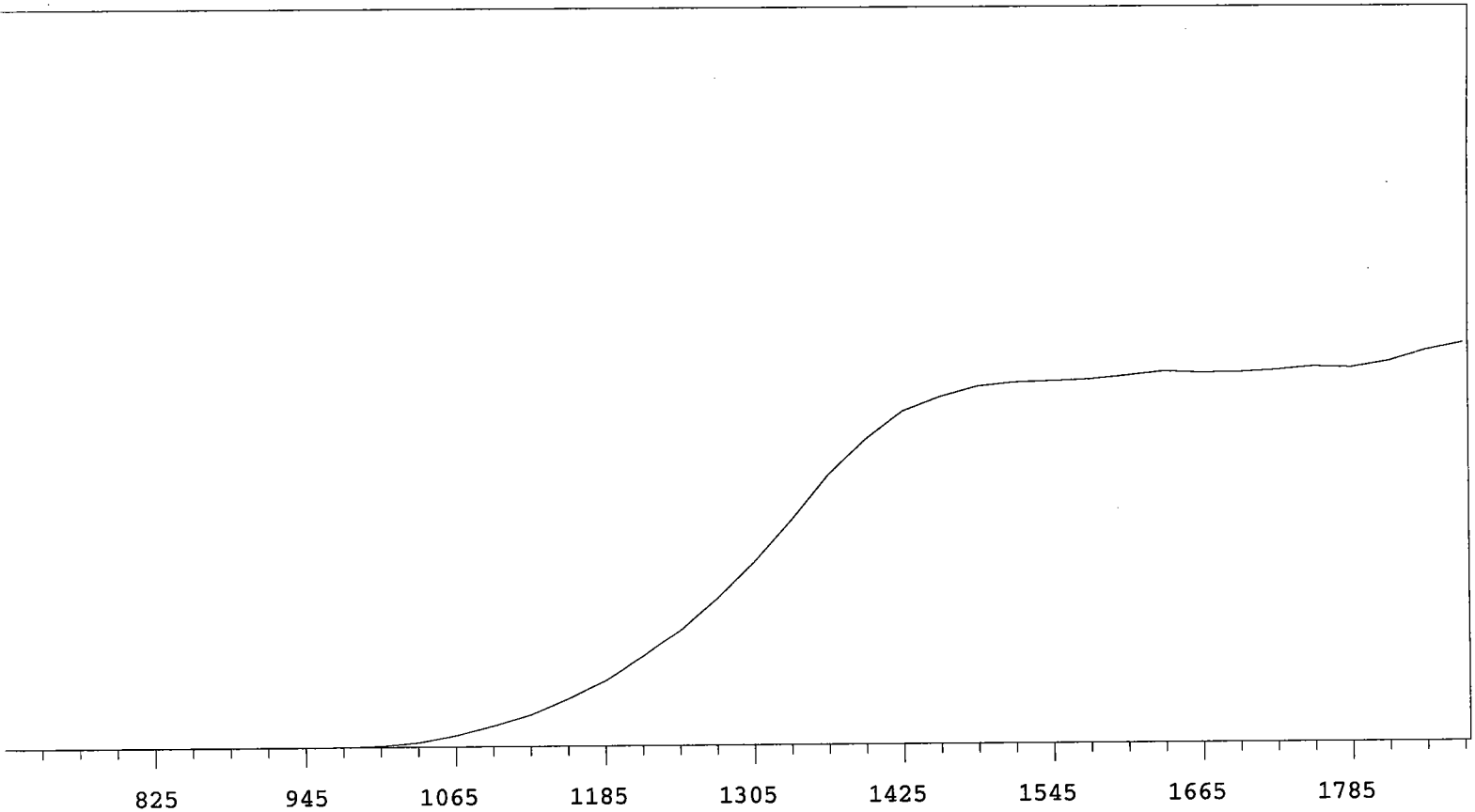


| VOLTS | COUNTS | %/100 Volts | VOLTS | COUNTS | %/100 Volts |
|-------|--------|-------------|-------|--------|-------------|
| 705   | 0      |             | 1305  | 15025  | +68.87      |
| 735   | 0      |             | 1335  | 18640  | +58.97      |
| 765   | 0      |             | 1365  | 22048  | +45.84      |
| 795   | 0      | >100        | 1395  | 24877  | +32.08      |
| 825   | 0      | >100        | 1425  | 26653  | +20.83      |
| 855   | 0      | >100        | 1455  | 27899  | +13.08      |
| 885   | 0      | >100        | 1485  | 28670  | +8.43       |
| 915   | 0      | >100        | 1515  | 29257  | +5.13       |
| 945   | 0      | >100        | 1545  | 29568  | +2.06       |
| 975   | 6      | >100        | 1575  | 29683  | +0.52       |
| 1005  | 81     | >100        | 1605  | 29362  | +0.57       |
| 1035  | 318    | >100        | 1635  | 29589  | +0.80       |
| 1065  | 897    | >100        | 1665  | 29870  | +1.82       |
| 1095  | 1710   | >100        | 1695  | 29783  | +0.90       |
| 1125  | 2714   | >100        | 1725  | 30077  | +0.75       |
| 1155  | 3925   | >100        | 1755  | 29889  | +2.02       |
| 1185  | 5395   | +97.31      | 1785  | 30152  | +3.33       |
| 1215  | 7282   | +88.49      | 1815  | 30656  | +6.54       |
| 1245  | 9426   | +81.36      | 1845  | 31211  |             |
| 1275  | 12007  | +75.65      | 1875  | 32389  |             |



| VOLTS | COUNTS | %/100 Volts | VOLTS | COUNTS | %/100 Volts |
|-------|--------|-------------|-------|--------|-------------|
| 705   | 0      |             | 1305  | 16217  | +71.57      |
| 735   | 0      |             | 1335  | 20184  | +63.76      |
| 765   | 0      |             | 1365  | 24605  | +53.98      |
| 795   | 0      | >100        | 1395  | 28528  | +41.40      |
| 825   | 0      | >100        | 1425  | 31675  | +28.02      |
| 855   | 0      | >100        | 1455  | 33899  | +17.93      |
| 885   | 0      | >100        | 1485  | 34826  | +10.65      |
| 915   | 0      | >100        | 1515  | 35815  | +6.13       |
| 945   | 0      | >100        | 1545  | 36225  | +4.15       |
| 975   | 7      | >100        | 1575  | 36456  | +2.28       |
| 1005  | 31     | >100        | 1605  | 36747  | +1.47       |
| 1035  | 238    | >100        | 1635  | 36801  | +1.26       |
| 1065  | 810    | >100        | 1665  | 36859  | +0.85       |
| 1095  | 1637   | >100        | 1695  | 37095  | +1.85       |
| 1125  | 2743   | >100        | 1725  | 37072  | +4.01       |
| 1155  | 3932   | >100        | 1755  | 37724  | +6.65       |
| 1185  | 5579   | >100        | 1785  | 38802  | +10.33      |
| 1215  | 7602   | +94.41      | 1815  | 40036  | +14.71      |
| 1245  | 10078  | +84.86      | 1845  | 41975  |             |
| 1275  | 13091  | +77.67      | 1875  | 45123  |             |



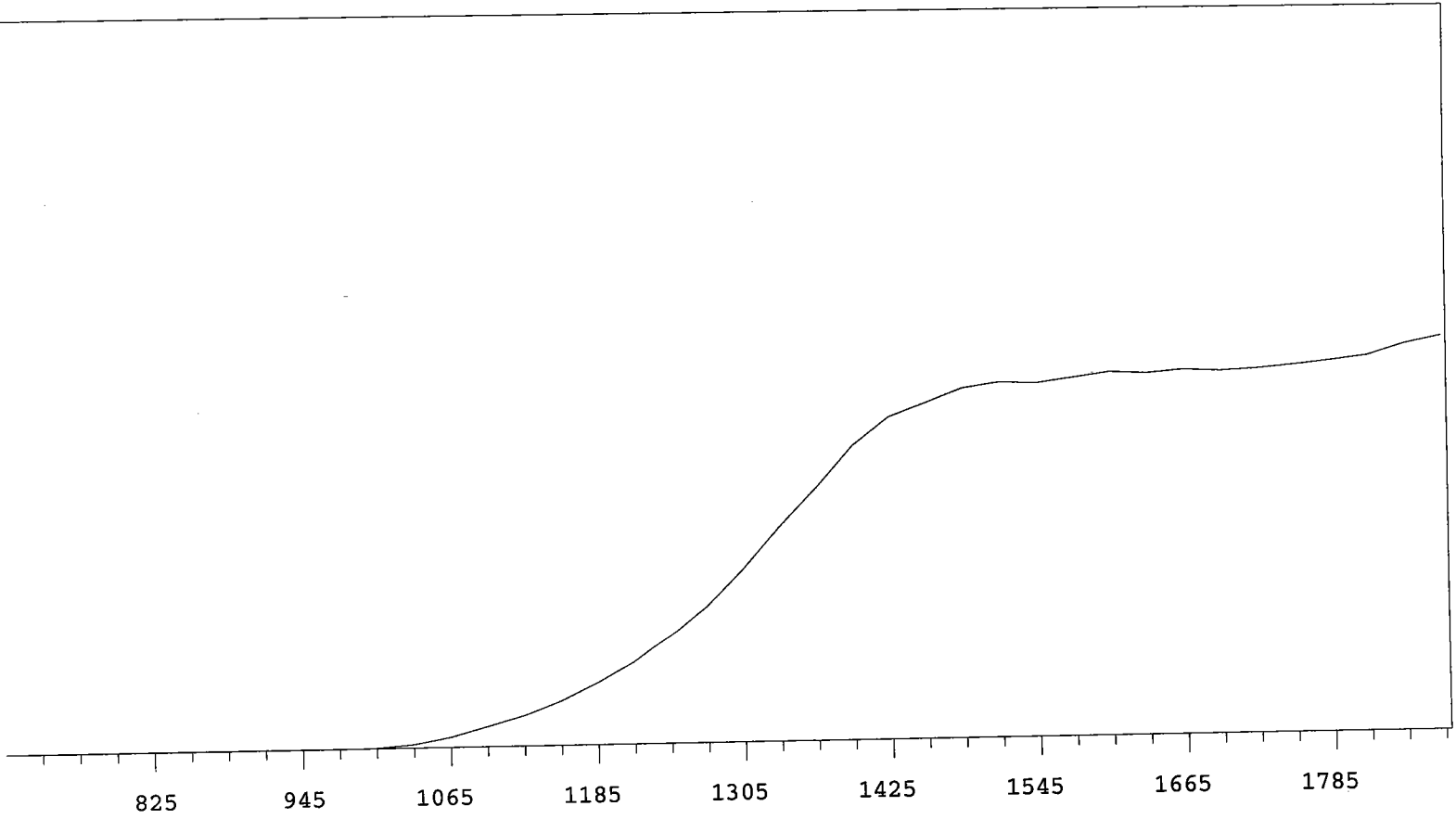


| VOLTS | COUNTS | %/100 Volts | VOLTS | COUNTS | %/100 Volts |
|-------|--------|-------------|-------|--------|-------------|
| 705   | 0      |             | 1305  | 20094  | +68.67      |
| 735   | 0      |             | 1335  | 24665  | +59.40      |
| 765   | 0      |             | 1365  | 29591  | +47.86      |
| 795   | 0      | >100        | 1395  | 33376  | +34.51      |
| 825   | 1      | +83.33      | 1425  | 36440  | +22.50      |
| 855   | 1      | -83.33      | 1455  | 38024  | +13.58      |
| 885   | 0      | >100        | 1485  | 39187  | +7.04       |
| 915   | 0      | >100        | 1515  | 39608  | +3.63       |
| 945   | 5      | >100        | 1545  | 39722  | +2.10       |
| 975   | 18     | >100        | 1575  | 39894  | +2.32       |
| 1005  | 125    | >100        | 1605  | 40298  | +2.09       |
| 1035  | 482    | >100        | 1635  | 40711  | +1.41       |
| 1065  | 1255   | >100        | 1665  | 40574  | +0.80       |
| 1095  | 2318   | >100        | 1695  | 40608  | +1.02       |
| 1125  | 3540   | >100        | 1725  | 40839  | +1.28       |
| 1155  | 5288   | >100        | 1755  | 41201  | +1.97       |
| 1185  | 7168   | +98.51      | 1785  | 41065  | +3.74       |
| 1215  | 9760   | +88.48      | 1815  | 41711  | +5.42       |
| 1245  | 12656  | +81.52      | 1845  | 42917  |             |
| 1275  | 16065  | +74.58      | 1875  | 43699  |             |

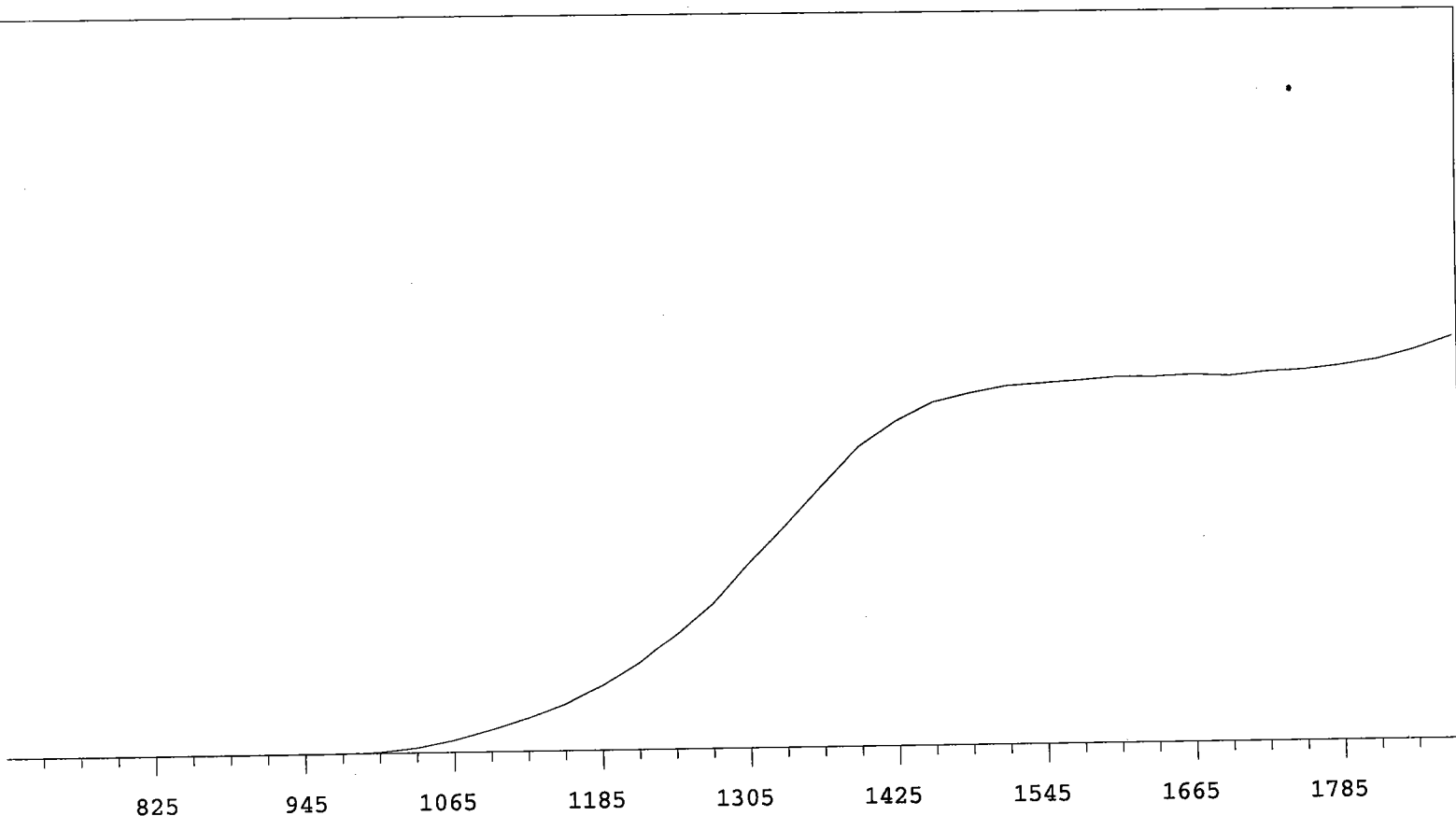
MPC 9600 Plateau  
Alpha Volts: 705

Instrument 6 MPC 9604 Detector C  
Beta Volts: 1575

7/1/2009



| VOLTS | COUNTS | %/100 Volts | VOLTS | COUNTS | %/100 Volts |
|-------|--------|-------------|-------|--------|-------------|
| 705   | 0      |             | 1305  | 17350  | +67.80      |
| 735   | 0      |             | 1335  | 21371  | +60.27      |
| 765   | 1      | +0.00       | 1365  | 25084  | +49.32      |
| 795   | 0      | >100        | 1395  | 29177  | +36.15      |
| 825   | 0      | +0.00       | 1425  | 31927  | +24.86      |
| 855   | 0      | >100        | 1455  | 33217  | +14.70      |
| 885   | 1      | >100        | 1485  | 34545  | +7.74       |
| 915   | 1      | >100        | 1515  | 35097  | +4.64       |
| 945   | 2      | >100        | 1545  | 34927  | +2.96       |
| 975   | 8      | >100        | 1575  | 35439  | +2.21       |
| 1005  | 70     | >100        | 1605  | 35939  | +2.41       |
| 1035  | 353    | >100        | 1635  | 35763  | +0.94       |
| 1065  | 990    | >100        | 1665  | 36053  | +0.35       |
| 1095  | 1956   | >100        | 1695  | 35886  | +1.15       |
| 1125  | 3024   | >100        | 1725  | 36066  | +1.77       |
| 1155  | 4400   | >100        | 1755  | 36379  | +3.03       |
| 1185  | 6173   | +99.75      | 1785  | 36768  | +4.80       |
| 1215  | 8230   | +89.85      | 1815  | 37193  | +6.14       |
| 1245  | 10904  | +82.36      | 1845  | 38320  |             |
| 1275  | 13747  | +76.18      | 1875  | 39061  |             |

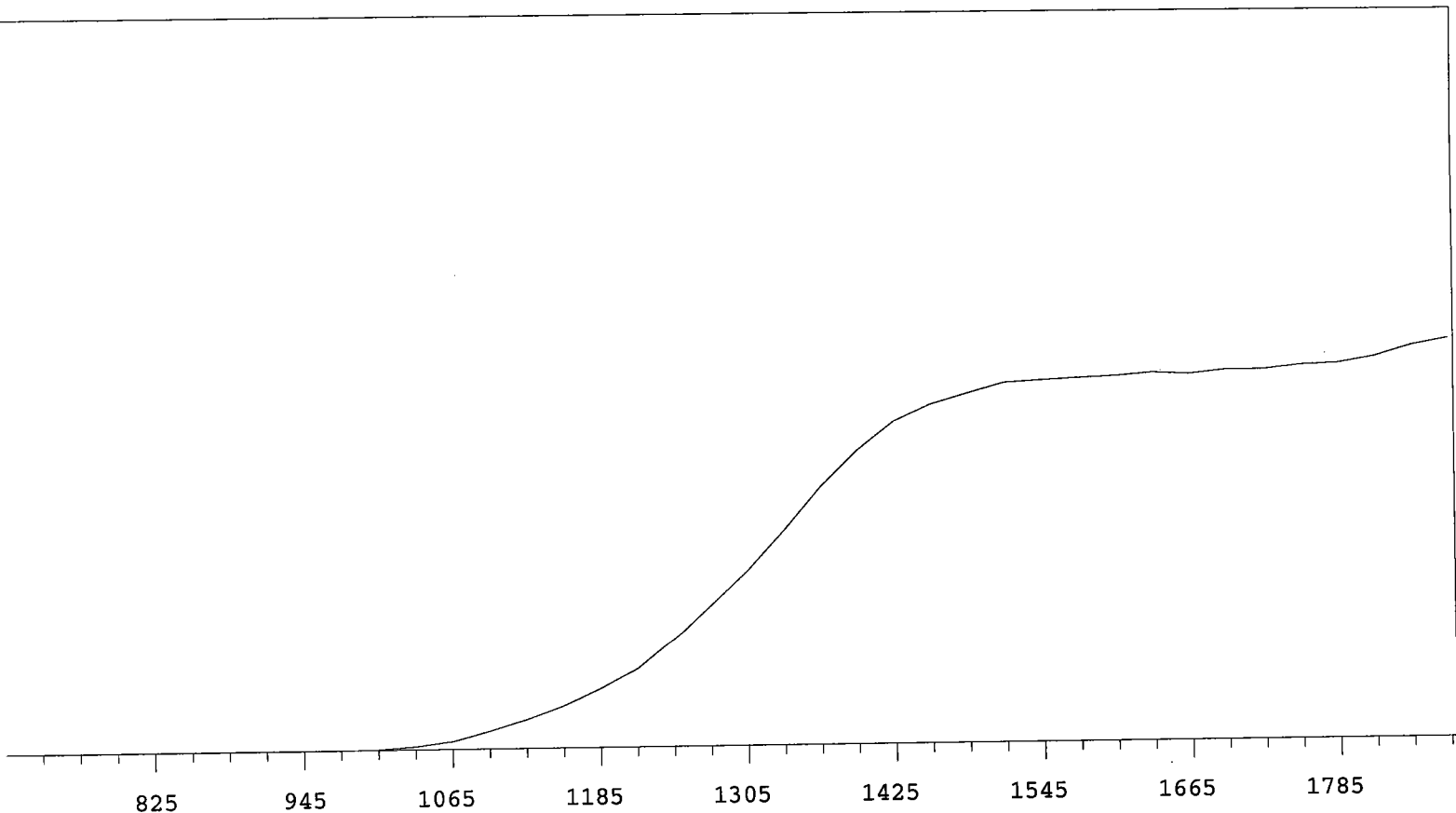


| VOLTS | COUNTS | %/100 Volts | VOLTS | COUNTS | %/100 Volts |
|-------|--------|-------------|-------|--------|-------------|
| 705   | 0      |             | 1305  | 17954  | +65.82      |
| 735   | 0      |             | 1335  | 21482  | +57.64      |
| 765   | 0      |             | 1365  | 25373  | +45.78      |
| 795   | 1      | +0.00       | 1395  | 29042  | +34.80      |
| 825   | 0      | >100        | 1425  | 31373  | +23.29      |
| 855   | 0      | +0.00       | 1455  | 33143  | +14.25      |
| 885   | 0      | >100        | 1485  | 34006  | +8.49       |
| 915   | 1      | >100        | 1515  | 34662  | +4.71       |
| 945   | 0      | >100        | 1545  | 34892  | +3.14       |
| 975   | 14     | >100        | 1575  | 35129  | +1.86       |
| 1005  | 109    | >100        | 1605  | 35411  | +1.49       |
| 1035  | 481    | >100        | 1635  | 35380  | +0.62       |
| 1065  | 1177   | >100        | 1665  | 35554  | +0.65       |
| 1095  | 2133   | >100        | 1695  | 35385  | +1.18       |
| 1125  | 3243   | >100        | 1725  | 35755  | +1.89       |
| 1155  | 4554   | >100        | 1755  | 35907  | +3.26       |
| 1185  | 6285   | +98.38      | 1785  | 36305  | +4.62       |
| 1215  | 8468   | +89.75      | 1815  | 36870  | +6.98       |
| 1245  | 11266  | +83.13      | 1845  | 37807  |             |
| 1275  | 14088  | +74.43      | 1875  | 39047  |             |

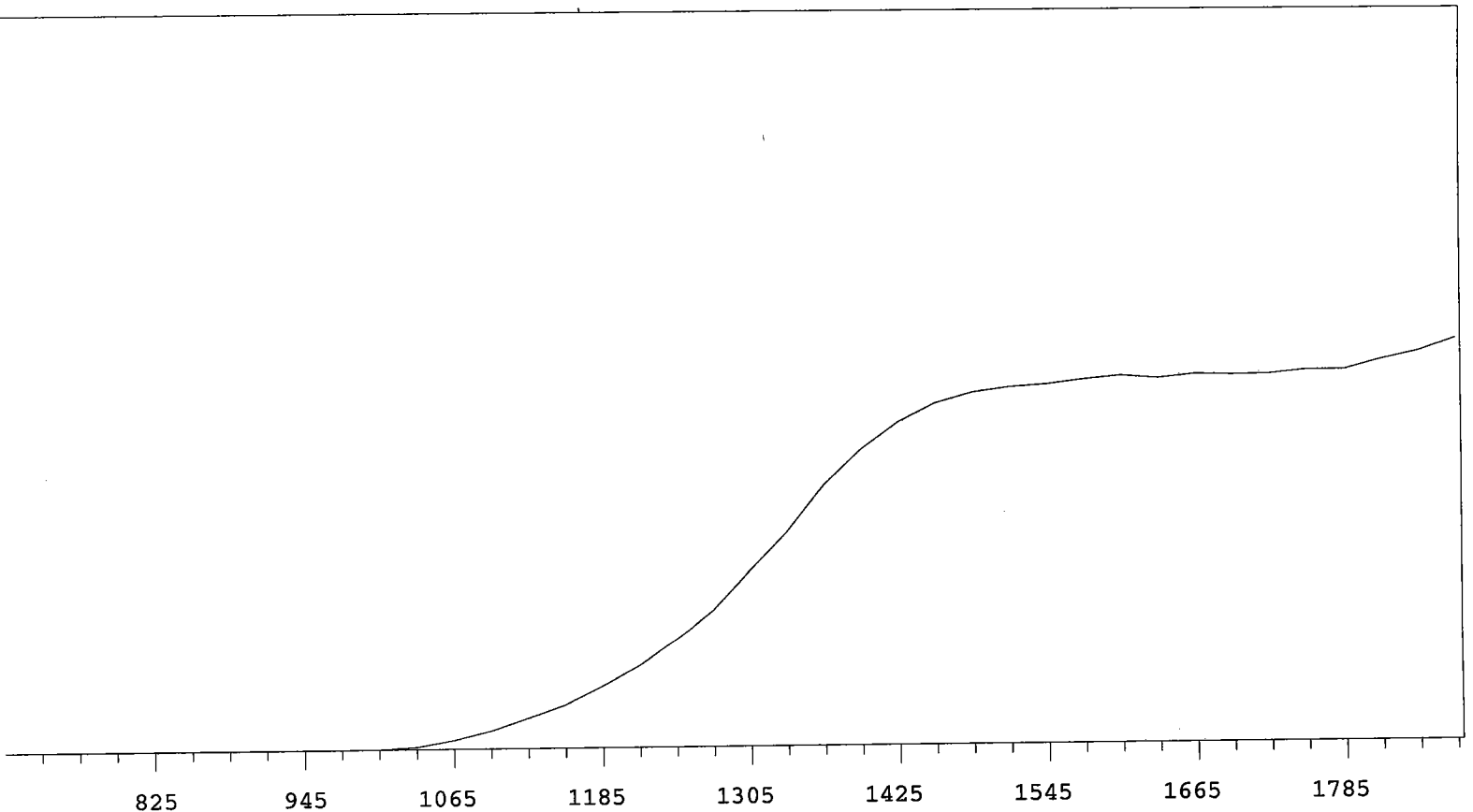
MPC 9600 Plateau  
 Alpha Volts: 705

Instrument 7 MPC 9604 Detector A  
 Beta Volts: 1575

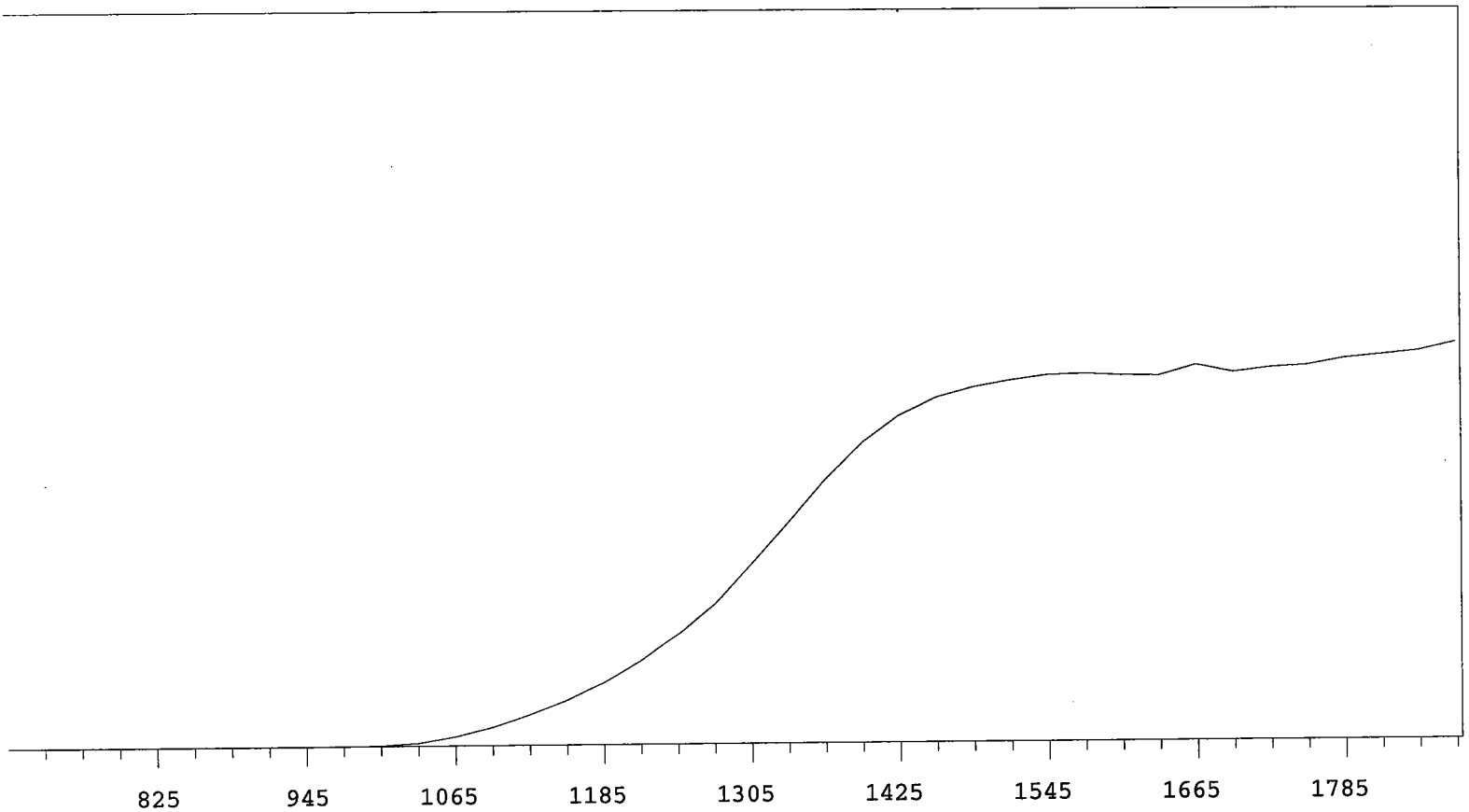
7/1/2009



| VOLTS | COUNTS | %/100 Volts | VOLTS | COUNTS | %/100 Volts |
|-------|--------|-------------|-------|--------|-------------|
| 705   | 0      |             | 1305  | 13228  | +70.36      |
| 735   | 0      |             | 1335  | 16271  | +60.12      |
| 765   | 0      |             | 1365  | 19506  | +49.19      |
| 795   | 0      | >100        | 1395  | 22188  | +36.46      |
| 825   | 1      | +83.33      | 1425  | 24373  | +24.43      |
| 855   | 1      | -83.33      | 1455  | 25649  | +15.99      |
| 885   | 0      | -55.56      | 1485  | 26433  | +9.58       |
| 915   | 0      | >100        | 1515  | 27195  | +5.74       |
| 945   | 1      | >100        | 1545  | 27367  | +3.24       |
| 975   | 3      | >100        | 1575  | 27490  | +1.86       |
| 1005  | 42     | >100        | 1605  | 27608  | +1.22       |
| 1035  | 242    | >100        | 1635  | 27841  | +1.33       |
| 1065  | 613    | >100        | 1665  | 27695  | +1.11       |
| 1095  | 1353   | >100        | 1695  | 27999  | +1.42       |
| 1125  | 2213   | >100        | 1725  | 27992  | +2.04       |
| 1155  | 3256   | >100        | 1755  | 28289  | +2.52       |
| 1185  | 4474   | >100        | 1785  | 28408  | +4.56       |
| 1215  | 5932   | +94.10      | 1815  | 28863  | +5.70       |
| 1245  | 8072   | +87.32      | 1845  | 29664  |             |
| 1275  | 10579  | +79.61      | 1875  | 30148  |             |



| VOLTS | COUNTS | %/100 Volts | VOLTS | COUNTS | %/100 Volts |
|-------|--------|-------------|-------|--------|-------------|
| 705   | 0      |             | 1305  | 16978  | +70.97      |
| 735   | 0      |             | 1335  | 20569  | +61.39      |
| 765   | 0      |             | 1365  | 24989  | +48.97      |
| 795   | 0      | >100        | 1395  | 28389  | +36.69      |
| 825   | 0      | >100        | 1425  | 30977  | +24.05      |
| 855   | 0      | >100        | 1455  | 32727  | +14.93      |
| 885   | 0      | >100        | 1485  | 33697  | +8.42       |
| 915   | 1      | >100        | 1515  | 34195  | +4.89       |
| 945   | 1      | >100        | 1545  | 34437  | +3.49       |
| 975   | 3      | >100        | 1575  | 34850  | +2.11       |
| 1005  | 34     | >100        | 1605  | 35174  | +1.62       |
| 1035  | 221    | >100        | 1635  | 34923  | +0.68       |
| 1065  | 825    | >100        | 1665  | 35250  | +0.35       |
| 1095  | 1709   | >100        | 1695  | 35171  | +1.24       |
| 1125  | 2873   | >100        | 1725  | 35237  | +1.02       |
| 1155  | 4078   | >100        | 1755  | 35584  | +2.79       |
| 1185  | 5858   | >100        | 1785  | 35587  | +4.59       |
| 1215  | 7809   | +91.82      | 1815  | 36485  | +6.74       |
| 1245  | 10336  | +85.02      | 1845  | 37270  |             |
| 1275  | 13215  | +77.79      | 1875  | 38453  |             |

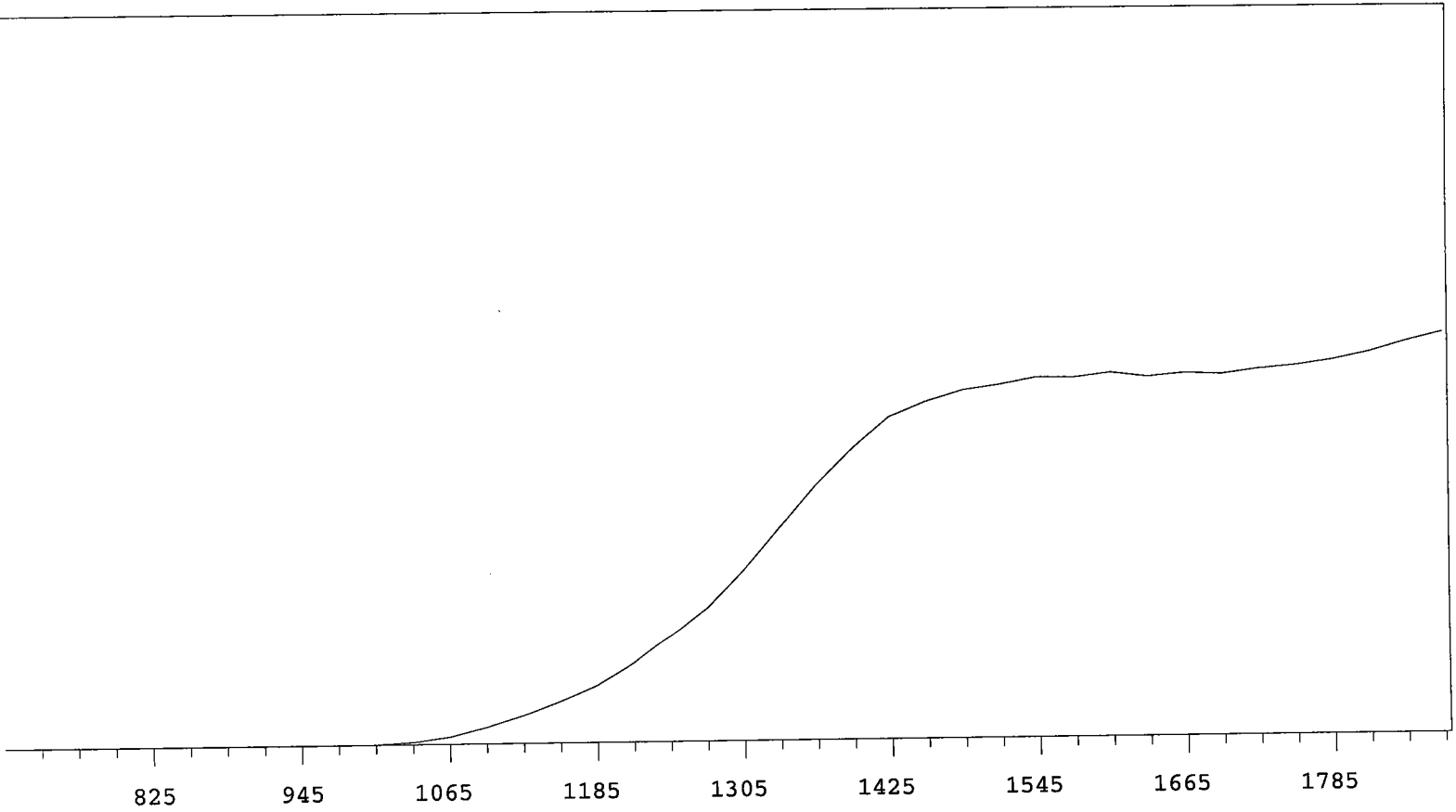


| VOLTS | COUNTS | %/100 Volts | VOLTS | COUNTS | %/100 Volts |
|-------|--------|-------------|-------|--------|-------------|
| 705   | 0      |             | 1305  | 16543  | +70.03      |
| 735   | 0      |             | 1335  | 20257  | +60.71      |
| 765   | 0      |             | 1365  | 24245  | +48.17      |
| 795   | 0      | >100        | 1395  | 27602  | +35.50      |
| 825   | 0      | >100        | 1425  | 30019  | +23.48      |
| 855   | 0      | >100        | 1455  | 31614  | +14.53      |
| 885   | 0      | >100        | 1485  | 32522  | +8.91       |
| 915   | 0      | >100        | 1515  | 33103  | +5.28       |
| 945   | 0      | >100        | 1545  | 33572  | +2.60       |
| 975   | 4      | >100        | 1575  | 33695  | +0.70       |
| 1005  | 57     | >100        | 1605  | 33525  | +1.48       |
| 1035  | 277    | >100        | 1635  | 33477  | +0.99       |
| 1065  | 817    | >100        | 1665  | 34432  | +1.49       |
| 1095  | 1666   | >100        | 1695  | 33745  | +1.43       |
| 1125  | 2766   | >100        | 1725  | 34149  | +1.60       |
| 1155  | 4077   | >100        | 1755  | 34350  | +3.69       |
| 1185  | 5667   | >100        | 1785  | 34955  | +3.62       |
| 1215  | 7694   | +91.50      | 1815  | 35251  | +4.44       |
| 1245  | 10209  | +84.83      | 1845  | 35592  |             |
| 1275  | 12950  | +77.50      | 1875  | 36382  |             |

MPC 9600 Plateau  
 Alpha Volts: 705

Instrument 7 MPC 9604 Detector D  
 Beta Volts: 1575

7/1/2009

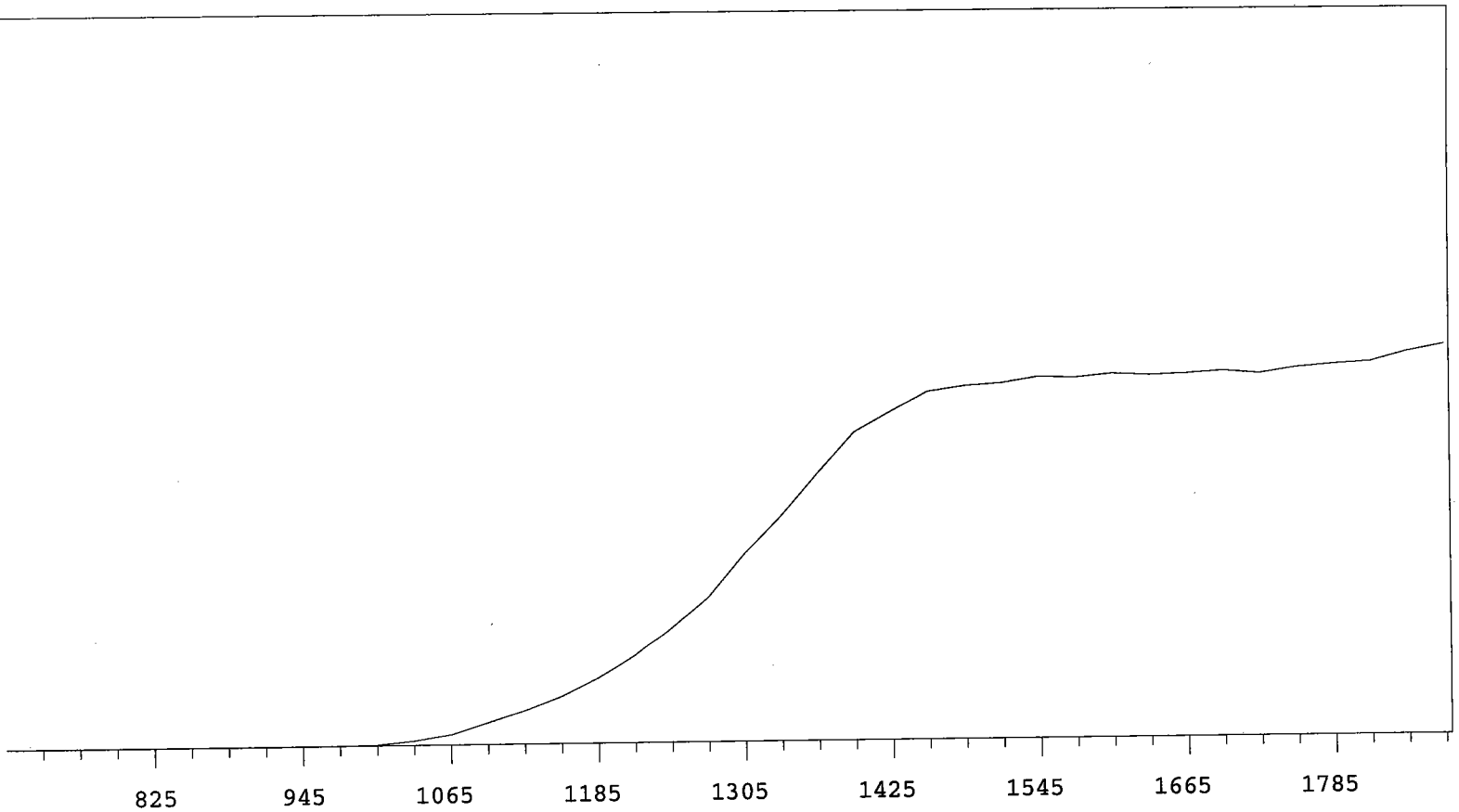


| VOLTS | COUNTS | %/100 Volts | VOLTS | COUNTS | %/100 Volts |
|-------|--------|-------------|-------|--------|-------------|
| 705   | 0      |             | 1305  | 14016  | +71.42      |
| 735   | 0      |             | 1335  | 17436  | +62.21      |
| 765   | 0      |             | 1365  | 20814  | +50.32      |
| 795   | 0      | >100        | 1395  | 23760  | +36.91      |
| 825   | 0      | >100        | 1425  | 26302  | +24.91      |
| 855   | 0      | >100        | 1455  | 27519  | +15.17      |
| 885   | 0      | >100        | 1485  | 28410  | +8.91       |
| 915   | 0      | >100        | 1515  | 28843  | +5.41       |
| 945   | 0      | >100        | 1545  | 29396  | +3.58       |
| 975   | 5      | >100        | 1575  | 29357  | +1.54       |
| 1005  | 29     | >100        | 1605  | 29719  | +0.51       |
| 1035  | 204    | >100        | 1635  | 29358  | +0.23       |
| 1065  | 609    | >100        | 1665  | 29623  | +0.57       |
| 1095  | 1354   | >100        | 1695  | 29509  | +2.12       |
| 1125  | 2316   | >100        | 1725  | 29896  | +2.84       |
| 1155  | 3418   | >100        | 1755  | 30165  | +4.42       |
| 1185  | 4654   | >100        | 1785  | 30570  | +5.65       |
| 1215  | 6455   | +92.99      | 1815  | 31180  | +6.95       |
| 1245  | 8669   | +86.45      | 1845  | 31995  |             |
| 1275  | 10931  | +79.15      | 1875  | 32717  |             |

MPC 9600 Plateau  
Alpha Volts: 705

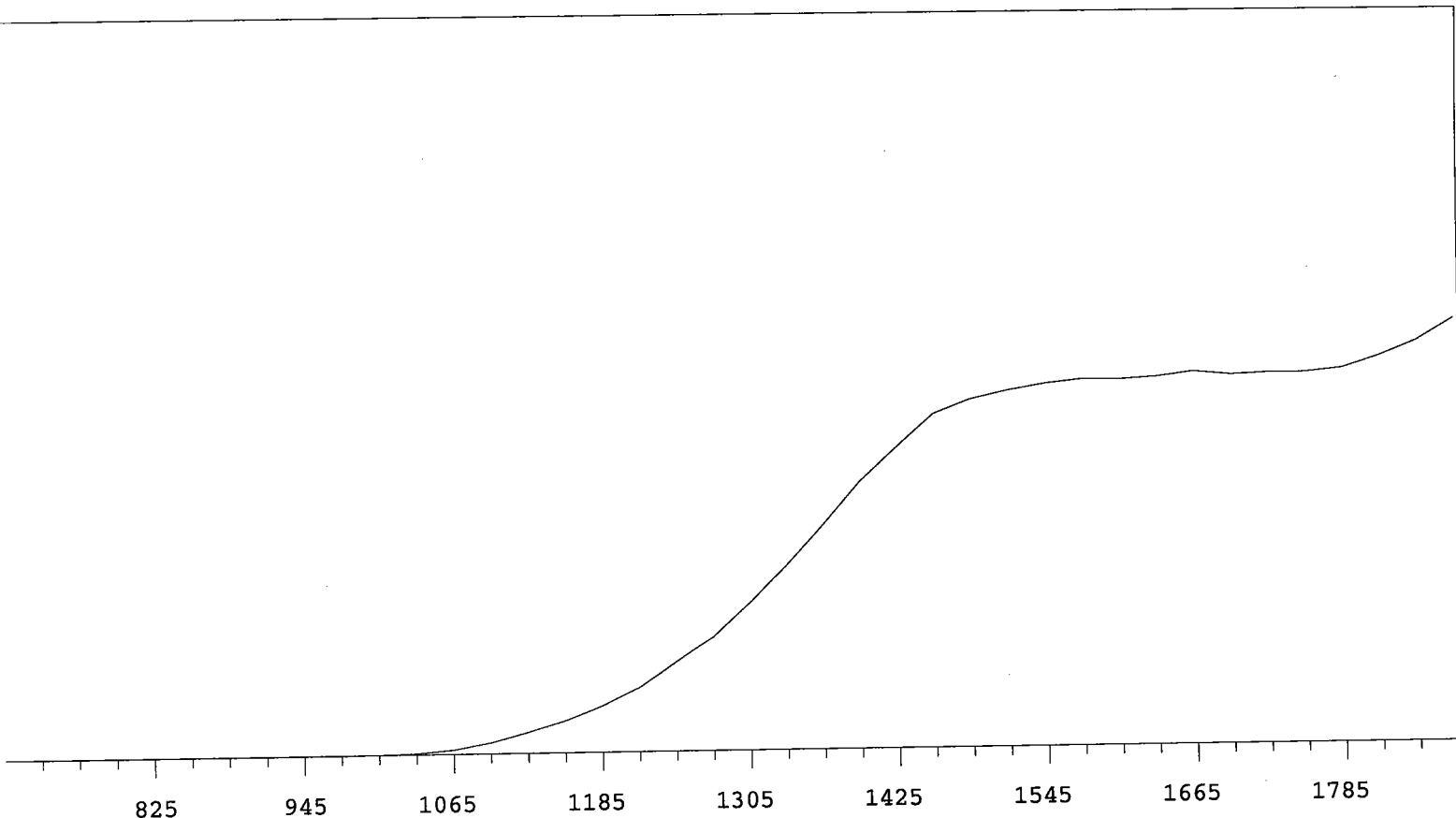
Instrument 8 MPC 9604 Detector A  
Beta Volts: 1575

7/1/2009

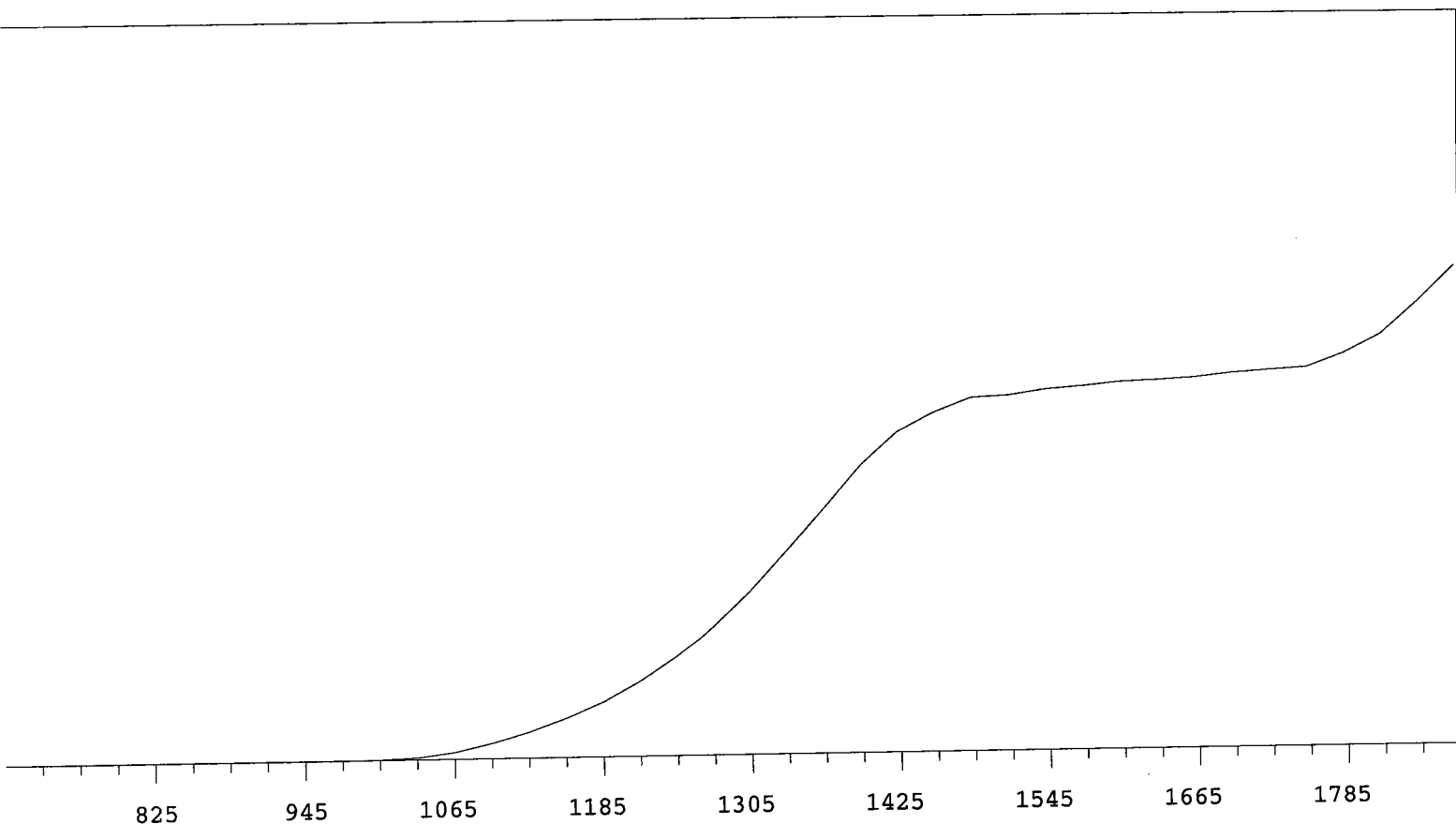


| VOLTS | COUNTS | %/100 Volts | VOLTS | COUNTS | %/100 Volts |
|-------|--------|-------------|-------|--------|-------------|
| 705   | 0      |             | 1305  | 19482  | +67.45      |
| 735   | 0      |             | 1335  | 23344  | +59.35      |
| 765   | 0      |             | 1365  | 27793  | +45.86      |
| 795   | 0      | >100        | 1395  | 31916  | +34.29      |
| 825   | 0      | >100        | 1425  | 33979  | +21.61      |
| 855   | 0      | >100        | 1455  | 35993  | +11.71      |
| 885   | 0      | >100        | 1485  | 36530  | +7.04       |
| 915   | 0      | >100        | 1515  | 36796  | +3.11       |
| 945   | 1      | >100        | 1545  | 37393  | +2.44       |
| 975   | 9      | >100        | 1575  | 37279  | +1.41       |
| 1005  | 96     | >100        | 1605  | 37650  | +0.49       |
| 1035  | 468    | >100        | 1635  | 37458  | +0.91       |
| 1065  | 1084   | >100        | 1665  | 37579  | +0.12       |
| 1095  | 2286   | >100        | 1695  | 37828  | +1.10       |
| 1125  | 3479   | >100        | 1725  | 37535  | +1.72       |
| 1155  | 4912   | >100        | 1755  | 38104  | +2.18       |
| 1185  | 6819   | +98.23      | 1785  | 38416  | +4.12       |
| 1215  | 9153   | +89.05      | 1815  | 38633  | +4.92       |
| 1245  | 12105  | +83.21      | 1845  | 39649  |             |
| 1275  | 15122  | +75.24      | 1875  | 40366  |             |

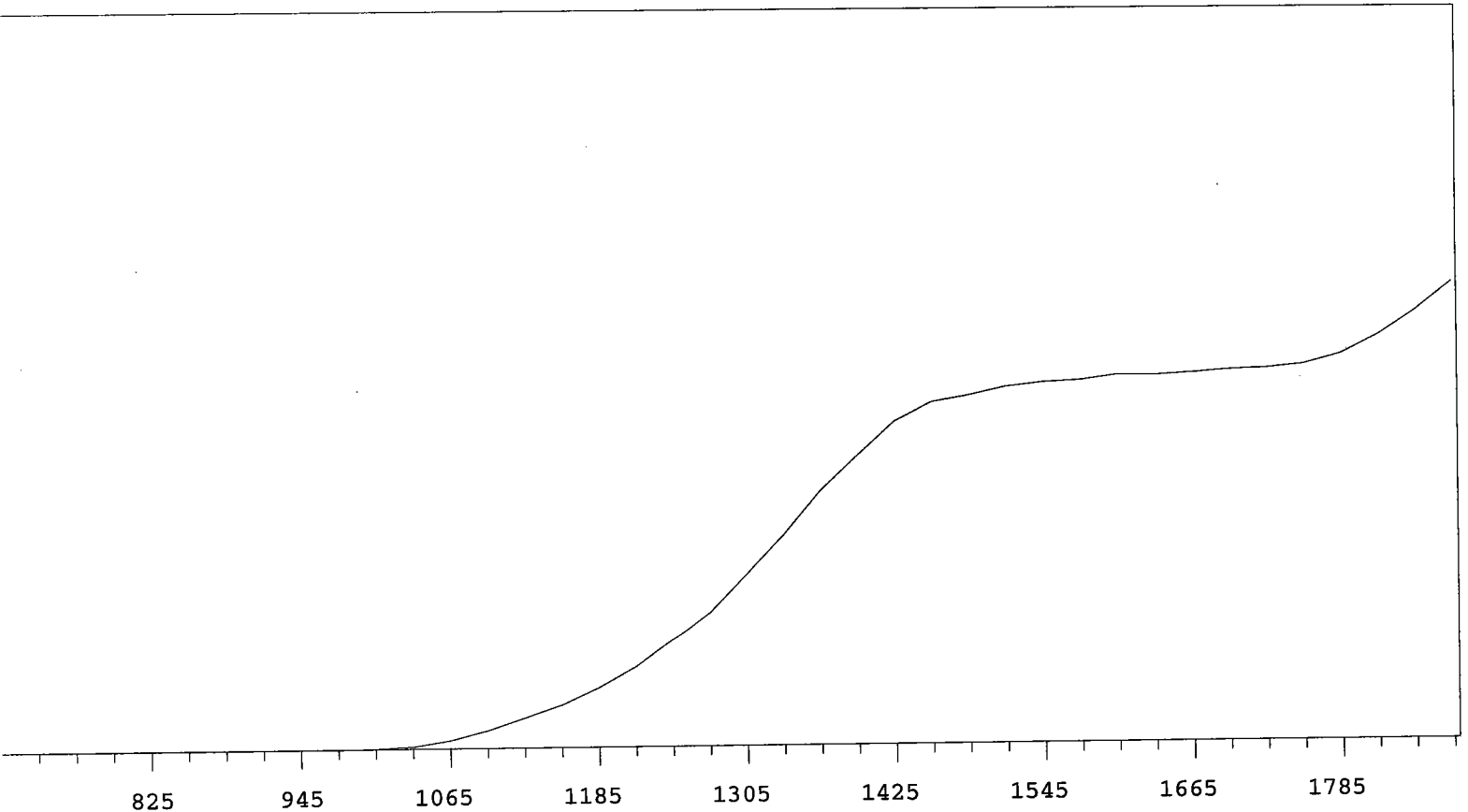




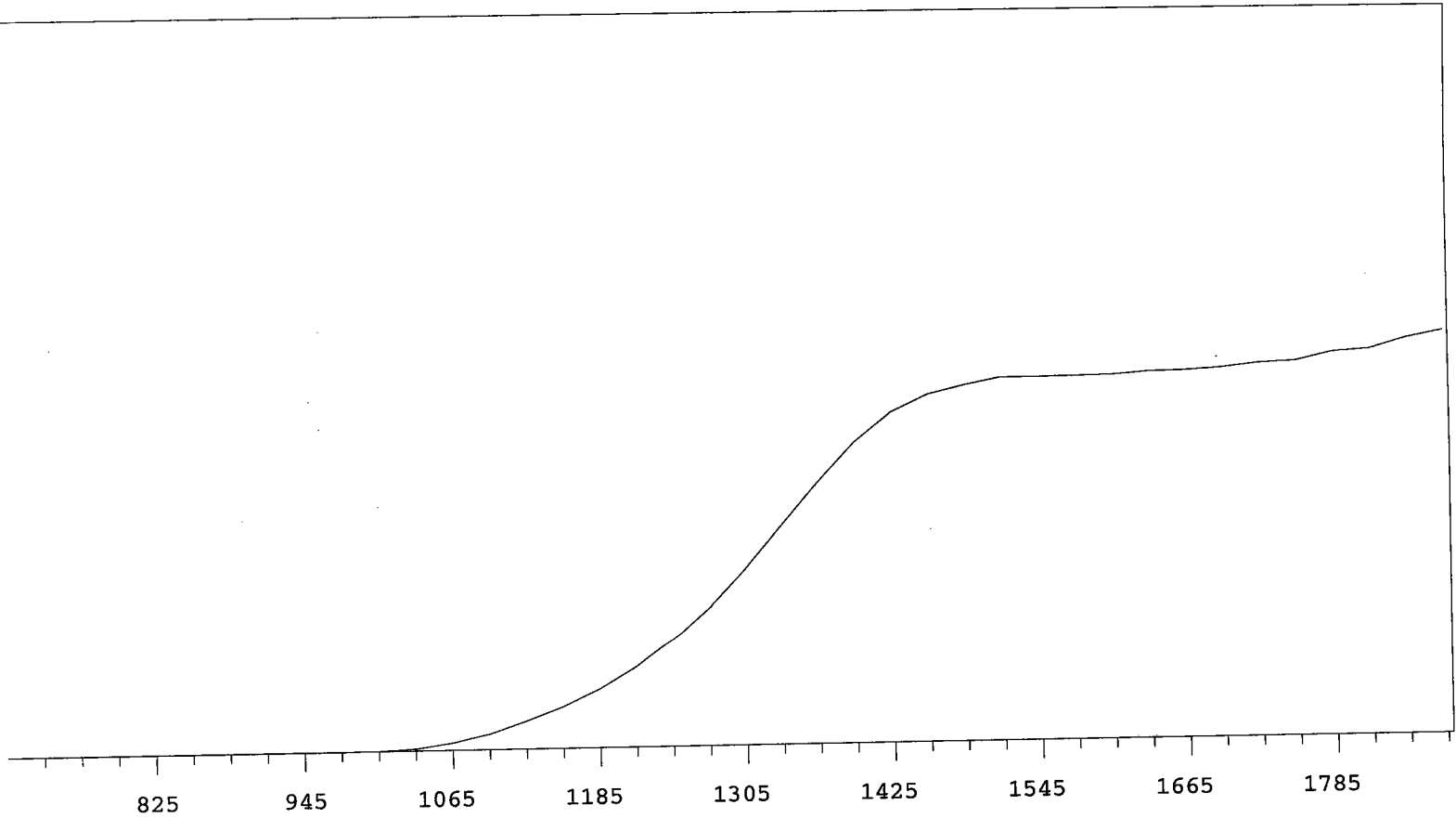
| VOLTS | COUNTS | %/100 Volts | VOLTS | COUNTS | %/100 Volts |
|-------|--------|-------------|-------|--------|-------------|
| 705   | 0      |             | 1305  | 16337  | +74.91      |
| 735   | 0      |             | 1335  | 20471  | +68.07      |
| 765   | 0      |             | 1365  | 25012  | +57.86      |
| 795   | 0      | >100        | 1395  | 29694  | +47.48      |
| 825   | 0      | >100        | 1425  | 33409  | +35.17      |
| 855   | 0      | >100        | 1455  | 37013  | +23.27      |
| 885   | 0      | >100        | 1485  | 38629  | +14.35      |
| 915   | 0      | >100        | 1515  | 39529  | +7.69       |
| 945   | 0      | >100        | 1545  | 40284  | +4.34       |
| 975   | 0      | >100        | 1575  | 40711  | +2.52       |
| 1005  | 20     | >100        | 1605  | 40642  | +1.97       |
| 1035  | 122    | >100        | 1635  | 40879  | +1.11       |
| 1065  | 511    | >100        | 1665  | 41405  | +0.98       |
| 1095  | 1263   | >100        | 1695  | 41011  | +0.30       |
| 1125  | 2390   | >100        | 1725  | 41182  | +0.41       |
| 1155  | 3641   | >100        | 1755  | 41178  | +3.28       |
| 1185  | 5246   | >100        | 1785  | 41573  | +6.47       |
| 1215  | 7212   | +98.32      | 1815  | 42858  | +10.82      |
| 1245  | 9897   | +89.80      | 1845  | 44440  |             |
| 1275  | 12742  | +82.40      | 1875  | 46780  |             |



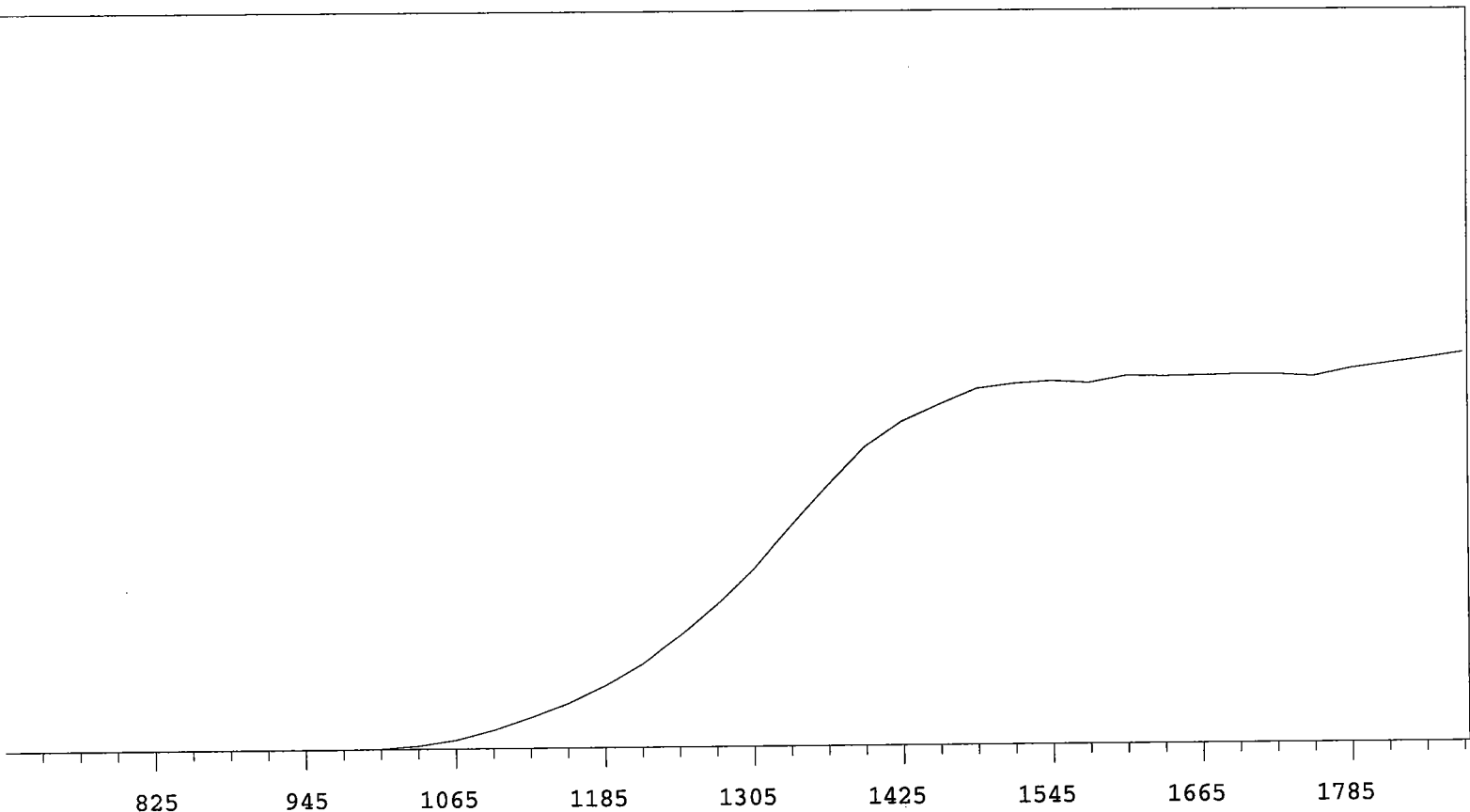
| VOLTS | COUNTS | %/100 Volts | VOLTS | COUNTS | %/100 Volts |
|-------|--------|-------------|-------|--------|-------------|
| 705   | 0      |             | 1305  | 16303  | +72.82      |
| 735   | 0      |             | 1335  | 20309  | +64.32      |
| 765   | 0      |             | 1365  | 24364  | +53.82      |
| 795   | 0      | >100        | 1395  | 28527  | +40.95      |
| 825   | 0      | >100        | 1425  | 31774  | +28.74      |
| 855   | 0      | >100        | 1455  | 33631  | +16.87      |
| 885   | 0      | >100        | 1485  | 35030  | +9.25       |
| 915   | 0      | >100        | 1515  | 35208  | +5.21       |
| 945   | 0      | >100        | 1545  | 35741  | +3.27       |
| 975   | 4      | >100        | 1575  | 36019  | +2.95       |
| 1005  | 46     | >100        | 1605  | 36373  | +2.21       |
| 1035  | 202    | >100        | 1635  | 36484  | +2.27       |
| 1065  | 697    | >100        | 1665  | 36713  | +2.28       |
| 1095  | 1532   | >100        | 1695  | 37093  | +2.46       |
| 1125  | 2614   | >100        | 1725  | 37325  | +4.17       |
| 1155  | 3953   | >100        | 1755  | 37543  | +7.52       |
| 1185  | 5474   | >100        | 1785  | 38833  | +13.43      |
| 1215  | 7466   | +93.09      | 1815  | 40656  | +19.49      |
| 1245  | 9842   | +86.73      | 1845  | 43753  |             |
| 1275  | 12814  | +80.29      | 1875  | 47246  |             |



| VOLTS | COUNTS | %/100 Volts | VOLTS | COUNTS | %/100 Volts |
|-------|--------|-------------|-------|--------|-------------|
| 705   | 0      |             | 1305  | 16889  | +70.18      |
| 735   | 0      |             | 1335  | 20600  | +61.29      |
| 765   | 1      | +0.00       | 1365  | 24824  | +50.40      |
| 795   | 0      | >100        | 1395  | 28208  | +38.85      |
| 825   | 0      | >100        | 1425  | 31539  | +25.79      |
| 855   | 0      | >100        | 1455  | 33391  | +16.06      |
| 885   | 0      | >100        | 1485  | 33991  | +8.60       |
| 915   | 0      | >100        | 1515  | 34782  | +5.01       |
| 945   | 0      | >100        | 1545  | 35201  | +4.10       |
| 975   | 5      | >100        | 1575  | 35380  | +2.50       |
| 1005  | 47     | >100        | 1605  | 35849  | +1.87       |
| 1035  | 243    | >100        | 1635  | 35784  | +1.79       |
| 1065  | 792    | >100        | 1665  | 36000  | +1.43       |
| 1095  | 1744   | >100        | 1695  | 36269  | +2.10       |
| 1125  | 2933   | >100        | 1725  | 36381  | +3.46       |
| 1155  | 4123   | >100        | 1755  | 36733  | +6.86       |
| 1185  | 5780   | >100        | 1785  | 37669  | +11.78      |
| 1215  | 7791   | +91.58      | 1815  | 39465  | +16.64      |
| 1245  | 10478  | +84.93      | 1845  | 41803  |             |
| 1275  | 13118  | +77.50      | 1875  | 44665  |             |



| VOLTS | COUNTS | %/100 Volts | VOLTS | COUNTS | %/100 Volts |
|-------|--------|-------------|-------|--------|-------------|
| 705   | 0      |             | 1305  | 16226  | +71.71      |
| 735   | 0      |             | 1335  | 20083  | +61.95      |
| 765   | 1      | +0.00       | 1365  | 23913  | +49.99      |
| 795   | 0      | >100        | 1395  | 27526  | +36.97      |
| 825   | 0      | >100        | 1425  | 30193  | +24.54      |
| 855   | 0      | >100        | 1455  | 31747  | +14.71      |
| 885   | 0      | >100        | 1485  | 32544  | +7.71       |
| 915   | 0      | >100        | 1515  | 33198  | +3.66       |
| 945   | 0      | >100        | 1545  | 33188  | +1.51       |
| 975   | 2      | >100        | 1575  | 33227  | +0.73       |
| 1005  | 33     | >100        | 1605  | 33278  | +1.04       |
| 1035  | 203    | >100        | 1635  | 33518  | +1.38       |
| 1065  | 668    | >100        | 1665  | 33565  | +1.95       |
| 1095  | 1403   | >100        | 1695  | 33774  | +1.99       |
| 1125  | 2545   | >100        | 1725  | 34135  | +3.30       |
| 1155  | 3800   | >100        | 1755  | 34244  | +3.67       |
| 1185  | 5363   | >100        | 1785  | 35022  | +4.84       |
| 1215  | 7355   | +95.00      | 1815  | 35229  | +5.93       |
| 1245  | 9807   | +87.69      | 1845  | 36179  |             |
| 1275  | 12700  | +80.28      | 1875  | 36821  |             |

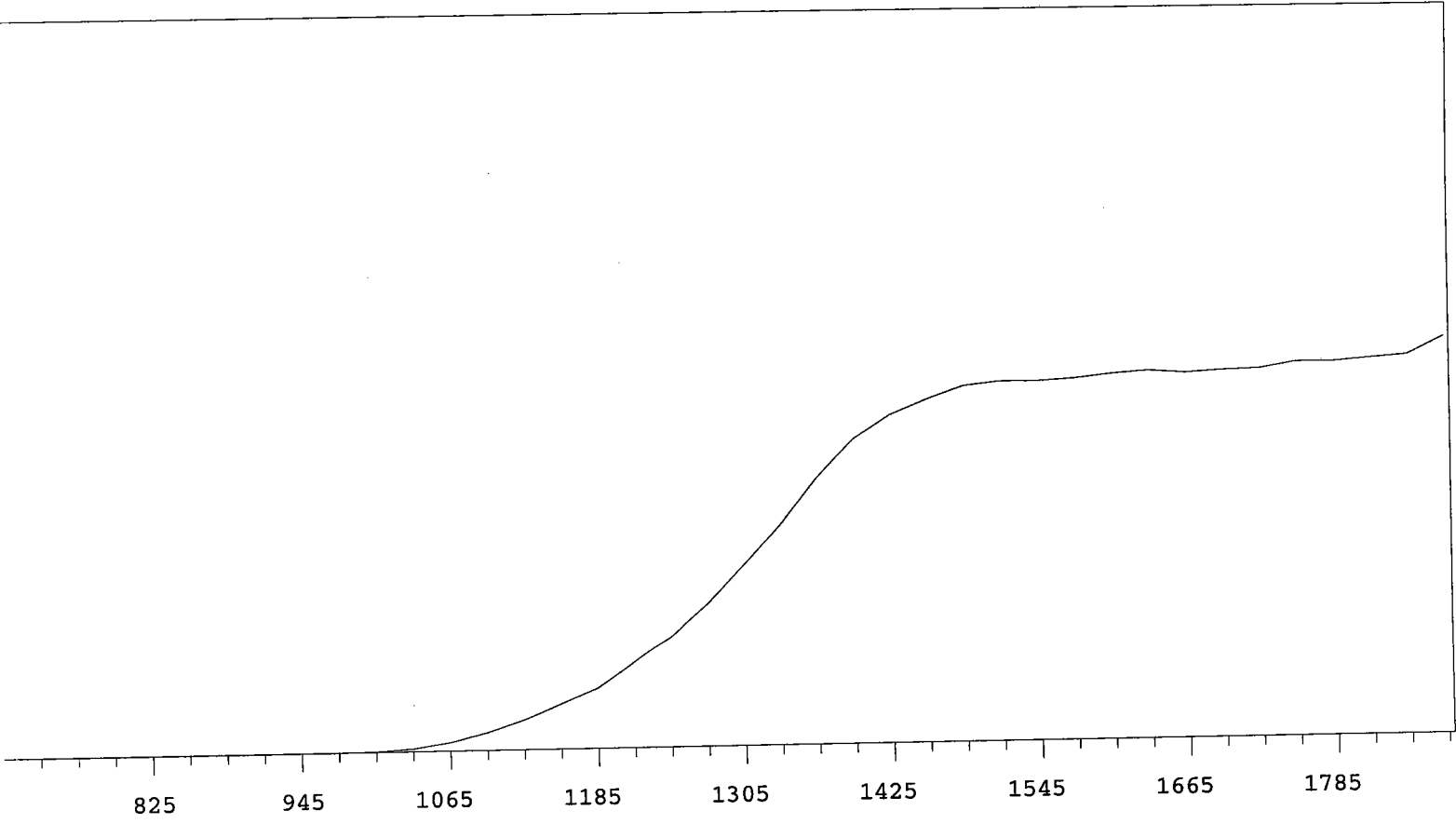


VOLTS    COUNTS    %/100 Volts

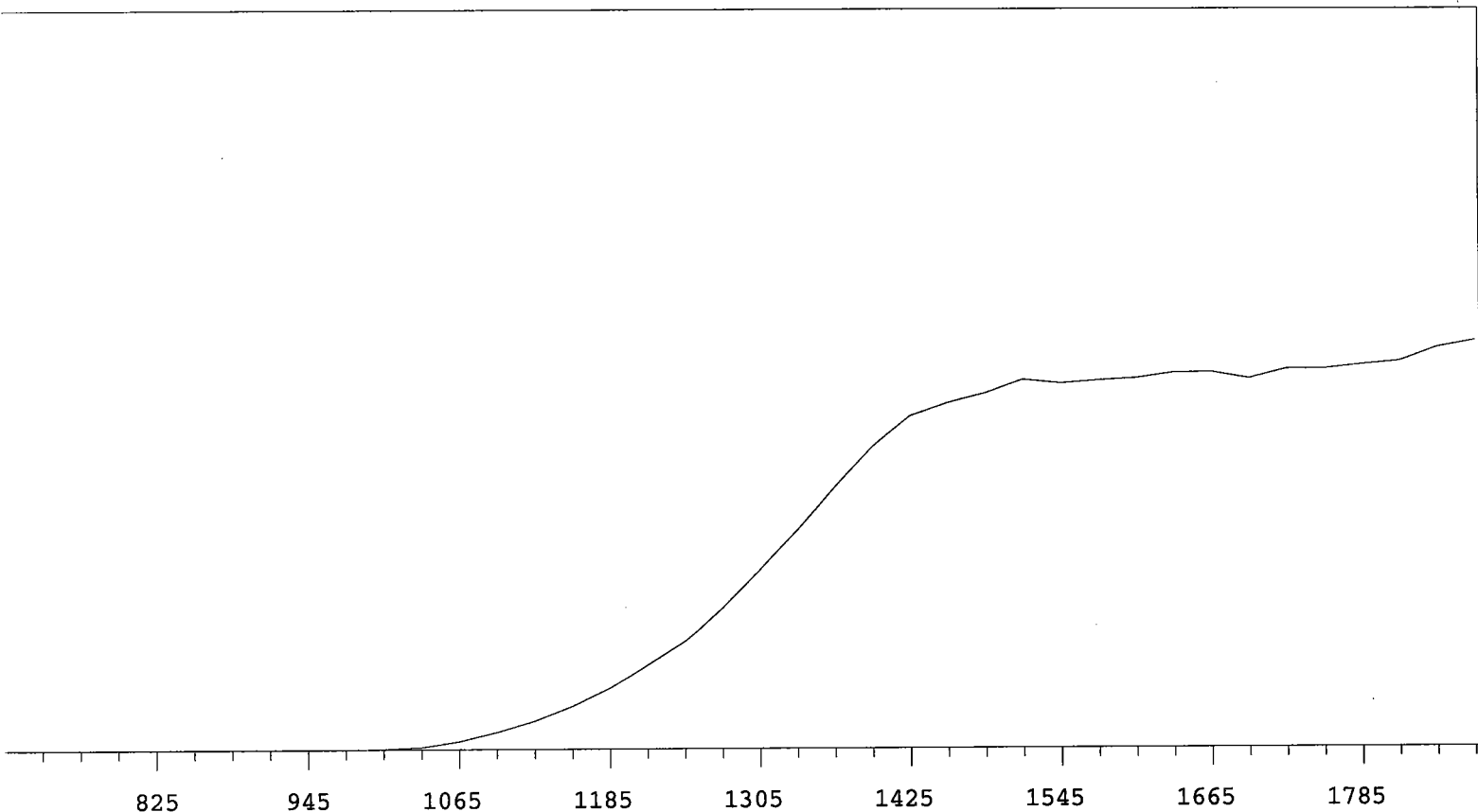
VOLTS    COUNTS    %/100 Volts

|      |       |        |
|------|-------|--------|
| 705  | 0     |        |
| 735  | 0     |        |
| 765  | 0     |        |
| 795  | 0     | >100   |
| 825  | 0     | >100   |
| 855  | 0     | >100   |
| 885  | 0     | >100   |
| 915  | 0     | >100   |
| 945  | 0     | >100   |
| 975  | 4     | >100   |
| 1005 | 45    | >100   |
| 1035 | 300   | >100   |
| 1065 | 836   | >100   |
| 1095 | 1742  | >100   |
| 1125 | 2896  | >100   |
| 1155 | 4198  | >100   |
| 1185 | 5849  | >100   |
| 1215 | 7887  | +92.20 |
| 1245 | 10561 | +83.55 |
| 1275 | 13442 | +76.62 |

|      |       |        |
|------|-------|--------|
| 1305 | 16723 | +68.78 |
| 1335 | 20749 | +60.55 |
| 1365 | 24686 | +48.78 |
| 1395 | 28343 | +35.24 |
| 1425 | 30657 | +24.31 |
| 1455 | 32208 | +15.22 |
| 1485 | 33662 | +9.32  |
| 1515 | 34098 | +4.47  |
| 1545 | 34326 | +2.17  |
| 1575 | 34133 | +1.60  |
| 1605 | 34758 | +1.41  |
| 1635 | 34706 | +1.35  |
| 1665 | 34769 | +0.30  |
| 1695 | 34830 | -0.10  |
| 1725 | 34850 | +0.90  |
| 1755 | 34613 | +2.41  |
| 1785 | 35351 | +3.87  |
| 1815 | 35849 | +4.97  |
| 1845 | 36285 |        |
| 1875 | 36814 |        |



| VOLTS | COUNTS | %/100 Volts | VOLTS | COUNTS | %/100 Volts |
|-------|--------|-------------|-------|--------|-------------|
| 705   | 0      |             | 1305  | 20192  | +70.39      |
| 735   | 0      |             | 1335  | 24524  | +60.97      |
| 765   | 0      |             | 1365  | 29650  | +48.44      |
| 795   | 0      | >100        | 1395  | 33904  | +35.09      |
| 825   | 0      | >100        | 1425  | 36549  | +22.73      |
| 855   | 0      | >100        | 1455  | 38217  | +13.58      |
| 885   | 1      | >100        | 1485  | 39628  | +7.51       |
| 915   | 1      | >100        | 1515  | 40035  | +3.73       |
| 945   | 2      | >100        | 1545  | 40020  | +1.92       |
| 975   | 3      | >100        | 1575  | 40236  | +2.06       |
| 1005  | 64     | >100        | 1605  | 40680  | +1.62       |
| 1035  | 349    | >100        | 1635  | 40953  | +1.03       |
| 1065  | 970    | >100        | 1665  | 40643  | +0.43       |
| 1095  | 1982   | >100        | 1695  | 40882  | +1.41       |
| 1125  | 3328   | >100        | 1725  | 40979  | +2.18       |
| 1155  | 5012   | >100        | 1755  | 41654  | +2.20       |
| 1185  | 6669   | >100        | 1785  | 41602  | +2.27       |
| 1215  | 9448   | +92.67      | 1815  | 41935  | +4.50       |
| 1245  | 12293  | +86.58      | 1845  | 42259  |             |
| 1275  | 15917  | +76.99      | 1875  | 44183  |             |

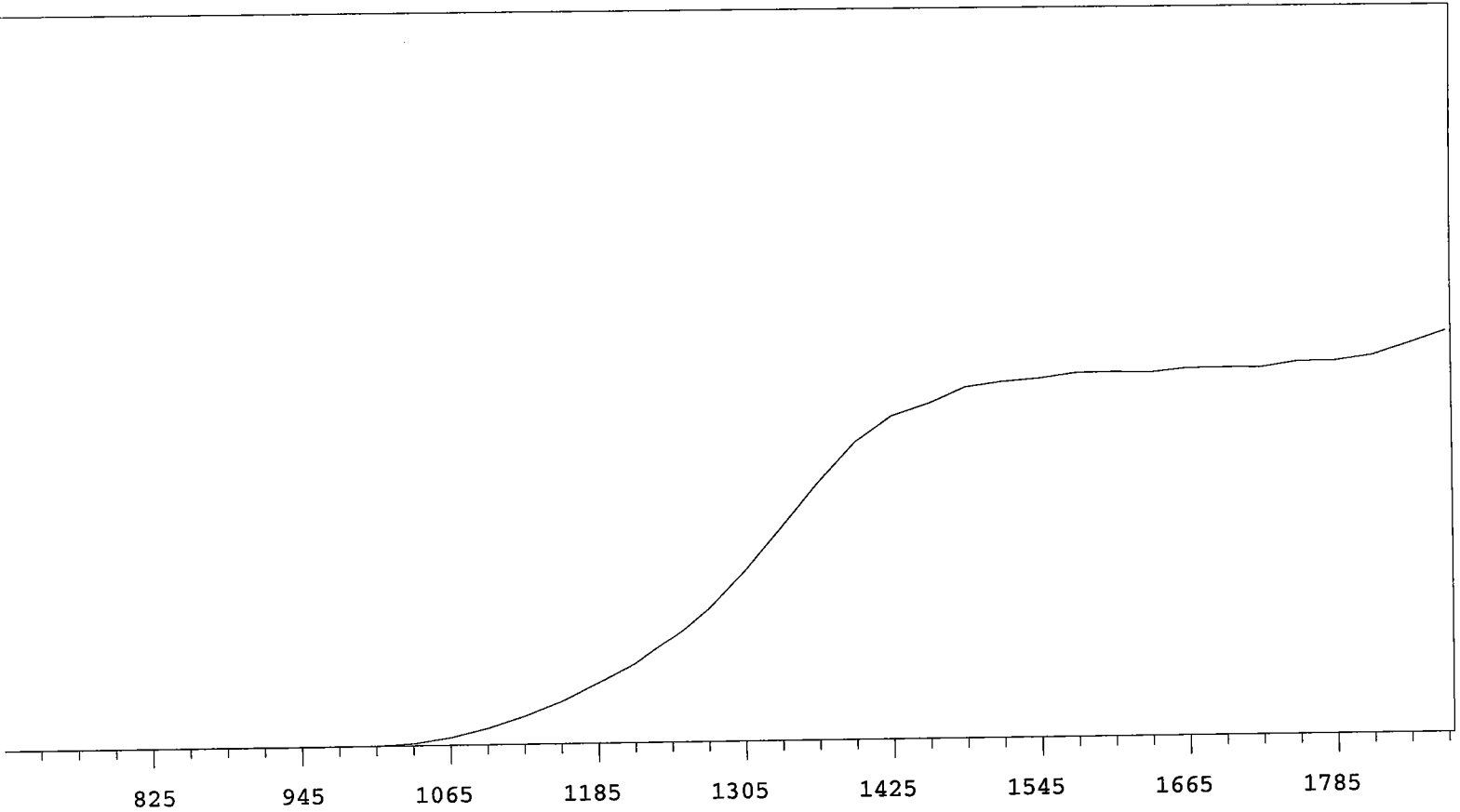


| VOLTS | COUNTS | %/100 Volts | VOLTS | COUNTS | %/100 Volts |
|-------|--------|-------------|-------|--------|-------------|
| 705   | 0      |             | 1305  | 13319  | +70.94      |
| 735   | 0      |             | 1335  | 16319  | +61.35      |
| 765   | 0      |             | 1365  | 19577  | +50.27      |
| 795   | 0      | >100        | 1395  | 22498  | +36.85      |
| 825   | 0      | >100        | 1425  | 24782  | +23.90      |
| 855   | 0      | >100        | 1455  | 25761  | +15.37      |
| 885   | 0      | >100        | 1485  | 26486  | +8.38       |
| 915   | 1      | >100        | 1515  | 27503  | +5.11       |
| 945   | 0      | >100        | 1545  | 27223  | +2.67       |
| 975   | 5      | >100        | 1575  | 27453  | +1.71       |
| 1005  | 35     | >100        | 1605  | 27604  | +2.70       |
| 1035  | 186    | >100        | 1635  | 28021  | +0.78       |
| 1065  | 618    | >100        | 1665  | 28059  | +1.05       |
| 1095  | 1280   | >100        | 1695  | 27548  | +0.90       |
| 1125  | 2141   | >100        | 1725  | 28280  | +2.16       |
| 1155  | 3268   | >100        | 1755  | 28290  | +3.51       |
| 1185  | 4659   | >100        | 1785  | 28600  | +4.46       |
| 1215  | 6343   | +90.68      | 1815  | 28879  | +6.35       |
| 1245  | 8064   | +83.46      | 1845  | 29913  |             |
| 1275  | 10497  | +77.03      | 1875  | 30417  |             |

MPC 9600 Plateau  
Alpha Volts: 870

Instrument 10 MPC 9604 Detector A  
Beta Volts: 1552

7/1/2009



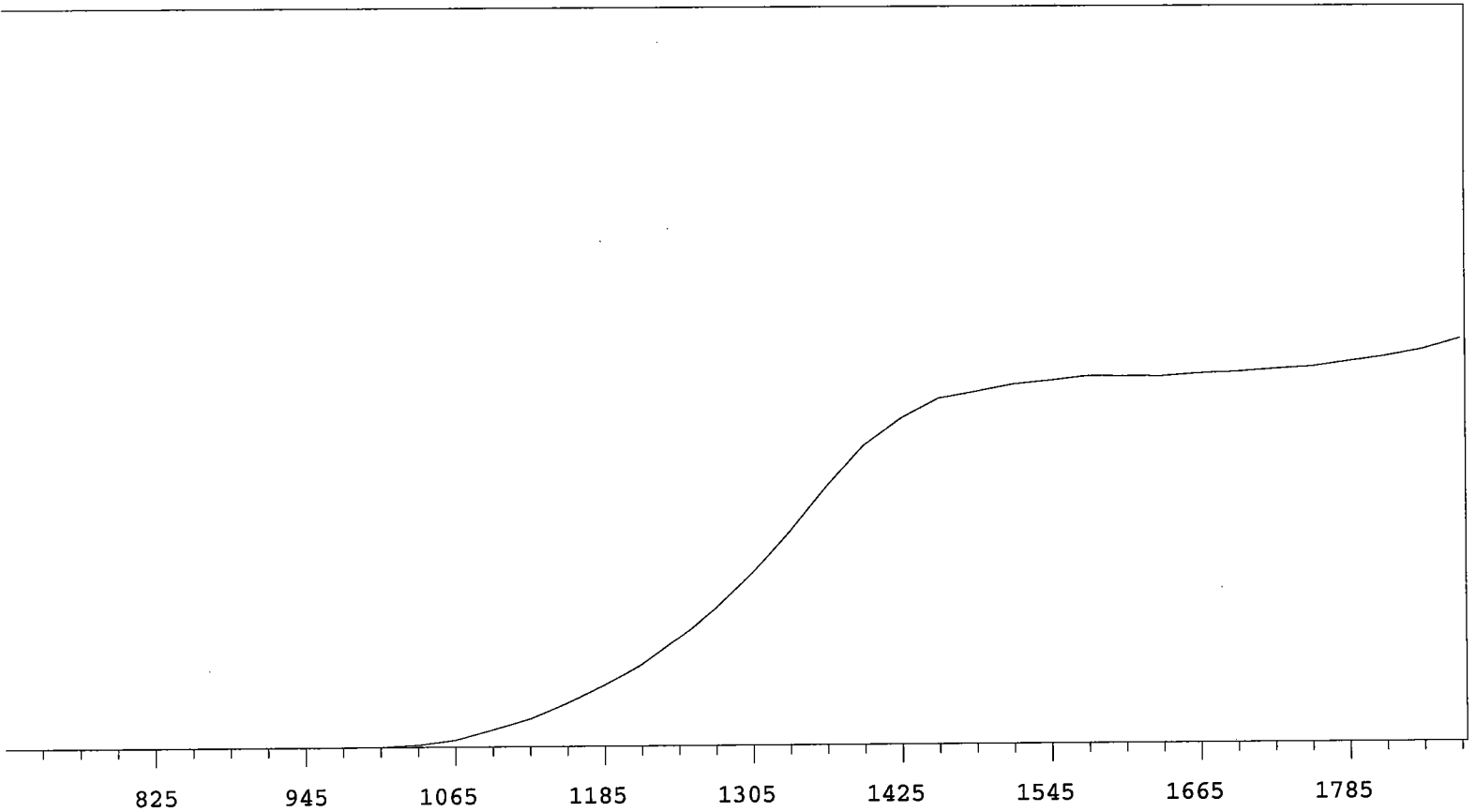
| VOLTS | COUNTS | %/100 Volts | VOLTS | COUNTS | %/100 Volts |
|-------|--------|-------------|-------|--------|-------------|
| 705   | 0      |             | 1305  | 16076  | +72.76      |
| 735   | 1      |             | 1335  | 19985  | +63.85      |
| 765   | 0      |             | 1365  | 24102  | +50.95      |
| 795   | 0      | >100        | 1395  | 27819  | +36.01      |
| 825   | 0      | >100        | 1425  | 30228  | +23.86      |
| 855   | 0      | >100        | 1455  | 31343  | +14.40      |
| 885   | 0      | >100        | 1485  | 32811  | +8.77       |
| 915   | 0      | >100        | 1515  | 33243  | +6.10       |
| 945   | 0      | >100        | 1545  | 33518  | +3.25       |
| 975   | 1      | >100        | 1575  | 34010  | +1.98       |
| 1005  | 37     | >100        | 1605  | 34061  | +1.59       |
| 1035  | 198    | >100        | 1635  | 33973  | +0.97       |
| 1065  | 687    | >100        | 1665  | 34346  | +0.93       |
| 1095  | 1491   | >100        | 1695  | 34366  | +1.72       |
| 1125  | 2580   | >100        | 1725  | 34341  | +1.54       |
| 1155  | 3920   | >100        | 1755  | 34860  | +2.47       |
| 1185  | 5588   | >100        | 1785  | 34897  | +4.50       |
| 1215  | 7384   | +91.32      | 1815  | 35377  | +6.60       |
| 1245  | 9794   | +84.81      | 1845  | 36458  |             |
| 1275  | 12572  | +79.73      | 1875  | 37630  |             |



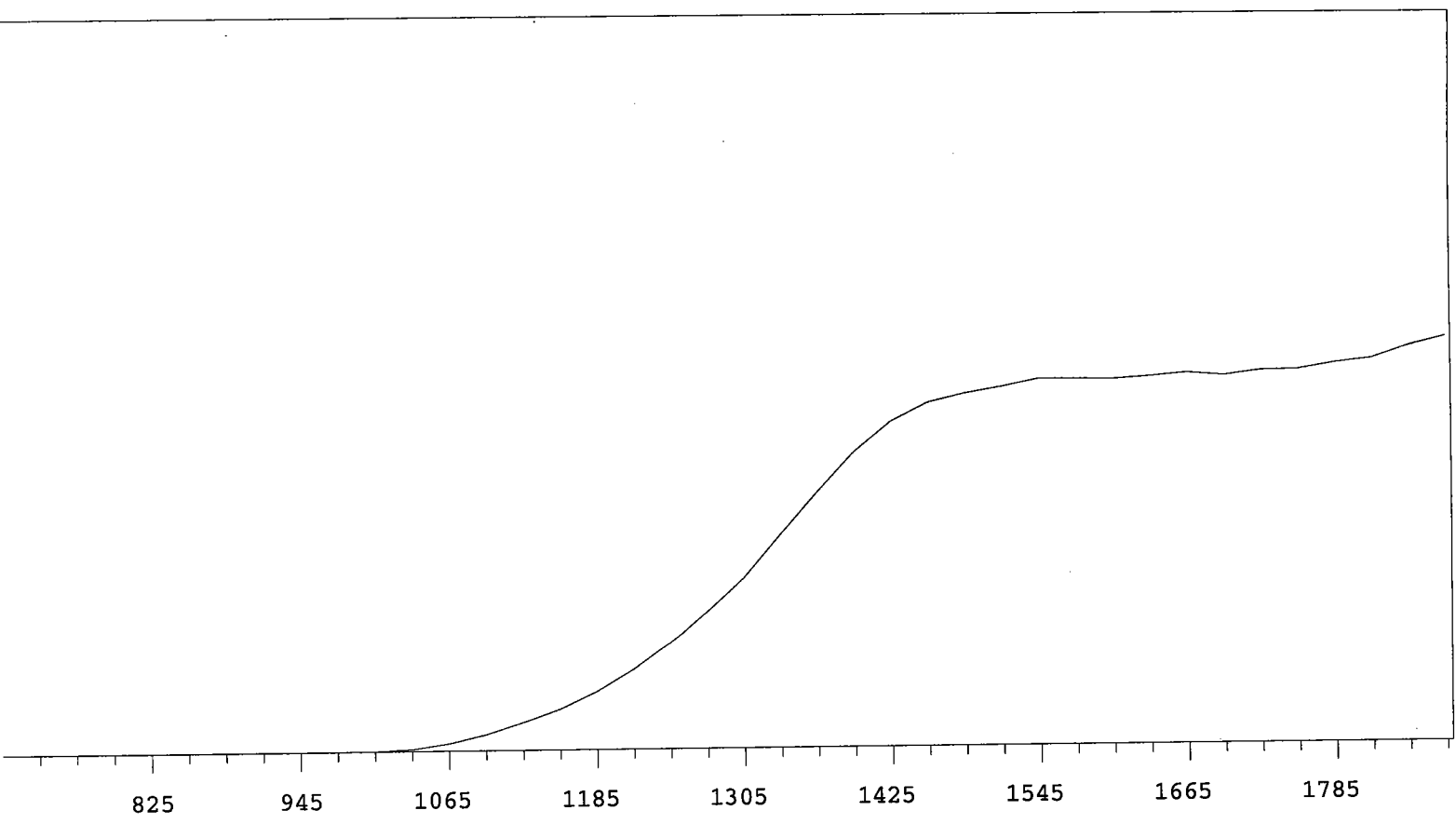
MPC 9600 Plateau  
Alpha Volts: 870

Instrument 10 MPC 9604 Detector B  
Beta Volts: 1552

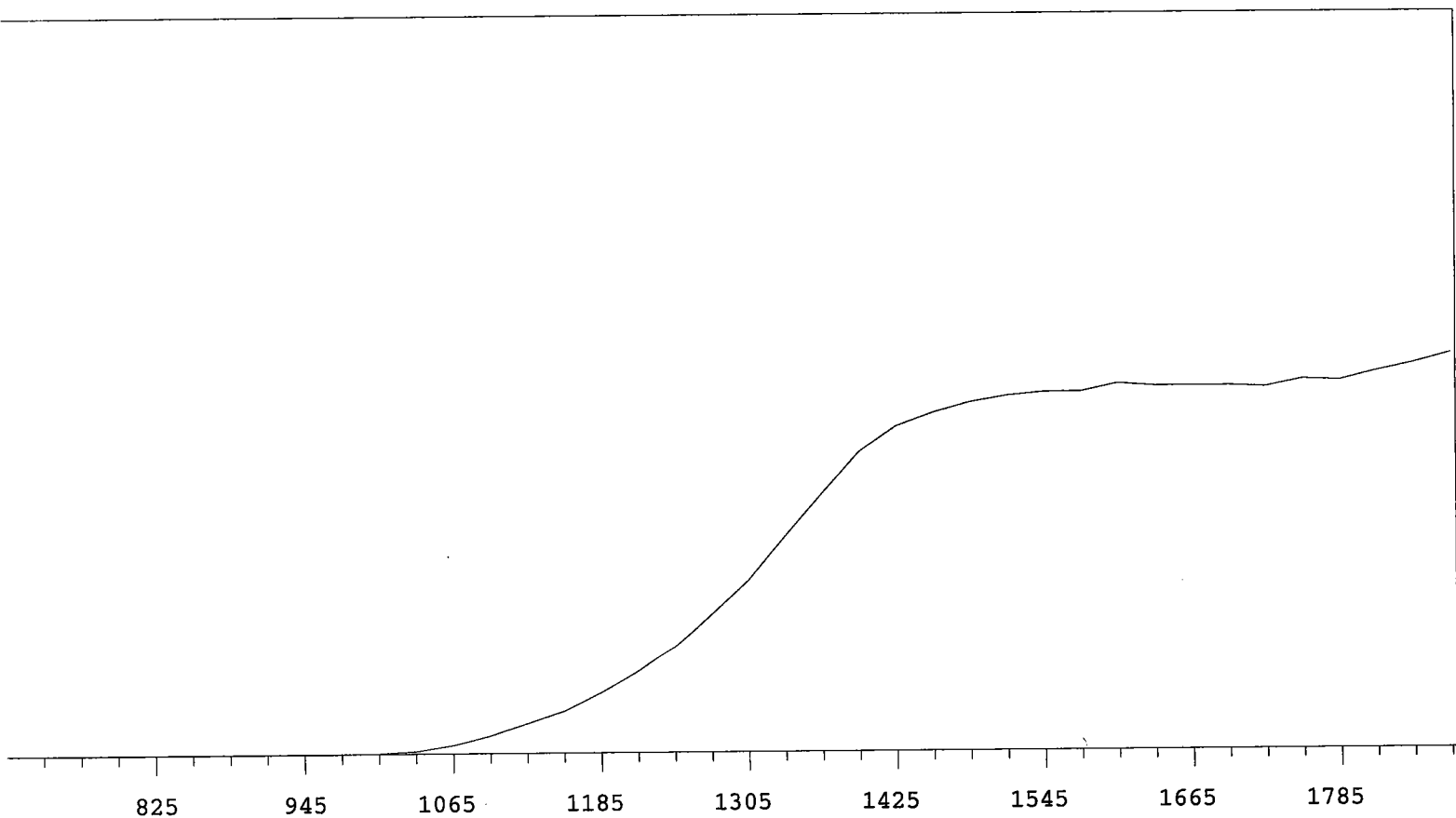
7/1/2009



| VOLTS | COUNTS | %/100 Volts | VOLTS | COUNTS | %/100 Volts |
|-------|--------|-------------|-------|--------|-------------|
| 705   | 0      |             | 1305  | 14469  | +71.08      |
| 735   | 0      |             | 1335  | 17904  | +63.07      |
| 765   | 0      |             | 1365  | 21677  | +51.20      |
| 795   | 0      | >100        | 1395  | 25027  | +38.06      |
| 825   | 0      | >100        | 1425  | 27237  | +24.55      |
| 855   | 0      | >100        | 1455  | 28914  | +14.61      |
| 885   | 0      | >100        | 1485  | 29480  | +8.48       |
| 915   | 0      | >100        | 1515  | 30075  | +5.06       |
| 945   | 1      | >100        | 1545  | 30374  | +3.42       |
| 975   | 7      | >100        | 1575  | 30738  | +1.68       |
| 1005  | 28     | >100        | 1605  | 30703  | +1.08       |
| 1035  | 190    | >100        | 1635  | 30679  | +0.77       |
| 1065  | 597    | >100        | 1665  | 30902  | +1.46       |
| 1095  | 1474   | >100        | 1695  | 30992  | +1.89       |
| 1125  | 2383   | >100        | 1725  | 31224  | +2.40       |
| 1155  | 3680   | >100        | 1755  | 31397  | +3.27       |
| 1185  | 5131   | >100        | 1785  | 31826  | +4.13       |
| 1215  | 6808   | +89.95      | 1815  | 32236  | +5.59       |
| 1245  | 8990   | +83.03      | 1845  | 32782  |             |
| 1275  | 11493  | +77.30      | 1875  | 33632  |             |

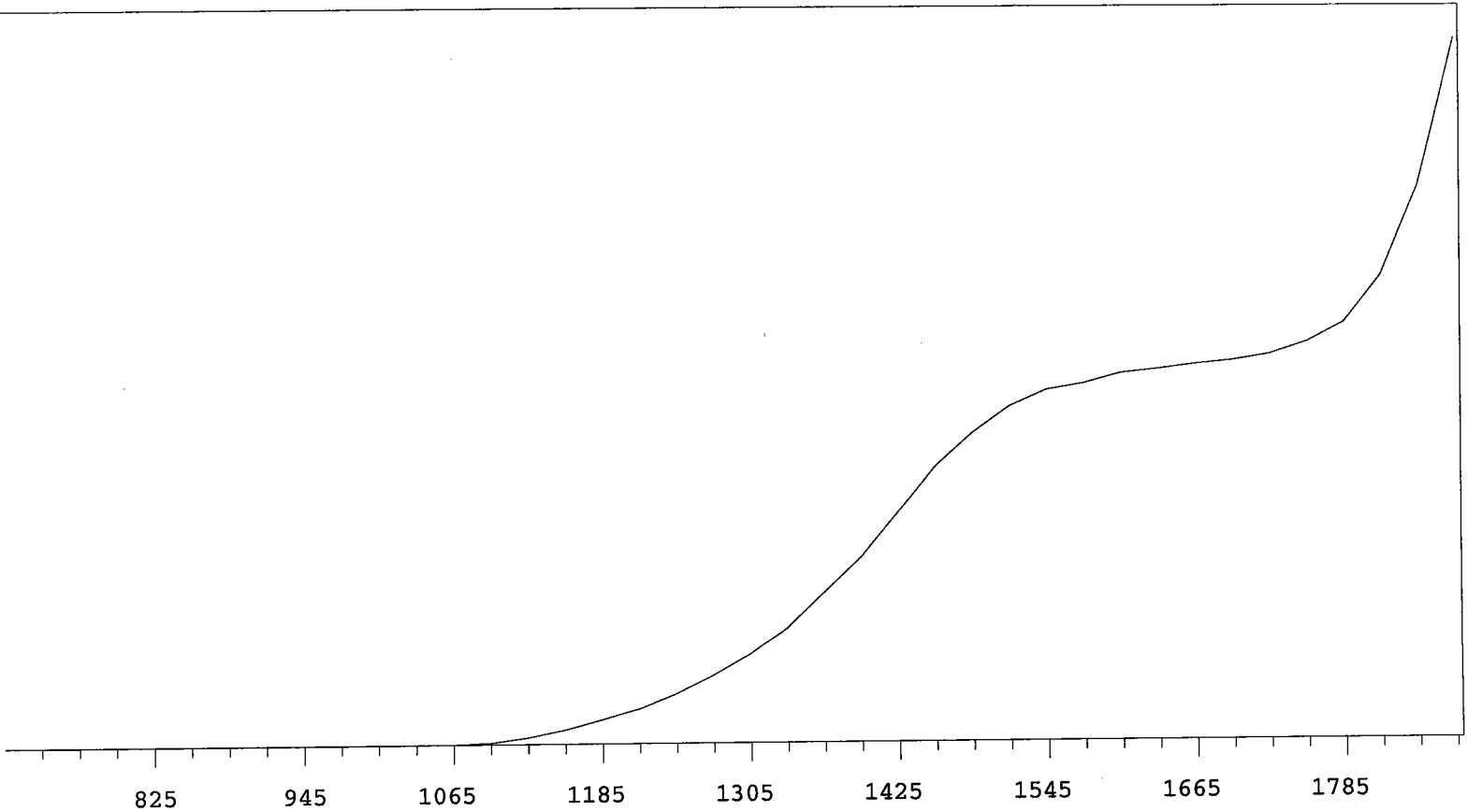


| VOLTS | COUNTS | %/100 Volts | VOLTS | COUNTS | %/100 Volts |
|-------|--------|-------------|-------|--------|-------------|
| 705   | 1      |             | 1305  | 18051  | +71.16      |
| 735   | 0      |             | 1335  | 22586  | +62.34      |
| 765   | 0      |             | 1365  | 26973  | +51.47      |
| 795   | 0      | >100        | 1395  | 31137  | +38.24      |
| 825   | 0      | >100        | 1425  | 34321  | +25.70      |
| 855   | 0      | >100        | 1455  | 36267  | +15.37      |
| 885   | 1      | >100        | 1485  | 37197  | +9.21       |
| 915   | 0      | >100        | 1515  | 37851  | +5.38       |
| 945   | 2      | >100        | 1545  | 38622  | +3.00       |
| 975   | 2      | >100        | 1575  | 38600  | +1.55       |
| 1005  | 36     | >100        | 1605  | 38538  | +1.03       |
| 1035  | 220    | >100        | 1635  | 38786  | +0.91       |
| 1065  | 780    | >100        | 1665  | 39129  | +1.38       |
| 1095  | 1712   | >100        | 1695  | 38832  | +1.20       |
| 1125  | 2926   | >100        | 1725  | 39323  | +2.00       |
| 1155  | 4297   | >100        | 1755  | 39390  | +3.35       |
| 1185  | 6097   | >100        | 1785  | 40031  | +4.86       |
| 1215  | 8397   | +95.11      | 1815  | 40466  | +6.64       |
| 1245  | 11155  | +85.84      | 1845  | 41713  |             |
| 1275  | 14430  | +78.79      | 1875  | 42620  |             |

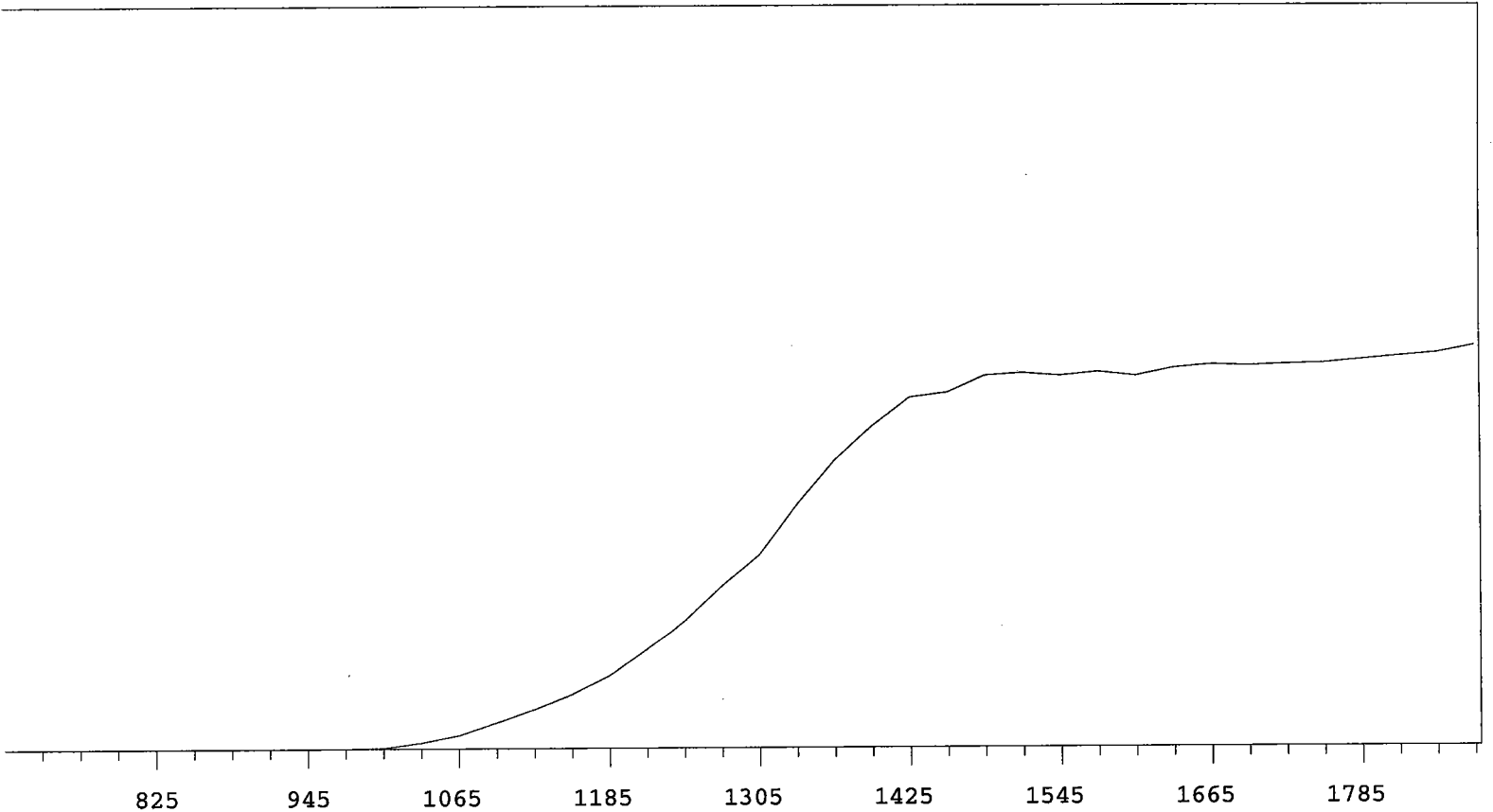


| VOLTS | COUNTS | %/100 Volts | VOLTS | COUNTS | %/100 Volts |
|-------|--------|-------------|-------|--------|-------------|
| 705   | 0      |             | 1305  | 15430  | +69.87      |
| 735   | 0      |             | 1335  | 19258  | +61.49      |
| 765   | 0      |             | 1365  | 23018  | +50.06      |
| 795   | 0      | >100        | 1395  | 26562  | +35.34      |
| 825   | 0      | >100        | 1425  | 28750  | +22.67      |
| 855   | 0      | >100        | 1455  | 29911  | +13.20      |
| 885   | 0      | >100        | 1485  | 30798  | +8.01       |
| 915   | 0      | >100        | 1515  | 31375  | +4.83       |
| 945   | 0      | >100        | 1545  | 31684  | +3.74       |
| 975   | 3      | >100        | 1575  | 31721  | +2.38       |
| 1005  | 49     | >100        | 1605  | 32398  | +1.44       |
| 1035  | 244    | >100        | 1635  | 32154  | +0.64       |
| 1065  | 764    | >100        | 1665  | 32157  | -0.77       |
| 1095  | 1584   | >100        | 1695  | 32152  | +0.99       |
| 1125  | 2677   | >100        | 1725  | 32029  | +1.41       |
| 1155  | 3763   | >100        | 1755  | 32699  | +3.00       |
| 1185  | 5395   | >100        | 1785  | 32566  | +4.71       |
| 1215  | 7350   | +93.71      | 1815  | 33351  | +5.92       |
| 1245  | 9655   | +83.52      | 1845  | 34031  |             |
| 1275  | 12504  | +76.82      | 1875  | 34941  |             |

Alpha Volts: 1515 Beta Volts: 1515

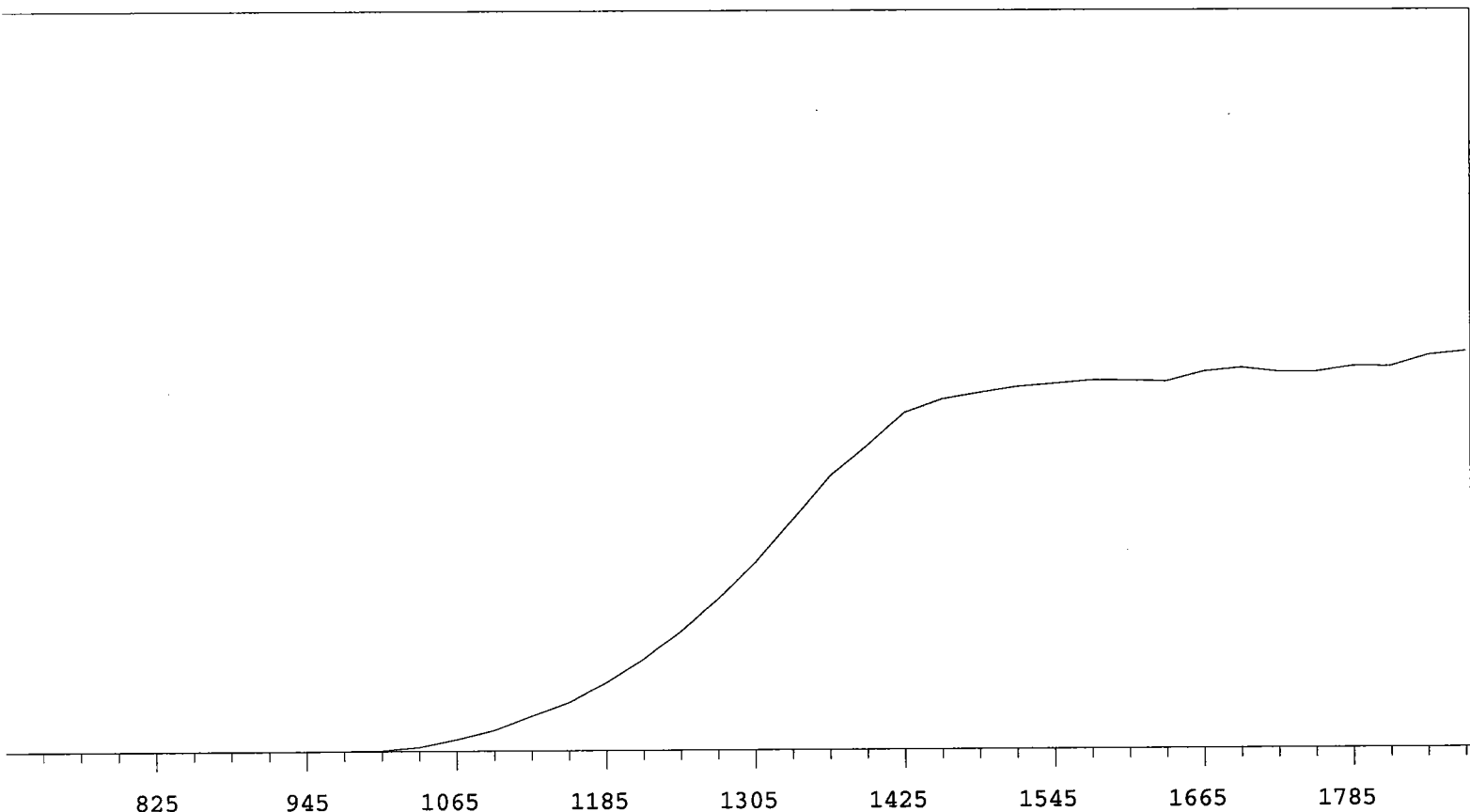


| VOLTS | COUNTS | %/100 Volts | VOLTS | COUNTS | %/100 Volts |
|-------|--------|-------------|-------|--------|-------------|
| 705   | 0      |             | 1305  | 3225   | +87.64      |
| 735   | 1      |             | 1335  | 4189   | +80.15      |
| 765   | 0      |             | 1365  | 5428   | +75.12      |
| 795   | 0      | >100        | 1395  | 6662   | +68.60      |
| 825   | 0      | >100        | 1425  | 8241   | +58.14      |
| 855   | 0      | >100        | 1455  | 9857   | +46.65      |
| 885   | 0      | >100        | 1485  | 11018  | +33.24      |
| 915   | 0      | >100        | 1515  | 11953  | +21.01      |
| 945   | 1      | +0.00       | 1545  | 12538  | +13.57      |
| 975   | 0      | >100        | 1575  | 12760  | +8.35       |
| 1005  | 0      | >100        | 1605  | 13114  | +5.84       |
| 1035  | 2      | >100        | 1635  | 13258  | +4.78       |
| 1065  | 9      | >100        | 1665  | 13430  | +3.99       |
| 1095  | 61     | >100        | 1695  | 13551  | +5.46       |
| 1125  | 248    | >100        | 1725  | 13771  | +8.65       |
| 1155  | 528    | >100        | 1755  | 14204  | +16.44      |
| 1185  | 882    | >100        | 1785  | 14916  | +30.03      |
| 1215  | 1270   | >100        | 1815  | 16579  | +48.74      |
| 1245  | 1786   | >100        | 1845  | 19717  |             |
| 1275  | 2478   | +93.67      | 1875  | 25029  |             |

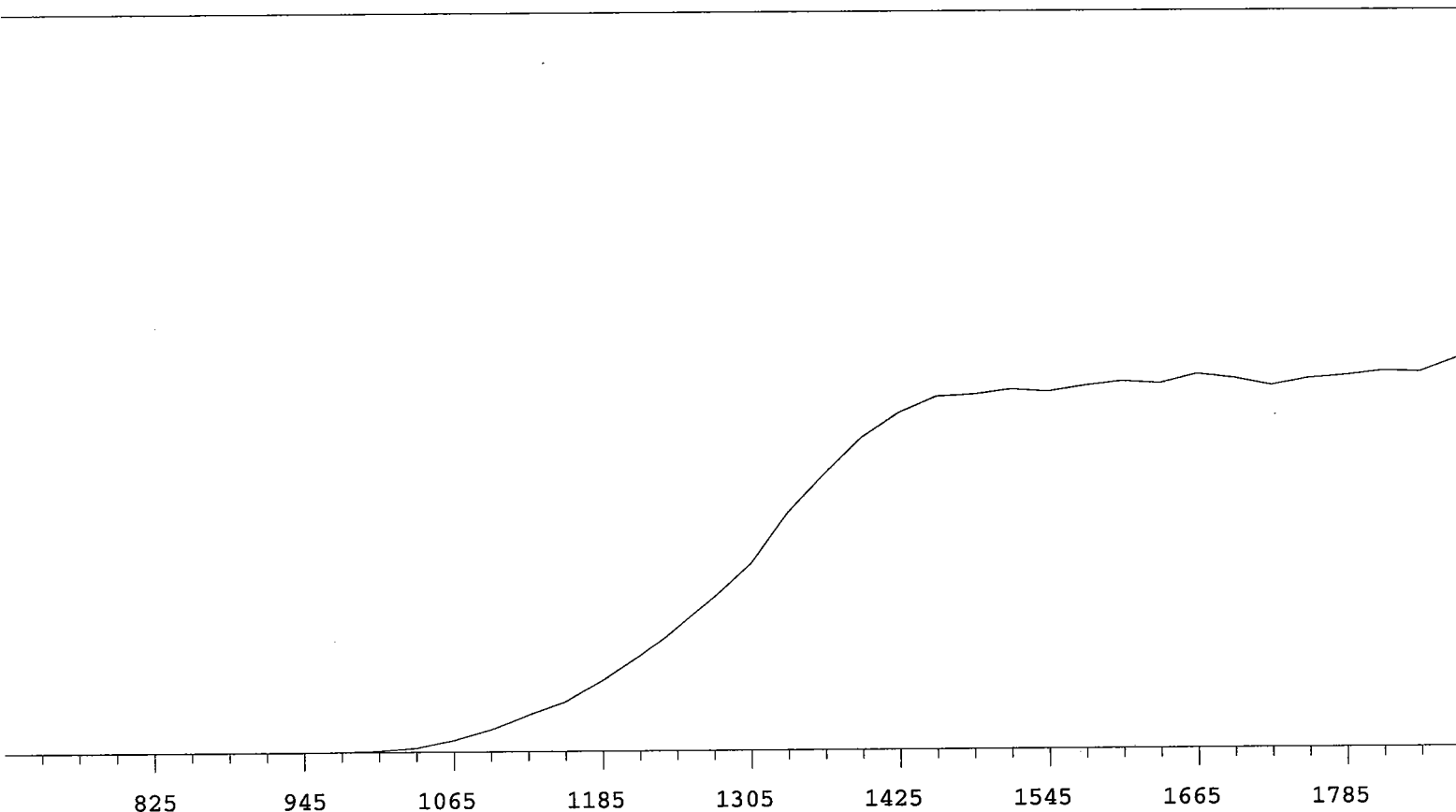


| VOLTS | COUNTS | %/100 Volts | VOLTS | COUNTS | %/100 Volts |
|-------|--------|-------------|-------|--------|-------------|
| 705   | 0      |             | 1305  | 8947   | +65.63      |
| 735   | 0      |             | 1335  | 11238  | +56.58      |
| 765   | 0      |             | 1365  | 13246  | +46.66      |
| 795   | 0      | >100        | 1395  | 14838  | +30.69      |
| 825   | 0      | >100        | 1425  | 16166  | +20.11      |
| 855   | 0      | >100        | 1455  | 16396  | +11.95      |
| 885   | 0      | >100        | 1485  | 17161  | +5.61       |
| 915   | 1      | >100        | 1515  | 17274  | +3.59       |
| 945   | 0      | >100        | 1545  | 17144  | -0.00       |
| 975   | 11     | >100        | 1575  | 17323  | +0.80       |
| 1005  | 47     | >100        | 1605  | 17136  | +2.21       |
| 1035  | 280    | >100        | 1635  | 17484  | +1.94       |
| 1065  | 610    | >100        | 1665  | 17638  | +2.16       |
| 1095  | 1192   | >100        | 1695  | 17580  | +0.85       |
| 1125  | 1789   | >100        | 1725  | 17655  | +1.05       |
| 1155  | 2466   | >100        | 1755  | 17700  | +1.98       |
| 1185  | 3337   | +94.91      | 1785  | 17857  | +2.38       |
| 1215  | 4526   | +88.85      | 1815  | 18006  | +3.36       |
| 1245  | 5885   | +78.40      | 1845  | 18140  |             |
| 1275  | 7518   | +72.09      | 1875  | 18468  |             |

Alpha Volts: 1515 Beta Volts: 1515



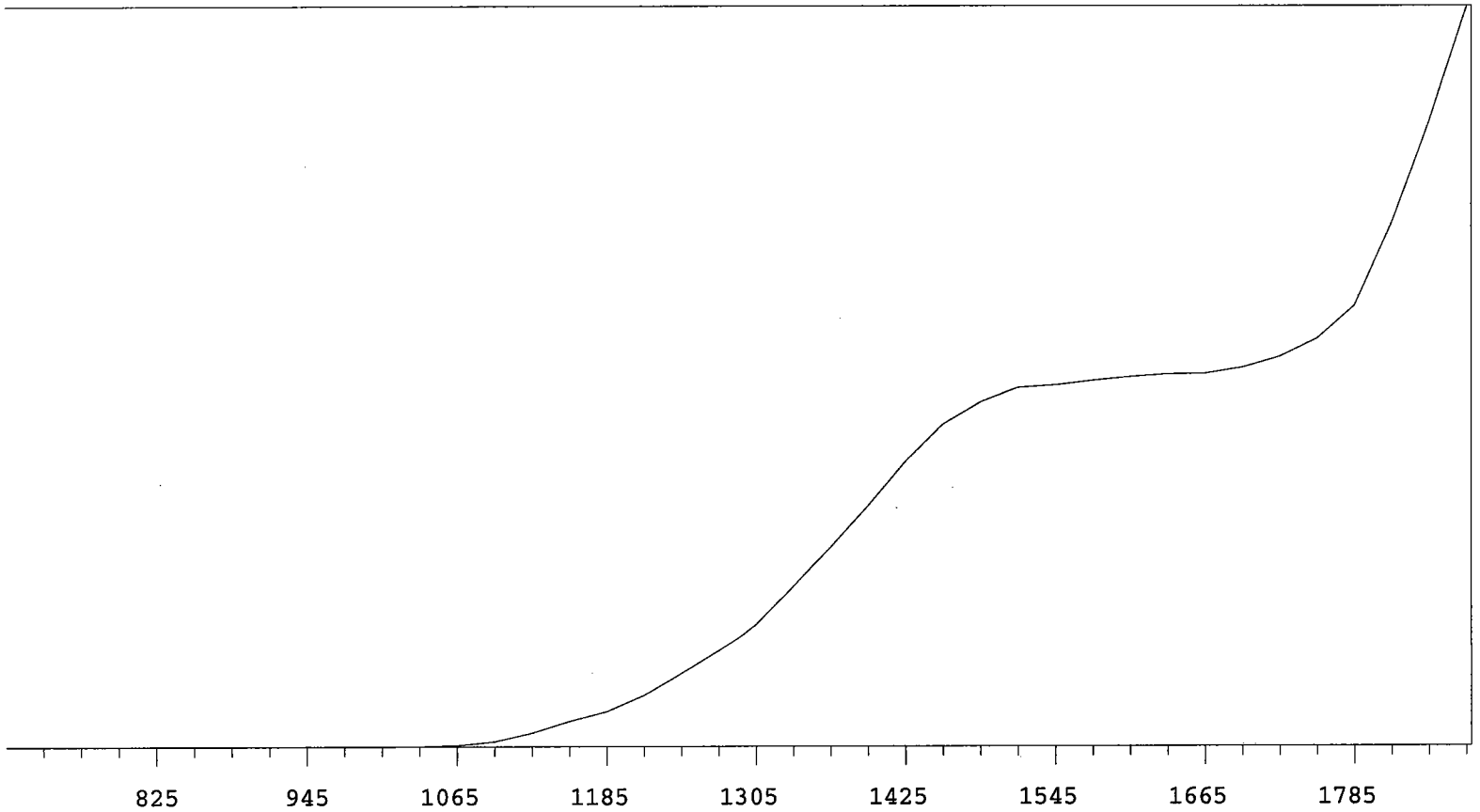
| VOLTS | COUNTS | %/100 Volts | VOLTS | COUNTS | %/100 Volts |
|-------|--------|-------------|-------|--------|-------------|
| 705   | 1      |             | 1305  | 8636   | +66.44      |
| 735   | 0      |             | 1335  | 10593  | +56.56      |
| 765   | 0      | +0.00       | 1365  | 12582  | +46.23      |
| 795   | 0      | >100        | 1395  | 13957  | +33.45      |
| 825   | 1      | +0.00       | 1425  | 15443  | +21.49      |
| 855   | 0      | >100        | 1455  | 16048  | +13.14      |
| 885   | 0      | +0.00       | 1485  | 16331  | +6.45       |
| 915   | 0      | >100        | 1515  | 16603  | +4.19       |
| 945   | 1      | >100        | 1545  | 16736  | +2.73       |
| 975   | 7      | >100        | 1575  | 16884  | +1.11       |
| 1005  | 46     | >100        | 1605  | 16875  | +1.91       |
| 1035  | 191    | >100        | 1635  | 16813  | +2.86       |
| 1065  | 540    | >100        | 1665  | 17257  | +2.60       |
| 1095  | 957    | >100        | 1695  | 17425  | +1.58       |
| 1125  | 1597   | >100        | 1725  | 17238  | +0.49       |
| 1155  | 2217   | >100        | 1755  | 17230  | +0.63       |
| 1185  | 3154   | +98.74      | 1785  | 17482  | +3.27       |
| 1215  | 4239   | +89.75      | 1815  | 17468  | +4.46       |
| 1245  | 5550   | +79.98      | 1845  | 17977  |             |
| 1275  | 6980   | +73.12      | 1875  | 18163  |             |



| VOLTS | COUNTS | %/100 Volts | VOLTS | COUNTS | %/100 Volts |
|-------|--------|-------------|-------|--------|-------------|
| 705   | 0      |             | 1305  | 7679   | +65.97      |
| 735   | 0      |             | 1335  | 9737   | +57.57      |
| 765   | 0      |             | 1365  | 11301  | +45.87      |
| 795   | 0      | >100        | 1395  | 12767  | +31.71      |
| 825   | 0      | >100        | 1425  | 13767  | +19.90      |
| 855   | 1      | +83.33      | 1455  | 14399  | +10.72      |
| 885   | 1      | +55.56      | 1485  | 14467  | +4.38       |
| 915   | 0      | >100        | 1515  | 14671  | +2.12       |
| 945   | 1      | >100        | 1545  | 14576  | +2.61       |
| 975   | 9      | >100        | 1575  | 14808  | +1.80       |
| 1005  | 60     | >100        | 1605  | 14974  | +3.15       |
| 1035  | 173    | >100        | 1635  | 14872  | +1.76       |
| 1065  | 480    | >100        | 1665  | 15248  | -0.41       |
| 1095  | 911    | >100        | 1695  | 15067  | -0.27       |
| 1125  | 1508   | >100        | 1725  | 14784  | -0.43       |
| 1155  | 2024   | >100        | 1755  | 15044  | +2.01       |
| 1185  | 2872   | +97.38      | 1785  | 15163  | +2.82       |
| 1215  | 3858   | +89.30      | 1815  | 15333  | +3.61       |
| 1245  | 5070   | +78.02      | 1845  | 15278  |             |
| 1275  | 6322   | +73.30      | 1875  | 15817  |             |

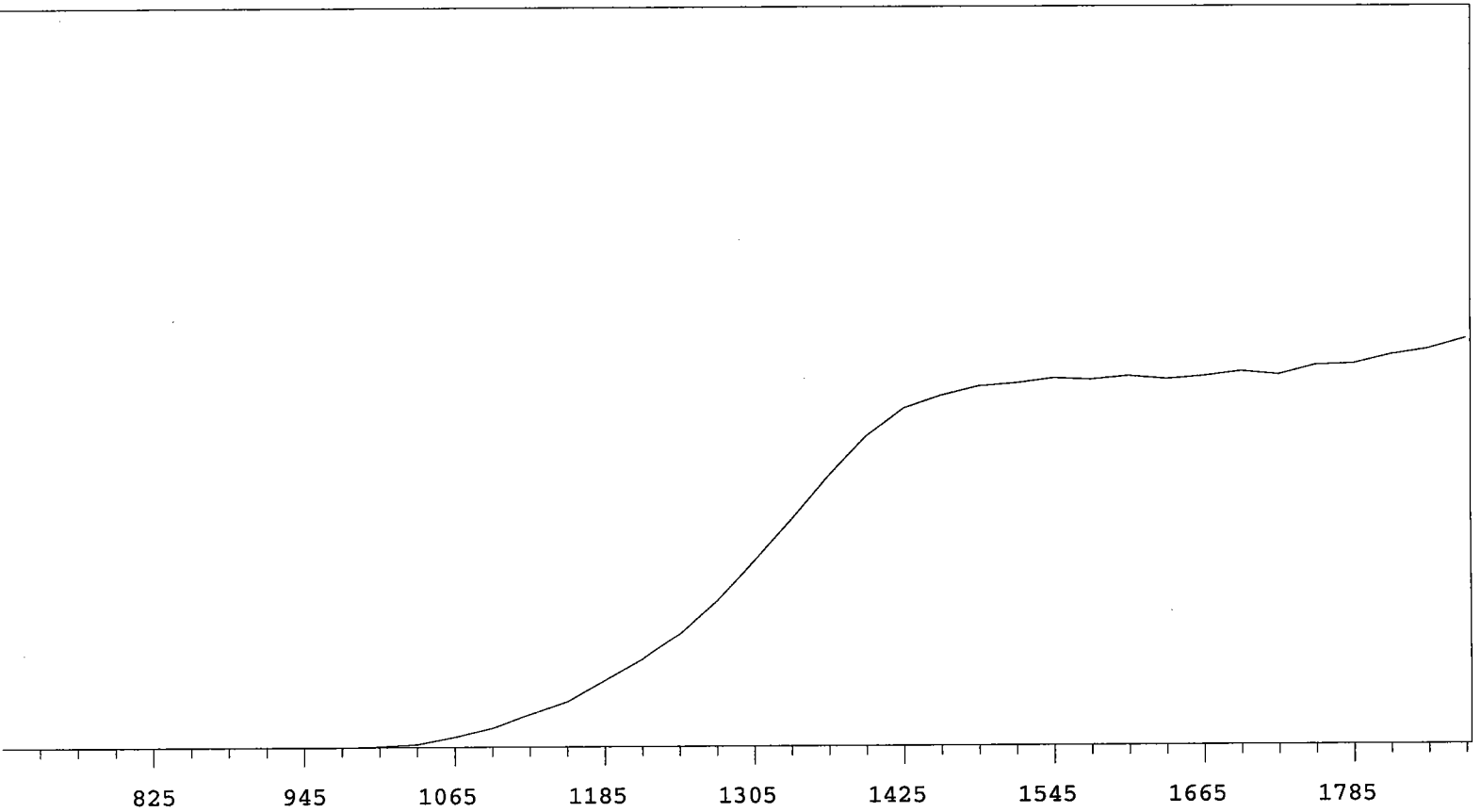
Alpha Volts: 705

Beta Volts: 1515



| VOLTS | COUNTS | %/100 Volts | VOLTS | COUNTS | %/100 Volts |
|-------|--------|-------------|-------|--------|-------------|
| 705   | 0      |             | 1305  | 6302   | +80.03      |
| 735   | 1      |             | 1335  | 8191   | +73.78      |
| 765   | 0      |             | 1365  | 10140  | +66.18      |
| 795   | 0      | >100        | 1395  | 12247  | +55.83      |
| 825   | 0      | >100        | 1425  | 14468  | +43.92      |
| 855   | 0      | >100        | 1455  | 16303  | +31.28      |
| 885   | 0      | >100        | 1485  | 17411  | +18.64      |
| 915   | 0      | >100        | 1515  | 18150  | +9.87       |
| 945   | 0      | >100        | 1545  | 18275  | +5.30       |
| 975   | 1      | >100        | 1575  | 18496  | +3.16       |
| 1005  | 3      | >100        | 1605  | 18685  | +2.66       |
| 1035  | 17     | >100        | 1635  | 18820  | +2.63       |
| 1065  | 84     | >100        | 1665  | 18855  | +4.16       |
| 1095  | 267    | >100        | 1695  | 19152  | +7.70       |
| 1125  | 709    | >100        | 1725  | 19706  | +13.90      |
| 1155  | 1299   | >100        | 1755  | 20640  | +26.51      |
| 1185  | 1813   | >100        | 1785  | 22308  | +40.92      |
| 1215  | 2638   | >100        | 1815  | 26460  | +51.46      |
| 1245  | 3777   | +96.47      | 1845  | 31616  |             |
| 1275  | 4915   | +87.98      | 1875  | 37348  |             |

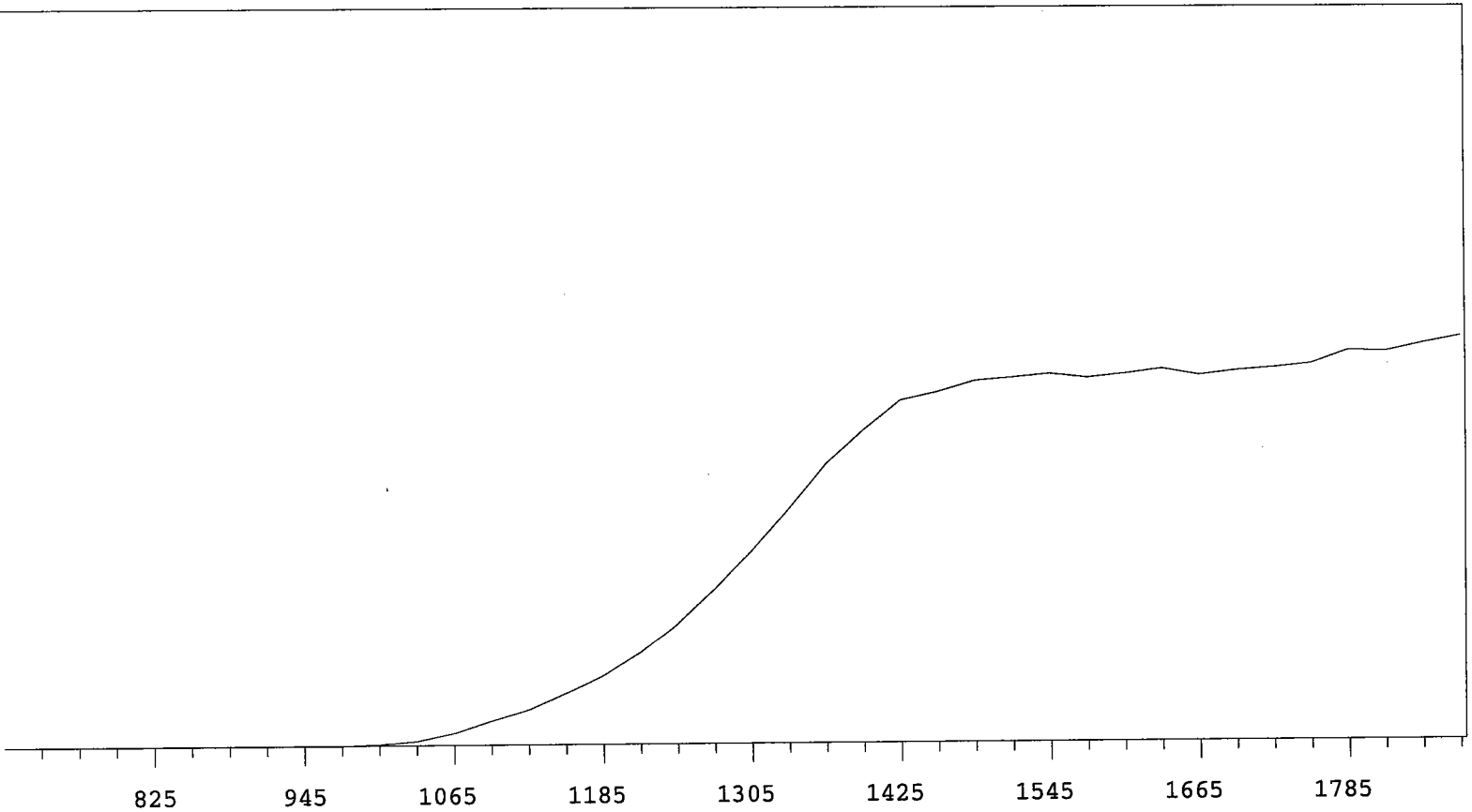




| VOLTS | COUNTS | %/100 Volts | VOLTS | COUNTS | %/100 Volts |
|-------|--------|-------------|-------|--------|-------------|
| 705   | 0      |             | 1305  | 10207  | +70.42      |
| 735   | 0      |             | 1335  | 12473  | +60.75      |
| 765   | 0      |             | 1365  | 14900  | +48.87      |
| 795   | 0      | >100        | 1395  | 17101  | +35.36      |
| 825   | 0      | >100        | 1425  | 18643  | +22.53      |
| 855   | 1      | +83.33      | 1455  | 19350  | +12.34      |
| 885   | 1      | -83.33      | 1485  | 19848  | +6.68       |
| 915   | 0      | -55.56      | 1515  | 20014  | +3.51       |
| 945   | 0      | >100        | 1545  | 20278  | +2.03       |
| 975   | 1      | >100        | 1575  | 20186  | +0.80       |
| 1005  | 43     | >100        | 1605  | 20375  | +0.32       |
| 1035  | 165    | >100        | 1635  | 20209  | +1.36       |
| 1065  | 557    | >100        | 1665  | 20364  | +0.83       |
| 1095  | 1055   | >100        | 1695  | 20607  | +2.43       |
| 1125  | 1775   | >100        | 1725  | 20429  | +2.51       |
| 1155  | 2470   | >100        | 1755  | 20924  | +3.64       |
| 1185  | 3617   | +98.46      | 1785  | 20984  | +5.11       |
| 1215  | 4757   | +90.95      | 1815  | 21470  | +5.63       |
| 1245  | 6186   | +83.59      | 1845  | 21773  |             |
| 1275  | 8021   | +77.85      | 1875  | 22346  |             |

Alpha Volts: 705

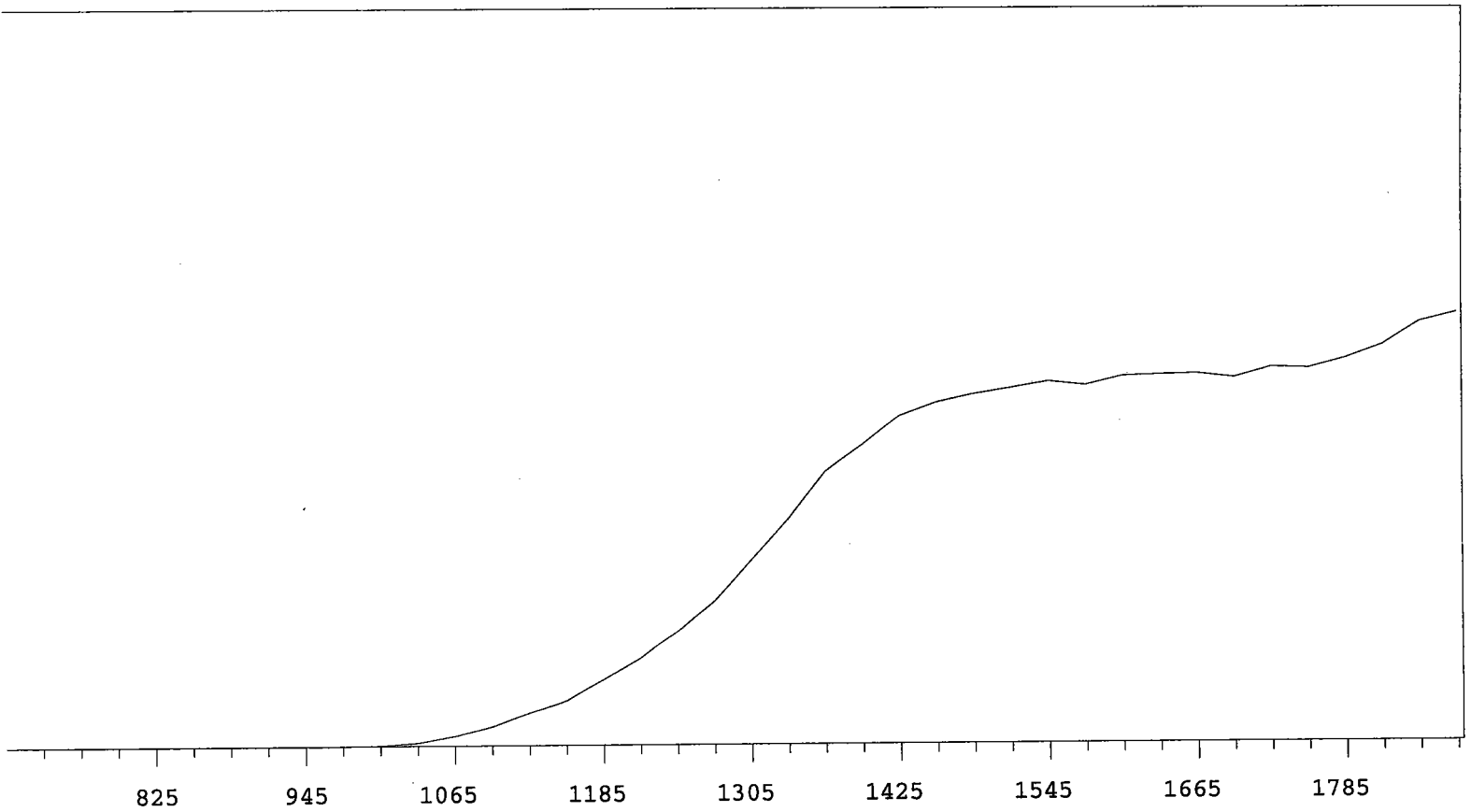
Beta Volts: 1515



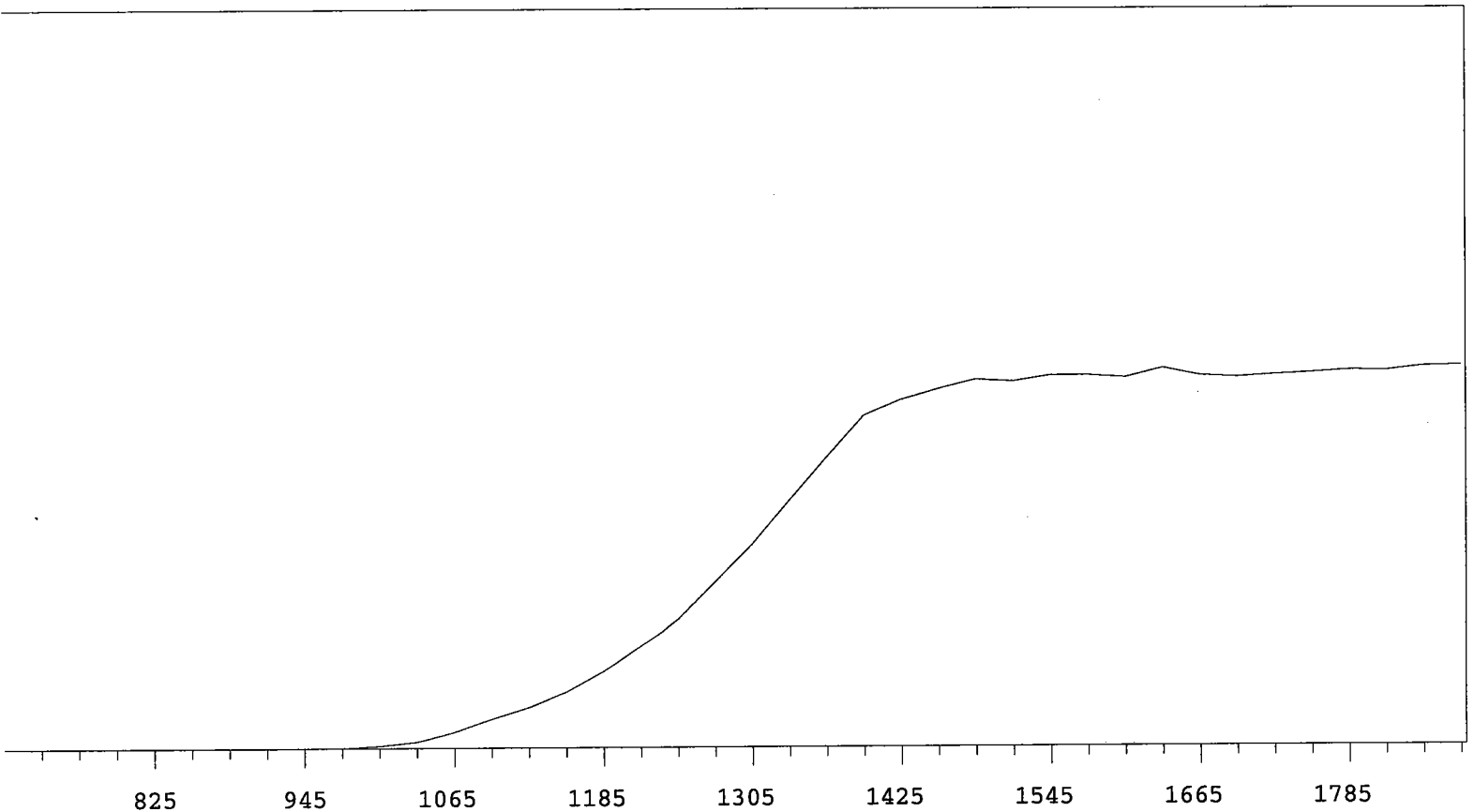
| VOLTS | COUNTS | %/100 Volts | VOLTS | COUNTS | %/100 Volts |
|-------|--------|-------------|-------|--------|-------------|
| 705   | 1      |             | 1305  | 9543   | +67.01      |
| 735   | 0      |             | 1335  | 11617  | +56.47      |
| 765   | 0      |             | 1365  | 13791  | +45.47      |
| 795   | 0      | >100        | 1395  | 15387  | +31.66      |
| 825   | 0      | >100        | 1425  | 16819  | +20.02      |
| 855   | 0      | >100        | 1455  | 17210  | +11.63      |
| 885   | 1      | +0.00       | 1485  | 17742  | +6.05       |
| 915   | 0      | >100        | 1515  | 17892  | +3.04       |
| 945   | 0      | >100        | 1545  | 18070  | +1.09       |
| 975   | 7      | >100        | 1575  | 17856  | +1.43       |
| 1005  | 52     | >100        | 1605  | 18054  | +0.42       |
| 1035  | 214    | >100        | 1635  | 18287  | +1.06       |
| 1065  | 590    | >100        | 1665  | 17969  | +0.78       |
| 1095  | 1201   | >100        | 1695  | 18187  | +1.48       |
| 1125  | 1759   | >100        | 1725  | 18317  | +4.89       |
| 1155  | 2569   | >100        | 1755  | 18518  | +4.76       |
| 1185  | 3440   | +95.13      | 1785  | 19156  | +5.18       |
| 1215  | 4583   | +87.74      | 1815  | 19100  | +5.18       |
| 1245  | 5985   | +81.67      | 1845  | 19496  |             |
| 1275  | 7682   | +74.54      | 1875  | 19842  |             |

Alpha Volts: 705

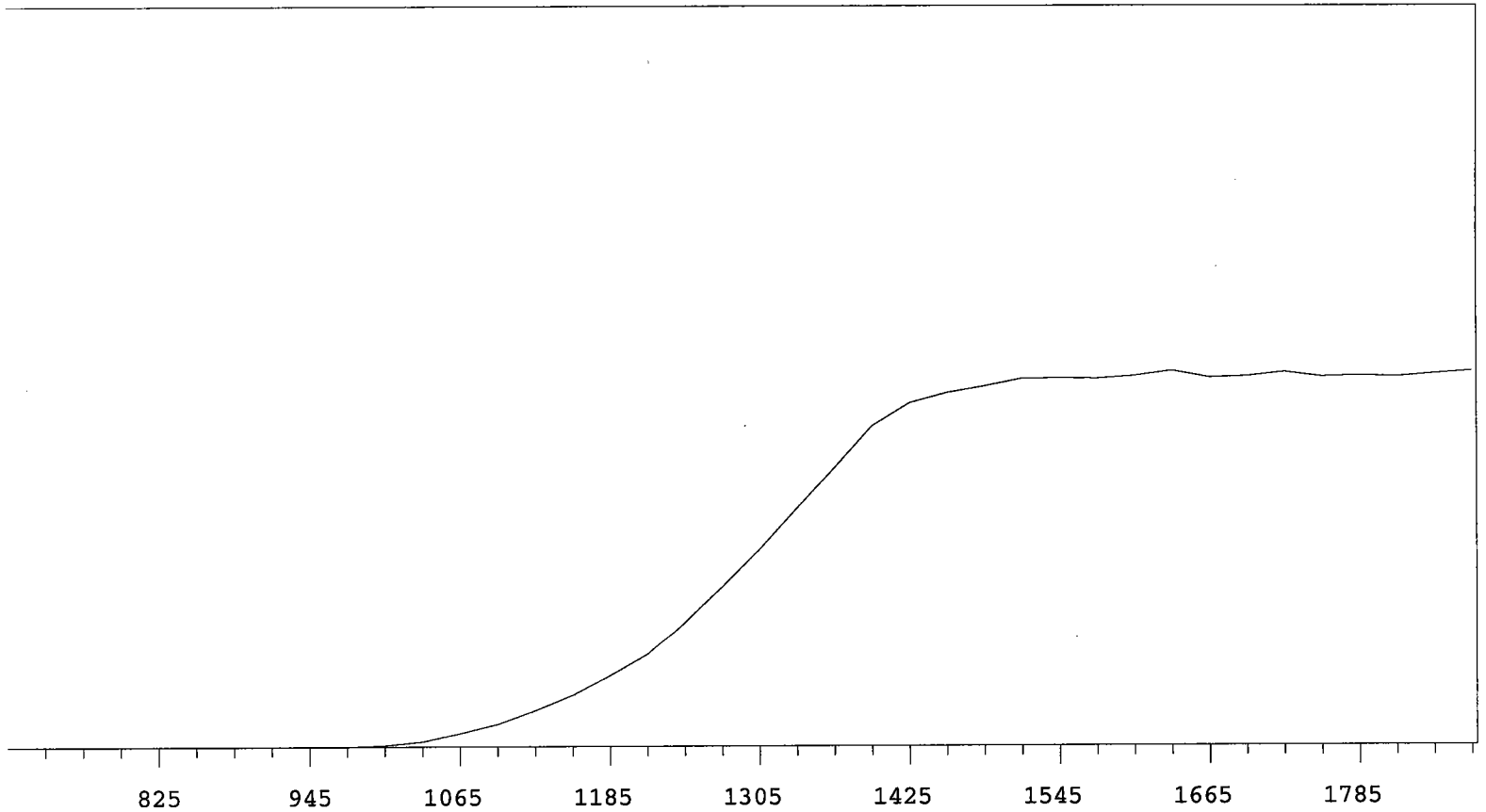
Beta Volts: 1515



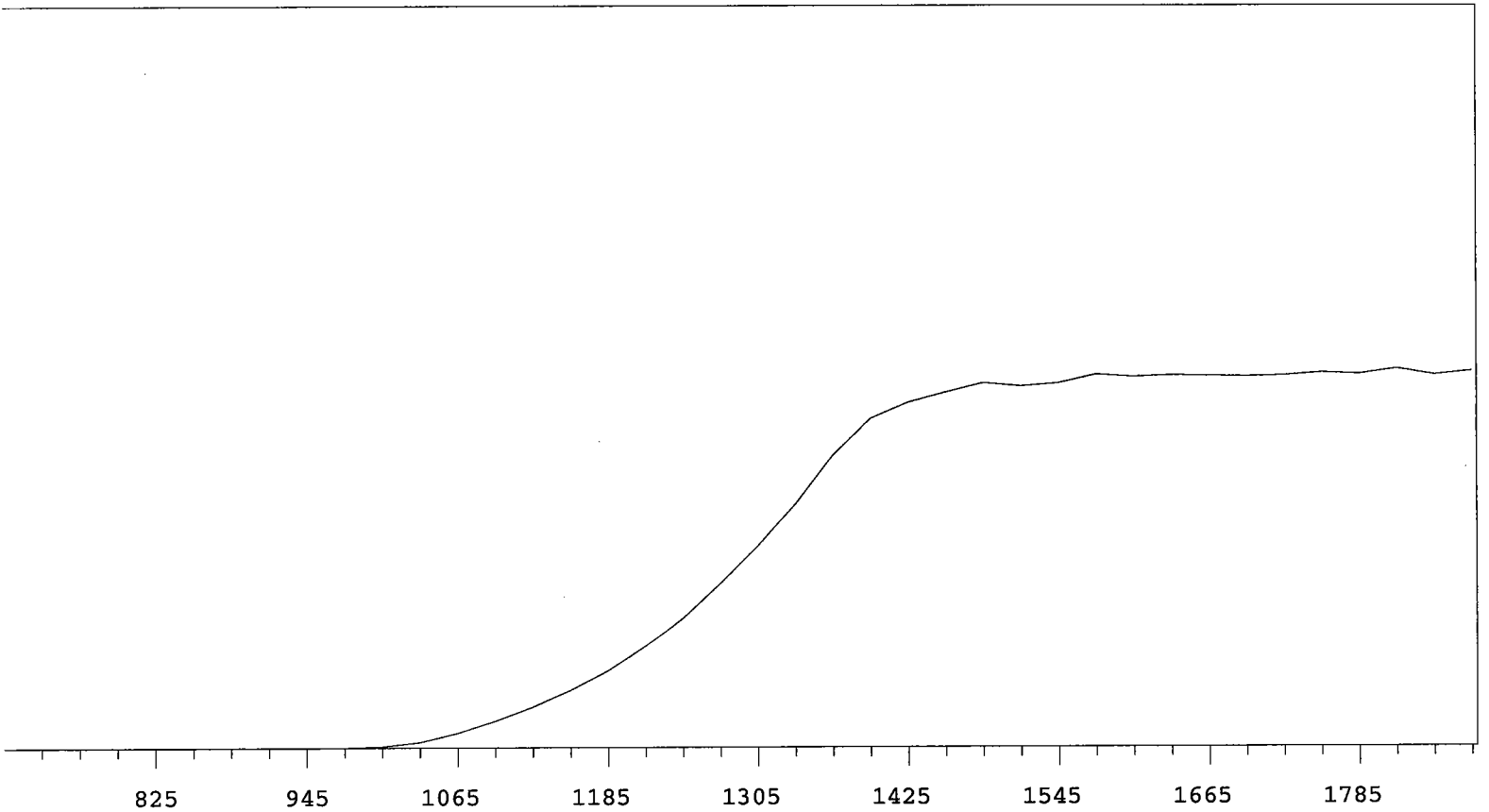
| VOLTS | COUNTS | %/100 Volts | VOLTS | COUNTS | %/100 Volts |
|-------|--------|-------------|-------|--------|-------------|
| 705   | 0      |             | 1305  | 9144   | +69.92      |
| 735   | 0      |             | 1335  | 11120  | +58.43      |
| 765   | 0      |             | 1365  | 13399  | +45.40      |
| 795   | 0      | >100        | 1395  | 14711  | +32.57      |
| 825   | 0      | >100        | 1425  | 16134  | +20.69      |
| 855   | 0      | >100        | 1455  | 16805  | +13.46      |
| 885   | 0      | >100        | 1485  | 17209  | +7.90       |
| 915   | 0      | >100        | 1515  | 17500  | +4.31       |
| 945   | 0      | >100        | 1545  | 17812  | +3.48       |
| 975   | 4      | >100        | 1575  | 17629  | +2.80       |
| 1005  | 26     | >100        | 1605  | 18066  | +2.23       |
| 1035  | 169    | >100        | 1635  | 18122  | +1.44       |
| 1065  | 483    | >100        | 1665  | 18166  | +1.20       |
| 1095  | 955    | >100        | 1695  | 17967  | +1.60       |
| 1125  | 1639   | >100        | 1725  | 18469  | +3.41       |
| 1155  | 2233   | >100        | 1755  | 18409  | +6.35       |
| 1185  | 3262   | +98.61      | 1785  | 18884  | +9.47       |
| 1215  | 4306   | +89.77      | 1815  | 19535  | +11.98      |
| 1245  | 5662   | +82.36      | 1845  | 20630  |             |
| 1275  | 7113   | +76.36      | 1875  | 21076  |             |



| VOLTS | COUNTS | %/100 Volts | VOLTS | COUNTS | %/100 Volts |
|-------|--------|-------------|-------|--------|-------------|
| 705   | 0      |             | 1305  | 9209   | +64.55      |
| 735   | 1      |             | 1335  | 11200  | +55.94      |
| 765   | 0      | +55.56      | 1365  | 13123  | +43.27      |
| 795   | 2      | >100        | 1395  | 14957  | +29.04      |
| 825   | 0      | +0.00       | 1425  | 15658  | +17.41      |
| 855   | 0      | >100        | 1455  | 16123  | +8.01       |
| 885   | 1      | >100        | 1485  | 16530  | +4.92       |
| 915   | 0      | >100        | 1515  | 16437  | +2.71       |
| 945   | 1      | >100        | 1545  | 16704  | +0.83       |
| 975   | 14     | >100        | 1575  | 16707  | +2.14       |
| 1005  | 104    | >100        | 1605  | 16602  | +0.55       |
| 1035  | 281    | >100        | 1635  | 17024  | -0.28       |
| 1065  | 720    | >100        | 1665  | 16684  | -0.42       |
| 1095  | 1302   | >100        | 1695  | 16597  | -0.85       |
| 1125  | 1834   | >100        | 1725  | 16711  | +1.27       |
| 1155  | 2544   | >100        | 1755  | 16796  | +1.51       |
| 1185  | 3485   | +92.28      | 1785  | 16903  | +1.57       |
| 1215  | 4624   | +85.50      | 1815  | 16880  | +1.46       |
| 1245  | 5878   | +77.82      | 1845  | 17066  |             |
| 1275  | 7515   | +71.49      | 1875  | 17085  |             |



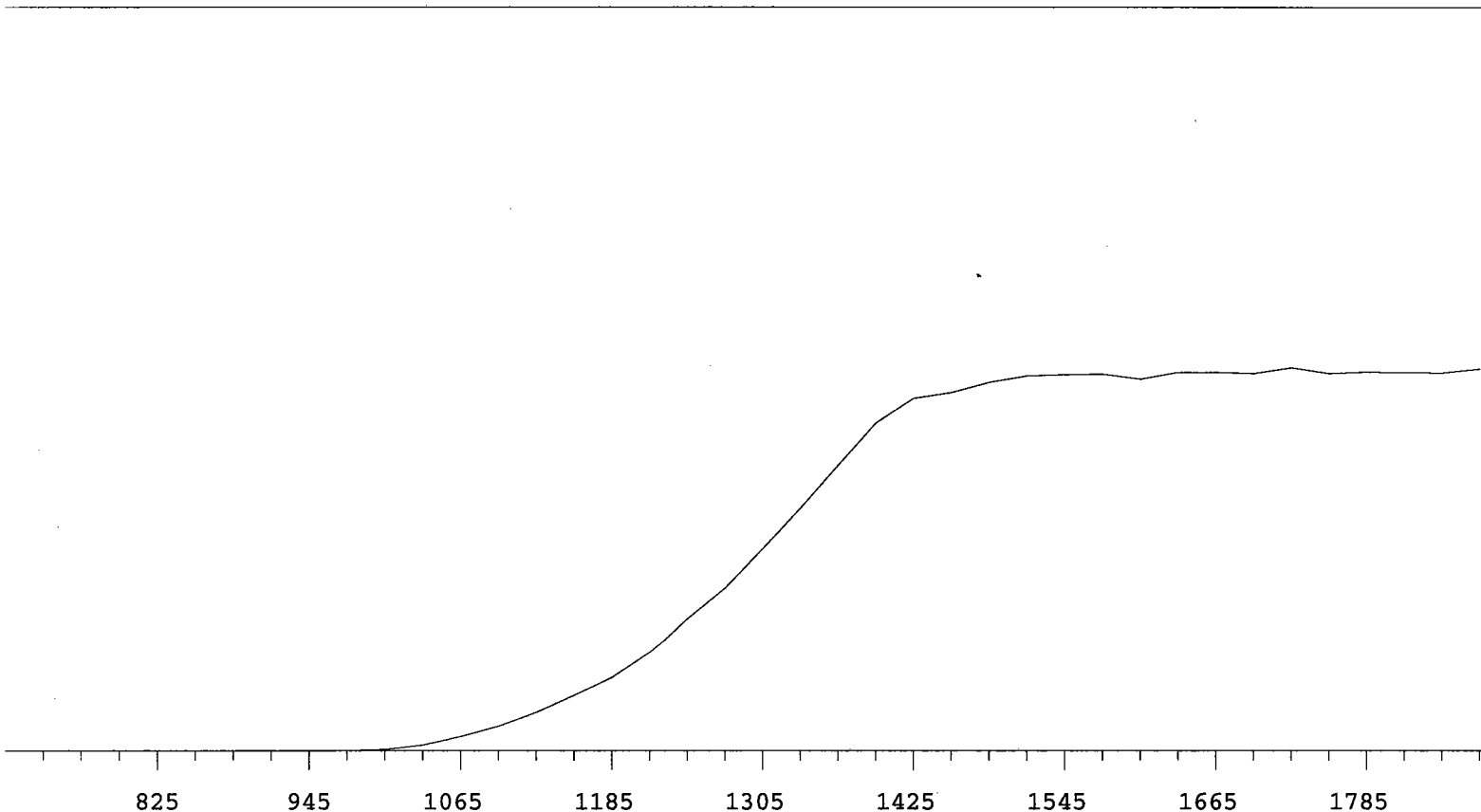
| VOLTS | COUNTS | %/100 Volts | VOLTS | COUNTS | %/100 Volts |
|-------|--------|-------------|-------|--------|-------------|
| 705   | 0      |             | 1305  | 9666   | +64.39      |
| 735   | 0      |             | 1335  | 11722  | +55.91      |
| 765   | 0      |             | 1365  | 13680  | +44.91      |
| 795   | 0      | >100        | 1395  | 15677  | +31.56      |
| 825   | 0      | >100        | 1425  | 16786  | +19.46      |
| 855   | 0      | >100        | 1455  | 17283  | +10.57      |
| 885   | 0      | >100        | 1485  | 17608  | +5.95       |
| 915   | 1      | >100        | 1515  | 17972  | +3.32       |
| 945   | 0      | >100        | 1545  | 18006  | +1.84       |
| 975   | 4      | >100        | 1575  | 17970  | +1.58       |
| 1005  | 70     | >100        | 1605  | 18104  | +0.74       |
| 1035  | 257    | >100        | 1635  | 18351  | +0.24       |
| 1065  | 648    | >100        | 1665  | 18016  | +0.16       |
| 1095  | 1116   | >100        | 1695  | 18080  | -0.63       |
| 1125  | 1784   | >100        | 1725  | 18283  | +0.29       |
| 1155  | 2560   | >100        | 1755  | 18047  | -0.47       |
| 1185  | 3531   | +96.11      | 1785  | 18110  | -0.32       |
| 1215  | 4568   | +89.22      | 1815  | 18040  | +1.17       |
| 1245  | 6137   | +81.65      | 1845  | 18200  |             |
| 1275  | 7855   | +74.42      | 1875  | 18320  |             |



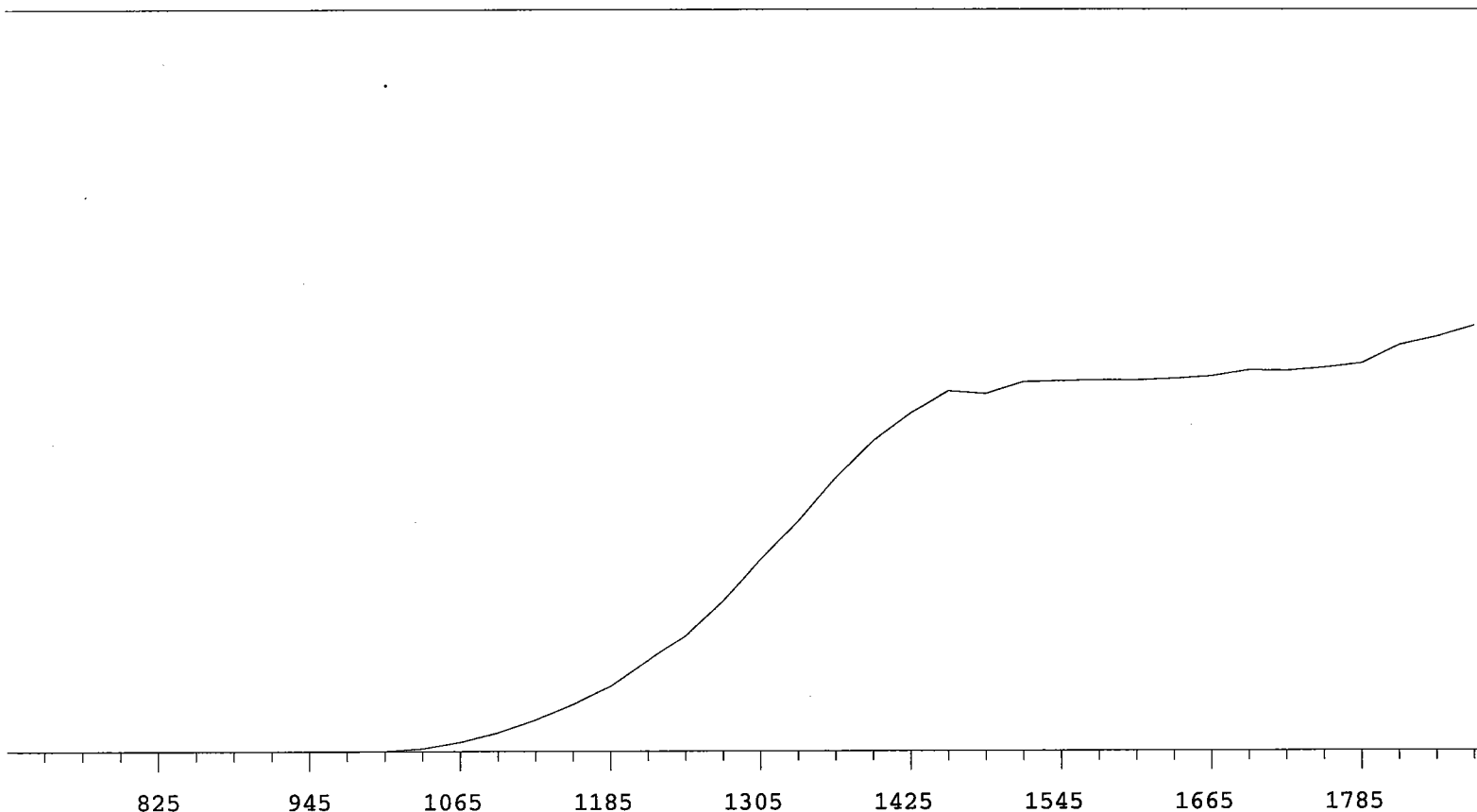
| VOLTS | COUNTS | %/100 Volts | VOLTS | COUNTS | %/100 Volts |
|-------|--------|-------------|-------|--------|-------------|
| 705   | 0      |             | 1305  | 11573  | +64.95      |
| 735   | 0      |             | 1335  | 13929  | +56.47      |
| 765   | 0      |             | 1365  | 16726  | +43.82      |
| 795   | 0      | >100        | 1395  | 18834  | +29.38      |
| 825   | 0      | >100        | 1425  | 19743  | +16.84      |
| 855   | 0      | >100        | 1455  | 20314  | +7.95       |
| 885   | 0      | >100        | 1485  | 20860  | +4.16       |
| 915   | 0      | >100        | 1515  | 20670  | +3.23       |
| 945   | 0      | >100        | 1545  | 20844  | +2.09       |
| 975   | 9      | >100        | 1575  | 21330  | +2.48       |
| 1005  | 93     | >100        | 1605  | 21188  | +1.16       |
| 1035  | 325    | >100        | 1635  | 21280  | -0.32       |
| 1065  | 834    | >100        | 1665  | 21237  | +0.08       |
| 1095  | 1525   | >100        | 1695  | 21202  | +0.42       |
| 1125  | 2318   | >100        | 1725  | 21254  | +0.60       |
| 1155  | 3233   | >100        | 1755  | 21406  | +1.41       |
| 1185  | 4357   | +92.07      | 1785  | 21326  | +0.42       |
| 1215  | 5755   | +85.64      | 1815  | 21619  | +0.16       |
| 1245  | 7438   | +78.35      | 1845  | 21282  |             |
| 1275  | 9463   | +70.89      | 1875  | 21478  |             |

Alpha Volts: 705

Beta Volts: 1515

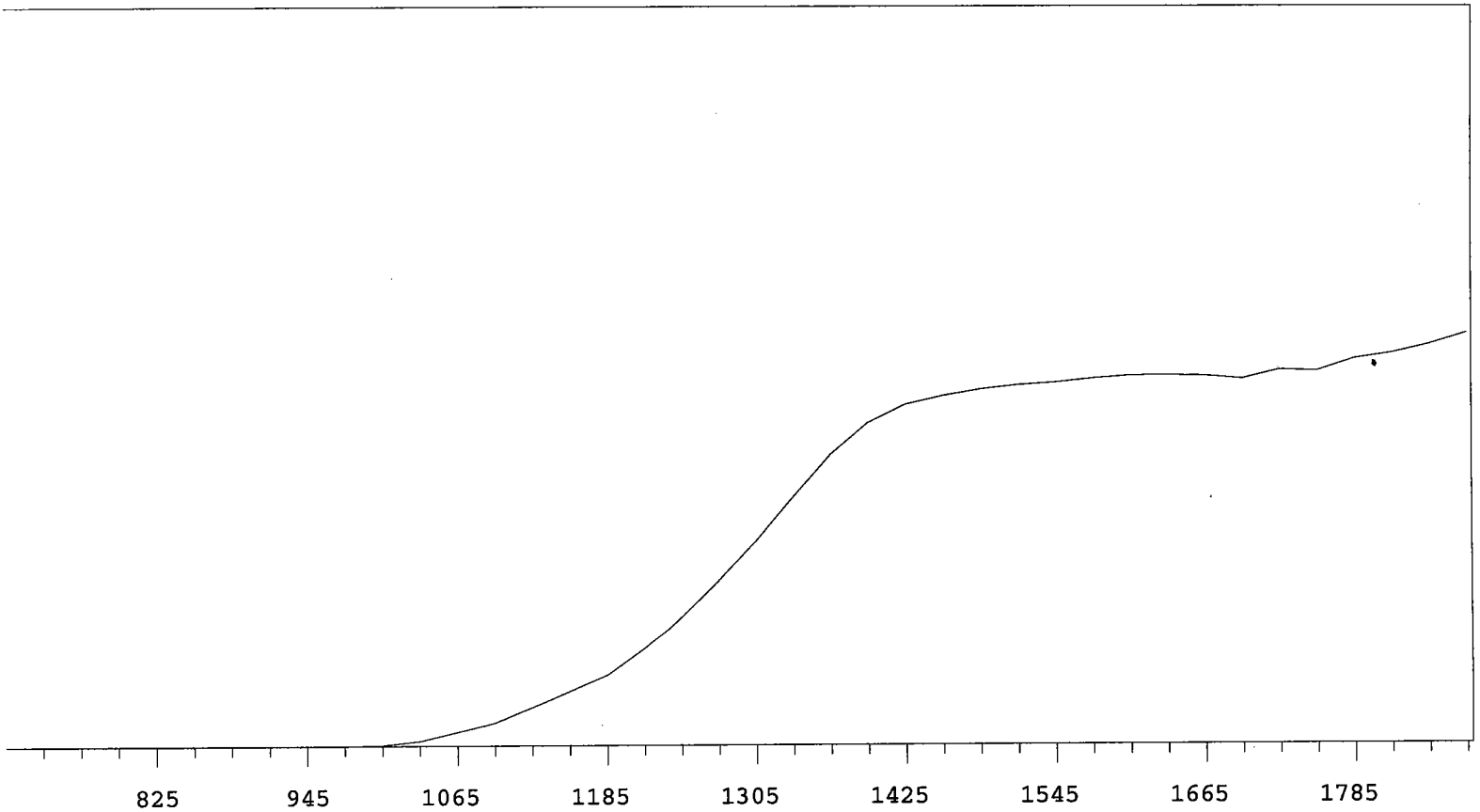


| VOLTS | COUNTS | %/100 Volts | VOLTS | COUNTS | %/100 Volts |
|-------|--------|-------------|-------|--------|-------------|
| 705   | 1      |             | 1305  | 7524   | +61.93      |
| 735   | 0      |             | 1335  | 9002   | +55.36      |
| 765   | 0      |             | 1365  | 10542  | +44.70      |
| 795   | 0      | >100        | 1395  | 12064  | +31.21      |
| 825   | 0      | >100        | 1425  | 12981  | +19.20      |
| 855   | 0      | >100        | 1455  | 13192  | +10.41      |
| 885   | 0      | >100        | 1485  | 13570  | +5.93       |
| 915   | 0      | >100        | 1515  | 13820  | +4.08       |
| 945   | 0      | >100        | 1545  | 13866  | +0.75       |
| 975   | 9      | >100        | 1575  | 13880  | +0.21       |
| 1005  | 58     | >100        | 1605  | 13695  | +0.59       |
| 1035  | 228    | >100        | 1635  | 13950  | +0.77       |
| 1065  | 544    | >100        | 1665  | 13954  | +1.92       |
| 1095  | 936    | >100        | 1695  | 13911  | +0.19       |
| 1125  | 1468   | >100        | 1725  | 14116  | +0.02       |
| 1155  | 2110   | >100        | 1755  | 13908  | -0.24       |
| 1185  | 2770   | +94.71      | 1785  | 13960  | -0.81       |
| 1215  | 3670   | +85.91      | 1815  | 13939  | +0.71       |
| 1245  | 4937   | +79.46      | 1845  | 13931  |             |
| 1275  | 6066   | +70.79      | 1875  | 14071  |             |

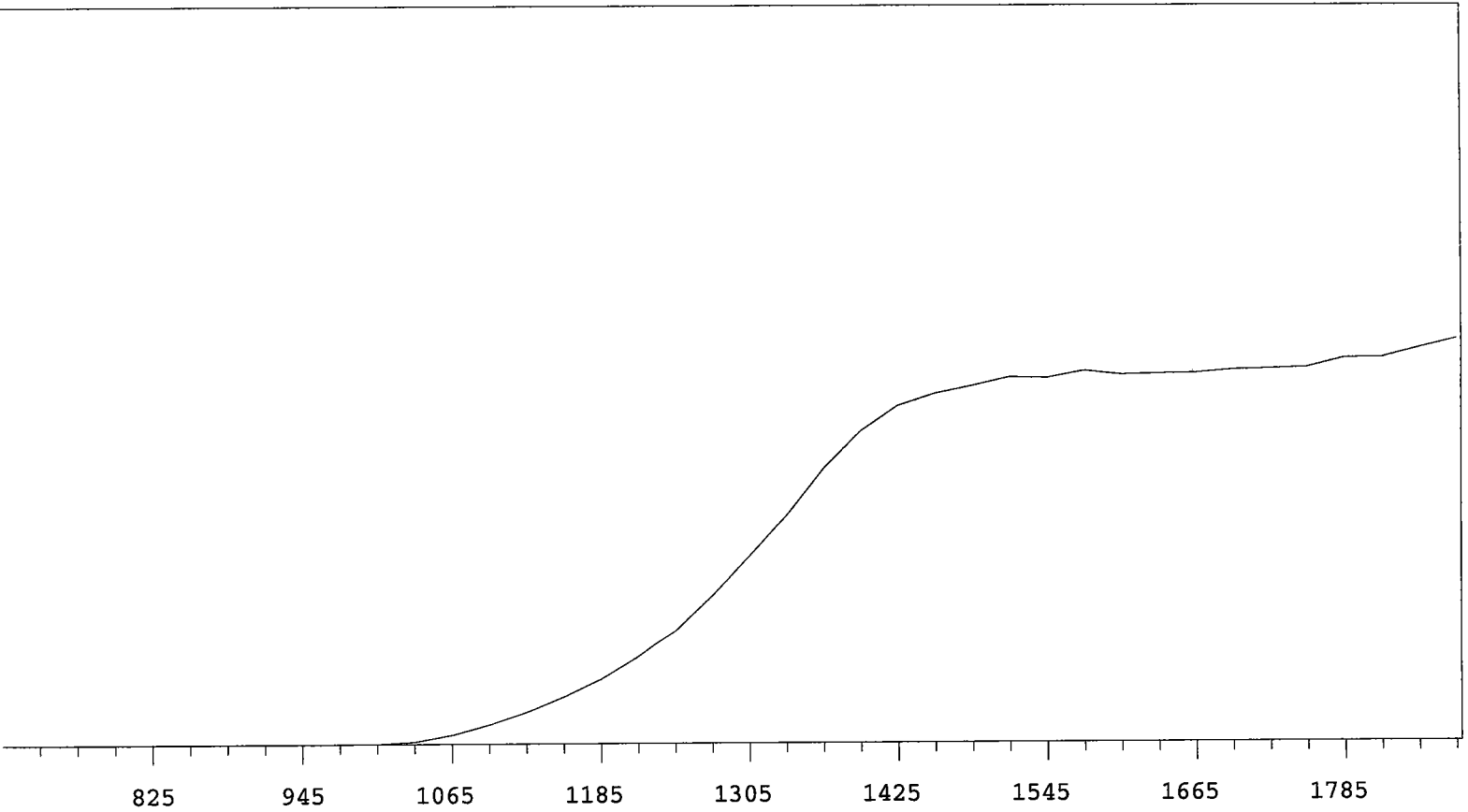


| VOLTS | COUNTS | %/100 Volts | VOLTS | COUNTS | %/100 Volts |
|-------|--------|-------------|-------|--------|-------------|
| 705   | 0      |             | 1305  | 8778   | +67.49      |
| 735   | 0      |             | 1335  | 10502  | +57.68      |
| 765   | 0      |             | 1365  | 12516  | +46.36      |
| 795   | 0      | >100        | 1395  | 14215  | +35.88      |
| 825   | 0      | >100        | 1425  | 15472  | +22.01      |
| 855   | 0      | >100        | 1455  | 16469  | +12.99      |
| 885   | 1      | +0.00       | 1485  | 16342  | +6.70       |
| 915   | 0      | >100        | 1515  | 16874  | +3.07       |
| 945   | 0      | >100        | 1545  | 16918  | +2.53       |
| 975   | 0      | >100        | 1575  | 16950  | +0.58       |
| 1005  | 18     | >100        | 1605  | 16943  | +0.95       |
| 1035  | 137    | >100        | 1635  | 17008  | +2.13       |
| 1065  | 430    | >100        | 1665  | 17130  | +2.45       |
| 1095  | 865    | >100        | 1695  | 17403  | +2.43       |
| 1125  | 1444   | >100        | 1725  | 17377  | +2.43       |
| 1155  | 2151   | >100        | 1755  | 17515  | +4.88       |
| 1185  | 2981   | >100        | 1785  | 17710  | +7.54       |
| 1215  | 4168   | +92.14      | 1815  | 18533  | +9.04       |
| 1245  | 5377   | +84.73      | 1845  | 18905  |             |
| 1275  | 6924   | +74.92      | 1875  | 19415  |             |





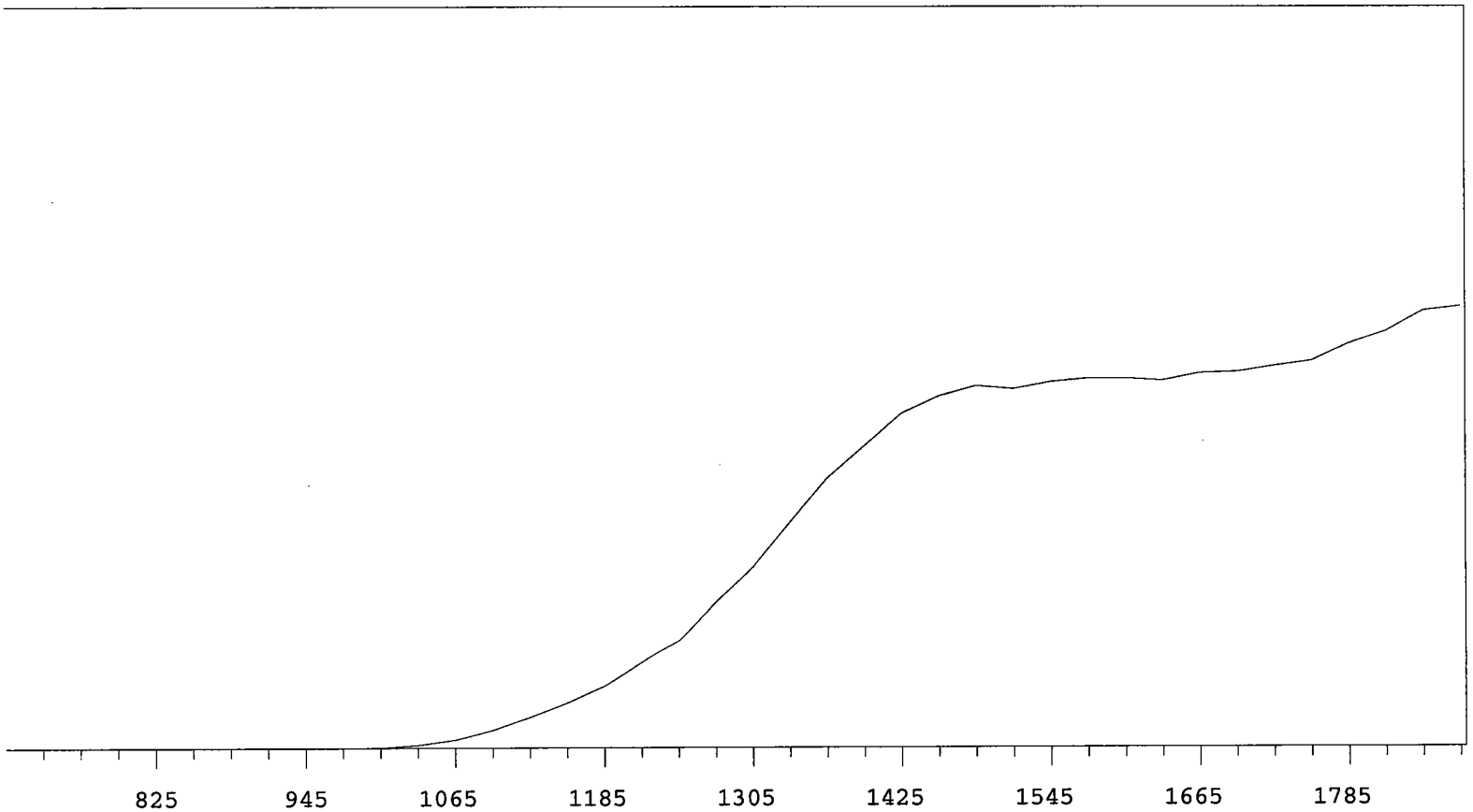
| VOLTS | COUNTS | %/100 Volts | VOLTS | COUNTS | %/100 Volts |
|-------|--------|-------------|-------|--------|-------------|
| 705   | 0      |             | 1305  | 8797   | +65.44      |
| 735   | 0      |             | 1335  | 10726  | +54.47      |
| 765   | 0      |             | 1365  | 12570  | +41.11      |
| 795   | 0      | >100        | 1395  | 13917  | +26.79      |
| 825   | 0      | >100        | 1425  | 14687  | +15.44      |
| 855   | 1      | +0.00       | 1455  | 15048  | +8.47       |
| 885   | 0      | >100        | 1485  | 15318  | +5.00       |
| 915   | 0      | >100        | 1515  | 15494  | +3.76       |
| 945   | 0      | >100        | 1545  | 15606  | +3.04       |
| 975   | 3      | >100        | 1575  | 15776  | +2.35       |
| 1005  | 40     | >100        | 1605  | 15889  | +1.44       |
| 1035  | 210    | >100        | 1635  | 15907  | -0.16       |
| 1065  | 590    | >100        | 1665  | 15881  | +0.64       |
| 1095  | 983    | >100        | 1695  | 15741  | +1.21       |
| 1125  | 1645   | >100        | 1725  | 16124  | +3.63       |
| 1155  | 2342   | >100        | 1755  | 16076  | +5.41       |
| 1185  | 3045   | +96.43      | 1785  | 16588  | +5.79       |
| 1215  | 4201   | +90.42      | 1815  | 16830  | +7.53       |
| 1245  | 5579   | +83.64      | 1845  | 17185  |             |
| 1275  | 7121   | +74.44      | 1875  | 17682  |             |



| VOLTS | COUNTS | %/100 Volts | VOLTS | COUNTS | %/100 Volts |
|-------|--------|-------------|-------|--------|-------------|
| 705   | 0      |             | 1305  | 10118  | +69.76      |
| 735   | 0      |             | 1335  | 12269  | +59.65      |
| 765   | 0      |             | 1365  | 14810  | +47.35      |
| 795   | 0      | >100        | 1395  | 16773  | +33.46      |
| 825   | 0      | >100        | 1425  | 18104  | +20.13      |
| 855   | 0      | >100        | 1455  | 18720  | +11.98      |
| 885   | 1      | +0.00       | 1485  | 19122  | +6.50       |
| 915   | 0      | >100        | 1515  | 19580  | +4.77       |
| 945   | 0      | >100        | 1545  | 19527  | +2.48       |
| 975   | 2      | >100        | 1575  | 19902  | +0.81       |
| 1005  | 21     | >100        | 1605  | 19690  | +0.53       |
| 1035  | 132    | >100        | 1635  | 19739  | +0.23       |
| 1065  | 491    | >100        | 1665  | 19765  | +1.29       |
| 1095  | 1036   | >100        | 1695  | 19932  | +1.40       |
| 1125  | 1698   | >100        | 1725  | 19976  | +2.72       |
| 1155  | 2517   | >100        | 1755  | 20051  | +2.92       |
| 1185  | 3468   | >100        | 1785  | 20523  | +4.26       |
| 1215  | 4721   | +91.83      | 1815  | 20542  | +5.57       |
| 1245  | 6175   | +85.13      | 1845  | 21035  |             |
| 1275  | 8025   | +76.82      | 1875  | 21528  |             |

Alpha Volts: 705

Beta Volts: 1515



| VOLTS | COUNTS | %/100 Volts | VOLTS | COUNTS | %/100 Volts |
|-------|--------|-------------|-------|--------|-------------|
| 705   | 0      |             | 1305  | 8095   | +71.16      |
| 735   | 0      |             | 1335  | 10052  | +58.38      |
| 765   | 0      |             | 1365  | 11990  | +47.92      |
| 795   | 0      | >100        | 1395  | 13400  | +35.01      |
| 825   | 0      | >100        | 1425  | 14808  | +23.58      |
| 855   | 0      | >100        | 1455  | 15554  | +13.45      |
| 885   | 0      | >100        | 1485  | 15987  | +6.39       |
| 915   | 0      | >100        | 1515  | 15861  | +3.45       |
| 945   | 0      | >100        | 1545  | 16156  | +2.18       |
| 975   | 1      | >100        | 1575  | 16297  | +1.72       |
| 1005  | 14     | >100        | 1605  | 16297  | +1.33       |
| 1035  | 130    | >100        | 1635  | 16208  | +1.62       |
| 1065  | 363    | >100        | 1665  | 16526  | +2.92       |
| 1095  | 785    | >100        | 1695  | 16581  | +3.94       |
| 1125  | 1357   | >100        | 1725  | 16832  | +5.91       |
| 1155  | 1996   | >100        | 1755  | 17039  | +8.68       |
| 1185  | 2735   | +99.45      | 1785  | 17800  | +11.53      |
| 1215  | 3785   | +94.20      | 1815  | 18351  | +11.46      |
| 1245  | 4857   | +86.43      | 1845  | 19265  |             |
| 1275  | 6571   | +78.80      | 1875  | 19468  |             |

# CERTIFICATE OF CALIBRATION

## Standard Radionuclide Source

66002-278

Ra-228 5 mL Liquid in Flame Sealed Vial

This standard radionuclide source was prepared gravimetrically from a calibrated master solution. The master solution was calibrated using a germanium gamma spectrometer system.

Radionuclide purity and calibration were checked using a germanium gamma spectrometer system. The nuclear decay rate and assay date for this source are given below.

ANALYTICS maintains traceability to the National Institute of Standards and Technology through Measurements Assurance Programs as described in USNRC Reg. Guide 4.15, Revision 1.

|                     |                          |
|---------------------|--------------------------|
| ISOTOPE:            | Ra-228                   |
| ACTIVITY (dps):     | 2.367 E4                 |
| HALF-LIFE:          | 5.75 years               |
| CALIBRATION DATE:   | April 23, 2003 12:00 EST |
| TOTAL UNCERTAINTY*: | 2.4%                     |

\*95% Confidence Level

Impurities:  $\gamma$ -impurities (other than decay products) <0.1%,  
Ra-226 <0.1%

5.31628 grams 4M HCl solution with 100  $\mu$ g/g Ba carrier.

P O NUMBER 3219 RD, Item 1

SOURCE PREPARED BY:

M. Taskaeva  
M. Taskaeva, Radiochemist

Q A APPROVED:

J.M. Muth 4-23-03



# Standard Traceability Log Rad

| Source Material Info |               | A Solution Material Info |                  |
|----------------------|---------------|--------------------------|------------------|
| Parent Code:         | 0553-A        | Isotope:                 | Radium-228 SPIKE |
| Prepared By:         | Lonnie Morris | Prepared By:             | Lonnie Morris    |
| Carrier Conc:        | 0.5M HCl      | Prep Date:               | 04/25/2003       |
| Reference Date:      | 04/23/2003    | Verification Date:       | 04/27/2005       |
| Ampoule Mass (g):    | 5.0235 g      | Expiration Date:         | 04/27/2006       |
| Uncertainty:         | +/-           | Primary Code:            | 0553-B           |
| LogBook No:          | RC-S-035-068  | Dilution(mL):            | 1000 mL          |
|                      |               | Mass of Parent(g):       | 30.535 g         |
|                      |               | Density(g/mL):           |                  |
|                      |               | Balance ID:              |                  |

### Calculations Converting parent activity to dpm/mL|dpm/g

|  |
|--|
| $(\text{Mass of parent(g)}) * (\text{Parent Activity (dpm/mL)}) * (\text{conversion dpm to dpm}) / (\text{Dilution Vol}) = \text{Parent Activity (dpm/mL)}$                        |
| $(\text{Mass of parent(g)}) * (\text{Parent Activity (dpm/mL)}) * (\text{conversion dpm to dpm}) / \text{Density (g/mL)} / (\text{Dilution Vol}) = \text{Parent Activity (dpm/g)}$ |
| $(30.535 \text{ g}) * (13419.8626 \text{ dpm/mL}) * (1 \text{ dpm/dpm}) / (1000 \text{ mL}) = 409.7755 \text{ dpm/mL}$   |
| $(30.535 \text{ g}) * (13419.8626 \text{ dpm/mL}) * (1 \text{ dpm/dpm}) / (\text{g/mL}) / (1000 \text{ mL}) = \text{dpm/g}$  |

### Secondary Standards

| Prep Date | Preparer | Mass Primary | Dilution (mL) | Code | Conc dpm/mL | Verification Date | Expiration Date |
|-----------|----------|--------------|---------------|------|-------------|-------------------|-----------------|
|           |          |              |               |      |             |                   |                 |

GEL Laboratories LLC  
Version 1.0 9/18/2000

# CERTIFICATE OF CALIBRATION

## Standard Radionuclide Source

64673-278

Ra-228 5 mL Liquid in Flame Sealed Vial

This standard radionuclide source was prepared gravimetrically from a calibrated master solution. The master solution was calibrated using a germanium gamma spectrometer system.

Radionuclide purity and calibration were checked using a germanium gamma spectrometer system. The nuclear decay rate and assay date for this source are given below.

ANALYTICS maintains traceability to the National Institute of Standards and Technology through Measurements Assurance Programs as described in USNRC Reg. Guide 4.15, Revision 1.

|                     |                           |
|---------------------|---------------------------|
| ISOTOPE:            | Ra-228                    |
| ACTIVITY (dps):     | 1.939 E4                  |
| HALF-LIFE:          | 5.75 years                |
| CALIBRATION DATE:   | October 1, 2002 12:00 EST |
| TOTAL UNCERTAINTY*: | 3.6%                      |
| SYSTEMATIC:         | 3.4%                      |
| RANDOM:             | 1.1%                      |

\*99% Confidence Level

Impurities:  $\gamma$ -impurities <0.1%5.02617 grams 0.1M HCl solution with 110  $\mu\text{g/g}$  Ba carrier.

P O NUMBER 3208RD, Item 2

SOURCE PREPARED BY:

M. Taskaeva  
M. Taskaeva, Radiochemist

Q A APPROVED:

M. M. T. 10202



# Standard Traceability Log Rad

| Source Material Info |                | A Solution Material Info |                |
|----------------------|----------------|--------------------------|----------------|
| Parent Code:         | 0503           | Isotope:                 | Radium-228     |
| Prepared By:         | Angela Johnson | Prepared By:             | Angela Johnson |
| Carrier Conc:        | 0.1 M HCL      | Prep Date:               | 02/20/2003     |
| Reference Date:      | 10/01/2002     | Verification Date:       | 04/09/2004     |
| Ampoule Mass (g):    | 5.02617 g      | Expiration Date:         | 04/09/2005     |
| Uncertainty:         | +/- 3.6 %      | Primary Code:            | 0503-A         |
| LogBook No:          | RC S 035 018   | Dilution(mL):            | 100 mL         |
|                      |                | Mass of Parent(g):       | 4.4737 g       |
|                      |                | Density(g/mL):           | 0.9992         |
|                      |                | Balance ID:              |                |

### Calculations Converting parent activity to dpm/mL/dpm/g

|  |
|--|
| $(\text{Mass of parent(g)}) * (\text{Parm Activity (dps)}) * (\text{conversion dpm to dps}) / (\text{Ampoule Mass(g)} * (\text{Dilution Vol})) = \text{Parent Activity (dpm/mL)}$                  |
| $(\text{Mass of parent(g)}) * (\text{Parm Activity (dps)}) * (\text{conversion dpm to dps}) / \text{Density} / (\text{Ampoule Mass (g)} * (\text{Dilution Vol})) = \text{Parent Activity (dpm/g)}$ |
| $(4.4737 \text{ g}) * (19390 \text{ dps}) * (60 \text{ dpm/dps}) / (5.02617 \text{ g} * 100 \text{ mL}) = 10355.2060 \text{ dpm/mL}$   |
| $(4.4737 \text{ g}) * (19390 \text{ dps}) * (60 \text{ dpm/dps}) / (0.9992 \text{ g/mL}) / (5.02617 \text{ g} * 100 \text{ mL}) = 10363.0820 \text{ dpm/g}$  |

### Secondary Standards

| Prep Date  | Preparer      | Mass Primary | Dilution (mL) | Code   | Conc dpm/mL    | Verification Date | Expiration Date |
|------------|---------------|--------------|---------------|--------|----------------|-------------------|-----------------|
| 04/02/2003 | Lonnie Morris | 39.71        | 1000          | 0503-B | 411.518 dpm/mL | 09/13/2008        | 09/13/2009      |

GEL Laboratories LLC  
Version 1.0 9/18/2000

## Verification for Ra-228 Standard 0503-B

| D. Roy<br>9/13/2008 | Isotope | Detector CPM | BKG CPM | NET CPM   | Detector Eff. Mass. Used (mL) | Standard<br>Source DPM/mL |
|---------------------|---------|--------------|---------|-----------|-------------------------------|---------------------------|
|                     | 0503-B  | 1962.0000    | 45.6000 | 1916.4000 | 9.263763                      | 206.8705773               |
|                     | 0503-B  | 1983.2000    | 45.6000 | 1937.6000 | 9.263763                      | 209.1590642               |
|                     | 0503-B  | 1927.0000    | 45.6000 | 1881.4000 | 9.263763                      | 203.092415                |

Mean Value (Counting) = 206.3740189 dpm/mL      **Pass**  
 Stdev = 3.063655617 dpm/mL      Rule 3 (Pass/Fail)

Certificate Value = 200.596 dpm/mL  
 Lower Limit = 200.2467076 dpm/mL  
 Upper Limit = 212.5013301 dpm/mL  
 Rule 1 Pass/Fail **Pass**  
 Two sigma = 6.127311233  
 10 % of Mean = 20.63740189  
 Rule 2 (Pass/Fail) **Pass**

### Verification Rules

- Rule 1 = The certificate value (NOT including any uncertainty) shall lie within the 95% confidence interval determined from the mean and two sigma standard deviation of the three measurements
- Rule 2 = The two sigma value used for the 95% confidence interval shall not exceed 10% of the mean value of the three verification measurements.
- Rule 3 = The determined mean value shall be within 10% of the certificate value.

The analyst prepared three standard verification sources for Ra-228 source 0503-B by transferring portions of the standard into glass liquid scintillation vials. Ten mL of Ready Gel liquid scintillation cocktail was added to each vial and the vials were shaken to mix. A Blank vial was prepared in a similar fashion using 1 mL of DI water and 10 mL of Ready Gel cocktail. The standard verification vials and Background source were dark adapted for two hours and counted on LSC Gold for Ra-228 source standard verification. The Ra-228 efficiency calibration which was used for verification calculations was performed on 9/13/08 using source 0683-A (Ra-228). Calibration data is recorded in this logbook under Ra-228 0683-A. Each verification source calculation was performed as follows:

$$\text{Source dpm/g} = (A - B)/(C)(D)$$

where:

- A = Ver. source cpm,
- B = BKG cpm,
- C = System efficiency, (cpm/dpm), and
- D = mass used for standard verification.

Reference RAD SOP M-001

*David D. Perry 9/16/08*

*Angela Johnson 9/17/08*



5/19/16  
28

16 SEP 2008 16:24

**ID: TOTAL ACTIVITY**

USER:11 COMMENT:GOLD

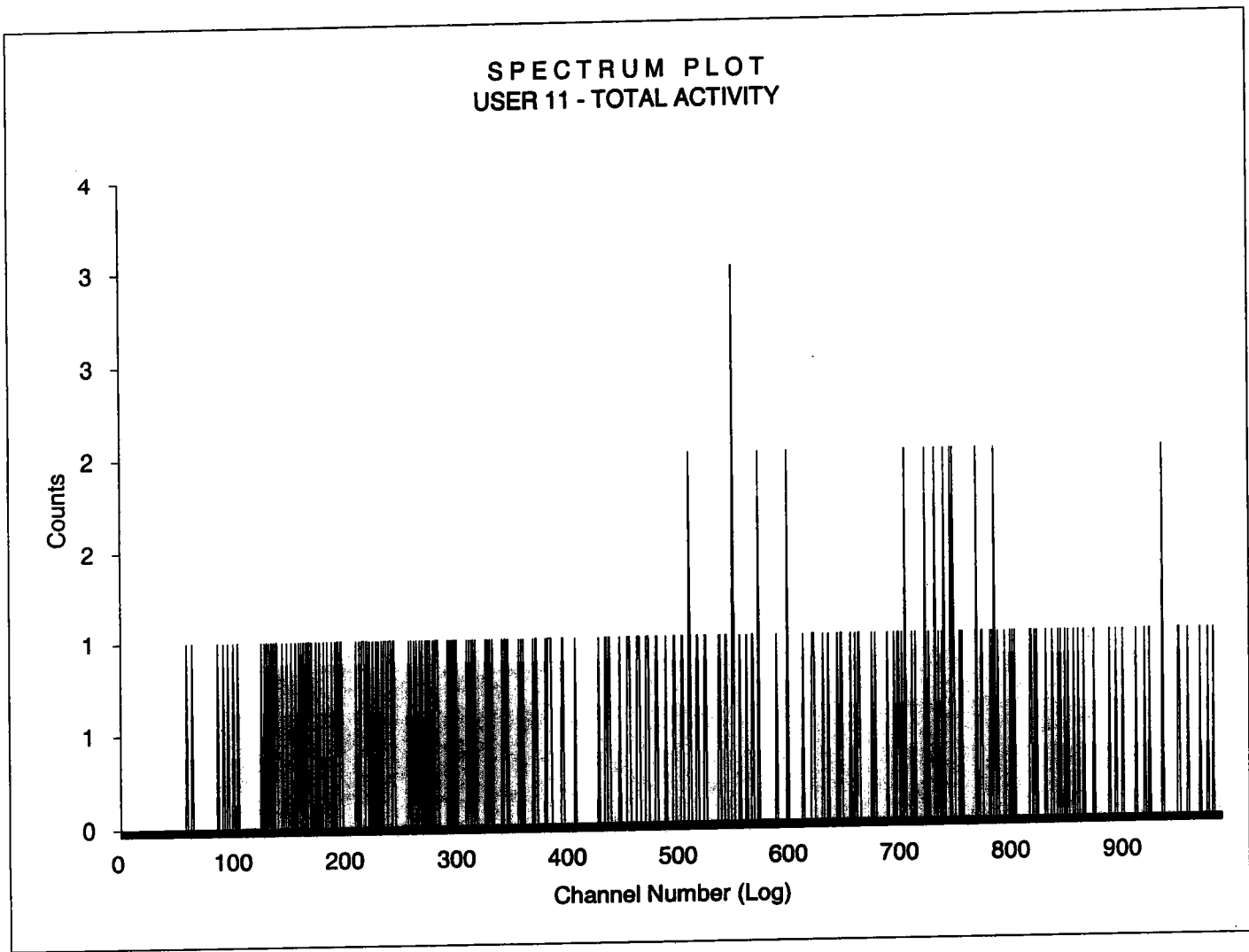
|               |        |           |      |                  |   |         |   |      |  |
|---------------|--------|-----------|------|------------------|---|---------|---|------|--|
| PRESET TIME : | 5.00   |           |      |                  |   |         |   |      |  |
| DATA CALC :   | CPM    | H#        | :YES | SAMPLE REPEATS:  | 1 | PRINTER | : | STD  |  |
| COUNT BLANK : | NO     | IC#       | : NO | REPLICATES       | : | RS232   | : | EDIT |  |
| TWO PHASE :   | NO     | AQC       | : NO | CYCLE REPEATS :  | 1 | DISK    | : | OFF  |  |
| SCINTILLATOR: | LIQUID | LUMEX:YES |      | LOW SAMPLE REJ:  | 0 |         |   |      |  |
| LOW LEVEL :   | NO     | HALF LIFE |      | CORRECTION DATE: |   | none    |   |      |  |

|       |              |              |                  |           |   |
|-------|--------------|--------------|------------------|-----------|---|
| CHAN: | 0.0 - 990.0  | %ERROR: 2.00 | FACTOR: 1.000000 | BKG. SUB: | 0 |
| CHAN: | 0.0 - 1000.0 | %ERROR: 2.00 | FACTOR: 1.000000 | BKG. SUB: | 0 |

| SAM NO | POS  | TIME MIN | H#    | WIND1   |        | WIND2   |        | LUMEX % | ELAPSED TIME |
|--------|------|----------|-------|---------|--------|---------|--------|---------|--------------|
|        |      |          |       | CPM     | %ERROR | CPM     | %ERROR |         |              |
| 1      | 11-1 | 5.00     | 98.2  | 50.40   | 12.60  | 54.00   | 12.17  | 0.41    | 5.55         |
| 2      | 11-2 | 1.30     | 99.3  | 7802.31 | 1.99   | 7803.08 | 1.99   | 0.00    | 7.81         |
| 3      | 11-3 | 1.30     | 100.4 | 7782.31 | 1.99   | 7786.15 | 1.99   | 0.00    | 10.14        |
| 4      | 11-4 | 1.35     | 99.2  | 7581.48 | 1.98   | 7585.19 | 1.98   | 0.01    | 12.51        |
| 5      | 11-5 | 5.00     | 97.9  | 45.60   | 13.25  | 47.20   | 13.02  | 0.43    | 18.61        |
| 6      | 11-6 | 5.00     | 110.7 | 1962.00 | 2.02   | 1964.80 | 2.02   | 0.01    | 24.65        |
| 7      | 11-7 | 5.00     | 110.8 | 1983.20 | 2.01   | 1984.80 | 2.01   | 0.01    | 30.75        |
| 8      | 11-8 | 5.00     | 110.7 | 1927.00 | 2.04   | 1927.80 | 2.04   | 0.02    | 36.85        |

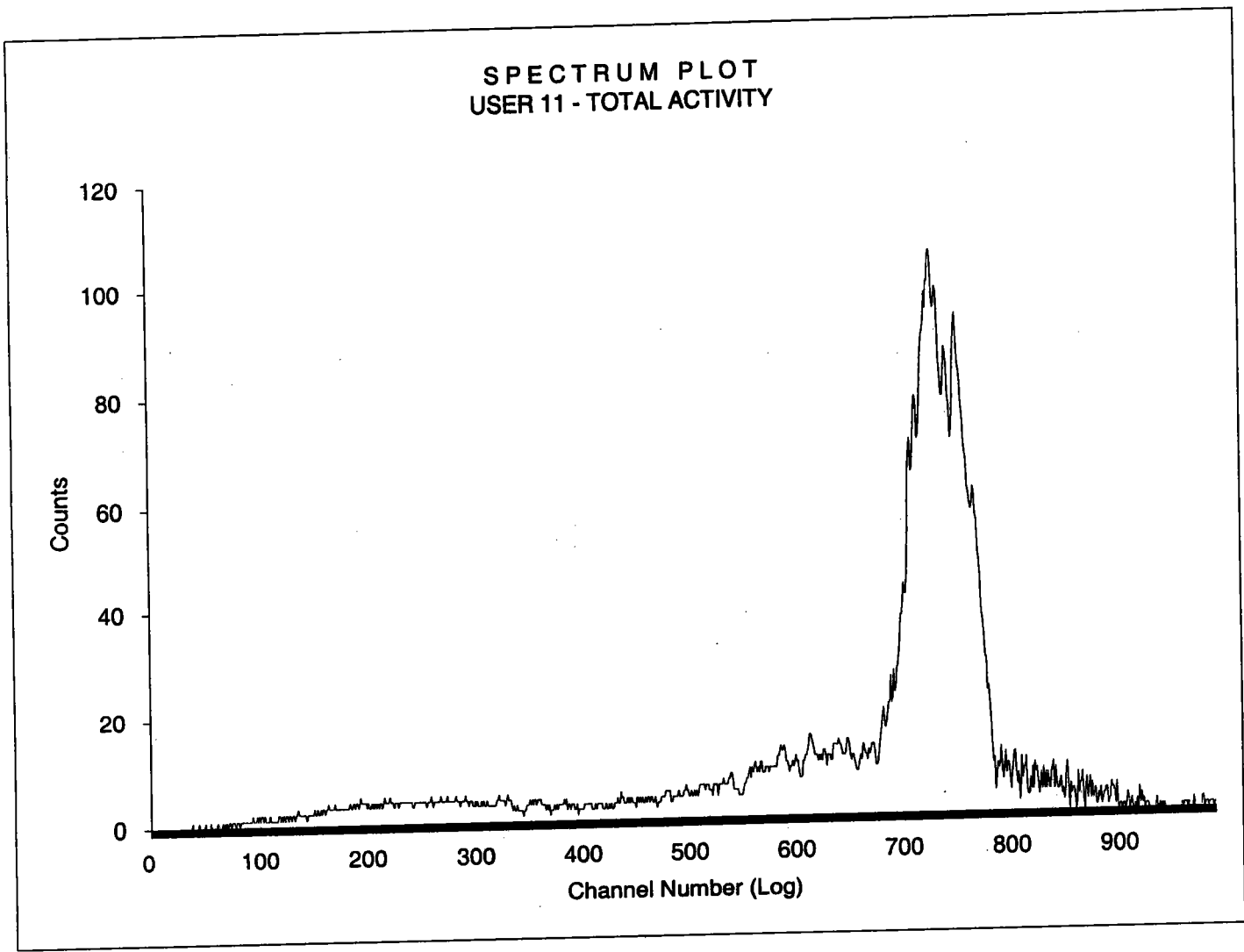
8/16/08  
228

Sample Count Start Time: 16 Sep 2008 16:46:59  
Data Capture Date: 9/16/2008 16:52:01  
User Filename: S11091611-5A.WK1  
U11091611-1A.WK1  
Spectrum Type: Log Counts  
User Number: 11  
User Id: TOTAL ACTIVITY  
User Comment: GOLD  
Isotope Name: 14C  
Scintillator: LIQUID  
Sample, Rack-Pos, Time: 5 11-5 5.00  
H#, Total Counts: 97.9 69  
Start, End, X-Axis: 0 990 Channel Number



50/9/16  
25

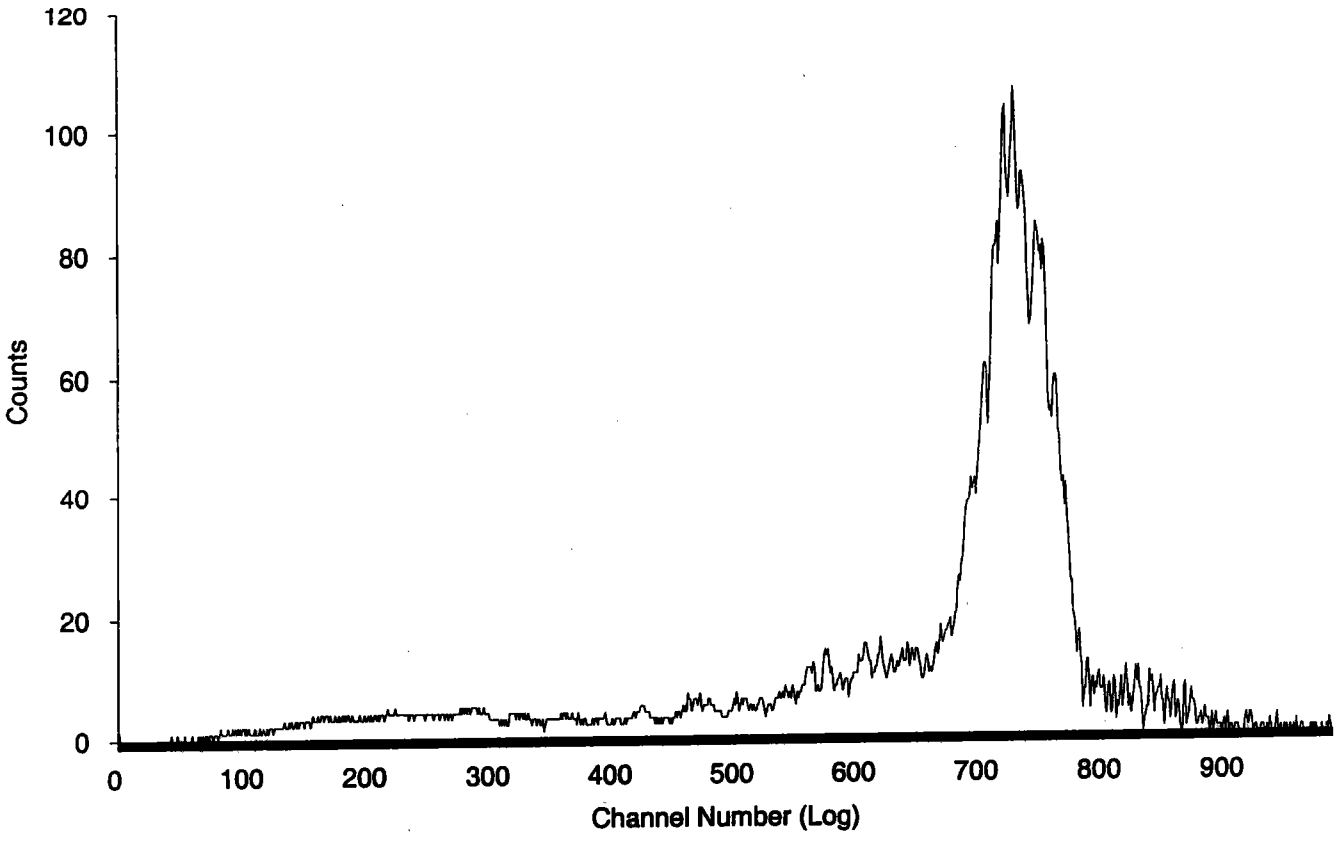
Sample Count Start Time: 16 Sep 2008 16:53:01  
Data Capture Date: 9/16/2008 16:58:06  
User Filename: S11091611-6A.WK1  
U11091611-1A.WK1  
Spectrum Type: Log Counts  
User Number: 11  
User Id: TOTAL ACTIVITY  
User Comment: GOLD  
Isotope Name: 14C  
Scintillator: LIQUID  
Sample, Rack-Pos, Time: 6 11-6 5.00  
H#, Total Counts: 110.7 7666  
Start, End, X-Axis: 0 990 Channel Number



8/16/08  
SJS

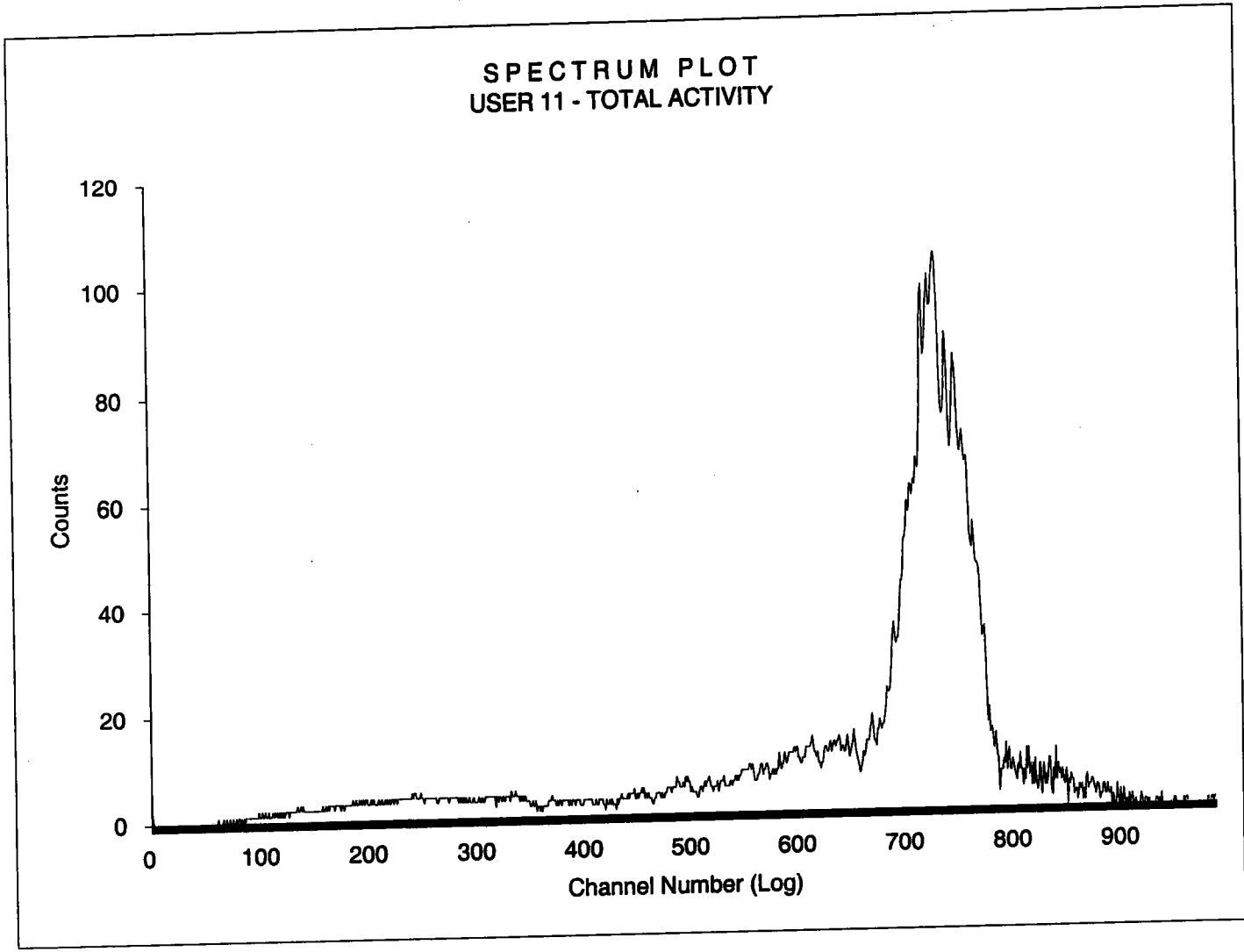
Sample Count Start Time: 16 Sep 2008 16:59:07  
Data Capture Date: 9/16/2008 17:04:12  
User Filename: S11091611-7A.WK1  
U11091611-1A.WK1  
Spectrum Type: Log Counts  
User Number: 11  
User Id: TOTAL ACTIVITY  
User Comment: GOLD  
Isotope Name: 14C  
Scintillator: LIQUID  
Sample, Rack-Pos, Time: 7 11-7 5.00  
H#, Total Counts: 110.8 7726  
Start, End, X-Axis: 0 990 Channel Number

SPECTRUM PLOT  
USER 11 - TOTAL ACTIVITY



9/16/08  
11-8

Sample Count Start Time: 16 Sep 2008 17:05:13  
Data Capture Date: 9/16/2008 17:10:18  
User Filename: S11091611-8A.WK1  
U11091611-1A.WK1  
Spectrum Type: Log Counts  
User Number: 11  
User Id: TOTAL ACTIVITY  
User Comment: GOLD  
Isotope Name: 14C  
Scintillator: LIQUID  
Sample, Rack-Pos, Time: 8 11-8 5.00  
H#, Total Counts: 110.7 7557  
Start, End, X-Axis: 0 990 Channel Number



# Radium-228 Que Sheet

SR 6/30/09

Batch #: 881540  
 Spike Isotope: Radium-228  
 LCS Isotope: Radium-228  
 Tracer Isotope: Barium-133  
 Prep Date: 6/30/09  
 Analyst: DXM2  
 Spike Code: NA  
 LCS Code: 0503-B  
 Tracer Code: 0112-J  
 Initials: SR  
 First Client Due Date: NA  
 Expiration Date: 9/13/09  
 Expiration Date: 2/17/10  
 Internal Due Date: 7/03/2009  
 Ac-228 Ingrow: 2025 6/30/09  
 Ac-228 Separation Date/Time: 7-2-09 0540  
 Witness: AG 6/30/09  
 Balance ID: NA  
 Pipet ID: 1734212

| Sample ID    | Client Description   | Type | Hazard Code | Min CRDL | Matrix      | Client     | Collect Date & Time | Pos. # | Vol (mL) | Det # | Ba Yield (%) | Gamma Det. # |
|--------------|----------------------|------|-------------|----------|-------------|------------|---------------------|--------|----------|-------|--------------|--------------|
| 1201872112-1 | LCS for batch 881540 | LCS  |             | 3 pCi/L  | GROUND WATI | QC ACCOUNT | 16-JUN-09 03:56 PM  | 1      | 20       |       | 100.83       | ↑            |
| 1201872113-1 | LCS for batch 881540 | LCS  |             | 3 pCi/L  | GROUND WATI | QC ACCOUNT | 16-JUN-09 03:56 PM  | 2      | 20       |       | 108.20       |              |
| 1201872114-1 | LCS for batch 881540 | LCS  |             | 3 pCi/L  | GROUND WATI | QC ACCOUNT | 16-JUN-09 03:56 PM  | 3      | 20       |       | 114.22       |              |
| 1201872115-1 | LCS for batch 881540 | LCS  |             | 3 pCi/L  | GROUND WATI | QC ACCOUNT | 16-JUN-09 03:56 PM  | 4      | 20       |       | 120.58       | WZAL         |
| 1201872116-1 | LCS for batch 881540 | LCS  |             | 3 pCi/L  | GROUND WATI | QC ACCOUNT | 16-JUN-09 03:56 PM  | 5      | 20       |       | 105.84       |              |
| 1201872117-1 | LCS for batch 881540 | LCS  |             | 3 pCi/L  | GROUND WATI | QC ACCOUNT | 16-JUN-09 03:56 PM  | 6      | 20       |       | 102.70       |              |
| 1201872118-1 | LCS for batch 881540 | LCS  |             | 3 pCi/L  | GROUND WATI | QC ACCOUNT | 16-JUN-09 03:56 PM  | 7      | 20       |       | 112.82       |              |
| 1201872119-1 | LCS for batch 881540 | LCS  |             | 3 pCi/L  | GROUND WATI | QC ACCOUNT | 16-JUN-09 03:56 PM  | 8      | 20       |       | 111.91       | ↓            |

7/1/09

SLC 7/2/09

Comments: \_\_\_\_\_ Data Reviewed By: \_\_\_\_\_

ASSAY 30-Jun-09 19:32:06

Protocol id 8 228\_REC  
Time limit 180  
Count limit 50000  
Isotope Ba-133  
Protocol date 9-Apr-07 10:03:07  
Run id. 54

| POS | RACK | BATCH | TIME | COUNTS | CPM   | ERROR | % RECOVERY | COUNT | TIME     |
|-----|------|-------|------|--------|-------|-------|------------|-------|----------|
| 1   | 97   | 1     | 180  | 779    | 229.3 | 4.13  |            |       | 19:32:13 |
| 2   | 97   | 2     | 180  | 785    | 231.2 | 4.11  | 100.83     |       | 19:35:24 |
| 3   | 97   | 3     | 180  | 835    | 248.1 | 3.95  | 108.20     |       | 19:38:35 |
| 4   | 97   | 4     | 180  | 877    | 261.9 | 3.83  | 114.22     |       | 19:41:47 |
| 5   | 97   | 5     | 180  | 921    | 276.5 | 3.71  | 120.58     |       | 19:44:58 |
| 6   | 72   | 6     | 180  | 819    | 242.7 | 4     | 105.84     |       | 19:48:17 |
| 7   | 72   | 7     | 180  | 798    | 235.5 | 4.07  | 102.70     |       | 19:51:28 |
| 8   | 72   | 8     | 180  | 867    | 258.7 | 3.85  | 112.82     |       | 19:54:40 |
| 9   | 72   | 9     | 180  | 861    | 256.6 | 3.87  | 111.91     |       | 19:57:51 |

END OF ASSAY

*[Handwritten signature]*  
7/2/09

# LUCAS CELL COUNTERS



# General Engineering Laboratories

2040 Savage Road, Charleston, SC 29414  
 (843)556-8171

## Lucas Cell Calibration Package

|  | YES | NO | Comments |
|--|-----|----|----------|
| 1) Is all calibration standard information enclosed for:<br>the primary standard certificate?<br>the secondard standard(s) documentation?<br>standard preparation information?<br>standard < 1 Year old or verified? | ✓   |    |          |
|  | ✓   |    |          |
|  | ✓   |    |          |
|  | ✓   |    |          |
| 2) Is the efficiency calibration report included ?   | ✓   |    |          |
| 3) Is the raw count data included for:<br>Cell constant determination?<br>Plateau generation?  | ✓   |    |          |
|  | ✓   |    |          |
| 4) Are the calibration verifications included?   | ✓   |    |          |
| 5) Are the instrument settings included:<br>HVPS settings?   | ✓   |    |          |
| 6) Has the CELLEFF.xls file been updated ?   | ✓   |    |          |
| 7) Have the calibration dates been updated in ALPHALIMS ?  | ✓   |    |          |

Prepared By: Kelli S. Dume

Date: 8/31/09

Reviewed By: Angela J. G.

Date: 8/31/09

Effective Date: 8/31/09

# Ra-226 Cell Constants

standard ID: 0299-H  
 Volume added (mL): 0.1  
 Standard Reference Activity (DPM/mL): 2483.21

| Lucas cell # | Cell constant | Standard Source | Date/Time of count | Date/Time flushed to cell | Date/Time end of degas | Bkg Counts cpm | total counts | count time min | Known activity dpm | t1 (days)          |          | t2 (days)          |          | t3 (days)             |                       | Decay from Std Ref Date to count |
|--------------|---------------|-----------------|--------------------|---------------------------|------------------------|----------------|--------------|----------------|--------------------|--------------------|----------|--------------------|----------|-----------------------|-----------------------|----------------------------------|
|              |               |                 |                    |                           |                        |                |              |                |                    | end-degas to flush | to flush | end-flush to count | to count | Std Ref Date to count | Std Ref Date to count |                                  |
| 101          | 1.846         | cal 7           | 8/27/2009 16:35    | 8/27/2009 13:30           | 8/21/2009 11:30        | 4479           | 15           | 298.60         | 248.32             | 6.08333            | 0.12847  | 3544               | 0.9958   |                       |                       |                                  |
| 101          | 1.960         | cal 9           | 8/24/2009 14:20    | 8/24/2009 9:30            | 8/18/2009 13:40        | 4581           | 15           | 305.40         | 248.32             | 5.82639            | 0.20139  | 3541               | 0.9958   |                       |                       |                                  |
| 101          | 2.060         | cal 1           | 8/21/2009 15:00    | 8/21/2009 9:30            | 8/18/2009 13:40        | 2945           | 15           | 196.33         | 248.32             | 2.82639            | 0.22917  | 3538               | 0.9958   |                       |                       |                                  |
| 102          | 1.862         | cal 5           | 8/27/2009 15:50    | 8/27/2009 12:40           | 8/21/2009 10:50        | 4510           | 15           | 300.67         | 248.32             | 6.07639            | 0.13194  | 3544               | 0.9958   |                       |                       |                                  |
| 102          | 1.850         | cal 10          | 8/24/2009 14:45    | 8/24/2009 9:55            | 8/18/2009 13:40        | 4330           | 15           | 288.67         | 248.32             | 5.84375            | 0.20139  | 3541               | 0.9958   |                       |                       |                                  |
| 102          | 1.853         | cal 2           | 8/21/2009 15:20    | 8/21/2009 9:50            | 8/18/2009 13:40        | 2659           | 15           | 177.27         | 248.32             | 2.84028            | 0.22917  | 3538               | 0.9958   |                       |                       |                                  |

|     |       |         |                 |                 |                 |                 |                 |        |        |         |         |         |         |      |        |
|-----|-------|---------|-----------------|-----------------|-----------------|-----------------|-----------------|--------|--------|---------|---------|---------|---------|------|--------|
| 104 | 2.073 | Average | 1.972           | cal 1           | 8/27/2009 14:25 | 8/27/2009 9:35  | 8/24/2009 11:00 | 3070   | 15     | 204.67  | 248.32  | 2.94097 | 0.20139 | 3544 | 0.9958 |
| 104 | 1.855 | Stdev   | 0.110           | cal 11          | 8/24/2009 15:15 | 8/24/2009 10:15 | 8/18/2009 13:40 | 4343   | 15     | 289.53  | 248.32  | 5.85764 | 0.20833 | 3541 | 0.9958 |
| 104 | 1.987 | cal 3   | 8/21/2009 15:50 | 8/21/2009 10:10 | 8/18/2009 13:40 | 2858            | 15              | 190.53 | 248.32 | 2.85417 | 0.23611 | 3538    | 0.9958  |      |        |

|     |       |         |                 |                 |                 |                 |                 |        |        |         |         |         |         |      |        |
|-----|-------|---------|-----------------|-----------------|-----------------|-----------------|-----------------|--------|--------|---------|---------|---------|---------|------|--------|
| 106 | 1.985 | Average | 1.836           | cal 2           | 8/27/2009 14:55 | 8/27/2009 10:00 | 8/24/2009 11:20 | 2940   | 15     | 196.00  | 248.32  | 2.94444 | 0.20466 | 3544 | 0.9958 |
| 106 | 1.738 | Stdev   | 0.131           | cal 12          | 8/24/2009 15:35 | 8/24/2009 10:40 | 8/18/2009 13:40 | 4078   | 15     | 271.87  | 248.32  | 5.87500 | 0.20466 | 3541 | 0.9958 |
| 106 | 1.786 | cal 4   | 8/21/2009 16:30 | 8/21/2009 10:30 | 8/18/2009 13:40 | 2572            | 15              | 171.47 | 248.32 | 2.86806 | 0.25000 | 3538    | 0.9958  |      |        |
| 107 | 2.025 | Average | 1.981           | cal 8           | 8/27/2009 16:55 | 8/27/2009 13:50 | 8/21/2009 11:55 | 4910   | 15     | 327.33  | 248.32  | 6.07986 | 0.12847 | 3544 | 0.9958 |
| 107 | 2.054 | Stdev   | 0.102           | cal 1           | 8/24/2009 15:55 | 8/24/2009 11:00 | 8/21/2009 10:50 | 3090   | 15     | 206.00  | 248.32  | 3.00694 | 0.20466 | 3541 | 0.9958 |
| 107 | 1.864 | cal 5   | 8/21/2009 16:45 | 8/21/2009 10:50 | 8/18/2009 13:40 | 2696            | 15              | 179.73 | 248.32 | 2.88194 | 0.24653 | 3538    | 0.9958  |      |        |
| 108 | 1.906 | Average | 1.946           | cal 6           | 8/27/2009 16:05 | 8/27/2009 13:05 | 8/21/2009 11:15 | 4623   | 15     | 308.20  | 248.32  | 6.07639 | 0.12500 | 3544 | 0.9958 |
| 108 | 1.975 | Stdev   | 0.036           | cal 2           | 8/24/2009 16:25 | 8/24/2009 11:20 | 8/21/2009 10:50 | 2978   | 15     | 198.53  | 248.32  | 3.02083 | 0.21181 | 3541 | 0.9958 |
| 108 | 1.957 | cal 6   | 8/21/2009 17:00 | 8/21/2009 11:15 | 8/18/2009 13:40 | 2846            | 15              | 189.73 | 248.32 | 2.89931 | 0.23958 | 3538    | 0.9958  |      |        |

|     |       |         |                 |                 |                 |                 |                 |        |        |         |         |         |         |      |        |
|-----|-------|---------|-----------------|-----------------|-----------------|-----------------|-----------------|--------|--------|---------|---------|---------|---------|------|--------|
| 111 | 2.162 | Average | 2.024           | cal 3           | 8/27/2009 15:12 | 8/27/2009 10:20 | 8/24/2009 12:25 | 3177   | 15     | 211.80  | 248.32  | 2.91319 | 0.20278 | 3544 | 0.9958 |
| 111 | 2.051 | Stdev   | 0.153           | cal 3           | 8/24/2009 17:00 | 8/24/2009 12:25 | 8/21/2009 10:50 | 3139   | 15     | 209.27  | 248.32  | 3.06597 | 0.19097 | 3541 | 0.9958 |
| 111 | 1.859 | cal 7   | 8/21/2009 17:15 | 8/21/2009 11:30 | 8/18/2009 13:40 | 2712            | 15              | 180.80 | 248.32 | 2.90972 | 0.23958 | 3538    | 0.9958  |      |        |
| 112 | 1.962 | Average | 1.931           | cal 4           | 8/27/2009 15:30 | 8/27/2009 10:50 | 8/24/2009 12:40 | 2895   | 15     | 193.00  | 248.32  | 2.92361 | 0.19444 | 3544 | 0.9958 |
| 112 | 1.967 | Stdev   | 0.059           | cal 4           | 8/24/2009 17:15 | 8/24/2009 12:40 | 8/21/2009 10:50 | 3019   | 15     | 201.27  | 248.32  | 3.07639 | 0.19097 | 3541 | 0.9958 |
| 112 | 1.863 | cal 8   | 8/21/2009 17:35 | 8/21/2009 11:55 | 8/18/2009 13:40 | 2731            | 15              | 182.07 | 248.32 | 2.92708 | 0.23611 | 3538    | 0.9958  |      |        |

EffErr 0.053028 <- Put in Machines.xls (Lucas Cell Tab)

8/13/09

VW 8/13/109

# Ra-226 Calibration Sheet

Standard ID: 0119-H

Volume Added (mL): 0.1

Expiration Date: 8/1/10

$\frac{219}{8/13/09} = 900$   
 $\frac{219}{8/13/09}$   
 $\frac{219}{8/13/09}$   
 \* count time 15 min

| Sample ID | Volume (mL) | End Degas Date/Time | End De-em Date/Time | Start Count Date/Time     | Cell # | Det # | Total Counts                        |
|-----------|-------------|---------------------|---------------------|---------------------------|--------|-------|-------------------------------------|
| Cal 1     | 500         | 8/18/09 1340        | 8/21/09 0930        | 1500 1410<br>8/21/09 1230 | 101    | 1     | 3142<br><del>4050</del><br>#8/21/09 |
| Cal 2     | 500         | 8/18/09 1340        | 8/21/09 0950        | 1500 1425<br>8/21/09 1305 | 102    | 1     | 2778<br><del>2182</del><br>#8/21/09 |
| Cal 3     | 500         | 8/18/09 1340        | 8/21/09 1010        | 1550<br>8/21/09 1445      | 104    | 1     | 2182<br><del>2182</del><br>#8/21/09 |
| Cal 4     | 500         | 8/18/09 1340        | 8/21/09 1030        | 8/21/09 1630              | 106    | 1     | 2572                                |
| Cal 5     | 500         | 8/18/09 1340        | 8/21/09 1050        | 8/21/09 1645              | 107    | 1     | 2696                                |
| Cal 6     | 500         | 8/18/09 1340        | 8/21/09 1115        | 8/21/09 1700              | 108    | 1     | 2846                                |
| Cal 7     | 500         | 8/18/09 1340        | 8/21/09 1130        | 8/21/09 1715              | 111    | 1     | 2712                                |
| Cal 8     | 500         | 8/18/09 1340        | 8/21/09 1155        | 8/21/09 1735              | 112    | 1     | 2731                                |
| Cal 9     |             |                     |                     |                           |        |       |                                     |
| Cal 10    |             |                     |                     |                           |        |       |                                     |
| Cal 11    |             |                     |                     |                           |        |       |                                     |
| Cal 12    |             |                     |                     |                           |        |       |                                     |

2945  
#8/21/09  
2659  
2858

WSP/BSM

8/13/09

8/28/09





## General Engineering Laboratories Verification Source Preparation Sheet

Applicable SOP Number GL-RAD-A-008 Isotope RA-226  
 Date Standards Prepared 4/5/05 Cocktail Type Used NA  
 Standard ID 0799-H Matrix of Vial/Planchett NA  
 Amount Used (g or ml) 0.1 NA  
 Standard Activity (DPM/g or ml) 2483.233 Type of Scintillation Vial NA  
 Reference Date 12/15/99 Pipette ID Used 1429303  
 Expiration Date 8/1/10 Balance ID Used 38080204  
 Residue/Carrier Agent D-IMHCl Quenching Agent NA

|    | Standard Number      | Quenching Vol (uL)/<br>Residue Volume (mL) | Initial Wt.<br>(g) | Final Wt.<br>(g) | Net Wt.<br>(mg) |
|----|----------------------|--|--------------------|------------------|-----------------|
| 1  | Cal 1                |  |                    |                  |                 |
| 2  | Cal 2                |  |                    |                  |                 |
| 3  | Cal 3                |  |                    |                  |                 |
| 4  | Cal 4                |  |                    |                  |                 |
| 5  | Cal 5                |  |                    |                  |                 |
| 6  | Cal 6                |  |                    |                  |                 |
| 7  | Cal 7                |  |                    |                  |                 |
| 8  | Cal 8                |  |                    |                  |                 |
| 9  | Cal 9                |  |                    |                  |                 |
| 10 | Cal 10               |  |                    |                  |                 |
| 11 | Cal 11               |  |                    |                  |                 |
| 12 | Cal 12               |  |                    |                  |                 |
|    | <del>100502105</del> |  |                    |                  |                 |

Prepared By: Kelli Dorego Date 8/31/09  
 Reviewed By: Angela J Gh Date 8/31/09

eev

8-21-00

Nycomed Amersham plc  
Amersham Laboratories

0299



CALIBRATION  
No. 0140



ISSUED BY: Nycomed Amersham plc  
Radiation & Radioactivity  
Calibration Laboratory  
Amersham Laboratories  
White Lion Road  
Amersham  
Buckinghamshire  
HP7 9LL

ISSUED FOR: AEA Technology plc  
Isotrak  
Amersham Laboratories  
White Lion Road  
Amersham  
Buckinghamshire  
HP7 9LL

Description Principal radionuclide: Radium-226

Product code: RAY44  
Solution number: R4/131/89

Measurement Reference time: 1200 GMT on 15 December 1999

Nuclear data Nuclear data quoted on this certificate are taken from the Joint European File, Version 2.2.

Expression of uncertainties The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor  $k = 2.00$ , which for a  $t$ -distribution with  $v_{eff} = \infty$  effective degrees of freedom corresponds to a coverage probability of approximately 95%. The uncertainty evaluation has been carried out in accordance with UKAS requirements.

Unless indicated, all other uncertainties are expressed at the confidence level associated with one standard uncertainty.

The format used for the uncertainties in the values of radionuclidic purity is illustrated in the following examples;

|           |   |               |
|-----------|---|---------------|
| 6.5(21)   | - | 6.5 ± 2.1     |
| 6.54(21)  | - | 6.54 ± 0.21   |
| 6.543(21) | - | 6.543 ± 0.021 |

Approved  
Signature

Date of issue

17<sup>th</sup> December 1999

VO 8131105

Nycomed

# GEL Standard Traceability Log Rad

| Source Material Info |                |
|----------------------|----------------|
| Parent Code:         | 0299           |
| Prepared By:         | Angela Johnson |
| Carrier Conc:        | 0.5 M HCL      |
| Reference Date:      | 12/15/1999     |
| Ampoule Mass (g):    | 5.0368 g       |
| Uncertainty:         | +/- 2.5 %      |
| LogBook No:          | RC S 027 128   |

| A Solution Material Info |                |
|--------------------------|----------------|
| Isotope:                 | Radium-226     |
| Prepared By:             | Angela Johnson |
| Prep Date:               | 09/15/2000     |
| Verification Date:       | 01/23/2008     |
| Expiration Date:         | 01/23/2009     |
| Primary Code:            | 0299-A         |
| Dilution(mL):            | 100 mL         |
| Mass of Parent(g):       | 4.6634 g       |
| Density(g/mL):           | 1.0012         |
| Balance ID:              |                |

### Calculations Converting parent activity to dpm/mL/dpm/g

|  |
|--|
| $(\text{Mass of parent(g)}) * (\text{Parent Activity (kBq/g)}) * (\text{conversion dpm to kBq}) / (\text{Dilution Vol}) = \text{Parent Activity (dpm/mL)}$ |
| $(4.6634 \text{ g}) * (43.75 \text{ kBq/g}) * (\text{conversion dpm to kBq}) / (\text{Dilution Vol}) = \text{Parent Activity (dpm/g)}$                     |
| $(4.6634 \text{ g}) * (43.75 \text{ kBq/g}) * (60000 \text{ dpm/kBq}) / (100 \text{ mL}) = 122414.2500 \text{ dpm/mL}$                                     |
| $(4.6634 \text{ g}) * (43.75 \text{ kBq/g}) * (60000 \text{ dpm/kBq}) / (1.0012 \text{ g/mL}) / (100 \text{ mL}) = 122273.3377 \text{ dpm/g}$              |

### Secondary Standards

| Prep Date  | Preparer       | Mass Primary | Dilution (mL) | Code   | Conc dpm/mL      | Verification Date | Expiration Date |
|------------|----------------|--------------|---------------|--------|------------------|-------------------|-----------------|
| 08/26/2003 | Angela Johnson | 1.9909       | 100           | 0299-E | 2434.34 dpm/mL   | 11/04/2004        | 11/04/2005      |
| 08/26/2003 | Angela Johnson | 1.9872       | 100           | 0299-F | 2429.82 dpm/mL   | 08/26/2004        | 08/26/2005      |
| 04/05/2005 | Amanda Fehr    | 5.0018       | 250           | 0299-G | 2446.3471 dpm/mL | 01/26/2009        | 01/26/2010      |
| 08/07/2009 | Mary Aders     | 5.0767       | 250           | 0299-H | 2483.2133 dpm/mL | 08/07/2009        | 08/07/2010      |

GEL Laboratories LLC  
Version 1.0 9/18/2000

*W. Spina*



## Voltage Curve Ludlum #1

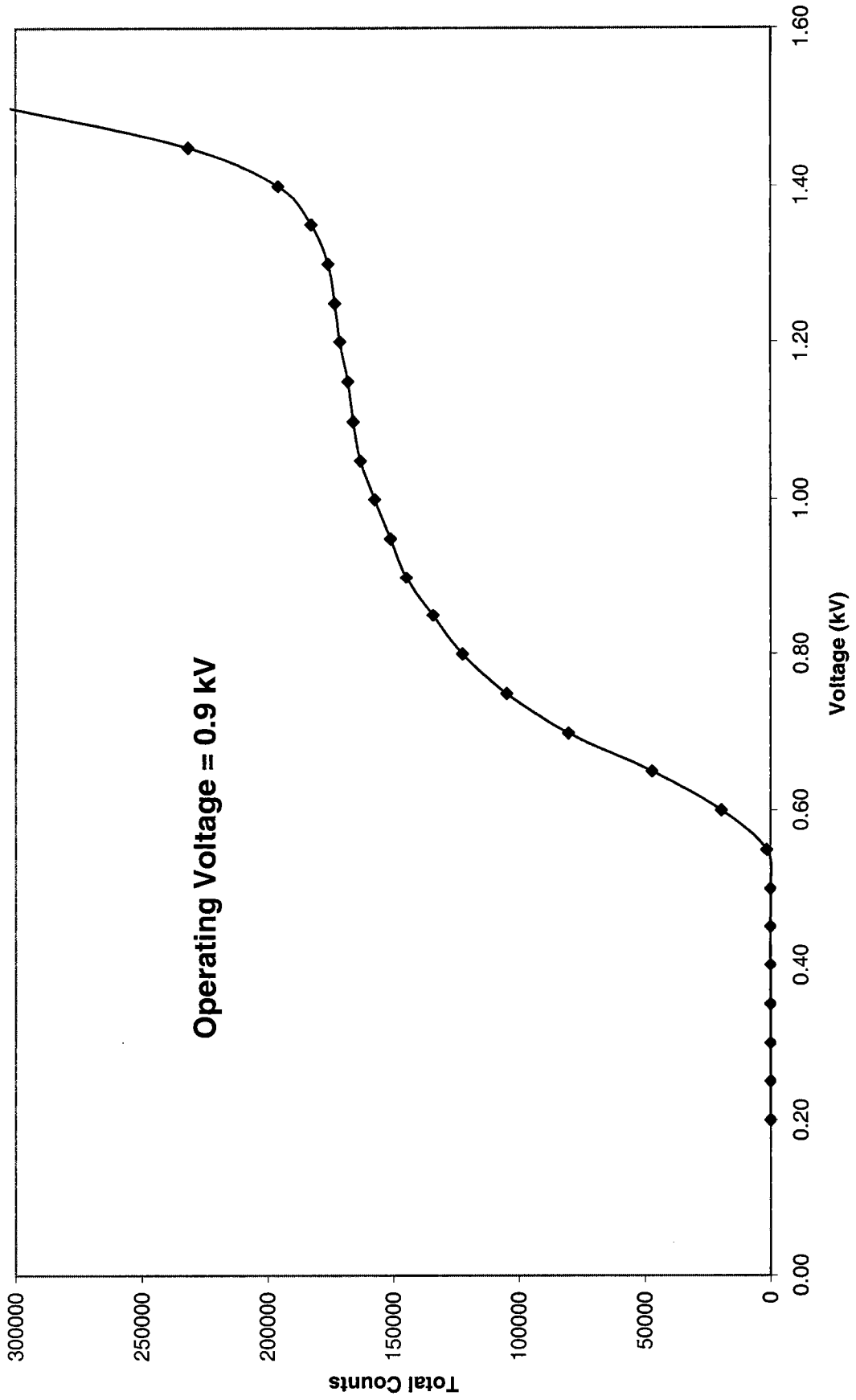
| Voltage (kV) | Count Time (min) | Counts | Date/Time     |
|--------------|------------------|--------|---------------|
| 0.20         | 1.00             | 0      | 8/21/09 13:20 |
| 0.25         | 1.00             | 0      | 8/21/09 13:21 |
| 0.30         | 1.00             | 0      | 8/21/09 13:22 |
| 0.35         | 1.00             | 0      | 8/21/09 13:23 |
| 0.40         | 1.00             | 0      | 8/21/09 13:24 |
| 0.45         | 1.00             | 0      | 8/21/09 13:25 |
| 0.50         | 1.00             | 0      | 8/21/09 13:26 |
| 0.55         | 1.00             | 1534   | 8/21/09 13:27 |
| 0.60         | 1.00             | 19637  | 8/21/09 13:28 |
| 0.65         | 1.00             | 47206  | 8/21/09 13:29 |
| 0.70         | 1.00             | 80410  | 8/21/09 13:30 |
| 0.75         | 1.00             | 104945 | 8/21/09 13:31 |
| 0.80         | 1.00             | 122514 | 8/21/09 13:32 |
| 0.85         | 1.00             | 134160 | 8/21/09 13:33 |
| 0.90         | 1.00             | 144753 | 8/21/09 13:34 |
| 0.95         | 1.00             | 151057 | 8/21/09 13:35 |
| 1.00         | 1.00             | 157429 | 8/21/09 13:36 |
| 1.05         | 1.00             | 163110 | 8/21/09 13:37 |
| 1.10         | 1.00             | 166034 | 8/21/09 13:38 |
| 1.15         | 1.00             | 168121 | 8/21/09 13:39 |
| 1.20         | 1.00             | 171347 | 8/21/09 13:40 |
| 1.25         | 1.00             | 173388 | 8/21/09 13:41 |
| 1.30         | 1.00             | 175958 | 8/21/09 13:42 |
| 1.35         | 1.00             | 182719 | 8/21/09 13:43 |
| 1.40         | 1.00             | 195871 | 8/21/09 13:44 |
| 1.45         | 1.00             | 231584 | 8/21/09 13:45 |
| 1.50         | 1.00             | 303021 | 8/21/09 13:46 |
| 1.55         | 1.00             | 387838 | 8/21/09 13:47 |

Detector set to operate at 0.90 kV

*Handwritten:* 8/31/09

# Ludlum Detector Voltage Curve

—◆— Voltage Curve Ludlum #1



8/13/09

# Control Limits for Lucas Cell Counter #1

Analyst: KSD1  
Date: 8/31/2009

| Count # | Detector #1 |
|---------|-------------|
| 1       | 138383      |
| 2       | 138269      |
| 3       | 141307      |
| 4       | 140521      |
| 5       | 132825      |
| 6       | 135924      |
| 7       | 139231      |
| 8       | 138298      |
| 9       | 135342      |
| 10      | 138056      |
| 11      | 138123      |
| 12      | 139159      |
| 13      | 138410      |
| 14      | 138251      |
| 15      | 138438      |
| 16      | 138080      |
| 17      | 137814      |
| 18      | 137961      |
| 19      | 137248      |
| 20      | 137477      |

Average = 137955.9  
Std. Dev. = 1775.5

+3 S. D. = 143282.4266  
+2 S. D. = 141506.901  
Mean = 137955.9  
-2 S. D. = 134404.799  
-3 S. D. = 132629.2734

**Control Limits**      **8/31/2009**      \* Operating Voltage changed to 0.9 kV  
**Detector #1**  
**Upper Limit**      **143282**  
**Lower Limit**      **132629**

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8/31/09

|     | <b>Eff</b> | <b>Cal Date</b> |
|-----|------------|-----------------|
| 101 | 1.956      | 8/31/2009       |
| 102 | 1.855      | 8/31/2009       |
| 104 | 1.972      | 8/31/2009       |
| 106 | 1.836      | 8/31/2009       |
| 107 | 1.981      | 8/31/2009       |
| 108 | 1.946      | 8/31/2009       |
| 111 | 2.024      | 8/31/2009       |
| 112 | 1.931      | 8/31/2009       |

| <b>Lucas</b>    | <b>Ra-226</b>    |                 |
|-----------------|------------------|-----------------|
| Oldest Cal      | 01/23/2008       |                 |
| <b>Detector</b> | <b>Eff Error</b> | <b>Cal Date</b> |
| 1               | 0.0530           | 8/31/2009       |
| 2               | 0.0772           | 12/19/2008      |
| 3               | 0.0608           | 1/23/2008       |
| 4               | 0.1237           | 3/2/2009        |
| 5               | 0.1438           | 3/25/2009       |
| 6               | 0.0661           | 8/4/2009        |
| 7               | 0.0855           | 11/21/2008      |

# Ra-226 WATER

Batch : LCSVER  
 Date : 8/20/2008  
 Analyst : KSD1

Procedure Code : LUC26RAL  
 Parmname : Radium-226  
 MDA : 1 pCi/L  
 Instrument Used : LUCAS CELL DETECTOR

Bkg Count Time: 30 min

| Sample ID | Sample Vol L | Count Time min | Gross counts cts | Cell # num | Cell Const. num | BKG cpm | Ra-226 MDA pCi/L | Ra-226 RESULT pCi/L | Ra-226 ERROR pCi/L | COUNT DATE/TIME |
|-----------|--------------|----------------|------------------|------------|-----------------|---------|------------------|---------------------|--------------------|-----------------|
| Ver 2     | 0.500        | 30             | 689              | 101        | 1.956           | 0.267   | 0.5907           | 25.3156             | 1.9236             | 8/31/2009 14:35 |
| Ver 6     | 0.500        | 30             | 697              | 102        | 1.855           | 0.133   | 0.4721           | 27.1986             | 2.0367             | 8/31/2009 15:05 |
| Ver 2     | 0.500        | 30             | 656              | 104        | 1.972           | 0.267   | 0.6303           | 25.7021             | 2.0032             | 8/28/2009 14:00 |
| Ver 4     | 0.500        | 30             | 638              | 106        | 1.836           | 0.267   | 0.6304           | 24.9919             | 1.9762             | 8/31/2009 15:40 |
| Ver 7     | 0.500        | 30             | 629              | 107        | 1.981           | 0.267   | 0.6257           | 24.4533             | 1.9479             | 8/28/2009 17:50 |
| Ver 5     | 0.500        | 30             | 693              | 108        | 1.946           | 0.267   | 0.5959           | 25.6861             | 1.9459             | 8/31/2009 16:15 |
| Ver 3     | 0.500        | 30             | 672              | 111        | 2.024           | 0.267   | 0.6129           | 25.6096             | 1.9713             | 8/28/2009 14:35 |
| Ver 4     | 0.500        | 30             | 631              | 112        | 1.931           | 0.267   | 0.6411           | 25.1365             | 1.9990             | 8/28/2009 15:10 |

*JLQ*  
8/31/09

| Sample ID | Sample Dup | Det # | Run Date        | Sample Type | Standard ID | NC    | NC units | Recovery/RPD |
|-----------|------------|-------|-----------------|-------------|-------------|-------|----------|--------------|
| Ver 2     |            | 1     | 8/31/2009 14:35 | LCS         | 0638-H      | 24.17 | pCi/L    | 105%         |
| Ver 3     |            | 1     | 8/31/2009 15:05 | LCS         | 0638-H      | 24.17 | pCi/L    | 113%         |
| Ver 2     |            | 1     | 8/28/2009 14:00 | LCS         | 0638-H      | 24.17 | pCi/L    | 106%         |
| Ver 4     |            | 1     | 8/31/2009 15:40 | LCS         | 0638-H      | 24.17 | pCi/L    | 103%         |
| Ver 7     |            | 1     | 8/28/2009 17:50 | LCS         | 0638-H      | 24.17 | pCi/L    | 101%         |
| Ver 8     |            | 1     | 8/31/2009 16:15 | LCS         | 0638-H      | 24.17 | pCi/L    | 106%         |
| Ver 3     |            | 1     | 8/28/2009 14:35 | LCS         | 0638-H      | 24.17 | pCi/L    | 106%         |
| Ver 4     |            | 1     | 8/28/2009 15:10 | LCS         | 0638-H      | 24.17 | pCi/L    | 104%         |

| DEGASSING DATE/TIME | DE-EMAN. DATE/TIME | DEGASS-DE-EM | dE-EM-COUNT | constant | constant | constant | Net CPM | Ingrowth constant |
|---------------------|--------------------|--------------|-------------|----------|----------|----------|---------|-------------------|
| 8/28/2009 10:20     | 8/31/2009 11:10    | 72.83        | 3.42        | 0.4230   | 0.9745   | 1.0019   | 22.7000 | 0.4130            |
| 8/28/2009 10:40     | 8/31/2009 11:30    | 72.83        | 3.58        | 0.4230   | 0.9733   | 1.0019   | 23.1000 | 0.4125            |
| 8/25/2009 16:00     | 8/28/2009 10:20    | 66.33        | 3.67        | 0.3940   | 0.9727   | 1.0019   | 21.6000 | 0.3839            |
| 8/28/2009 11:00     | 8/31/2009 11:55    | 72.92        | 3.75        | 0.4234   | 0.9721   | 1.0019   | 21.0000 | 0.4123            |
| 8/25/2009 16:00     | 8/28/2009 12:00    | 68.00        | 5.83        | 0.4015   | 0.9569   | 1.0019   | 20.7000 | 0.3850            |
| 8/28/2009 11:20     | 8/31/2009 12:15    | 72.92        | 4.00        | 0.4234   | 0.9703   | 1.0019   | 22.8333 | 0.4115            |
| 8/25/2009 16:00     | 8/28/2009 10:40    | 66.67        | 3.92        | 0.3955   | 0.9709   | 1.0019   | 22.1333 | 0.3847            |
| 8/25/2009 16:00     | 8/28/2009 11:00    | 67.00        | 4.17        | 0.3970   | 0.9690   | 1.0019   | 20.7667 | 0.3854            |

Handwritten signature and date: 8/31/09







**ANALYTICS**

1380 Seaboard Industrial Blvd.  
Atlanta, Georgia 30318 · U.S.A.

Phone (404) 352-8677  
Fax (404) 352-2837

0638

**CERTIFICATE OF CALIBRATION**  
**Standard Radionuclide Source**

67519-278

Ra-226 5 mL Liquid in Flame Sealed Vial

This standard radionuclide source was prepared gravimetrically from a calibrated master solution. The master solution was calibrated using a germanium gamma spectrometer system.

Radionuclide purity and calibration were checked using a germanium gamma spectrometer system. The nuclear decay rate and assay date for this source are given below.

Analytics maintains traceability to the National Institute of Standards and Technology through participation in a Measurements Assurance Program as described in USNRC Reg. Guide 4.15, Revision 1, February 1979.

|   |                            |
|---|----------------------------|
| ISOTOPE:                                | Ra-226                     |
| ACTIVITY (dps):                         | 2.353 E4                   |
| HALF-LIFE:                              | 1.600 E3 years             |
| CALIBRATION DATE:                       | January 23, 2004 12:00 EST |
| RELATIVE EXPANDED<br>UNCERTAINTY (k=2): | 3.3%                       |

Impurities:  $\gamma$ -impurities (other than decay products) <0.1%

5.01065 grams 0.1M HCl solution with 50  $\mu$ g/g Ba carrier.

P O NUMBER 3231RD, Item 5

SOURCE PREPARED BY:

M. D. Currie  
M. D. Currie, Radiochemist

Q A APPROVED:

ACM 1/26/04

W 8731105

## Standard Traceability Log Rad

**WARNING! Training must be completed!!**

**Alphalims will be locked out if training is not completed within 1 week of assignment Contact Quality if additional time is needed to complete training**

| Source Material Info |              | A Solution Material Info |             |
|----------------------|--------------|--------------------------|-------------|
| Parent Code:         | 0638         | Isotope:                 | Radium-226  |
| Prepared By:         | Amanda Fehr  | Prepared By:             | Amanda Fehr |
| Carrier Conc:        | 0.1M HCl     | Prep Date:               | 01/16/2006  |
| Reference Date:      | 01/23/2004   | Verification Date:       | 04/09/2009  |
| Ampoule Mass (g):    | 5.01065 g    | Expiration Date:         | 04/09/2010  |
| Uncertainty:         | +/- 3.3 %    | Primary Code:            | 0638-A      |
| LogBook No:          | RC-S-037-037 | Dilution(mL):            | 100 mL      |
|                      |              | Mass of Parent(g):       | 4.8398 g    |
|                      |              | Density(g/mL):           | 1.0266      |
|                      |              | Balance ID:              | 38080204    |

### Calculations Converting parent activity to dpm/mL/dpm/g

$$(\text{Mass of parent(g)}) * (\text{Parent Activity (dps)}) * (\text{conversion dpm to dps}) / (\text{Ampoule Mass(g)} * (\text{Dilution Vol})) = \text{Parent Activity (dpm/mL)}$$

$$(\text{Mass of parent(g)}) * (\text{Parent Activity (dps)}) * (\text{conversion dpm to dps}) / \text{Density} / (\text{Ampoule Mass (g)} * (\text{Dilution Vol})) = \text{Parent Activity (dpm/g)}$$

$$(4.8398 \text{ g}) * (23530 \text{ dps}) * (60 \text{ dpm/dps}) * (60 \text{ mL}) = 13636.6133 \text{ dpm/mL}$$

$$(4.8398 \text{ g}) * (23530 \text{ dps}) * (60 \text{ dpm/dps}) / (1.0266 \text{ g/mL}) / (5.01065 \text{ g} * 100 \text{ mL}) = 13282.9676 \text{ dpm/g}$$

*W 8/28/09*

## Secondary Standards

| Prep Date  | Preparer    | Mass Primary | Dilution (mL) | Code   | Conc dpm/mL      | Verification Date | Expiration Date |
|------------|-------------|--------------|---------------|--------|------------------|-------------------|-----------------|
| 01/17/2006 | Amanda Fehr | 2.1041       | 100           | 0638-B | 279.0211 dpm/mL  | 01/17/2007        | 01/17/2008      |
| 07/17/2006 | Mary Aders  | 2.1313       | 100           | 0638-C | 282.6281 dpm/mL  | 07/26/2006        | 07/26/2007      |
| 03/28/2007 | Daniel Roy  | 2.1025       | 100           | 0638-D | 279.2744 dpm/ml  | 04/08/2007        | 04/08/2008      |
| 03/28/2007 | Daniel Roy  | 45.468       | 250           | 0638-E | 2415.7999 dpm/ml | 04/09/2009        | 04/09/2010      |
| 12/18/2007 | Daniel Roy  | 2.014        | 100           | 0638-F | 267.519 dpm/ml   | 02/02/2009        | 02/02/2010      |
| 02/12/2008 | Daniel Roy  | .5004        | 100           | 0638-G | 66.468 dpm/ml    | 03/02/2009        | 03/02/2010      |
| 07/23/2008 | Daniel Roy  | 5.0607       | 250           | 0638-H | 268.8845 dpm/ml  | 07/17/2009        | 07/17/2010      |

GEL Laboratories LLC  
Version 1.0 9/18/2000

10/13/09

## Verification for Ra-226 Standard 0638-H

| D. Roy<br>7/23/2008            | Isotope     | Value  | Uncertainty               |
|--------------------------------|-------------|--------|---------------------------|
|                                | 0638-H      | 11.852 | 1.1079                    |
|                                | 0638-H      | 12.092 | 1.1141                    |
|                                | 0638-H      | 12.372 | 1.1216                    |
| <b>Mean Value (Counting) =</b> | 12.106      | 100.13 | <b>Pass</b>               |
| <b>Stdev =</b>                 | 0.260353631 |        | <b>Rule 3 (Pass/Fail)</b> |
| <b>Target =</b>                | 12.09       |        |                           |
| <b>Lower Limit =</b>           | 11.5848594  |        |                           |
| <b>Upper Limit =</b>           | 12.62627393 |        |                           |
| <b>Rule 1 Pass/Fail</b>        | <b>Pass</b> |        |                           |
| <b>Two sigma =</b>             | 0.520707263 |        |                           |
| <b>10 % of Mean =</b>          | 1.210556667 |        |                           |
| <b>Rule 2 (Pass/Fail)</b>      | <b>Pass</b> |        |                           |

**Rule 1 = The certificate value (NOT including any uncertainty) shall lie within the 95% confidence interval determined from the mean and two sigma standard deviation of the three measurements**

**Rule 2 = The two sigma value used for the 95% confidence interval shall not exceed 10% of the mean value of the three verification measurements.**

**Rule 3 = The determined mean value shall be within 5% of the certificate value.**

The analyst prepared three standard verification sources for Ra-226 source 0638-H by transferring portions of the degassed standard into tared glass liquid scintillation vials. 10 mL of DI Water and 10 mL of mineral oil were added to each vial and the vials were shaken. A Blank vial was prepared in a similar fashion using 10 mL of DI Water and 10 mL of mineral oil. The standard verification vials and Background source were dark adapted for two hours and counted on LSC RED using source standard verification. Each verification source calculation was performed as follows:

$$\text{Source dpm/g} = (A - B)/(C)(D)$$

where:

- A = Ver. source cpm,
- B = BKG cpm,
- C = System efficiency, (cpm/dpm), and
- D = mass used for standard verification.

Reference RAD SOP M-001

*David D. Roy 8/14/08*  
*Ver. L. Jones 8/14/08*

# General Engineering Laboratories

2040 Savage Road, Charleston, SC 29414  
(843)556-8171

## Lucas Cell Calibration Package

|   | YES | NO | Comments |
|---|-----|----|----------|
| 1) Is all calibration standard information enclosed for:<br>the primary standard certificate? | ✓   | ✓  |          |
| the secondary standard(s) documentation?  | ✓   | ✓  |          |
| standard preparation information?   | ✓   | ✓  |          |
| standard < 1 Year old or verified?  | ✓   | ✓  |          |
| 2) Is the efficiency calibration report included ?  | ✓   | ✓  |          |
| 3) Is the raw count data included for:<br>Cell constant determination?                        | ✓   | ✓  |          |
| Plateau generation?   | ✓   | ✓  |          |
| 4) Are the calibration verifications included?  | ✓   | ✓  |          |
| 5) Are the instrument settings included:<br>HVPS settings?                                    | ✓   | ✓  |          |
| 6) Has the CELLEFF.xls file been updated ?  | ✓   | ✓  |          |
| 7) Have the calibration dates been updated in ALPHALIMS ?                                     | ✓   | ✓  |          |

Prepared By: Kelli Donnell

Date: 12/19/08

Reviewed By: Mark G. Adams

Date: 12/19/08

Effective Date: 12/19/08

NU 12/19/08

### Ra-226 Cell Constants

Standard Reference date: 12/15/1999  
 standard ID: 0299-G  
 Volume added (mL): 0.1  
 Standard Reference Activity (DPM/mL): 2446.35

| Lucas cell # | Cell constant | Standard Source | Date/Time of count | Date/Time flushed to cell | Date/Time end of degas | bkg cpm          | total counts     | count time min | cpm  | Known activity dpm | 11 (days) end-degas to flush | 12 (days) end-flush to count | 13 (days) Std Ref Date to count | Decay from Std Ref Date to count |      |        |
|--------------|---------------|-----------------|--------------------|---------------------------|------------------------|------------------|------------------|----------------|------|--------------------|------------------------------|------------------------------|---------------------------------|----------------------------------|------|--------|
| 201          | 2.021         | Average         | 1.983              | Cal 14                    | 9/15/2008 15:45        | 9/15/2008 9:05   | 9/12/2008 13:20  | 0.267          | 5596 | 30                 | 186.53                       | 243.02                       | 2.82292                         | 0.27778                          | 3198 | 0.9962 |
| 201          | 2.043         | Sidev           | 0.068              | Cal 14                    | 9/18/2008 13:00        | 9/18/2008 8:10   | 9/15/2008 9:05   | 0.267          | 5949 | 30                 | 198.30                       | 243.02                       | 2.96181                         | 0.20139                          | 3201 | 0.9962 |
| 201          | 1.915         |                 |                    | Cal 14                    | 9/25/2008 19:35        | 9/25/2008 9:15   | 9/22/2008 10:00  | 0.267          | 5361 | 30                 | 178.70                       | 243.02                       | 2.96875                         | 0.49056                          | 3208 | 0.9962 |
| 202          | 2.436         | Average         | 2.261              | Cal 13                    | 9/15/2008 16:20        | 9/15/2008 9:35   | 9/12/2008 13:20  | 0.267          | 6779 | 30                 | 225.97                       | 243.02                       | 2.84375                         | 0.28125                          | 3198 | 0.9962 |
| 202          | 2.209         | Sidev           | 0.156              | Cal 13                    | 9/18/2008 13:50        | 9/18/2008 8:45   | 9/15/2008 9:35   | 0.267          | 6425 | 30                 | 214.17                       | 243.02                       | 2.96528                         | 0.21181                          | 3201 | 0.9962 |
| 202          | 2.137         |                 |                    | Cal 14                    | 10/21/2008 13:50       | 10/20/2008 13:45 | 10/13/2008 16:00 | 0.267          | 9248 | 30                 | 308.27                       | 243.02                       | 6.90625                         | 1.00347                          | 3234 | 0.9962 |
| 203          | 2.255         | Average         | 2.254              | Cal 43                    | 9/15/2008 16:50        | 9/15/2008 10:00  | 9/12/2008 13:20  | 0.267          | 6300 | 30                 | 210.00                       | 243.02                       | 2.86111                         | 0.28472                          | 3198 | 0.9962 |
| 203          | 2.273         | Sidev           | 0.019              | Cal 43                    | 9/18/2008 14:25        | 9/18/2008 9:15   | 9/15/2008 10:00  | 0.267          | 6613 | 30                 | 220.43                       | 243.02                       | 2.96875                         | 0.21528                          | 3201 | 0.9962 |
| 203          | 2.234         |                 |                    | Cal 43                    | 9/25/2008 21:00        | 9/25/2008 10:15  | 9/22/2008 10:00  | 0.267          | 6298 | 30                 | 209.93                       | 243.02                       | 3.01042                         | 0.44782                          | 3208 | 0.9962 |
| 204          | 2.184         | Average         | 2.183              | Cal 15                    | 9/15/2008 17:25        | 9/15/2008 10:30  | 9/12/2008 13:20  | 0.267          | 6132 | 30                 | 204.40                       | 243.02                       | 2.88194                         | 0.28819                          | 3198 | 0.9962 |
| 204          | 2.300         | Sidev           | 0.102              | Cal 15                    | 9/18/2008 14:55        | 9/18/2008 9:35   | 9/15/2008 10:30  | 0.267          | 6671 | 30                 | 222.37                       | 243.02                       | 2.96181                         | 0.22222                          | 3201 | 0.9962 |
| 204          | 2.096         |                 |                    | Cal 15                    | 9/30/2008 14:05        | 9/30/2008 9:10   | 9/28/2008 9:45   | 0.133          | 7535 | 30                 | 251.17                       | 243.02                       | 3.97569                         | 0.20486                          | 3213 | 0.9962 |
| 205          | 1.677         | Average         | 1.799              | Cal 13                    | 10/21/2008 8:30        | 10/20/2008 14:05 | 10/13/2008 16:00 | 0.267          | 7584 | 30                 | 252.80                       | 243.02                       | 6.92014                         | 0.76736                          | 3233 | 0.9962 |
| 205          | 1.730         | Sidev           | 0.167              | Cal 44                    | 9/18/2008 16:00        | 9/18/2008 10:05  | 9/15/2008 10:55  | 0.167          | 4989 | 30                 | 166.63                       | 243.02                       | 2.96528                         | 0.24653                          | 3201 | 0.9962 |
| 205          | 1.990         |                 |                    | Cal 44                    | 9/30/2008 14:45        | 9/30/2008 9:40   | 9/28/2008 9:45   | 0.167          | 7170 | 30                 | 239.00                       | 243.02                       | 3.89653                         | 0.21181                          | 3213 | 0.9962 |
| 206          | 2.240         | Average         | 2.259              | Cal 46                    | 9/15/2008 21:10        | 9/15/2008 11:25  | 9/12/2008 13:20  | 0.233          | 6216 | 30                 | 207.20                       | 243.02                       | 2.92014                         | 0.40825                          | 3198 | 0.9962 |
| 206          | 2.293         | Sidev           | 0.030              | Cal 46                    | 9/18/2008 16:35        | 9/18/2008 10:25  | 9/15/2008 11:25  | 0.267          | 6604 | 30                 | 220.13                       | 243.02                       | 2.95833                         | 0.25694                          | 3201 | 0.9962 |
| 206          | 2.245         |                 |                    | Cal 46                    | 9/30/2008 15:20        | 9/30/2008 10:15  | 9/28/2008 9:45   | 0.267          | 8125 | 30                 | 270.83                       | 243.02                       | 4.02083                         | 0.21181                          | 3213 | 0.9962 |
| 207          | 2.187         | Average         | 2.146              | Cal 36                    | 9/15/2008 21:40        | 9/15/2008 11:50  | 9/12/2008 13:20  | 0.267          | 6084 | 30                 | 203.13                       | 243.02                       | 2.93750                         | 0.40972                          | 3198 | 0.9962 |
| 207          | 2.141         | Sidev           | 0.038              | Cal 36                    | 9/18/2008 17:55        | 9/18/2008 10:40  | 9/15/2008 11:50  | 0.267          | 6105 | 30                 | 203.50                       | 243.02                       | 2.95139                         | 0.30208                          | 3201 | 0.9962 |
| 207          | 2.110         |                 |                    | Cal 36                    | 9/30/2008 16:00        | 9/30/2008 10:45  | 9/28/2008 9:45   | 0.233          | 7856 | 30                 | 255.20                       | 243.02                       | 4.04167                         | 0.21675                          | 3213 | 0.9962 |
| 208          | 2.239         | Average         | 2.283              | Cal 36                    | 9/15/2008 22:15        | 9/15/2008 12:15  | 9/12/2008 13:20  | 0.267          | 6288 | 30                 | 208.60                       | 243.02                       | 2.85486                         | 0.41667                          | 3198 | 0.9962 |
| 208          | 2.243         | Sidev           | 0.185              | Cal 30                    | 9/18/2008 19:30        | 9/18/2008 11:00  | 9/15/2008 10:45  | 0.133          | 6374 | 30                 | 212.47                       | 243.02                       | 3.04786                         | 0.41290                          | 3201 | 0.9962 |
| 208          | 2.148         |                 |                    | Cal 30                    | 9/30/2008 16:55        | 9/30/2008 11:15  | 9/28/2008 9:45   | 0.695          | 7691 | 30                 | 236.03                       | 243.02                       | 4.06989                         | 0.89569                          | 3213 | 0.9962 |
| 209          | 2.471         | Average         | 2.291              | Cal 19                    | 9/15/2008 22:45        | 9/15/2008 13:50  | 9/12/2008 13:20  | 0.033          | 7073 | 30                 | 235.77                       | 243.02                       | 3.02083                         | 0.37153                          | 3198 | 0.9962 |
| 209          | 2.212         | Sidev           | 0.137              | Cal 19                    | 9/18/2008 19:15        | 9/18/2008 11:15  | 9/15/2008 13:50  | 0.067          | 6170 | 30                 | 205.67                       | 243.02                       | 2.89236                         | 0.33333                          | 3201 | 0.9962 |
| 209          | 2.420         |                 |                    | Cal 19                    | 9/30/2008 17:25        | 9/30/2008 11:40  | 9/28/2008 9:45   | 0.100          | 8795 | 30                 | 293.17                       | 243.02                       | 4.07986                         | 0.23958                          | 3213 | 0.9962 |
| 210          | 2.320         | Average         | 2.253              | Cal 47                    | 9/15/2008 23:15        | 9/15/2008 14:15  | 9/12/2008 13:20  | 0.033          | 6665 | 30                 | 222.17                       | 243.02                       | 3.03819                         | 0.37500                          | 3198 | 0.9962 |
| 210          | 2.210         | Sidev           | 0.059              | Cal 47                    | 9/18/2008 19:45        | 9/18/2008 11:30  | 9/15/2008 14:15  | 0.100          | 6142 | 30                 | 204.73                       | 243.02                       | 2.88542                         | 0.34375                          | 3201 | 0.9962 |
| 210          | 2.230         |                 |                    | Cal 47                    | 9/30/2008 18:00        | 9/30/2008 12:05  | 9/28/2008 9:45   | 0.033          | 8116 | 30                 | 270.53                       | 243.02                       | 4.09722                         | 0.24653                          | 3213 | 0.9962 |
| 211          | 2.140         | Average         | 2.171              | Cal 37                    | 9/15/2008 23:50        | 9/15/2008 14:30  | 9/12/2008 13:20  | 0.033          | 6150 | 30                 | 205.00                       | 243.02                       | 3.04661                         | 0.36889                          | 3198 | 0.9962 |
| 211          | 2.238         | Sidev           | 0.057              | Cal 37                    | 9/18/2008 22:20        | 9/18/2008 12:35  | 9/15/2008 14:30  | 0.133          | 6207 | 30                 | 206.90                       | 243.02                       | 2.92014                         | 0.40625                          | 3201 | 0.9962 |
| 211          | 2.136         |                 |                    | Cal 37                    | 9/30/2008 18:30        | 9/30/2008 13:35  | 9/28/2008 9:45   | 0.100          | 7917 | 30                 | 263.90                       | 243.02                       | 4.15972                         | 0.20486                          | 3213 | 0.9962 |
| 212          | 2.405         | Average         | 2.322              | Cal 42                    | 9/15/2008 0:20         | 9/15/2008 14:50  | 9/12/2008 13:20  | 0.033          | 6926 | 30                 | 230.87                       | 243.02                       | 3.06250                         | 0.39563                          | 3198 | 0.9962 |
| 212          | 2.315         | Sidev           | 0.081              | Cal 42                    | 9/18/2008 22:55        | 9/18/2008 12:50  | 9/15/2008 14:50  | 0.267          | 6405 | 30                 | 213.50                       | 243.02                       | 2.91667                         | 0.42014                          | 3201 | 0.9962 |
| 212          | 2.244         |                 |                    | Cal 42                    | 9/30/2008 19:50        | 9/30/2008 14:00  | 9/28/2008 9:45   | 0.267          | 8287 | 30                 | 276.23                       | 243.02                       | 4.17708                         | 0.24306                          | 3213 | 0.9962 |

NU 12/19/08

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# Verification for Ra-226 Standard 0299-G

| 4/2/2008 | Isotope   | Detector CPM | BKG CPM | NET CPM   | Detector Eff | Standard Mass. Used (G) | Source DPM/G |
|----------|-----------|--------------|---------|-----------|--------------|-------------------------|--------------|
| D. Roy   | 0299-G N1 | 2536.9600    | 52.4000 | 2484.5600 | 1.917186     | 0.5057                  | 2562.667649  |
|          | 0299-G N2 | 2520.2500    | 52.4000 | 2467.8500 | 1.917186     | 0.5056                  | 2545.935781  |
|          | 0299-G N3 | 2532.5000    | 52.4000 | 2480.1000 | 1.917186     | 0.5042                  | 2565.677715  |
|          |           |              |         |           |              | Average =               | 2558.093715  |

Mean Value (Counting) = 2558.093715  
 Stdev = 10.63610098

Certificate Value = 2437.6 dpm/mL  
 Lower Limit = 2536.821513 dpm/mL  
 Upper Limit = 2579.365917 dpm/mL  
 Rule 1 Pass/Fail Fail \*exception taken due to full recovery of standard  
 Two sigma = 21.27220197 dpm/mL  
 10 % of Mean = 255.8093715 dpm/mL  
 Rule 2 (Pass/Fail) Pass

## Verification Rules

- Rule 1 = The certificate value (NOT including any uncertainty) shall lie within the 95% confidence interval determined from the mean and two sigma standard deviation of the three measurements
- Rule 2 = The two sigma value used for the 95% confidence interval shall not exceed 10% of the mean value of the three verification measurements.
- Rule 3 = The determined mean value shall be within 10% of the certificate value.

The analyst prepared three standard verification sources for Ra-226 source 0299-G by transferring portions of the standard into tared glass liquid scintillation vials. One mL of DI Water and ten mLs of Ready Gel liquid scintillation cocktail was added to each vial and the vials were shaken to mix. A Blank vial was prepared in a similar fashion using 1 mL of DI water and 10 mL of Ready Gel cocktail. The standard verification vials and Background source were dark adapted for two hours and counted on LSC Gold for Radium source standard verification. The Ra-226 efficiency calibration which was used for verification calculations was performed on 4/02/08 using source 0024-A (Ra-226). Calibration data is recorded in this logbook under Ra-226 0024. Each verification source calculation was performed as follows:

$$\text{Source dpm/g} = (A - B)/(C)(D)$$

where:

- A = Ver. source cpm,
- B = BKG cpm,
- C = System efficiency, (cpm/dpm), and
- D = mass used for standard verification.

BAD.SOP.M-001

*Mut 12/19/08*  
*W 17/19/08*  
*Mary E. Johnson 4/9/08*  
*Daniel Dwyer 4/10/08*



# Standard Traceability Log Rad

| Source Material Info |                | A Solution Material Info |                |
|----------------------|----------------|--------------------------|----------------|
| Parent Code:         | 0299           | Isotope:                 | Radium-226     |
| Prepared By:         | Angela Johnson | Prepared By:             | Angela Johnson |
| Carrier Conc:        | 0.5 M HCL      | Prep Date:               | 09/15/2000     |
| Reference Date:      | 12/15/1999     | Verification Date:       | 01/23/2008     |
| Ampoule Mass (g):    | 5.0368 g       | Expiration Date:         | 01/23/2009     |
| Uncertainty:         | +/- 2.5 %      | Primary Code:            | 0299-A         |
| LogBook No:          | RC S 027 128   | Dilution(mL):            | 100 mL         |
|                      |                | Mass of Parent(g):       | 4.6634 g       |
|                      |                | Density(g/mL):           | 1.0012         |
|                      |                | Balance ID:              |                |

### Calculations Converting parent activity to dpm/mL|dpm/g

$$(\text{Mass of parent(g)}) * (\text{Parm Activity (kBq/g)}) * (\text{conversion dpm to kBq}) / (\text{Dilution Vol}) = \text{Parent Activity (dpm/mL)}$$

$$(\text{Mass of parent(g)}) * (\text{Parm Activity (kBq/g)}) * (\text{conversion dpm to kBq}) / \text{Density (g/mL)} / (\text{Dilution Vol}) = \text{Parent Activity (dpm/g)}$$

$$(4.6634 \text{ g}) * (43.75 \text{ kBq/g}) * (60000 \text{ dpm/kBq}) / (100 \text{ mL}) = 122414.2500 \text{ dpm/mL}$$

$$(4.6634 \text{ g}) * (43.75 \text{ kBq/g}) * (60000 \text{ dpm/kBq}) / (1.0012 \text{ g/mL}) / (100 \text{ mL}) = 122273.3377 \text{ dpm/g}$$

### Secondary Standards

| Prep Date  | Preparer       | Mass Primary | Dilution (mL) | Code   | Conc dpm/mL      | Verification Date | Expiration Date |
|------------|----------------|--------------|---------------|--------|------------------|-------------------|-----------------|
| 08/26/2003 | Angela Johnson | 1.9909       | 100           | 0299-E | 2434.34 dpm/mL   | 11/04/2004        | 11/04/2005      |
| 08/26/2003 | Angela Johnson | 1.9872       | 100           | 0299-F | 2429.82 dpm/mL   | 08/26/2004        | 08/26/2005      |
| 04/05/2005 | Amanda Fehr    | 5.0018       | 250           | 0299-G | 2446.3471 dpm/mL | 04/02/2008        | 04/02/2009      |

GEL Laboratories LLC  
Version 1.0 9/18/2000

*all the 12/19/08*  
*len 12/19/08*

## General Engineering Laboratories Verification Source Preparation Sheet

|   |  |
|---|--|
| Applicable SOP Number <u>GLRAD A-008</u>        | Isotope <u>Ra-226</u>  |
| Date Standards Prepared <u>4/5/08</u>           | Cocktail Type Used <u>NA</u>                                 |
| Standard ID <u>0299-G</u>                       | Matrix of Vial/Planchett <u>NA</u><br><u>NA</u><br><u>NA</u> |
| Amount Used (g or ml) <u>0.1</u>                | Type of Scintillation Vial <u>NA</u>                         |
| Standard Activity (DPM/g or ml) <u>2446.347</u> | Pipette ID Used <u>1429303</u>                               |
| Reference Date <u>12/15/99</u>                  | Balance ID Used <u>36040216</u>                              |
| Expiration Date <u>4/2/09</u>                   | Quenching Agent <u>NA</u>                                    |
| Residue/Carrier Agent <u>0.5 M HCl</u>          |  |

|    | Standard Number | Quenching Vol (uL)<br>Residue Volume (mL) | Initial Wt.<br>(g) | Final Wt.<br>(g) | Net Wt.<br>(mg) |
|----|-----------------|---|--------------------|------------------|-----------------|
| 14 | Cal 14          |   |                    |                  |                 |
| 13 | Cal 13          |   |                    |                  |                 |
| 43 | Cal 43          |   |                    |                  |                 |
| 15 | Cal 15          |   |                    |                  |                 |
| 44 | Cal 44          |   |                    |                  |                 |
| 46 | Cal 46          |   |                    |                  |                 |
| 36 | Cal 36          |   |                    |                  |                 |
| 19 | Cal 19          |   |                    |                  |                 |
| 47 | Cal 47          |   |                    |                  |                 |
| 37 | Cal 37          |   |                    |                  |                 |
| 42 | Cal 42          |   |                    |                  |                 |
|    |                 |   |                    |                  |                 |
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|    |                 |   |                    |                  |                 |

*See table*

Prepared By: Kelli S. Deroso Date: 12/19/08  
 Reviewed By: M. G. Johnson Date: 12/19/08

0299

UKAS ACCREDITED CALIBRATION LABORATORY No. 0146

|   |   |
|---|---|
| Reference time for solution number R4/131/89: | 1200 GMT on 15 December 1999              |
| Radioactive concentration of radium-226:      | 43.75 kilobecquerels per gram of solution |
| which is equivalent to:                       | 1.183 microcuries per gram of solution    |
| Mass of solution:                             | 5.0368 grams                              |
| Total activity of radium-226:                 | 220.4 kilobecquerels                      |
| which is equivalent to:                       | 5.956 microcuries                         |
| Recommended half life:                        | 1600 years                                |

Method of measurement:  
The activity of the solution was measured using a high pressure re-entrant ionisation chamber calibrated with a large number of absolutely standardised solutions.

Calibration date: 15 December 1999  
The calibration date is provided for added information only, and must not be confused with the reference date on pages 1 and 2 of the certificate. It is the reference date that must be used in all calculations relating to the values of activity.

Expanded uncertainty in the radioactive concentration quoted above:  $\pm 2.5\%$   
Combined Type A uncertainty:  $\pm 0.2\%$   
Combined Type B uncertainty:  $\pm 1.3\%$

Radiochemical The estimated activities of any radioactive impurities found by high-resolution gamma ray spectrometry, or in any other examination of the solution, are listed below expressed as percentages of the activity of the principal radionuclide at the reference time.

Carrier free in 0.5M HCl

This product meets the quality assurance requirements for achieving traceability to NIST as defined in ANSI N42.22-1995.

1 year = 365.25 days

At the reference date radium-226 was shown to be in radioactive equilibrium with its daughter nuclides down the decay chain to polonium-214 and thallium-210, the precursors of lead-210. The ionisation chamber was calibrated using a standard supplied by the National Institute of Standards and Technology, Washington DC, USA.

*Handwritten:* 12/19/99  
12/19/98



# Ra-226 WATER

Batch : LCSVER  
 Date : 10/31/2008  
 Analyst : KSD1

Procedure Code : LUC26RAL

Parname : Radium-226

MDA : 1 pCi/L

Instrument Used : LUCAS CELL DETECTOR

Bkg Count Time: 30 min

| Sample ID | Sample Vol L     | Count Time min | Gross counts cts | Cell # num     | Cell Const. num  | BKG cpm          | Ra-226 MDA pCi/L  | Ra-226 RESULT pCi/L | Ra-226 ERROR pCi/L | COUNT DATE/TIME                                 |
|-----------|------------------|----------------|------------------|----------------|------------------|------------------|-------------------|---------------------|--------------------|---|
| VER 1     | 0.500            | 30             | 1014             | 201            | 1.993            | 0.267            | 0.3504            | 22.1841             | 1.3817             | 11/17/2008 15:10                                |
| VER 2     | 0.500            | 30             | 1056             | 202            | 2.261            | 0.267            | 0.3089            | 20.3702             | 1.2427             | 11/17/2008 15:45                                |
| VER 3     | 0.500            | 30             | 726              | 203            | 2.254            | 0.267            | 0.5419            | 24.4866             | 1.8110             | 10/30/2008 16:05                                |
| VER 4     | 0.500            | 30             | 737              | 204            | 2.193            | 0.267            | 0.5519            | 25.3188             | 1.8580             | 10/30/2008 18:20                                |
| VER 5     | 0.500            | 30             | 937              | 205            | 1.799            | 0.267            | 0.3882            | 22.6936             | 1.4718             | 11/17/2008 16:20                                |
| VER 6     | 0.500            | 30             | 780              | 206            | 2.259            | 0.267            | 0.5373            | 26.1045             | 1.8604             | 10/30/2008 20:20                                |
| VER 7     | 0.500            | 30             | 711              | 207            | 2.146            | 0.267            | 0.5705            | 25.2245             | 1.8858             | 10/30/2008 22:00                                |
| VER 3     | <del>0.500</del> | <del>30</del>  | <del>593</del>   | <del>208</del> | <del>2.283</del> | <del>0.267</del> | <del>0.5132</del> | <del>16.9552</del>  | <del>1.4723</del>  | <del>11/20/2008 16:40</del> <sup>12/19/08</sup> |
| VER 9     | 0.500            | 30             | 630              | 209            | 2.291            | 0.133            | 0.4042            | 21.0513             | 1.6596             | 10/30/2008 23:40                                |
| VER 10    | 0.500            | 30             | 691              | 210            | 2.253            | 0.033            | 0.2527            | 23.7356             | 1.7736             | 10/31/2008 1:15                                 |
| VER 11    | 0.500            | 30             | 1067             | 211            | 2.171            | 0.267            | 0.3314            | 22.0840             | 1.3401             | 11/17/2008 21:55                                |
| VER 12    | 0.500            | 30             | 648              | 212            | 2.322            | 0.133            | 0.4223            | 22.6294             | 1.7586             | 10/31/2008 9:15                                 |

12/19/08  
 KD 12/19/08

| Sample ID | Sample Dup | Det # | Run Date         | Sample Type | Standard ID | NC    | NC units | Recovery/RPD |
|-----------|------------|-------|------------------|-------------|-------------|-------|----------|--------------|
| 201       |            | 2     | 11/17/2008 10:20 | LCS         | 0638-F      | 24.10 | pCi/L    | 92%          |
| 202       |            | 2     | 11/17/2008 10:45 | LCS         | 0638-F      | 24.10 | pCi/L    | 85%          |
| 203       |            | 2     | 10/30/2008 11:05 | LCS         | 0638-F      | 24.10 | pCi/L    | 102%         |
| 204       |            | 2     | 10/30/2008 12:30 | LCS         | 0638-F      | 24.10 | pCi/L    | 105%         |
| 205       |            | 2     | 11/17/2008 11:10 | LCS         | 0638-F      | 24.10 | pCi/L    | 94%          |
| 206       |            | 2     | 10/30/2008 13:10 | LCS         | 0638-F      | 24.10 | pCi/L    | 108%         |
| 207       |            | 2     | 10/30/2008 13:25 | LCS         | 0638-F      | 24.10 | pCi/L    | 105%         |
| 208       |            | 2     | 11/20/2008 11:45 | LCS         | 0638-F      | 24.10 | pCi/L    | 70% <i>W</i> |
| 209       |            | 2     | 10/30/2008 14:05 | LCS         | 0638-F      | 24.10 | pCi/L    | 87% <i>W</i> |
| 210       |            | 2     | 10/30/2008 14:25 | LCS         | 0638-F      | 24.10 | pCi/L    | 98% <i>W</i> |
| 211       |            | 2     | 11/17/2008 12:20 | LCS         | 0638-F      | 24.10 | pCi/L    | 92%          |
| 212       |            | 2     | 10/30/2008 14:55 | LCS         | 0638-F      | 24.10 | pCi/L    | 94%          |

*W*  
*12/18/08*

| DEGASSING DATE/TIME | DE-EMAN. DATE/TIME | DEGASS-DE-EM | dE-EM-COUNT | constant | constant | constant | Net CPM | Ingrowth constant |
|---------------------|--------------------|--------------|-------------|----------|----------|----------|---------|-------------------|
| 11/10/2008 15:35    | 11/17/2008 10:20   | 162.75       | 4.83        | 0.7073   | 0.9642   | 1.0019   | 33.5333 | 0.6833            |
| 11/10/2008 15:35    | 11/17/2008 10:45   | 163.17       | 5.00        | 0.7083   | 0.9630   | 1.0019   | 34.9333 | 0.6833            |
| 10/27/2008 14:20    | 10/30/2008 11:05   | 68.75        | 5.00        | 0.4049   | 0.9630   | 1.0019   | 23.9333 | 0.3907            |
| 10/27/2008 14:20    | 10/30/2008 12:30   | 70.17        | 5.83        | 0.4113   | 0.9569   | 1.0019   | 24.3000 | 0.3943            |
| 11/10/2008 15:35    | 11/17/2008 11:10   | 163.58       | 5.17        | 0.7092   | 0.9617   | 1.0019   | 30.9667 | 0.6833            |
| 10/27/2008 14:20    | 10/30/2008 13:10   | 70.83        | 7.17        | 0.4142   | 0.9473   | 1.0019   | 25.7333 | 0.3931            |
| 10/27/2008 14:20    | 10/30/2008 13:25   | 71.08        | 8.58        | 0.4153   | 0.9373   | 1.0019   | 23.4330 | 0.3900            |
| 11/17/2008 11:10    | 11/20/2008 11:45   | 72.58        | 4.92        | 0.4219   | 0.9696   | 1.0019   | 17.5900 | 0.4073            |
| 10/27/2008 14:20    | 10/30/2008 14:05   | 71.75        | 9.58        | 0.4182   | 0.9302   | 1.0019   | 20.8670 | 0.3898            |
| 10/27/2008 14:20    | 10/30/2008 14:25   | 72.08        | 10.83       | 0.4197   | 0.9215   | 1.0019   | 23.0003 | 0.3875            |
| 11/10/2008 15:35    | 11/17/2008 12:20   | 164.75       | 9.58        | 0.7117   | 0.9302   | 1.0019   | 35.3000 | 0.6633            |
| 10/27/2008 14:20    | 10/30/2008 14:55   | 72.58        | 18.33       | 0.4219   | 0.8707   | 1.0019   | 21.4670 | 0.3681            |

*W*  
*12/18/08*

*W*  
*12/19/08*  
*W*  
*12/18/08*





# Verification for Ra-226 Standard 0638-F

D Roy  
12/27/2007

| Isotope   | Detector CPM | BKG CPM | NET CPM   | Detector Eff Mass. Used (mL) | Source DPM/mL         |
|-----------|--------------|---------|-----------|------------------------------|-----------------------|
| 0638-F N1 | 1239.9000    | 31.5000 | 1208.4000 | 4.624018                     | 261.3311626           |
| 0638-F N2 | 1222.8000    | 31.5000 | 1191.3000 | 4.624018                     | 257.6330801           |
| 0638-F N3 | 1219.4000    | 31.5000 | 1187.9000 | 4.624018                     | 256.8977889           |
|           |              |         |           |                              | Average = 258.6206772 |

Mean Value (Counting) = 258.6206772  
Stdev = 2.375965421

Certificate Value = 267.1  
Lower Limit = 253.8687464  
Upper Limit = 263.3726081  
Rule 1 Pass/Fail Fail  
Two sigma = 4.751930843  
10 % of Mean = 25.86206772  
Rule 2 (Pass/Fail) Pass

\*exception taken due to full recovery of standard

96.8384646 Pass  
0.00918707 Rule 3 (Pass/Fail)

## Verification Rules

- Rule 1 = The certificate value (NOT including any uncertainty) shall lie within the 95% confidence interval determined from the mean and two sigma standard deviation of the three measurements
- Rule 2 = The two sigma value used for the 95% confidence interval shall not exceed 10% of the mean value of the three verification measurements.
- Rule 3 = The determined mean value shall be within 5% of the certificate value.

The analyst prepared three standard verification sources for Ra-226 source 0638-F by transferring portions of the standard into tared glass liquid scintillation vials. One mL of DI Water and 10 mL Ready Gel liquid scintillation cocktail was added to each vial and the vials were shaken to mix. A Blank vial was prepared in a similar fashion using 1 mL of DI water and 10 mL of Ready Gel cocktail. The standard verification vials and Background source were dark adapted for two hours and counted on LSC YELLOW using source standard verification. The Ra-226 efficiency calibration which was used for verification calculations was performed on 12/27/07 using source 0024-A (Ra-226). Calibration data is recorded in this logbook under Ra-226 (0024-A). Each verification source calculation was performed as follows:

$$\text{Source dpm/g} = (A - B)/(C)(D)$$

where:

- A = Ver. source cpm,
- B = BKG cpm,
- C = System efficiency, (cpm/dpm), and
- D = mass used for standard verification.

Reference RAD SOP M-001

12/19/08

*Handwritten signature and date:*  
1/4/07  
Amanda L. Fehr 1/4/07

## General Engineering Laboratories Verification Source Preparation Sheet

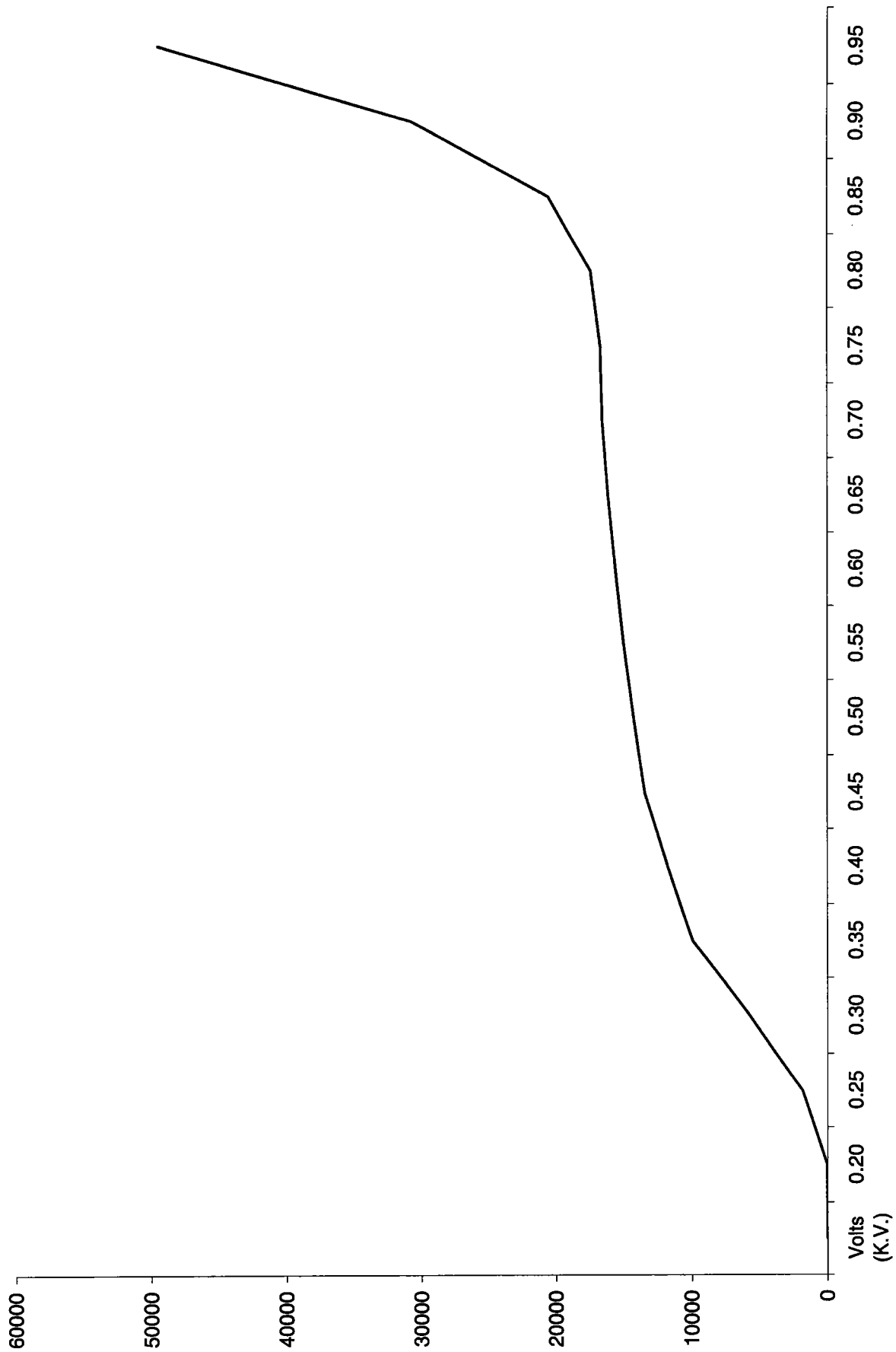
Applicable SOP Number GE-RIAD-A-008 Isotope RA-226  
 Date Standards Prepared 12/18/07 Cocktail Type Used NA  
 Standard ID 0638-F Matrix of Vial/Planchett NA  
 Amount Used (g or ml) 0.1 NA  
 Standard Activity (DPM/g or mL) 1127.519 Type of Scintillation Vial NA  
 Reference Date 1/23/04 Pipette ID Used 1429303  
 Expiration Date 12/20/08 Balance ID Used 3604046  
 Residue/Carrier Agent 0.1M HCl Quenching Agent NA

|    | Standard Number | Quenching Vol (uL)<br>Residue Volume (mL) | Initial Wt.<br>(g) | Final Wt.<br>(g) | Net Wt.<br>(mg) |
|----|-----------------|---|--------------------|------------------|-----------------|
| 1  | Ver 1           |   |                    |                  |                 |
| 2  | Ver 2           |   |                    |                  |                 |
| 3  | Ver 3           |   |                    |                  |                 |
| 4  | Ver 4           |   |                    |                  |                 |
| 5  | Ver 5           |   |                    |                  |                 |
| 6  | Ver 6           |   |                    |                  |                 |
| 7  | Ver 7           |   |                    |                  |                 |
| 8  | Ver 8           |   |                    |                  |                 |
| 9  | Ver 9           |   |                    |                  |                 |
| 10 | Ver 10          |   |                    |                  |                 |
| 11 | Ver 11          |   |                    |                  |                 |
| 12 | Ver 12          |   |                    |                  |                 |
|    |                 |   |                    |                  |                 |
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12/19/08

Prepared By: Kelli Dieriel Date: 12/19/08  
 Reviewed By: Mary Jo Adams Date: 12/19/08





mut 12/19/08  
VW 12/19/08



|     |       |            |
|-----|-------|------------|
| 201 | 1.993 | 12/19/2008 |
| 202 | 2.261 | 12/19/2008 |
| 203 | 2.254 | 12/19/2008 |
| 204 | 2.193 | 12/19/2008 |
| 205 | 1.799 | 12/19/2008 |
| 206 | 2.259 | 12/19/2008 |
| 207 | 2.146 | 12/19/2008 |
| 209 | 2.291 | 12/19/2008 |
| 210 | 2.253 | 12/19/2008 |
| 211 | 2.171 | 12/19/2008 |
| 212 | 2.322 | 12/19/2008 |

*Next  
12/19/08*

# General Engineering Laboratories

2040 Savage Road, Charleston, SC 29414

(843)556-8171

## Lucas Cell Calibration Package

|  | YES | NO | Comments |
|--|-----|----|----------|
| 1) Is all calibration standard information enclosed for:<br>the primary standard certificate?<br>the secondary standard(s) documentation?<br>standard preparation information?<br>standard < 1 Year old or verified? | ✓   |    |          |
|  | ✓   |    |          |
|  | ✓   |    |          |
|  | ✓   |    |          |
| 2) Is the efficiency calibration report included ?   | ✓   |    |          |
| 3) Is the raw count data included for:<br>Cell constant determination?<br>Plateau generation?  | ✓   |    |          |
|  | ✓   |    |          |
| 4) Are the calibration verifications included?   | ✓   |    |          |
| 5) Are the instrument settings included:<br>HVPS settings?   | ✓   |    |          |
| 6) Has the CELLEFF.xls file been updated ?   | ✓   |    |          |
| 7) Have the calibration dates been updated in ALPHALIMS ?  | ✓   |    |          |

Prepared By: Kellipanel

Date: 2/3/09

Reviewed By: M. J. Hens

Date: 2/4/09

Effective Date: 2/4/09

# Ra-226 Cell Constants

Standard Reference date: 12/15/1999  
standard ID: 0299-G  
Volume added (mL): 0.1  
Standard Reference Activity (DPM/mL): 2446.35

| Lucas cell # | Cell constant | Standard Source | Date/Time of count | Date/Time flushed to cell | Date/Time end of degas | bkg cpm | total counts | count time min | Known activity dpm | t1 (days) end-degas to flush | t2 (days) end-flush to count | t3 (days) Std Ref Date to count | Decay from Std Ref Date to count |
|--------------|---------------|-----------------|--------------------|---------------------------|------------------------|---------|--------------|----------------|--------------------|------------------------------|------------------------------|---------------------------------|----------------------------------|
| 301          | 1.867         | Average         | 1/20/2009 11:05    | 1/19/2009 10:10           | 1/19/2009 15:45        | 0.267   | 9355         | 30             | 311.83             | 9.76736                      | 1.03819                      | 3324                            | 0.9961                           |
| 301          | 2.184         | Stdev           | 1/29/2009 11:50    | 1/29/2009 8:50            | 1/28/2009 13:00        | 0.267   | 6239         | 30             | 207.97             | 2.82639                      | 0.12500                      | 3333                            | 0.9961                           |
| 301          | 2.011         |                 | 1/26/2009 14:35    | 1/26/2009 9:25            | 1/22/2009 9:10         | 0.267   | 7282         | 30             | 242.73             | 4.01042                      | 0.21528                      | 3331                            | 0.9961                           |
| 302          | 2.082         | Average         | 1/30/2009 11:30    | 1/30/2009 8:30            | 1/28/2009 13:00        | 0.267   | 7401         | 30             | 246.70             | 3.81250                      | 0.12500                      | 3334                            | 0.9961                           |
| 302          | 2.225         | Stdev           | 1/29/2009 13:30    | 1/29/2009 9:20            | 1/28/2009 13:00        | 0.233   | 6335         | 30             | 211.17             | 2.84722                      | 0.17361                      | 3334                            | 0.9961                           |
| 302          | 2.086         |                 | 1/26/2009 15:30    | 1/26/2009 9:55            | 1/22/2009 9:10         | 0.267   | 7555         | 30             | 251.83             | 4.03125                      | 0.23264                      | 3331                            | 0.9961                           |
| 303          | 1.958         | Average         | 1/20/2009 13:40    | 1/19/2009 11:00           | 1/19/2009 15:45        | 0.267   | 9695         | 30             | 323.17             | 9.80208                      | 1.11111                      | 3325                            | 0.9961                           |
| 303          | 2.218         | Stdev           | 1/22/2009 20:35    | 1/22/2009 10:05           | 1/19/2009 15:00        | 0.267   | 5938         | 30             | 197.93             | 2.79514                      | 0.43750                      | 3327                            | 0.9961                           |
| 303          | 2.231         |                 | 1/26/2009 17:20    | 1/26/2009 10:25           | 1/22/2009 9:10         | 0.267   | 8028         | 30             | 267.60             | 4.05208                      | 0.28819                      | 3331                            | 0.9961                           |

|     |       |         |                 |                 |                 |       |      |    |        |         |         |      |        |
|-----|-------|---------|-----------------|-----------------|-----------------|-------|------|----|--------|---------|---------|------|--------|
| 305 | 1.897 | Average | 1/20/2009 14:50 | 1/19/2009 11:35 | 1/19/2009 15:45 | 0.200 | 9357 | 30 | 311.90 | 9.82639 | 1.13542 | 3325 | 0.9961 |
| 305 | 2.191 | Stdev   | 1/22/2009 21:50 | 1/22/2009 11:05 | 1/19/2009 15:00 | 0.267 | 5921 | 30 | 197.37 | 2.83681 | 0.44792 | 3327 | 0.9961 |
| 305 | 2.083 |         | 1/26/2009 23:00 | 1/26/2009 11:20 | 1/22/2009 9:10  | 0.267 | 7280 | 30 | 242.67 | 4.09028 | 0.48611 | 3331 | 0.9961 |
| 306 | 1.730 | Average | 1/20/2009 15:20 | 1/19/2009 11:50 | 1/19/2009 15:45 | 0.167 | 8521 | 30 | 284.03 | 9.83681 | 1.14593 | 3325 | 0.9961 |
| 306 | 1.891 | Stdev   | 1/29/2009 14:30 | 1/29/2009 10:20 | 1/28/2009 13:00 | 0.233 | 4869 | 30 | 162.30 | 2.88889 | 0.17361 | 3334 | 0.9961 |
| 306 | 1.821 |         | 1/26/2009 23:30 | 1/26/2009 11:50 | 1/22/2009 9:10  | 0.267 | 6387 | 30 | 212.90 | 4.11111 | 0.48611 | 3331 | 0.9961 |
| 307 | 1.818 | Average | 1/20/2009 15:50 | 1/19/2009 12:05 | 1/19/2009 15:45 | 0.267 | 8944 | 30 | 298.13 | 9.84722 | 1.15625 | 3325 | 0.9961 |
| 307 | 2.095 | Stdev   | 1/30/2009 12:55 | 1/30/2009 9:10  | 1/28/2009 13:00 | 0.267 | 7442 | 30 | 248.07 | 3.84028 | 0.15625 | 3335 | 0.9961 |
| 307 | 1.881 |         | 1/27/2009 0:05  | 1/26/2009 12:10 | 1/22/2009 9:10  | 0.267 | 6598 | 30 | 219.93 | 4.12500 | 0.49653 | 3331 | 0.9961 |
| 308 | 2.129 | Average | 1/29/2009 15:50 | 1/29/2009 11:05 | 1/28/2009 13:00 | 0.133 | 6149 | 30 | 204.97 | 2.92014 | 0.19792 | 3334 | 0.9961 |
| 308 | 1.858 | Stdev   | 1/23/2009 9:35  | 1/22/2009 13:45 | 1/19/2009 15:00 | 0.267 | 4829 | 30 | 160.97 | 2.94792 | 0.82639 | 3327 | 0.9961 |
| 308 | 1.862 |         | 1/27/2009 8:30  | 1/26/2009 13:15 | 1/22/2009 9:10  | 0.267 | 6226 | 30 | 207.53 | 4.17014 | 0.80208 | 3331 | 0.9961 |
| 309 | 1.857 | Average | 1/20/2009 17:20 | 1/19/2009 13:35 | 1/19/2009 15:45 | 0.033 | 9149 | 30 | 304.97 | 9.90972 | 1.15625 | 3325 | 0.9961 |
| 309 | 1.964 | Stdev   | 1/23/2009 10:30 | 1/22/2009 14:05 | 1/19/2009 15:00 | 0.267 | 5100 | 30 | 170.00 | 2.96181 | 0.85069 | 3327 | 0.9961 |
| 309 | 1.810 |         | 1/27/2009 9:05  | 1/26/2009 13:30 | 1/22/2009 9:10  | 0.267 | 6046 | 30 | 201.53 | 4.18056 | 0.81597 | 3331 | 0.9961 |

|     |       |         |                 |                 |                 |       |      |    |        |         |         |      |        |
|-----|-------|---------|-----------------|-----------------|-----------------|-------|------|----|--------|---------|---------|------|--------|
| 311 | 2.140 | Average | 1/29/2009 16:40 | 1/29/2009 11:20 | 1/28/2009 13:00 | 0.267 | 6176 | 30 | 205.87 | 2.93056 | 0.22222 | 3334 | 0.9961 |
| 311 | 2.212 | Stdev   | 1/23/2009 12:20 | 1/22/2009 14:25 | 1/19/2009 15:00 | 0.267 | 5698 | 30 | 189.93 | 2.97569 | 0.91319 | 3328 | 0.9961 |
| 311 | 1.988 |         | 1/27/2009 10:15 | 1/26/2009 13:45 | 1/22/2009 9:10  | 0.267 | 6607 | 30 | 220.23 | 4.19097 | 0.85417 | 3331 | 0.9961 |
| 312 | 1.871 | Average | 1/20/2009 19:16 | 1/19/2009 14:10 | 1/19/2009 15:45 | 0.100 | 9135 | 30 | 304.50 | 9.93403 | 1.21250 | 3325 | 0.9961 |
| 312 | 2.014 | Stdev   | 1/29/2009 17:10 | 1/29/2009 11:35 | 1/28/2009 13:00 | 0.167 | 5814 | 30 | 193.80 | 2.94097 | 0.23264 | 3334 | 0.9961 |
| 312 | 1.946 |         | 1/27/2009 11:10 | 1/26/2009 14:00 | 1/22/2009 9:10  | 0.267 | 6446 | 30 | 214.87 | 4.20139 | 0.88194 | 3331 | 0.9961 |

K0 2/3/09



Ra-226 Verification Sheet

#3

| Sample ID         | Volume (mL)    | End Degas Date/Time      | End De-em Date/Time      | Start Count Date/Time    | Cell #         | Det #        | Background CPM | Total Counts    |
|-------------------|----------------|--------------------------|--------------------------|--------------------------|----------------|--------------|----------------|-----------------|
| Ca1143            | 500            | 11/26/09 1300            | 11/26/09 0850            | 11/26/09 1150            | 301            | 3            | 8              | 6239            |
| Ca1147            | 500            | 11/26/09 1300            | 11/26/09 0920            | 11/26/09 1330            | 302            | 3            | 7              | 6335            |
| Ca1149            | 500            | 11/26/09 1300            | 11/26/09 0450            | 11/26/09 1400            | 304            | 3            | 2              | 6472            |
| Ca1130            | 500            | 11/26/09 1300            | 11/26/09 1020            | 11/26/09 1430            | 306            | 3            | 7              | 4809            |
| <del>Ca1142</del> | <del>500</del> | <del>11/26/09 1300</del> | <del>11/26/09 1045</del> | <del>11/26/09 1515</del> | <del>307</del> | <del>3</del> | <del>3</del>   | <del>6008</del> |
| Ca1144            | 500            | 11/26/09 1300            | 11/26/09 1105            | 11/26/09 1550            | 308            | 3            | 4              | 6149            |
| Ca1115            | 500            | 11/26/09 1300            | 11/26/09 1120            | 1/29/09 1640             | 311            | 3            | 8              | 6176            |
| Ca1144            | 500            | 11/26/09 1300            | 11/26/09 1135            | 1/29/09 1710             | 312            | 3            | 5              | 5814            |
| Ca1113            | 500            | 11/26/09 1300            |                          |                          |                |              |                |                 |
| Ca1128            | 500            | 11/26/09 1300            |                          |                          |                |              |                |                 |
| Ca1136            | 500            | 11/26/09 1300            |                          |                          |                |              |                |                 |
| Ca1137            | 500            | 11/26/09 1300            |                          |                          |                |              |                |                 |
|                   |                |                          |                          |                          |                |              |                |                 |
|                   |                |                          |                          |                          |                |              |                |                 |
|                   |                |                          |                          |                          |                |              |                |                 |
|                   |                |                          |                          |                          |                |              |                |                 |
|                   |                |                          |                          |                          |                |              |                |                 |
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|                   |                |                          |                          |                          |                |              |                |                 |
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|                   |                |                          |                          |                          |                |              |                |                 |

100  
2/13/09  
140 2/13/09

140  
2/13/09  
140  
2/13/09

100 2/13/09

Ra-226 Verification Sheet

| Sample ID         | Volume (mL)    | End Degas Date/Time     | End De-em Date/Time     | Start Count Date/Time                           | Cell #         | Det #        | Background CPM | Total Counts    |
|-------------------|----------------|-------------------------|-------------------------|---|----------------|--------------|----------------|-----------------|
| Cal 43            | 500            | 11/9/09 1545            | 11/9/09 1010            | 11/20/09 1105                                   | 301            | 3            | 8              | 9355            |
| <del>Cal 44</del> | <del>500</del> | <del>11/9/09 1545</del> | <del>11/9/09 1040</del> | <del>11/20/09 1150</del>                        | <del>302</del> | <del>3</del> | <del>8</del>   | <del>8433</del> |
| Cal 19            | 500            | 11/9/09 1545            | 11/9/09 1100            | 11/20/09 1340                                   | 303            | 3            | 8              | 9095            |
| <del>Cal 20</del> | <del>500</del> | <del>11/9/09 1545</del> | <del>11/9/09 1140</del> | <del>11/20/09 1440</del>                        | <del>304</del> | <del>3</del> | <del>8</del>   | <del>1050</del> |
| Cal 42            | 500            | 11/9/09 1545            | 11/9/09 1135            | 11/20/09 1450                                   | 305            | 3            | 5              | 9357            |
| Cal 44            | 500            | 11/9/09 1545            | 11/9/09 1150            | 11/20/09 1520<br>11/20/09 1440<br>11/20/09 1440 | 306            | 3            | 7              | 8521            |
| Cal 15            | 500            | 11/9/09 1545            | 11/9/09 1205            | 11/20/09 1550                                   | 307            | 3            | 8              | 8944            |
| <del>Cal 14</del> | <del>500</del> | <del>11/9/09 1545</del> | <del>11/9/09 1315</del> | <del>11/20/09 1645</del>                        | <del>308</del> | <del>3</del> | <del>3</del>   | <del>6938</del> |
| Cal 13            | 500            | 11/9/09 1545            | 11/9/09 1325            | 11/20/09 1720                                   | 309            | 3            | 1              | 9149            |
| <del>Cal 28</del> | <del>500</del> | <del>11/9/09 1545</del> | <del>11/9/09 1355</del> | <del>11/20/09 1840</del>                        | <del>311</del> | <del>3</del> | <del>8</del>   | <del>8648</del> |
| Cal 36            | 500            | 11/9/09 1545            | 11/9/09 1410            | 11/20/09 1916                                   | 312            | 3            | 1              | 9135            |
| <del>Cal 27</del> | <del>500</del> | <del>11/9/09 1545</del> |                         |   |                |              |                |                 |
|                   |                |                         |                         |   |                |              |                |                 |
|                   |                |                         |                         |   |                |              |                |                 |
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K20  
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# Verification for Ra-226 Standard 0299-G

| 4/2/2008 | Isotope   | Detector CPM | BKG CPM | NET CPM   | Detector Eff | Standard Mass. Used (G) | Source DPM/G |
|----------|-----------|--------------|---------|-----------|--------------|-------------------------|--------------|
| D. Roy   | 0299-G N1 | 2536.9600    | 52.4000 | 2484.5600 | 1.917186     | 0.5057                  | 2562.667649  |
|          | 0299-G N2 | 2520.2500    | 52.4000 | 2467.8500 | 1.917186     | 0.5056                  | 2545.935781  |
|          | 0299-G N3 | 2532.5000    | 52.4000 | 2480.1000 | 1.917186     | 0.5042                  | 2565.677715  |
|          |           |              |         |           |              | Average =               | 2558.093715  |

Mean Value (Counting) = 2558.093715  
 Stdev = 10.63610098

104.944421 Pass  
 0.00415782 Rule 3 (Pass/Fail)

Certificate Value = 2437.6 dpm/mL  
 Lower Limit = 2536.821513 dpm/mL  
 Upper Limit = 2579.365917 dpm/mL  
 Rule 1 Pass/Fail Fail \*exception taken due to full recovery of standard  
 Two sigma = 21.27220197 dpm/mL  
 10 % of Mean = 255.8093715 dpm/mL  
 Rule 2 (Pass/Fail) Pass

## Verification Rules

- Rule 1 = The certificate value (NOT including any uncertainty) shall lie within the 95% confidence interval determined from the mean and two sigma standard deviation of the three measurements
- Rule 2 = The two sigma value used for the 95% confidence interval shall not exceed 10% of the mean value of the three verification measurements.
- Rule 3 = The determined mean value shall be within 10% of the certificate value.

The analyst prepared three standard verification sources for Ra-226 source 0299-G by transferring portions of the standard into tared glass liquid scintillation vials. One mL of DI Water and ten mLs of Ready Gel liquid scintillation cocktail was added to each vial and the vials were shaken to mix. A Blank vial was prepared in a similar fashion using 1 mL of DI water and 10 mL of Ready Gel cocktail. The standard verification vials and Background source were dark adapted for two hours and counted on LSC Gold for Radium source standard verification. The Ra-226 efficiency calibration which was used for verification calculations was performed on 4/02/08 using source 0024-A (Ra-226). Calibration data is recorded in this logbook under Ra-226 0024. Each verification source calculation was performed as follows:

$$\text{Source dpm/g} = (A - B)/(C)(D)$$

where:

- A = Ver. source cpm,
- B = BKG cpm,
- C = System efficiency, (cpm/dpm), and
- D = mass used for standard verification.

IRAD-SOP-M-001

*Handwritten notes:*  
 5/10/08  
 M. N. 2310  
 1.5 ml water for 3 vials



# Standard Traceability Log Rad

| Source Material Info |                | A Solution Material Info |                |
|----------------------|----------------|--------------------------|----------------|
| Parent Code:         | 0299           | Isotope:                 | Radium-226     |
| Prepared By:         | Angela Johnson | Prepared By:             | Angela Johnson |
| Carrier Conc:        | 0.5 M HCL      | Prep Date:               | 09/15/2000     |
| Reference Date:      | 12/15/1999     | Verification Date:       | 01/23/2008     |
| Ampoule Mass (g):    | 5.0368 g       | Expiration Date:         | 01/23/2009     |
| Uncertainty:         | +/- 2.5 %      | Primary Code:            | 0299-A         |
| LogBook No:          | RC S 027 128   | Dilution(mL):            | 100 mL         |
|                      |                | Mass of Parent(g):       | 4.6634 g       |
|                      |                | Density(g/mL):           | 1.0012         |
|                      |                | Balance ID:              |                |

### Calculations Converting parent activity to dpm/mL|dpm/g

$$(\text{Mass of parent(g)}) * (\text{Parm Activity (kBq/g)}) * (\text{conversion dpm to kBq}) / (\text{Dilution Vol}) = \text{Parent Activity (dpm/mL)}$$

$$(\text{Mass of parent(g)}) * (\text{Parm Activity (kBq/g)}) * (\text{conversion dpm to kBq}) / \text{Density (g/mL)} / (\text{Dilution Vol}) = \text{Parent Activity (dpm/g)}$$

$$(4.6634 \text{ g}) * (43.75 \text{ kBq/g}) * (60000 \text{ dpm/kBq}) / (100 \text{ mL}) = 122414.2500 \text{ dpm/mL}$$

$$(4.6634 \text{ g}) * (43.75 \text{ kBq/g}) * (60000 \text{ dpm/kBq}) / (1.0012 \text{ g/mL}) / (100 \text{ mL}) = 122273.3377 \text{ dpm/g}$$

### Secondary Standards

| Prep Date  | Preparer       | Mass Primary | Dilution (mL) | Code   | Conc dpm/mL      | Verification Date | Expiration Date |
|------------|----------------|--------------|---------------|--------|------------------|-------------------|-----------------|
| 08/26/2003 | Angela Johnson | 1.9909       | 100           | 0299-E | 2434.34 dpm/mL   | 11/04/2004        | 11/04/2005      |
| 08/26/2003 | Angela Johnson | 1.9872       | 100           | 0299-F | 2429.82 dpm/mL   | 08/26/2004        | 08/26/2005      |
| 04/05/2005 | Amanda Fehr    | 5.0018       | 250           | 0299-G | 2446.3471 dpm/mL | 04/02/2008        | 04/02/2009      |

GEL Laboratories LLC  
Version 1.0 9/18/2000

LD 2/3/09  
ALLA 2/4/09

## General Engineering Laboratories Verification Source Preparation Sheet

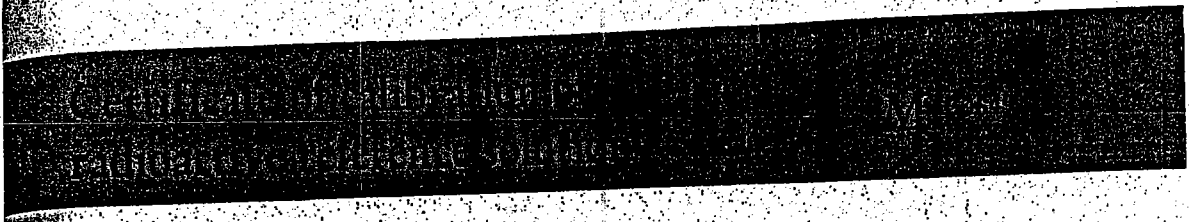
Applicable SOP Number GL RAD A 008 Isotope RA 221  
 Date Standards Prepared 4/15/09 Cocktail Type Used NA  
 Standard ID 02896 Matrix of Vial/Planchett NA  
 Amount Used (g or ml) 0.1 NA  
 Standard Activity (DPM/g or ml) 2446.347 Type of Scintillation Vial NA  
 Reference Date 12/15/99 Pipette ID Used 1429303  
 Expiration Date 4/12/09 Balance ID Used 30040216  
 Residue/Carrier Agent 0.5 M HCl Quenching Agent NA

|    | Standard Number | Quenching Vol (uL)<br>Residue Volume (mL) | Initial Wt.<br>(g) | Final Wt.<br>(g) | Net Wt.<br>(mg) |
|----|-----------------|---|--------------------|------------------|-----------------|
| 43 | Cal 43          |   |                    |                  |                 |
| 47 | Cal 47          |   |                    |                  |                 |
| 19 | Cal 19          |   |                    |                  |                 |
| 30 | Cal 30          |   |                    |                  |                 |
| 42 | Cal 42          |   |                    |                  |                 |
| 44 | Cal 44          |   |                    |                  |                 |
| 15 | Cal 15          |   |                    |                  |                 |
| 14 | Cal 14          |   |                    |                  |                 |
| 13 | Cal 13          |   |                    |                  |                 |
| 28 | Cal 28          |   |                    |                  |                 |
| 36 | Cal 36          |   |                    |                  |                 |
|    |                 |   |                    |                  |                 |
|    |                 |   |                    |                  |                 |
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|    |                 |   |                    |                  |                 |

160  
2/3/09

Prepared By: Kelli Brown Date: 2/3/09  
 Reviewed By: Raymond Jones Date: 2/4/09

0299



UKAS ACCREDITED CALIBRATION LABORATORY No. 0146

|   |   |
|---|---|
| Reference time for solution number R4/131/89: | 1200 GMT on 15 December 1999              |
| Radioactive concentration of radium-226:      | 43.75 kilobecquerels per gram of solution |
| which is equivalent to:                       | 1.183 microcuries per gram of solution    |
| Mass of solution:                             | 5.0368 grams                              |
| Total activity of radium-226:                 | 220.4 kilobecquerels                      |
| which is equivalent to:                       | 5.956 microcuries                         |
| Recommended half life:                        | 1600 years                                |

Method of measurement:  
The activity of the solution was measured using a high pressure re-entrant ionisation chamber calibrated with a large number of absolutely standardised solutions.

Calibration date: 15 December 1999

The calibration date is provided for added information only, and must not be confused with the reference date on pages 1 and 2 of the certificate. It is the reference date that must be used in all calculations relating to the values of activity.

Expanded uncertainty in the radioactive concentration quoted above:  $\pm 2.5\%$

Combined Type A uncertainty:  $\pm 0.2\%$

Combined Type B uncertainty:  $\pm 1.3\%$

Radiochemical The estimated activities of any radioactive impurities found by high-resolution gamma ray spectrometry, or in any other examination of the solution, are listed below expressed as percentages of the activity of the principal radionuclide at the reference time.

Chemical Carrier free in 0.5M HCL

Remarks This product meets the quality assurance requirements for achieving traceability to NIST as defined in ANSI N42.22-1995.

1 year = 365.25 days

At the reference date radium-226 was shown to be in radioactive equilibrium with its daughter nuclides down the decay chain to polonium-214 and thallium-210, the precursors of lead-210. The ionisation chamber was calibrated using a standard supplied by the National Institute of Standards and Technology, Washington DC, USA.

KB 21/3/09  
WMA 21/11/09

# Ra-226 WATER

Batch : LCSVER  
 Date : 1/2/2009  
 Analyst : KSD1

Procedure Code : LUC26RAL  
 Parmname : Radium-226  
 MDA : 1 pCi/L

Instrument Used : LUCAS CELL DETECTOR

Bkg Count Time: 30 min

| Sample ID | Sample Vol L | Count Time min | Gross counts cts | Cell # num | Cell Const. num | BKG cpm | Ra-226 MDA pCi/L | Ra-226 RESULT pCi/L | Ra-226 ERROR pCi/L | COUNT DATE/TIME |
|-----------|--------------|----------------|------------------|------------|-----------------|---------|------------------|---------------------|--------------------|-----------------|
| 1         | 0.500        | 30             | 656              | 301        | 2.021           | 0.267   | 0.4919           | 20.0589             | 1.5634             | 1/30/2009 15:05 |
| 1         | 0.500        | 30             | 655              | 302        | 2.131           | 0.267   | 0.5554           | 22.6149             | 1.7640             | 2/2/2009 13:40  |
| 2         | 0.500        | 30             | 914              | 303        | 2.136           | 0.267   | 0.4647           | 26.4838             | 1.7397             | 1/30/2009 15:40 |
| 3         | 0.500        | 30             | 791              | 305        | 2.057           | 0.267   | 0.4845           | 23.8718             | 1.6891             | 1/30/2009 17:05 |
| 4         | 0.500        | 30             | 768              | 306        | 1.747           | 0.267   | 0.5709           | 27.2885             | 1.9605             | 1/30/2009 17:37 |
| 2         | 0.500        | 30             | 720              | 307        | 1.931           | 0.267   | 0.6113           | 27.3779             | 2.0335             | 2/2/2009 14:15  |
| 5         | 0.500        | 30             | 730              | 308        | 1.950           | 0.267   | 0.5149           | 23.3957             | 1.7254             | 1/30/2009 19:05 |
| 6         | 0.500        | 30             | 764              | 309        | 1.877           | 0.267   | 0.5908           | 28.0944             | 2.0238             | 1/31/2009 10:20 |
| 7         | 0.500        | 30             | 594              | 311        | 2.114           | 0.267   | 0.5510           | 20.3087             | 1.6667             | 1/31/2009 17:20 |
| 8         | 0.500        | 30             | 542              | 312        | 1.944           | 0.267   | 0.8009           | 26.8983             | 2.3154             | 2/2/2009 8:25   |

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| Sample ID | Cell # | Det # | Run Date        | Sample Type | Standard ID | NC    | NC units | Recovery/RPD |
|-----------|--------|-------|-----------------|-------------|-------------|-------|----------|--------------|
| 1         | 301    | 3     | 1/30/2009 10:40 | LCS         | 0638-F      | 24.10 | pCi/L    | 83%          |
| 2         | 302    | 3     | 2/2/2009 9:15   | LCS         | 0638-F      | 24.10 | pCi/L    | 94%          |
| 2         | 303    | 3     | 1/30/2009 11:05 | LCS         | 0638-F      | 24.10 | pCi/L    | 110%         |
| 3         | 305    | 3     | 1/30/2009 11:30 | LCS         | 0638-F      | 24.10 | pCi/L    | 99%          |
| 4         | 306    | 3     | 1/30/2009 11:45 | LCS         | 0638-F      | 24.10 | pCi/L    | 113%         |
| 2         | 307    | 3     | 2/2/2009 9:40   | LCS         | 0638-F      | 24.10 | pCi/L    | 114%         |
| 5         | 308    | 3     | 1/30/2009 12:00 | LCS         | 0638-F      | 24.10 | pCi/L    | 97%          |
| 3         | 309    | 3     | 1/30/2009 13:05 | LCS         | 0638-F      | 24.10 | pCi/L    | 117%         |
| 7         | 311    | 3     | 1/30/2009 13:20 | LCS         | 0638-F      | 24.10 | pCi/L    | 84%          |
| 8         | 312    | 3     | 1/30/2009 13:40 | LCS         | 0638-F      | 24.10 | pCi/L    | 112%         |

| DEGASSING DATE/TIME | DE-EMAN. DATE/TIME | DEGASS-DE-EM | dE-EM-COUNT | constant | constant | Net CPM | Ingrowth constant |
|---------------------|--------------------|--------------|-------------|----------|----------|---------|-------------------|
| 1/26/2009 16:05     | 1/30/2009 10:40    | 90.58        | 4.42        | 0.9672   | 1.0019   | 21.6000 | 0.4800            |
| 1/30/2009 10:00     | 2/2/2009 9:15      | 71.25        | 4.42        | 0.9672   | 1.0019   | 21.5667 | 0.4032            |
| 1/26/2009 16:05     | 1/30/2009 11:05    | 91.00        | 4.58        | 0.9660   | 1.0019   | 30.1997 | 0.4809            |
| 1/26/2009 16:05     | 1/30/2009 11:30    | 91.42        | 5.58        | 0.9587   | 1.0019   | 26.1000 | 0.4788            |
| 1/26/2009 16:05     | 1/30/2009 11:45    | 91.67        | 5.87        | 0.9567   | 1.0019   | 25.3330 | 0.4787            |
| 1/30/2009 10:00     | 2/2/2009 9:40      | 71.67        | 4.58        | 0.9660   | 1.0019   | 23.7330 | 0.4044            |
| 1/26/2009 16:05     | 1/30/2009 12:00    | 91.92        | 7.08        | 0.9479   | 1.0019   | 24.0667 | 0.4753            |
| 1/26/2009 16:05     | 1/30/2009 13:05    | 93.00        | 21.25       | 0.8518   | 1.0019   | 25.1997 | 0.4305            |
| 1/26/2009 16:05     | 1/30/2009 13:20    | 93.25        | 28.00       | 0.8095   | 1.0019   | 19.5330 | 0.4099            |
| 1/26/2009 16:05     | 1/30/2009 13:40    | 93.58        | 66.75       | 0.6041   | 1.0019   | 17.7997 | 0.3067            |

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 LEWA 2141.04

Ra-226 Verification Sheet

#3

| Sample ID        | Volume (mL) | End Degas Date/Time | End De-em Date/Time | Start Count Date/Time                    | Cell # | Det # | Background CPM | Total Counts |
|------------------|-------------|---------------------|---------------------|--|--------|-------|----------------|--------------|
| VER 1            | 500         | 11/20/09 1605       | 11/20/09 1040       | 11/20/09 1505                            | 301    | 3     | 8              | 656          |
| VER 2            | 500         | 11/20/09 1605       | 11/20/09 1105       | 11/20/09 1540                            | 303    | 3     | 8              | 914          |
| VER 3            | 500         | 11/20/09 1605       | 11/20/09 1130       | 11/30/09 1705                            | 305    | 3     | 8              | 791          |
| VER 4            | 500         | 11/20/09 1605       | 11/20/09 1145       | <del>11/20/09 1737</del><br>1.31.09 1020 | 306    | 3     | 8              | 768          |
| VER 5            | 500         | 11/20/09 1605       | 11/20/09 1200       | <del>11/30/09 1905</del><br>1.31.09 1020 | 308    | 3     | 8              | 730          |
| VER 6            | 500         | 11/20/09 1605       | 11/20/09 1305       | 1.31.09 1020                             | 309    | 3     | 8              | 764          |
| VER 7            | 500         | 11/20/09 1605       | 11/20/09 1320       | 13/09 1720                               | 311    | 3     | 8              | 594          |
| VER 8            | 500         | 11/20/09 1605       | 11/20/09 1340       | 11/109 0805                              | 312    | 3     | 8              | 542          |
| <del>VER 9</del> | 500         | 11/20/09 1605       |                     |  |        |       |                |              |
| VER 10           | 500         | 11/20/09 1605       |                     |  |        |       |                |              |
| VER 11           | 500         | 11/20/09 1605       |                     |  |        |       |                |              |
| VER 12           | 500         | 11/20/09 1605       |                     |  |        |       |                |              |
|                  |             |                     |                     |  |        |       |                |              |
|                  |             |                     |                     |  |        |       |                |              |
|                  |             |                     |                     |  |        |       |                |              |
|                  |             |                     |                     |  |        |       |                |              |
|                  |             |                     |                     |  |        |       |                |              |
|                  |             |                     |                     |  |        |       |                |              |
|                  |             |                     |                     |  |        |       |                |              |
|                  |             |                     |                     |  |        |       |                |              |

VER 2/3/09

11/20/09

Ra-226 Verification Sheet

| Sample ID | Volume (mL) | End Degas Date/Time | End De-em Date/Time | Start Count Date/Time | Cell # | Det # | Background CPM | Total Counts |
|-----------|-------------|---------------------|---------------------|-----------------------|--------|-------|----------------|--------------|
| WV 1      | 500         | 11/20/09 1000       | 2/2/09 0015         | 2/2/09 1340           | 304    | 3     | 8              | 655          |
| WV 2      | 500         | 11/20/09 1000       | 2/2/09 0040         | 2/2/09 1415           | 307    | 3     | 8              | 120          |
| WV 3      | 500         | 1/30/09 1000        | 2/2/09 1115         | 2/2/09 1450           | 309    | 3     | 8              | 754          |
|           |             |                     |                     |                       |        |       |                |              |
|           |             |                     |                     |                       |        |       |                |              |
|           |             |                     |                     |                       |        |       |                |              |
|           |             |                     |                     |                       |        |       |                |              |
|           |             |                     |                     |                       |        |       |                |              |
|           |             |                     |                     |                       |        |       |                |              |
|           |             |                     |                     |                       |        |       |                |              |
|           |             |                     |                     |                       |        |       |                |              |
|           |             |                     |                     |                       |        |       |                |              |
|           |             |                     |                     |                       |        |       |                |              |
|           |             |                     |                     |                       |        |       |                |              |
|           |             |                     |                     |                       |        |       |                |              |
|           |             |                     |                     |                       |        |       |                |              |

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## Verification for Ra-226 Standard 0638-F

| D. Roy<br>2/2/2009             | Isotope     | Value  | Uncertainty               |
|--------------------------------|-------------|--------|---------------------------|
|                                | 0638-F #1   | 24.629 | 1.7426                    |
|                                | 0638-F #2   | 24.438 | 1.7557                    |
|                                | 0638-F #3   | 22.791 | 1.6808                    |
| <b>Mean Value (Counting) =</b> | 23.953      | 99.60  | <b>Pass</b>               |
| <b>Stdev =</b>                 | 1.010781096 |        | <b>Rule 3 (Pass/Fail)</b> |
| <b>Target =</b>                | 24.05       |        |                           |
| <b>Lower Limit =</b>           | 21.93100448 |        |                           |
| <b>Upper Limit =</b>           | 25.97412886 |        |                           |
| <b>Rule 1 Pass/Fail</b>        | <b>Pass</b> |        |                           |
| <b>Two sigma =</b>             | 2.021562191 |        |                           |
| <b>10 % of Mean =</b>          | 2.395256667 |        |                           |
| <b>Rule 2 (Pass/Fail)</b>      | <b>Pass</b> |        |                           |

- Rule 1 = The certificate value (NOT including any uncertainty) shall lie within the 95% confidence interval determined from the mean and two sigma standard deviation of the three measurements**
- Rule 2 = The two sigma value used for the 95% confidence interval shall not exceed 10% of the mean value of the three verification measurements.**
- Rule 3 = The determined mean value shall be within 5% of the certificate value.**

The analyst prepared three standard verification sources for standard 0638-F using 0.1 mL for each source. Each source was counted using routine Lucas cell procedures. Calibration for 0299-G was used in this verification.

140 24109  
*[Handwritten Signature]*  
 Amanda L. Lehn  
 2/2/09

## General Engineering Laboratories Verification Source Preparation Sheet

Applicable SOP Number GL-RAD-008 Isotope Pb-226  
 Date Standards Prepared <sup>2/11/09</sup> 12/18/2007 Cocktail Type Used N/A  
 Standard ID 0630-F Matrix of Vial/Planchett N/A  
 Amount Used (g or ml) 0.1 ml Type of Scintillation Vial N/A  
 Standard Activity (DPM/g or mL) 267.519 dpm/ml Pipette ID Used 1429303  
 Reference Date 1/23/2004 Balance ID Used N/A  
 Expiration Date 2/14/09 Quenching Agent N/A  
 Residue/Carrier Agent 0.1 ml H<sub>2</sub>O

|    | Standard Number | Quenching Vol (uL)/<br>Residue Volume (mL) | Initial Wt.<br>(g) | Final Wt.<br>(g) | Net Wt.<br>(mg) |
|----|-----------------|--|--------------------|------------------|-----------------|
| 1  | Ver 1           |  |                    |                  |                 |
| 2  | Ver 2           |  |                    |                  |                 |
| 3  | Ver 3           |  |                    |                  |                 |
| 4  | Ver 4           |  |                    |                  |                 |
| 5  | Ver 5           |  |                    |                  |                 |
| 6  | Ver 6           |  |                    |                  |                 |
| 7  | Ver 7           |  |                    |                  |                 |
| 8  | Ver 8           |  |                    |                  |                 |
| 9  | Ver 9           |  |                    |                  |                 |
| 10 | Ver 10          |  |                    |                  |                 |
| 11 | Ver 11          |  |                    |                  |                 |
| 12 | Ver 12          |  |                    |                  |                 |
|    |                 |  |                    |                  |                 |
|    |                 |  |                    |                  |                 |
|    |                 |  |                    |                  |                 |
|    |                 |  |                    |                  |                 |
|    |                 |  |                    |                  |                 |
|    |                 |  |                    |                  |                 |
|    |                 |  |                    |                  |                 |
|    |                 |  |                    |                  |                 |

*LO 2/13/09*

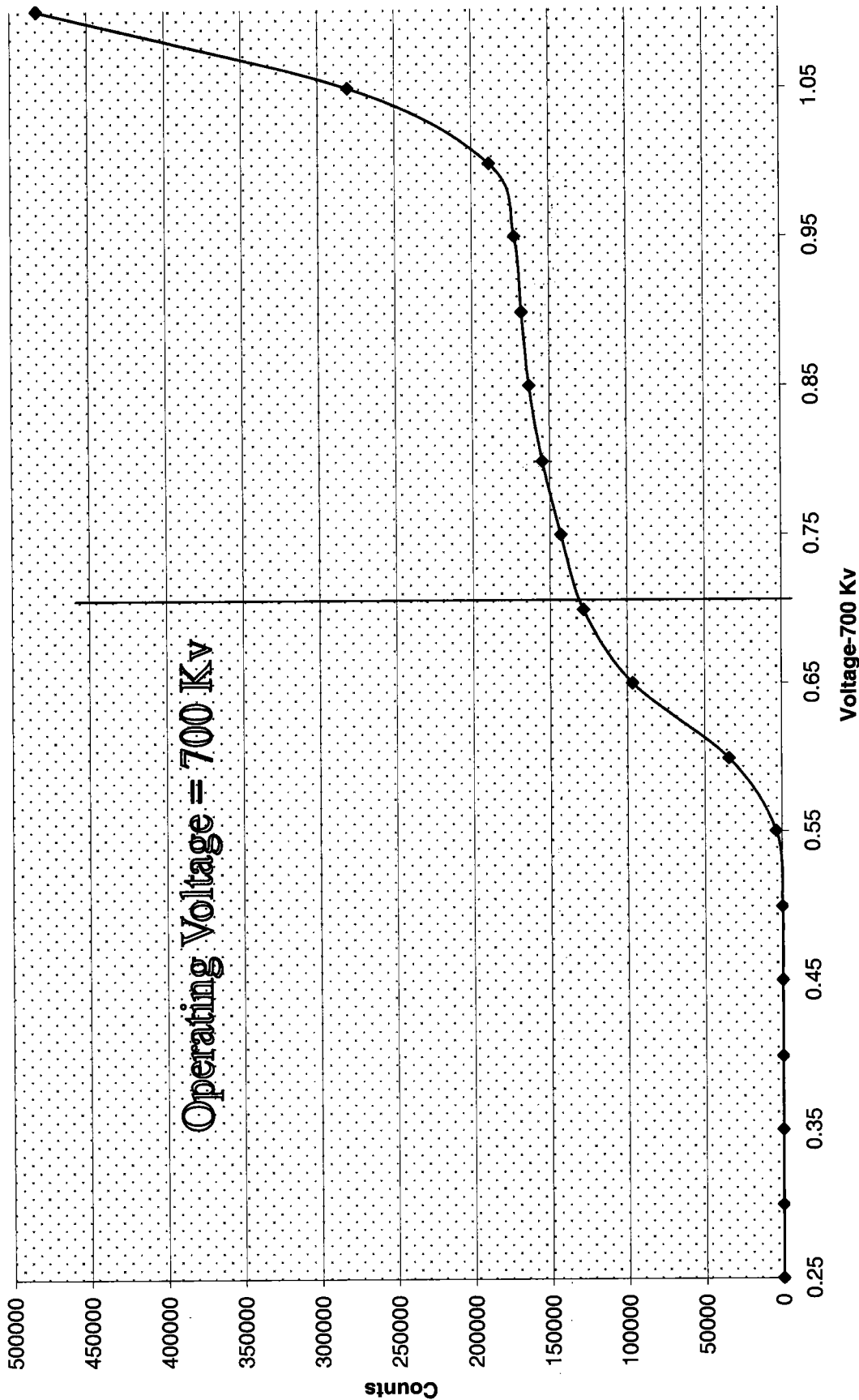
Prepared By: Kelli Brunell Date 2/13/09  
 Reviewed By: [Signature] Date 2/14/09

Voltage Curve 1-09

| Voltage Curve Ludlum # 3 |        |           |       |          |
|--------------------------|--------|-----------|-------|----------|
| Volts                    | Counts | Date      | Time  | Detector |
| 0.00                     | 0      | 1/20/2009 | 13:45 | 3        |
| 0.05                     | 0      | 1/20/2009 | 13:46 | 3        |
| 0.10                     | 0      | 1/20/2009 | 13:47 | 3        |
| 0.15                     | 0      | 1/20/2009 | 13:48 | 3        |
| 0.20                     | 0      | 1/20/2009 | 13:49 | 3        |
| 0.25                     | 0      | 1/20/2009 | 14:00 | 3        |
| 0.30                     | 0      | 1/20/2009 | 14:01 | 3        |
| 0.35                     | 0      | 1/20/2009 | 14:02 | 3        |
| 0.40                     | 0      | 1/20/2009 | 14:03 | 3        |
| 0.45                     | 0      | 1/20/2009 | 14:04 | 3        |
| 0.50                     | 0      | 1/20/2009 | 14:05 | 3        |
| 0.55                     | 3914   | 1/20/2009 | 14:06 | 3        |
| 0.60                     | 34392  | 1/20/2009 | 14:07 | 3        |
| 0.65                     | 96643  | 1/20/2009 | 14:08 | 3        |
| 0.70                     | 128361 | 1/20/2009 | 14:09 | 3        |
| 0.75                     | 142888 | 1/20/2009 | 14:10 | 3        |
| 0.80                     | 154583 | 1/20/2009 | 14:11 | 3        |
| 0.85                     | 163087 | 1/20/2009 | 14:12 | 3        |
| 0.90                     | 167801 | 1/20/2009 | 14:13 | 3        |
| 0.95                     | 172317 | 1/20/2009 | 14:14 | 3        |
| 1.00                     | 188508 | 1/20/2009 | 14:15 | 3        |

LLA 2/4/09  
 LW  
 2/3/09

# Ludlum 3 Voltage Curve



LCM  
2/11/09

KO 213109

|     |       |          |
|-----|-------|----------|
| 301 | 2.021 | 2/4/2009 |
| 302 | 2.131 | 2/4/2009 |
| 303 | 2.136 | 2/4/2009 |
| 305 | 2.057 | 2/4/2009 |
| 306 | 1.747 | 2/4/2009 |
| 307 | 1.931 | 2/4/2009 |
| 308 | 1.950 | 2/4/2009 |
| 309 | 1.877 | 2/4/2009 |
| 311 | 2.114 | 2/4/2009 |
| 312 | 1.944 | 2/4/2009 |

RE UT  
2/4/09

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RE UT  
2/4/09

# General Engineering Laboratories

2040 Savage Road, Charleston, SC 29414

(843)556-8171

## Lucas Cell Calibration Package

|  | YES | NO | Comments |
|--|-----|----|----------|
| 1) Is all calibration standard information enclosed for:<br>the primary standard certificate?<br>the secondary standard(s) documentation?<br>standard preparation information?<br>standard < 1 Year old or verified? | ✓   |    |          |
|  | ✓   |    |          |
|  | ✓   |    |          |
|  | ✓   |    |          |
| 2) Is the efficiency calibration report included?  | ✓   |    |          |
| 3) Is the raw count data included for:<br>Cell constant determination?<br>Plateau generation?  | ✓   |    |          |
|  | ✓   |    |          |
| 4) Are the calibration verifications included?   | ✓   |    |          |
| 5) Are the instrument settings included:<br>HVPS settings?   | ✓   |    |          |
|  |     |    |          |
| 6) Has the CELLEFF.xls file been updated?  | ✓   |    |          |
| 7) Have the calibration dates been updated in ALPHALIMS?   | ✓   |    |          |

Prepared By: Kelli Dorrel

Date: 2/28/09

Reviewed By: Angela Johnson

Date: 3/2/09

Effective Date: 3/2/09

# Ra-226 Cell Constants

Standard Reference date : 12/15/1999  
 standard ID : 0.299-G  
 Volume added (mL) : 0.1  
 Standard Reference Activity (DPM/mL) : 2446.35

| Lucas cell # | Call constant | Standard Source | Date/Time of count | Date/Time flushed to cell | Date/Time end of degas | bkg cpm | total counts | count time min | cpm    | Known activity dpm | 11 (days) end-degas to flush | 12 (days) end-flush to count | 13 (days) Std Ref Date to count | Decay from Std Ref Date to count |
|--------------|---------------|-----------------|--------------------|---------------------------|------------------------|---------|--------------|----------------|--------|--------------------|------------------------------|------------------------------|---------------------------------|----------------------------------|
| 401          | 1.689         | Average         | 2/23/2009 16:15    | 2/23/2009 10:30           | 2/20/2009 17:25        | 0.267   | 4580         | 30             | 152.67 | 243.66             | 2.71181                      | 0.23958                      | 3359                            | 0.9960                           |
| 401          | 1.585         | Stdev           | 2/27/2009 13:15    | 2/27/2009 9:00            | 2/23/2009 16:05        | 0.267   | 5474         | 30             | 182.47 | 243.66             | 3.70486                      | 0.17708                      | 3363                            | 0.9960                           |
| 401          | 1.448         |                 | 2/25/2009 14:40    | 2/25/2009 7:55            | 2/20/2009 17:25        | 0.267   | 5677         | 30             | 189.23 | 243.66             | 4.60417                      | 0.28125                      | 3361                            | 0.9960                           |
| 402          | 2.133         | Average         | 2/23/2009 16:55    | 2/23/2009 11:05           | 2/20/2009 17:25        | 0.267   | 5817         | 30             | 193.90 | 243.66             | 2.73611                      | 0.24306                      | 3359                            | 0.9960                           |
| 402          | 2.173         | Stdev           | 2/27/2009 14:10    | 2/27/2009 9:30            | 2/23/2009 16:05        | 0.267   | 7507         | 30             | 250.23 | 243.66             | 3.72569                      | 0.19444                      | 3363                            | 0.9960                           |
| 402          | 2.048         |                 | 2/25/2009 15:25    | 2/25/2009 8:15            | 2/20/2009 17:25        | 0.267   | 8017         | 30             | 267.23 | 243.66             | 4.61806                      | 0.29861                      | 3361                            | 0.9960                           |
| 403          | 1.475         | Average         | 2/23/2009 18:30    | 2/23/2009 11:30           | 2/20/2009 17:25        | 0.267   | 4011         | 30             | 133.70 | 243.66             | 2.75347                      | 0.29167                      | 3359                            | 0.9960                           |
| 403          | 1.495         | Stdev           | 2/27/2009 14:50    | 2/27/2009 10:00           | 2/23/2009 16:05        | 0.267   | 5182         | 30             | 172.73 | 243.66             | 3.74853                      | 0.20139                      | 3363                            | 0.9960                           |
| 403          | 1.419         |                 | 2/25/2009 15:55    | 2/25/2009 8:35            | 2/20/2009 17:25        | 0.267   | 5582         | 30             | 185.40 | 243.66             | 4.63194                      | 0.30556                      | 3361                            | 0.9960                           |
| 404          | 1.792         | Average         | 2/23/2009 19:05    | 2/23/2009 13:10           | 2/20/2009 17:25        | 0.267   | 5005         | 30             | 166.83 | 243.66             | 2.82292                      | 0.24653                      | 3359                            | 0.9960                           |
| 404          | 2.142         | Stdev           | 2/27/2009 15:25    | 2/27/2009 10:30           | 2/23/2009 16:05        | 0.267   | 7443         | 30             | 248.10 | 243.66             | 3.76736                      | 0.20486                      | 3363                            | 0.9960                           |
| 404          | 1.859         |                 | 2/25/2009 20:20    | 2/25/2009 8:55            | 2/20/2009 17:25        | 0.267   | 7075         | 30             | 235.83 | 243.66             | 4.64583                      | 0.47569                      | 3361                            | 0.9960                           |
| 405          | 2.066         | Average         | 3/2/2009 13:40     | 3/2/2009 10:30            | 2/25/2009 14:00        | 0.267   | 8602         | 30             | 286.73 | 243.66             | 4.85417                      | 0.13194                      | 3366                            | 0.9960                           |
| 405          | 1.899         | Stdev           | 2/27/2009 16:00    | 2/27/2009 10:55           | 2/23/2009 16:05        | 0.267   | 6612         | 30             | 220.40 | 243.66             | 3.78472                      | 0.21181                      | 3363                            | 0.9960                           |
| 405          | 1.745         |                 | 2/25/2009 20:55    | 2/25/2009 10:10           | 2/20/2009 17:25        | 0.267   | 6721         | 30             | 224.03 | 243.66             | 4.69792                      | 0.44792                      | 3361                            | 0.9960                           |
| 409          | 1.805         | Average         | 2/24/2009 0:30     | 2/23/2009 15:20           | 2/20/2009 17:25        | 0.267   | 5039         | 30             | 167.97 | 243.66             | 2.91319                      | 0.38194                      | 3359                            | 0.9960                           |
| 409          | 2.153         | Stdev           | 2/3/2009 21:10     | 2/3/2009 15:00            | 1/30/2009 10:50        | 0.267   | 7949         | 30             | 264.97 | 243.67             | 4.17361                      | 0.25694                      | 3339                            | 0.9960                           |
| 409          | 2.149         |                 | 2/27/2009 16:35    | 2/27/2009 11:30           | 2/23/2009 16:05        | 0.267   | 7516         | 30             | 250.53 | 243.66             | 3.80903                      | 0.21181                      | 3363                            | 0.9960                           |
| 410          | 1.869         | Average         | 2/26/2009 8:50     | 2/25/2009 13:05           | 2/20/2009 17:25        | 0.267   | 6838         | 30             | 227.93 | 243.66             | 4.31944                      | 0.82292                      | 3361                            | 0.9960                           |
| 410          | 1.965         | Stdev           | 2/4/2009 8:30      | 2/3/2009 15:30            | 1/30/2009 10:50        | 0.267   | 6708         | 30             | 223.60 | 243.67             | 4.19444                      | 0.70853                      | 3339                            | 0.9960                           |
| 410          | 1.824         |                 | 2/24/2009 8:00     | 2/23/2009 15:40           | 2/20/2009 17:25        | 0.267   | 4840         | 30             | 161.33 | 243.66             | 2.92708                      | 0.68056                      | 3359                            | 0.9960                           |
| 411          | 1.824         | Average         | 2/24/2009 8:40     | 2/23/2009 15:55           | 2/20/2009 17:25        | 0.267   | 4839         | 30             | 161.30 | 243.66             | 2.93750                      | 0.69792                      | 3359                            | 0.9960                           |
| 411          | 1.911         | Stdev           | 2/27/2009 17:45    | 2/27/2009 12:20           | 2/23/2009 16:05        | 0.267   | 6357         | 30             | 211.90 | 243.66             | 3.84375                      | 0.22569                      | 3363                            | 0.9960                           |
| 411          | 1.836         |                 | 2/26/2009 9:30     | 2/25/2009 13:40           | 2/20/2009 17:25        | 0.267   | 6734         | 30             | 224.47 | 243.66             | 4.84375                      | 0.82639                      | 3361                            | 0.9960                           |
| 412          | 1.947         | Average         | 2/26/2009 10:15    | 2/25/2009 14:05           | 2/20/2009 17:25        | 0.267   | 7137         | 30             | 237.90 | 243.66             | 4.86111                      | 0.84028                      | 3361                            | 0.9960                           |
| 412          | 2.131         | Stdev           | 2/27/2009 18:20    | 2/27/2009 12:45           | 2/23/2009 16:05        | 0.267   | 7495         | 30             | 249.83 | 243.66             | 3.86111                      | 0.23264                      | 3363                            | 0.9960                           |
| 412          | 1.822         |                 | 2/24/2009 9:40     | 2/23/2009 16:10           | 2/20/2009 17:25        | 0.267   | 4818         | 30             | 160.60 | 243.66             | 2.94792                      | 0.72917                      | 3359                            | 0.9960                           |

EffErr 0.123705 <- Put in Machines.xls (Lucas Cell Tab)

*Angela J. ... 3/2/09*  
*Miki Dowell 3/2/09*

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|     |       |          |
|-----|-------|----------|
| 401 | 1.574 | 3/2/2009 |
| 402 | 2.118 | 3/2/2009 |
| 403 | 1.463 | 3/2/2009 |
| 404 | 1.931 | 3/2/2009 |
| 405 | 1.903 | 3/2/2009 |
| 409 | 2.036 | 3/2/2009 |
| 410 | 1.886 | 3/2/2009 |
| 411 | 1.824 | 3/2/2009 |
| 412 | 1.967 | 3/2/2009 |



## General Engineering Laboratories Verification Source Preparation Sheet

Applicable SOP Number GLRAD-A-008 Isotope Pu-239  
 Date Standards Prepared 4/15/09 Cocktail Type Used NA  
 Standard ID 02996 Matrix of Vial/Planchett NA  
 Amount Used (g or ml) 0.1 Type of Scintillation Vial NA  
 Standard Activity (DPM/g or mL) 2446.347 Pipette ID Used 1429303  
 Reference Date 4/15/09 Balance ID Used 3604026  
 Expiration Date 4/15/09 Quenching Agent NA  
 Residue/Carrier Agent 0.5M HCl

|    | Standard Number | Quenching Vol (uL)<br>Residue Volume(mL) | Initial Wt.<br>(g) | Final Wt.<br>(g) | Net Wt.<br>(mg) |
|----|-----------------|--|--------------------|------------------|-----------------|
| 3  | CA13            |  |                    |                  |                 |
| 43 | CA143           |  |                    |                  |                 |
| 7  | CA17            |  |                    |                  |                 |
| 42 | CA142           |  |                    |                  |                 |
| 13 | CA143           |  |                    |                  |                 |
| 44 | CA144           |  |                    |                  |                 |
| 30 | CA130           |  |                    |                  |                 |
| 48 | CA148           |  |                    |                  |                 |
| 36 | CA136           |  |                    |                  |                 |
| 35 | CA135           |  |                    |                  |                 |
| 38 | CA138           |  |                    |                  |                 |
| 15 | CA115           |  |                    |                  |                 |
| 14 | CA114           |  |                    |                  |                 |
| 46 | CA146           |  |                    |                  |                 |
| 47 | CA147           |  |                    |                  |                 |

*W 3/2/09*

Prepared By: Kell Deneo Date: 3/2/09  
 Reviewed By: Angie J. Ghera Date: 3/2/09

Rev 1 RLM 9/10/97

### General Engineering Laboratories Verification Source Preparation Sheet

Applicable SOP Number GL-RAD-008 Isotope RA-226  
 Date Standards Prepared 4/15/09 Cocktail Type Used NA  
 Standard ID 0299G Matrix of Vial/Planchett NA  
 Amount Used (g or ml) 0.103109 g 0.1 NA  
 Standard Activity (DPM/g or mL) 2.446.347 Type of Scintillation Vial NA  
 Reference Date 12/15/99 Pipette ID Used 1429305  
 Expiration Date 4/12/09 Balance ID Used 36040216  
 Residue/Carrier Agent 0.5M HCl Quenching Agent NA

|    | Standard Number | Quenching Vol (uL)<br>Residue Volume (mL) | Initial Wt.<br>(g) | Final Wt.<br>(g) | Net Wt.<br>(mg) |
|----|-----------------|---|--------------------|------------------|-----------------|
| 16 | CA116           |   |                    |                  |                 |
| 25 | CA125           |   |                    |                  |                 |
| 23 | CA123           |   |                    |                  |                 |
| 18 | CA128           |   |                    |                  |                 |
| 9  | CA19            |   |                    |                  |                 |
| 34 | CA134           |   |                    |                  |                 |
|    |                 |   |                    |                  |                 |
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Prepared By: Vikki Dorena Date: 3/2/09  
 Reviewed By: Aylee A. G... Date: 3/2/09  
 Rev 1 RLM 9/10/97

# Standard Traceability Log Rad

| Source Material Info |                | A Solution Material Info |                |
|----------------------|----------------|--------------------------|----------------|
| Parent Code:         | 0299           | Isotope:                 | Radium-226     |
| Prepared By:         | Angela Johnson | Prepared By:             | Angela Johnson |
| Carrier Conc:        | 0.5 M HCL      | Prep Date:               | 09/15/2000     |
| Reference Date:      | 12/15/1999     | Verification Date:       | 01/23/2008     |
| Ampoule Mass (g):    | 5.0368 g       | Expiration Date:         | 01/23/2009     |
| Uncertainty:         | +/- 2.5 %      | Primary Code:            | 0299-A         |
| LogBook No:          | RC S 027 128   | Dilution(mL):            | 100 mL         |
|                      |                | Mass of Parent(g):       | 4.6634 g       |
|                      |                | Density(g/mL):           | 1.0012         |
|                      |                | Balance ID:              |                |

312

## Calculations Converting parent activity to dpm/mL|dpm/g

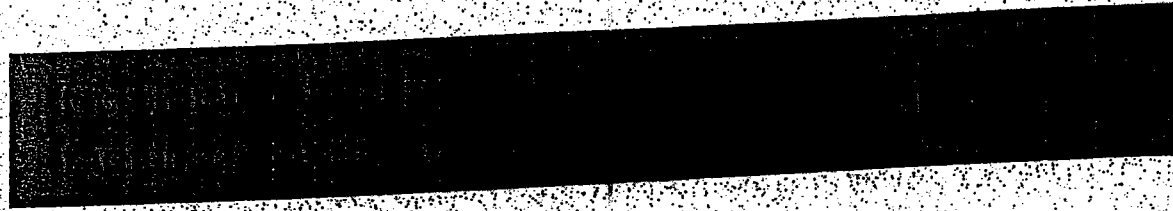
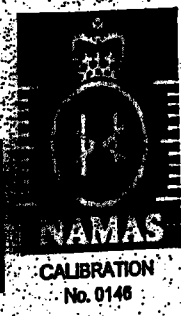
|   |
|---|
| $(\text{Mass of parent(g)}) * (\text{Parent Activity (kBq/g)}) * (\text{conversion dpm to kBq}) / (\text{Dilution Vol}) = \text{Parent Activity (dpm/mL)}$                        |
| $(\text{Mass of parent(g)}) * (\text{Parent Activity (kBq/g)}) * (\text{conversion dpm to kBq}) / \text{Density (g/mL)} / (\text{Dilution Vol}) = \text{Parent Activity (dpm/g)}$ |
| $(4.6634 \text{ g}) * (43.75 \text{ kBq/g}) * (60000 \text{ dpm/kBq}) / (100 \text{ mL}) = 122414.2500 \text{ dpm/mL}$  |
| $(4.6634 \text{ g}) * (43.75 \text{ kBq/g}) * (60000 \text{ dpm/kBq}) / (1.0012 \text{ g/mL}) / (100 \text{ mL}) = 122273.3377 \text{ dpm/g}$                                     |

## Secondary Standards

| Prep Date  | Preparer       | Mass Primary | Dilution (mL) | Code   | Conc dpm/mL      | Verification Date | Expiration Date |
|------------|----------------|--------------|---------------|--------|------------------|-------------------|-----------------|
| 08/26/2003 | Angela Johnson | 1.9909       | 100           | 0299-E | 2434.34 dpm/mL   | 11/04/2004        | 11/04/2005      |
| 08/26/2003 | Angela Johnson | 1.9872       | 100           | 0299-F | 2429.82 dpm/mL   | 08/26/2004        | 08/26/2005      |
| 04/05/2005 | Amanda Fehr    | 5.0018       | 250           | 0299-G | 2446.3471 dpm/mL | 04/02/2008        | 04/02/2009      |

8-21-00  
Nycomed Amersham plc  
Amersham Laboratories

0299



Nycomed Amersham plc  
Radiation & Radioactivity  
Calibration Laboratory  
Amersham Laboratories  
White Lion Road  
Amersham  
Buckinghamshire  
HP7 9LL

ISSUED  
FOR:

AEA Technology plc  
Isotrak  
Amersham Laboratories  
White Lion Road  
Amersham  
Buckinghamshire  
HP7 9LL

ion Principal radionuclide: Radium-226

Product code: RAY44  
Solution number: R4/131/89

ment Reference time: 1200 GMT on 15 December 1999

data Nuclear data quoted on this certificate are taken from the Joint European File, Version 2.2.

ion of The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor  $k = 2.00$ , which  
inties for a  $t$ -distribution with  $\nu_{eff} = \infty$  effective degrees of freedom corresponds to a coverage probability of approximately  
95%. The uncertainty evaluation has been carried out in accordance with UKAS requirements.

Unless indicated, all other uncertainties are expressed at the confidence level associated with one standard  
uncertainty.

The format used for the uncertainties in the values of radionuclidic purity is illustrated in the following examples;

|           |   |               |
|-----------|---|---------------|
| 6.5(21)   | - | 6.5 ± 2.1     |
| 6.54(21)  | - | 6.54 ± 0.21   |
| 6.543(21) | - | 6.543 ± 0.021 |

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Date of  
issue 17<sup>th</sup> December 1999

Nycomed  
Amersham

# Verification for Ra-226 Standard 0299-G

| 4/2/2008 | Isotope   | Detector CPM | BKG CPM | NET CPM   | Detector Eff | Standard Mass. Used (G) | Source DPM/G |
|----------|-----------|--------------|---------|-----------|--------------|-------------------------|--------------|
| D. Roy   | 0299-G N1 | 2536.9600    | 52.4000 | 2484.5600 | 1.917186     | 0.5057                  | 2562.667649  |
|          | 0299-G N2 | 2520.2500    | 52.4000 | 2467.8500 | 1.917186     | 0.5056                  | 2545.935781  |
|          | 0299-G N3 | 2532.5000    | 52.4000 | 2480.1000 | 1.917186     | 0.5042                  | 2565.677715  |
|          |           |              |         |           |              | Average =               | 2558.093715  |

Mean Value (Counting) = 2558.093715      **Pass**  
 Stdev = 10.63610098      0.00415782      **Rule 3 (Pass/Fail)**

Certificate Value = 2437.6      dpm/mL  
 Lower Limit = 2536.821513      dpm/mL  
 Upper Limit = 2579.365917      dpm/mL  
**Rule 1 Pass/Fail**      \*exception taken due to full recovery of standard  
 Two sigma = 21.27220197      dpm/mL  
 10 % of Mean = 255.8093715      dpm/mL  
**Rule 2 (Pass/Fail)**      **Pass**

### Verification Rules

- Rule 1 =** The certificate value (NOT including any uncertainty) shall lie within the 95% confidence interval determined from the mean and two sigma standard deviation of the three measurements
- Rule 2 =** The two sigma value used for the 95% confidence interval shall not exceed 10% of the mean value of the three verification measurements.
- Rule 3 =** The determined mean value shall be within 10% of the certificate value.

The analyst prepared three standard verification sources for Ra-226 source 0299-G by transferring portions of the standard into tared glass liquid scintillation vials. One mL of DI Water and ten mLs of Ready Gel liquid scintillation cocktail was added to each vial and the vials were shaken to mix. A Blank vial was prepared in a similar fashion using 1 mL of DI water and 10 mL of Ready Gel cocktail. The standard verification vials and Background source were dark adapted for two hours and counted on LSC Gold for Radium source standard verification. The Ra-226 efficiency calibration which was used for verification calculations was performed on 4/02/08 using source 0024-A (Ra-226). Calibration data is recorded in this logbook under Ra-226 0024. Each verification source calculation was performed as follows:

$$\text{Source dpm/g} = (A - B)/(C)(D)$$

where:

- A = Ver. source cpm,
- B = BKG cpm,
- C = System efficiency, (cpm/dpm), and
- D = mass used for standard verification.

RAD.SOP.M-001

*Henry St. Johnson 4/19/08*  
*David Dwyer 4/10/08*  
*WMS*

Ra-226 Verification Sheet

Cal #4

| Sample ID     | Volume (mL)     | End Degas Date/Time     | End De-em Date/Time    | Start Count Date/Time  | Cell #         | Det #        | Background CPM | Total Counts    |
|---------------|-----------------|-------------------------|------------------------|------------------------|----------------|--------------|----------------|-----------------|
| <del>40</del> | <del>1050</del> | <del>1130/09 1050</del> | <del>2/3/09 1435</del> | <del>2.3.09 1710</del> | <del>401</del> | <del>4</del> | <del>8</del>   | <del>6763</del> |
| <del>41</del> | <del>1050</del> | <del>1130/09 1050</del> | <del>2/3/09 1510</del> | <del>2.3.09 1800</del> | <del>402</del> | <del>4</del> | <del>8</del>   | <del>9067</del> |
| <del>42</del> | <del>1050</del> | <del>1130/09 1050</del> | <del>2/3/09 1535</del> | <del>2.3.09 1840</del> | <del>403</del> | <del>4</del> | <del>8</del>   | <del>7092</del> |
| <del>43</del> | <del>1050</del> | <del>1130/09 1050</del> | <del>2/3/09 1400</del> | <del>2.3.09 1915</del> | <del>404</del> | <del>4</del> | <del>8</del>   | <del>7877</del> |
| <del>44</del> | <del>1050</del> | <del>1130/09 1050</del> | <del>2/3/09 1435</del> | <del>2.3.09 2035</del> | <del>405</del> | <del>4</del> | <del>8</del>   | <del>8700</del> |
| <del>45</del> | <del>1050</del> | <del>1130/09 1050</del> | <del>2/3/09 1500</del> | <del>2.3.09 2110</del> | <del>409</del> | <del>4</del> | <del>8</del>   | <del>7949</del> |
| <del>46</del> | <del>1050</del> | <del>1130/09 1050</del> | <del>2/3/09 1530</del> | <del>2.4.09 0830</del> | <del>410</del> | <del>4</del> | <del>8</del>   | <del>4108</del> |
| <del>47</del> | <del>1050</del> | <del>1130/09 1050</del> | <del>2/3/09 1545</del> | <del>2.4.09 1015</del> | <del>411</del> | <del>4</del> | <del>8</del>   | <del>7582</del> |
| <del>48</del> | <del>1050</del> | <del>1130/09 1050</del> | <del>2/3/09 1600</del> | <del>2.4.09 1100</del> | <del>412</del> | <del>4</del> | <del>8</del>   | <del>9523</del> |
| <del>49</del> |                 |                         |                        |                        |                |              |                |                 |
| <del>50</del> |                 |                         |                        |                        |                |              |                |                 |
| <del>51</del> |                 |                         |                        |                        |                |              |                |                 |
| <del>52</del> |                 |                         |                        |                        |                |              |                |                 |
| <del>53</del> |                 |                         |                        |                        |                |              |                |                 |
| <del>54</del> |                 |                         |                        |                        |                |              |                |                 |
| <del>55</del> |                 |                         |                        |                        |                |              |                |                 |
| <del>56</del> |                 |                         |                        |                        |                |              |                |                 |
| <del>57</del> |                 |                         |                        |                        |                |              |                |                 |
| <del>58</del> |                 |                         |                        |                        |                |              |                |                 |
| <del>59</del> |                 |                         |                        |                        |                |              |                |                 |
| <del>60</del> |                 |                         |                        |                        |                |              |                |                 |

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Ra-226 Verification Sheet

Cal #4

| Sample ID     | Volume (mL)    | End Degas Date/Time     | End De-em Date/Time     | Start Count Date/Time        | Cell #         | Det #        | Background CPM | Total Counts    |
|---------------|----------------|-------------------------|-------------------------|------------------------------|----------------|--------------|----------------|-----------------|
| Cal 3         | 500            | 2/20/09 1725            | 2/23/09 1030            | 2/23/09 1615                 | 401            | 4            | 0              | 4580            |
| 43            | 500            | 2/20/09 1725            | 2/23/09 1105            | 2/23/09 1655                 | 402            | 4            | 0              | 5877<br>4877    |
| 7             | 500            | 2/20/09 1725            | 2/23/09 1130            | 2.23.09 1930                 | 403            | 4            | 0              | 4011            |
| 42            | 500            | 2/20/09 1725            | 2/23/09 1310            | 2.23.09 1908                 | 404            | 4            | 0              | 5005            |
| <del>13</del> | <del>500</del> | <del>2/20/09 1725</del> | <del>2/23/09 1340</del> | <del>2.23.09 1955</del>      | <del>405</del> | <del>4</del> | <del>0</del>   | <del>4224</del> |
| 3A            | 500            | 2/20/09 1725            | 2/23/09 1405            | 2.23.09 2250                 | 406            | 4            |                | 2355            |
| 44            | 500            | 2/20/09 1725            | 2/23/09 1435            | 2.23.09 2330                 | 407            | 4            |                | 2359            |
| <del>19</del> | <del>500</del> | <del>2/20/09 1725</del> | <del>2/23/09 1455</del> | <del>2.24.09 00:00</del>     | <del>408</del> | <del>4</del> | <del>0</del>   | <del>2598</del> |
| 30            | 500            | 2/20/09 1725            | 2/23/09 1540            | 2.24.09 00:30                | 409            | 4            | 8              | 5887<br>5887    |
| 48            | 500            | 2/20/09 1725            | 2/23/09 1540            | 2/24/09 0800<br>2/24/09 0800 | 410            | 4            | 8              | 4840            |
| 30            | 500            | 2/20/09 1725            | 2/23/09 1555            | 2/24/09 0840                 | 411            | 4            | 8              | 4829            |
| 35            | 500            | 2/20/09 1725            | 2/23/09 1610            | 2/24/09 0940                 | 412            | 4            | 8              | 4878            |
|               |                |                         |                         |                              |                |              |                |                 |
|               |                |                         |                         |                              |                |              |                |                 |
|               |                |                         |                         |                              |                |              |                |                 |
|               |                |                         |                         |                              |                |              |                |                 |
|               |                |                         |                         |                              |                |              |                |                 |
|               |                |                         |                         |                              |                |              |                |                 |
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|               |                |                         |                         |                              |                |              |                |                 |

K40 2/23/09

K40 2/18/09  
K40 2/22/09

2/28/09-140

K40 2/18/09

K40 2/24/09

K40 2/21/09  
3/12/09

K40 3/12/09

#4

Re-226 Verification Sheet

| Sample ID | Volume (mL) | End Degas Date/Time | End De-em Date/Time | Start Count Date/Time  | Cell # | Det # | Background CPM | Total Counts |
|-----------|-------------|---------------------|---------------------|--|--------|-------|----------------|--------------|
| Cal 28    | 500         | 2/20/09 1725        | 2/25/09 0755        | 2/25/09 1440   | 401    | 4     | 8              | 5677         |
| 15        | 500         | 2/20/09 1725        | 2/25/09 0815        | 2/25/09 1525   | 402    | 4     | 8              | 8017         |
| 14        | 500         | 2/20/09 1725        | 2/25/09 0835        | 2/25/09 1555   | 403    | 4     | 8              | 5562         |
| 40        | 500         | 2/20/09 1725        | 2/25/09 0855        | 2.25.09 20:20  | 404    | 4     | 8              | 7075         |
| 47        | 500         | 2/20/09 1725        | 2/25/09 1010        | 2.25.09 20:55  | 405    | 4     | 8              | 6721         |
| 10        | 500         | 2/20/09 1725        | 2/25/09 1040        | <del>2.26.09 20:22</del><br><del>2.25.09 20:55</del><br><del>2.26.09 20:22</del> | 406    | 4     | 8              | 7004         |
| 25        | 500         | 2/20/09 1725        | 2/25/09 1110        | 2.25.09 22:05  | 407    | 4     | 8              | 2827         |
| 23        | 500         | 2/20/09 1725        | 2/25/09 1145        | <del>2.25.09 22:45</del><br><del>2.25.09 22:55</del>                             | 408    | 4     | 8              | 5137         |
| 29        | 500         | 2/20/09 1725        | 2/25/09 1210        | 2/26/09 0810   | 409    | 4     | 8              | 5169         |
| 28        | 500         | 2/20/09 1725        | 2/25/09 1305        | 2/26/09 0850   | 410    | 4     | 8              | 6838         |
| 9         | 500         | 2/20/09 1725        | 2/25/09 1310        | 2/26/09 0930   | 411    | 4     | 8              | 6734         |
| 34        | 500         | 2/20/09 1725        | 2/25/09 1405        | 2/26/09 1015   | 412    | 4     | 8              | 7137         |
|           |             |                     |                     |  |        |       |                |              |
|           |             |                     |                     |  |        |       |                |              |
|           |             |                     |                     |  |        |       |                |              |
|           |             |                     |                     |  |        |       |                |              |
|           |             |                     |                     |  |        |       |                |              |
|           |             |                     |                     |  |        |       |                |              |
|           |             |                     |                     |  |        |       |                |              |
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Ra-226 Verification Sheet

Cal # 4

| Sample ID        | Volume (mL)    | End Degas Date/Time     | End De-em Date/Time     | Start Count Date/Time   | Cell #         | Det #        | Background CPM | Total Counts    |
|------------------|----------------|-------------------------|-------------------------|-------------------------|----------------|--------------|----------------|-----------------|
| Cal 43           | 500            | 2/23/09 1605            | 2/27/09 0930            | 2/27/09 1215            | 401            | 4            | 8              | 5474            |
| Cal 43           | 500            | 2/23/09 1605            | 2/27/09 0930            | 2/27/09 1416            | 402            | 4            | 8              | 7507            |
| Cal 4            | 500            | 2/23/09 1605            | 2/27/09 1000            | 2/27/09 1450            | 403            | 4            | 8              | 5182            |
| Cal 42           | 500            | 2/23/09 1605            | 2/27/09 1030            | 2/27/09 1525            | 404            | 4            | 8              | 7443            |
| Cal 13           | 500            | 2/23/09 1605            | 2/27/09 1055            | 2/27/09 1600            | 405            | 4            | 8              | 6612            |
| Cal 44           | 500            | 2/23/09 1605            | 2/27/09 1130            | 2/27/09 1635            | 409            | 4            | 8              | 7516            |
| <del>Cal 9</del> | <del>500</del> | <del>2/23/09 1605</del> | <del>2/27/09 1150</del> | <del>2/27/09 1715</del> | <del>410</del> | <del>4</del> | <del>8</del>   | <del>7850</del> |
| Cal 40           | 500            | 2/23/09 1605            | 2/27/09 1220            | 2/27/09 1745            | 411            | 4            | 8              | 2357            |
| Cal 40           | 500            | 2/23/09 1605            | 2/27/09 1245            | 2/27/09 1820            | 412            | 4            | 8              | 7495            |
|                  |                |                         |                         |                         |                |              |                |                 |
|                  |                |                         |                         |                         |                |              |                |                 |
|                  |                |                         |                         |                         |                |              |                |                 |
|                  |                |                         |                         |                         |                |              |                |                 |
|                  |                |                         |                         |                         |                |              |                |                 |
|                  |                |                         |                         |                         |                |              |                |                 |
|                  |                |                         |                         |                         |                |              |                |                 |
|                  |                |                         |                         |                         |                |              |                |                 |
|                  |                |                         |                         |                         |                |              |                |                 |
|                  |                |                         |                         |                         |                |              |                |                 |
|                  |                |                         |                         |                         |                |              |                |                 |
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|                  |                |                         |                         |                         |                |              |                |                 |
|                  |                |                         |                         |                         |                |              |                |                 |
|                  |                |                         |                         |                         |                |              |                |                 |
|                  |                |                         |                         |                         |                |              |                |                 |

1603/2/09  
6357  
1600  
2/28/09

NO MEASUREMENT

1600  
312/09



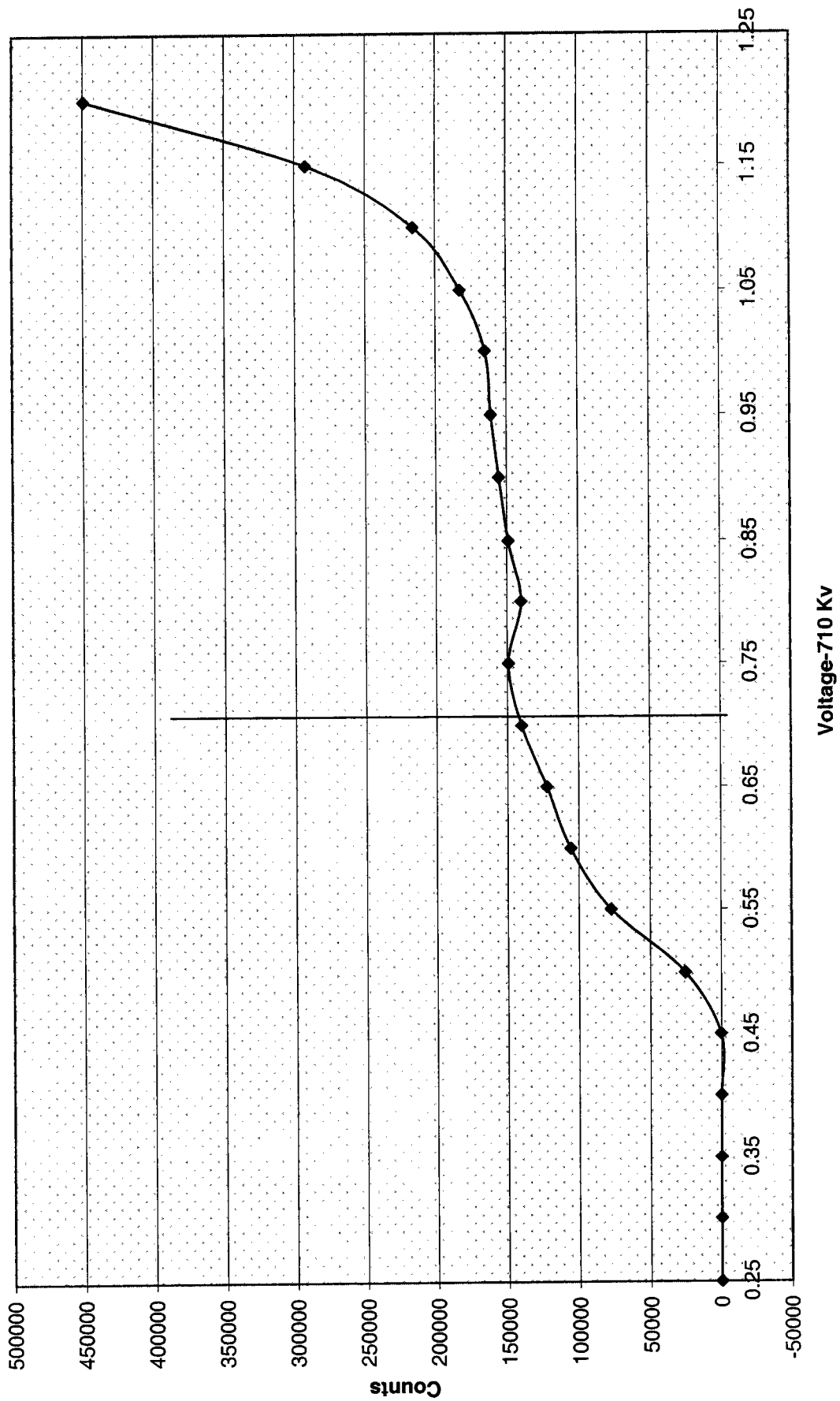
voltage curve -09

| Voltage Curve Ludlum # 4 |        |          |      |          |
|--------------------------|--------|----------|------|----------|
|                          |        |          |      |          |
| Volts (K.V.)             | Counts | Date     | Time | Detector |
| 0.20                     | 0      | 2/2/2009 | 9:00 | 4        |
| 0.25                     | 0      | 2/2/2009 | 9:00 | 4        |
| 0.30                     | 0      | 2/2/2009 | 9:00 | 4        |
| 0.35                     | 0      | 2/2/2009 | 9:00 | 4        |
| 0.40                     | 0      | 2/2/2009 | 9:00 | 4        |
| 0.45                     | 473    | 2/2/2009 | 9:00 | 4        |
| 0.50                     | 25577  | 2/2/2009 | 9:00 | 4        |
| 0.55                     | 77365  | 2/2/2009 | 9:00 | 4        |
| 0.60                     | 105618 | 2/2/2009 | 9:00 | 4        |
| 0.65                     | 122379 | 2/2/2009 | 9:00 | 4        |
| 0.70                     | 140073 | 2/2/2009 | 9:00 | 4        |
| 0.75                     | 149183 | 2/2/2009 | 9:00 | 4        |
| 0.80                     | 140046 | 2/2/2009 | 9:00 | 4        |
| 0.85                     | 149183 | 2/2/2009 | 9:00 | 4        |
| 0.90                     | 155553 | 2/2/2009 | 9:00 | 4        |
| 0.95                     | 161020 | 2/2/2009 | 9:00 | 4        |
| 1.00                     | 165182 | 2/2/2009 | 9:00 | 4        |
| 1.05                     | 182720 | 2/2/2009 | 9:00 | 4        |
| 1.10                     | 215932 | 2/2/2009 | 9:00 | 4        |
| 1.15                     | 292211 | 2/2/2009 | 9:00 | 4        |
| 1.20                     | 449383 | 2/2/2009 | 9:00 | 4        |
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|                          |        |          |      |          |

JAG  
3/2/09

lm 3/2/09

Ludlum 4 Voltage Curve



10/3/04

# General Engineering Laboratories

2040 Savage Road, Charleston, SC 29414  
(843)556-8171

## Lucas Cell Calibration Package

(501-512)

|  | YES                                 | NO | Comments |
|--|-------------------------------------|----|----------|
| 1) Is all calibration standard information enclosed for:<br>the primary standard certificate?<br>the secondary standard(s) documentation?<br>standard preparation information?<br>standard < 1 Year old or verified? | <input checked="" type="checkbox"/> |    |          |
|  | <input checked="" type="checkbox"/> |    |          |
|  | <input checked="" type="checkbox"/> |    |          |
|  | <input checked="" type="checkbox"/> |    |          |
| 2) Is the efficiency calibration report included?  | <input checked="" type="checkbox"/> |    |          |
| 3) Is the raw count data included for:<br>Cell constant determination?<br>Plateau generation?  | <input checked="" type="checkbox"/> |    |          |
|  | <input checked="" type="checkbox"/> |    |          |
| 4) Are the calibration verifications included?   | <input checked="" type="checkbox"/> |    |          |
| 5) Are the instrument settings included:<br>HVPS settings?   | <input checked="" type="checkbox"/> |    |          |
|  | <input checked="" type="checkbox"/> |    |          |
| 6) Has the CELLEFF.xls file been updated?  | <input checked="" type="checkbox"/> |    |          |
| 7) Have the calibration dates been updated in ALPHALIMS?   | <input checked="" type="checkbox"/> |    |          |

Prepared By: Kelli S. Dancer

Date: 3/24/09

Reviewed By: Angela J. Johnson

Date: 3/25/09

Effective Date: 3/25/09

# Ra-226 Cell Constants

standard ID: 0299-E  
Volume added (mL): 0.1  
Standard Reference Activity (DPM/mL): 2434.34

| Lucas cell # | Cell constant | Standard Source | Date/Time of count | Date/time flushed to cell | Date/time end of degas | total counts | count time min | Known activity dpm | t1 (days) end-degas to flush | t2 (days) end-flush to count | t3 (days) Std Ref Date to count | Decay from Std Ref Date to count |        |
|--------------|---------------|-----------------|--------------------|---------------------------|------------------------|--------------|----------------|--------------------|------------------------------|------------------------------|---------------------------------|----------------------------------|--------|
| 501          | 1.927         | 15              | 3/6/2009 7:50      | 3/3/2009 8:15             | 2/25/2009 14:00        | 5281         | 30             | 176.03             | 243.03                       | 5.76042                      | 2.98264                         | 3369                             | 0.9960 |
| 501          | 2.086         | 9               | 3/11/2009 10:40    | 3/10/2009 12:50           | 3/5/2009 14:00         | 7611         | 30             | 253.70             | 243.03                       | 4.95139                      | 0.90972                         | 3374                             | 0.9960 |
| 501          | 2.247         | 42              | 3/12/2009 13:30    | 3/12/2009 9:10            | 3/6/2009 15:25         | 10210        | 30             | 340.33             | 243.03                       | 5.73958                      | 0.18056                         | 3376                             | 0.9960 |
| 502          | 1.772         | 16              | 3/18/2009 8:25     | 3/17/2009 12:50           | 3/10/2009 14:00        | 7951         | 30             | 265.03             | 243.03                       | 6.95739                      | 0.81597                         | 3381                             | 0.9960 |
| 502          | 2.045         | 14              | 3/11/2009 11:15    | 3/10/2009 13:20           | 3/5/2009 14:00         | 7474         | 30             | 249.13             | 243.03                       | 4.97222                      | 0.91319                         | 3374                             | 0.9960 |
| 502          | 1.816         | 19              | 3/12/2009 14:20    | 3/12/2009 9:35            | 3/6/2009 15:25         | 8243         | 30             | 274.77             | 243.03                       | 5.75694                      | 0.19792                         | 3376                             | 0.9960 |
| 503          | 1.581         | 46              | 3/6/2009 9:20      | 3/5/2009 9:20             | 2/25/2009 14:00        | 7250         | 30             | 241.67             | 243.03                       | 7.80556                      | 1.00000                         | 3369                             | 0.9960 |
| 503          | 1.633         | 42              | 3/19/2009 20:15    | 3/19/2009 15:15           | 3/12/2009 12:10        | 8282         | 30             | 276.07             | 243.03                       | 7.12847                      | 0.20833                         | 3383                             | 0.9960 |
| 503          | 1.588         | 44              | 3/12/2009 14:50    | 3/12/2009 10:00           | 3/6/2009 15:25         | 7214         | 30             | 240.47             | 243.03                       | 5.77431                      | 0.20139                         | 3378                             | 0.9960 |
| 504          | 1.592         | 47              | 3/6/2009 10:30     | 3/5/2009 9:40             | 2/25/2009 14:00        | 7282         | 30             | 242.07             | 243.03                       | 7.81944                      | 1.03472                         | 3369                             | 0.9960 |
| 504          | 1.611         | 34              | 3/11/2009 12:30    | 3/10/2009 14:05           | 3/5/2009 14:00         | 5889         | 30             | 196.30             | 243.03                       | 5.00347                      | 0.93403                         | 3375                             | 0.9960 |
| 504          | 1.641         | 19              | 3/19/2009 20:50    | 3/19/2009 15:30           | 3/12/2009 12:10        | 8310         | 30             | 277.00             | 243.03                       | 7.13889                      | 0.22222                         | 3383                             | 0.9960 |
| 505          | 2.364         | 16              | 3/6/2009 12:40     | 3/5/2009 10:05            | 2/25/2009 14:00        | 10654        | 30             | 355.13             | 243.03                       | 7.83681                      | 1.10764                         | 3370                             | 0.9960 |
| 505          | 2.438         | 23              | 3/11/2009 13:00    | 3/10/2009 14:30           | 3/5/2009 14:00         | 8924         | 30             | 297.47             | 243.03                       | 5.02083                      | 0.93750                         | 3375                             | 0.9960 |
| 505          | 2.190         | 7               | 3/12/2009 17:01    | 3/12/2009 10:50           | 3/6/2009 15:25         | 9884         | 30             | 329.47             | 243.03                       | 5.80903                      | 0.25764                         | 3376                             | 0.9960 |
| 506          | 1.902         | 25              | 3/6/2009 13:10     | 3/5/2009 10:30            | 2/25/2009 14:00        | 8576         | 30             | 285.87             | 243.03                       | 7.85417                      | 1.11111                         | 3370                             | 0.9960 |
| 506          | 2.124         | 47              | 3/11/2009 13:30    | 3/10/2009 15:05           | 3/5/2009 14:00         | 7804         | 30             | 260.13             | 243.03                       | 5.04514                      | 0.93403                         | 3375                             | 0.9960 |
| 506          | 1.965         | 13              | 3/12/2009 17:40    | 3/12/2009 11:15           | 3/6/2009 15:25         | 8954         | 30             | 298.47             | 243.03                       | 5.82639                      | 0.26736                         | 3376                             | 0.9960 |
| 507          | 1.708         | 23              | 3/6/2009 13:45     | 3/5/2009 10:55            | 2/25/2009 14:00        | 7695         | 30             | 256.50             | 243.03                       | 7.87153                      | 1.11806                         | 3370                             | 0.9960 |
| 507          | 1.722         | 25              | 3/11/2009 14:20    | 3/10/2009 15:27           | 3/5/2009 14:00         | 6315         | 30             | 210.50             | 243.03                       | 5.06042                      | 0.95347                         | 3375                             | 0.9960 |
| 507          | 1.674         | 43              | 3/12/2009 18:30    | 3/12/2009 11:35           | 3/6/2009 15:25         | 7535         | 30             | 251.17             | 243.03                       | 5.84028                      | 0.28819                         | 3376                             | 0.9960 |
| 508          | 1.605         | 39              | 3/6/2009 14:20     | 3/5/2009 11:25            | 2/25/2009 14:00        | 7236         | 30             | 241.20             | 243.03                       | 7.89236                      | 1.12153                         | 3370                             | 0.9960 |
| 508          | 1.497         | 44              | 3/19/2009 21:30    | 3/19/2009 15:45           | 3/12/2009 12:10        | 7581         | 30             | 252.03             | 243.03                       | 7.14931                      | 0.23958                         | 3383                             | 0.9960 |
| 508          | 1.499         | 3               | 3/12/2009 20:45    | 3/12/2009 12:10           | 3/6/2009 15:25         | 6680         | 30             | 222.67             | 243.03                       | 5.86458                      | 0.35764                         | 3376                             | 0.9960 |
| 509          | 1.730         | 28              | 3/6/2009 14:50     | 3/5/2009 11:45            | 2/25/2009 14:00        | 7795         | 30             | 259.83             | 243.03                       | 7.90625                      | 1.12847                         | 3370                             | 0.9960 |
| 509          | 1.857         | 39              | 3/11/2009 15:25    | 3/10/2009 16:05           | 3/5/2009 14:00         | 6810         | 30             | 227.00             | 243.03                       | 5.08681                      | 0.97222                         | 3375                             | 0.9960 |
| 509          | 1.806         | 36              | 3/12/2009 21:20    | 3/12/2009 12:35           | 3/6/2009 15:25         | 8049         | 30             | 268.30             | 243.03                       | 5.88194                      | 0.36458                         | 3376                             | 0.9960 |
| 510          | 1.460         | 9               | 3/6/2009 15:25     | 3/5/2009 12:10            | 2/25/2009 14:00        | 6578         | 30             | 219.27             | 243.03                       | 7.92361                      | 1.13542                         | 3370                             | 0.9960 |
| 510          | 1.433         | 28              | 3/11/2009 16:05    | 3/10/2009 16:20           | 3/5/2009 14:00         | 5246         | 30             | 174.87             | 243.03                       | 5.09722                      | 0.98958                         | 3375                             | 0.9960 |
| 510          | 1.481         | 35              | 3/12/2009 21:55    | 3/12/2009 12:50           | 3/6/2009 15:25         | 6589         | 30             | 219.63             | 243.03                       | 5.89236                      | 0.37847                         | 3376                             | 0.9960 |
| 511          | 1.839         | 34              | 3/6/2009 16:30     | 3/5/2009 13:20            | 2/25/2009 14:00        | 8316         | 30             | 277.20             | 243.03                       | 7.97222                      | 1.13194                         | 3370                             | 0.9960 |
| 511          | 1.995         | 46              | 3/12/2009 16:50    | 3/10/2009 16:35           | 3/5/2009 14:00         | 7283         | 30             | 242.77             | 243.03                       | 5.10764                      | 1.01042                         | 3375                             | 0.9960 |
| 511          | 2.041         | 37              | 3/12/2009 22:40    | 3/12/2009 13:10           | 3/6/2009 15:25         | 9088         | 30             | 302.27             | 243.03                       | 5.90625                      | 0.39583                         | 3376                             | 0.9960 |
| 512          | 1.796         | 48              | 3/11/2009 17:35    | 3/10/2009 16:50           | 3/5/2009 14:00         | 6542         | 30             | 218.07             | 243.03                       | 5.11806                      | 1.03125                         | 3375                             | 0.9960 |
| 512          | 2.100         | 38              | 3/12/2009 23:15    | 3/12/2009 13:30           | 3/6/2009 15:25         | 9322         | 30             | 310.73             | 243.03                       | 5.92014                      | 0.40625                         | 3376                             | 0.9960 |
| 512          | 1.972         | 48              | 3/18/2009 13:00    | 3/17/2009 14:00           | 3/6/2009 14:00         | 8653         | 30             | 288.43             | 243.03                       | 7.00000                      | 0.95833                         | 3382                             | 0.9960 |

\*Backgrounds are not significant enough to be considered in calculations. ANSI N42.25-1997 (B.2).

Errr 0.143768 <- Put in Machines.xls (Lucas Cell Tab)

Calibration  
Ra-226 Verification-Sheet  
3/14/09

Cal # 5

no 3124109  
3119109

3/19/09

| Sample ID         | Volume (mL)    | End Degas Date/Time     | End De-em Date/Time     | Start Count Date/Time  | Cell #         | Det #        | Background CPM | Total Counts    |
|-------------------|----------------|-------------------------|-------------------------|------------------------|----------------|--------------|----------------|-----------------|
| Cal 15            | 500            | 2/25/09 1400            | 3/3/09 0815             | 3/6/09 0750            | 501            | 5            | 8              | 5781            |
| <del>Cal 14</del> | <del>500</del> | <del>2/25/09 1400</del> | <del>2/27/09 0845</del> | <del>3/6/09 0840</del> | <del>502</del> | <del>5</del> | <del>1</del>   | <del>4700</del> |
|                   |                | 2/25/09 1400            | 3/3/09                  |                        | 503            | 5            | 100 313109     | 6800            |
| Cal 46            | 500            | 2/25/09 1400            | 3/5/09 0920             | 3/6/09 0900            | 503            | 5            | 3              | 7250            |
| Cal 47            | 500            | 2/25/09 1400            | 3/5/09 0940             | 3/6/09 1030            | 504            | 5            | 1              | 7262            |
| Cal 48            | 500            | 2/25/09 1400            | 3/5/09 1005             | 3/6/09 1040            | 505            | 5            | 3              | 10654           |
| Cal 45            | 500            | 2/25/09 1400            | 3/5/09 1030             | 3/6/09 1016            | 506            | 5            | 8              | 8576            |
| Cal 23            | 500            | 2/25/09 1400            | 3/5/09 1055             | 3/6/09 1345            | 507            | 5            | 4              | 7695            |
| Cal 39            | 500            | 2/25/09 1400            | 3/5/09 1125             | 3/6/09 1420            | 508            | 5            | 1              | 7236            |
| Cal 28            | 500            | 2/25/09 1400            | 3/5/09 1145             | 3/6/09 1450            | 509            | 5            | 8              | 7795            |
| Cal 9             | 500            | 2/25/09 1400            | 3/5/09 1210             | 3/6/09 1525            | 510            | 5            | 2              | 6578            |
| Cal 34            | 500            | 2/25/09 1400            | 3/5/09 1220             | 3/6/09 1630            | 511            | 5            | 6              | 8316            |
|                   |                |                         |                         |                        |                |              |                |                 |
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Calibration

Ra-226 Verification Sheet

219 3116109

| Sample ID         | Volume (mL)    | End Degas Date/Time    | End De-em Date/Time     | Start Count Date/Time   | Cell #         | Det #        | Background CPM | Total Counts    |
|-------------------|----------------|------------------------|-------------------------|-------------------------|----------------|--------------|----------------|-----------------|
| Cal 9             | 500            | 3/5/09 1400            | 3/10/09 1250            | 3/11/09 1040            | 501            | 5            | 8              | 7611            |
| Cal 14            | 500            | 3/5/09 1400            | 3/10/09 1370            | 3/11/09 1115            | 502            | 5            | 5              | 7474            |
| <del>Cal 15</del> | <del>500</del> | <del>3/5/09 1400</del> | <del>3/10/09 1345</del> | <del>3/11/09 1155</del> | <del>503</del> | <del>5</del> | <del>8</del>   | <del>7352</del> |
| Cal 16            | 500            | 3/5/09 1400            | 3/10/09 1405            | 3/11/09 1230            | 504            | 5            | 4              | 5889            |
| Cal 17            | 500            | 3/5/09 1400            | 3/10/09 1430            | 3/11/09 1280            | 505            | 5            | 2              | 8924            |
| Cal 17            | 500            | 3/5/09 1400            | 3/10/09 1505            | 3/11/09 1530            | 506            | 5            | 8              | 7804            |
| <del>Cal 18</del> | <del>500</del> | <del>3/5/09 1400</del> | <del>3/10/09 1527</del> | <del>3/11/09 1410</del> | <del>507</del> | <del>5</del> | <del>4</del>   | <del>6315</del> |
| <del>Cal 19</del> | <del>500</del> | <del>3/5/09 1400</del> | <del>3/10/09 1550</del> | <del>3/11/09 1455</del> | <del>508</del> | <del>5</del> | <del>4</del>   | <del>6423</del> |
| Cal 29            | 500            | 3/5/09 1400            | 3/10/09 1605            | 3/11/09 1525            | 509            | 5            | 8              | 6810            |
| Cal 28            | 500            | 3/5/09 1400            | 3/10/09 1620            | 3/11/09 1610            | 510            | 5            | 3              | 5246            |
| Cal 44            | 500            | 3/5/09 1400            | 3/10/09 1635            | 3/11/09 1650            | 511            | 5            | 8              | 7283            |
| Cal 48            | 500            | 3/5/09 1400            | 3/10/09 1650            | 3/11/09 1735            | 512            | 5            | 8              | 6542            |
|                   |                |                        |                         |                         |                |              |                |                 |
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K3124109

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K3116109





Calibration  
 Ra-226 Verification Sheet  
 3/25/09

Cal # 5's

✓  
 3/24/09  
 ✓  
 3/24/09

✓  
 3/25/09

| Sample ID          | Volume (mL)    | End Degas Date/Time     | End De-em Date/Time     | Start Count Date/Time   | Cell #         | Det #        | Background CPM | Total Counts    |
|--------------------|----------------|-------------------------|-------------------------|-------------------------|----------------|--------------|----------------|-----------------|
| Cal 114            | 500            | 3/10/09 1400            | 3/17/09 1250            | 3/18/09 0825            | 502            | 5            | 5              | 7951            |
| <del>Cal 119</del> | <del>500</del> | <del>3/10/09 1400</del> | <del>3/17/09 1325</del> | <del>3/18/09 0855</del> | <del>503</del> | <del>5</del> |                | <del>6855</del> |
| <del>Cal 128</del> | <del>500</del> | <del>3/10/09 1400</del> | <del>3/17/09 1345</del> | <del>3/18/09 1005</del> | <del>504</del> | <del>5</del> |                | <del>6804</del> |
| Cal 140            | 500            | 3/10/09 1400            | 3/17/09 1400            | 3/18/09 1300            | 512            | 5            | 8              | 8053            |
| Cal 125            | 500            | 3/15/09 1400            | 3/10/09 1527            | 3/11/09 1420            | 507            | 5            | 4              | 6315            |
|                    |                |                         |                         |                         |                |              |                |                 |
|                    |                |                         |                         |                         |                |              |                |                 |
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|                    |                |                         |                         |                         |                |              |                |                 |

3/24/09

### Ra-226 Calibration Sheet

Standard ID: 014109  
 Volume Added (mL): 1.1  
 Expiration Date: 4/12/09

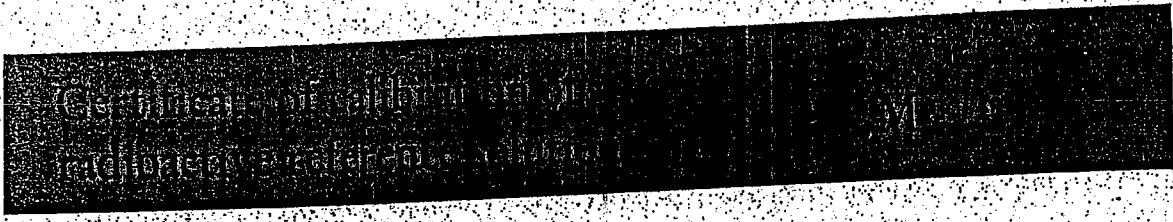
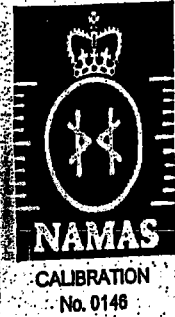
| Sample ID         | Volume (mL)    | End Degas Date/Time     | End De-em Date/Time     | Start Count Date/Time   | Cell #         | Det #        | Total Counts    |
|-------------------|----------------|-------------------------|-------------------------|-------------------------|----------------|--------------|-----------------|
| Cal 42            | 500            | 3/12/09 1210            | 3/12/09 1515            | 3/19/09 2015            | 503            | 85           | 8282            |
| Cal 19            | 500            | 3/12/09 1210            | 3/12/09 1530            | 3/19/09 2050            | 504            | 5            | 8310            |
| Cal 44            | 500            | 3/12/09 1210            | 3/12/09 1545            | 3/19/09 2130            | 508            | 5            | 7561            |
| <del>Cal 30</del> | <del>500</del> | <del>3/12/09 1210</del> | <del>3/12/09 1600</del> | <del>3/19/09 2200</del> | <del>509</del> | <del>5</del> | <del>7442</del> |
|                   |                |                         |                         |                         |                |              |                 |
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|                   |                |                         |                         |                         |                |              |                 |

3/12/09  
 3/12/09

8-21-00

Nycomed Amersham plc  
Amersham Laboratories

0299



Nycomed Amersham plc  
Radiation & Radioactivity  
Calibration Laboratory  
Amersham Laboratories  
White Lion Road  
Amersham  
Buckinghamshire  
HP7 9LL

ISSUED  
FOR:

AEA Technology plc  
Isotrak  
Amersham Laboratories  
White Lion Road  
Amersham  
Buckinghamshire  
HP7 9LL

ion Principal radionuclide: Radium-226

Product code: RAY44  
Solution number: R4/131/89

ment Reference time: 1200 GMT on 15 December 1999

data Nuclear data quoted on this certificate are taken from the Joint European File, Version 2.2.

ion of The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor  $k = 2.00$ , which  
inties for a  $t$ -distribution with  $v_{eff} = \infty$  effective degrees of freedom corresponds to a coverage probability of approximately  
95%. The uncertainty evaluation has been carried out in accordance with UKAS requirements.

Unless indicated, all other uncertainties are expressed at the confidence level associated with one standard  
uncertainty.

The format used for the uncertainties in the values of radionuclidic purity is illustrated in the following examples;

|           |   |               |
|-----------|---|---------------|
| 6.5(21)   | - | 6.5 ± 2.1     |
| 6.54(21)  | - | 6.54 ± 0.21   |
| 6.543(21) | - | 6.543 ± 0.021 |

ved

Date of 329 17<sup>th</sup> December 1999



# Standard Traceability Log Rad

| Source Material Info |                |
|----------------------|----------------|
| Parent Code:         | 0299           |
| Prepared By:         | Angela Johnson |
| Carrier Conc:        | 0.5 M HCL      |
| Reference Date:      | 12/15/1999     |
| Ampoule Mass (g):    | 5.0368 g       |
| Uncertainty:         | +/- 2.5 %      |
| LogBook No:          | RC S 027 128   |

| A Solution Material Info |                |
|--------------------------|----------------|
| Isotope:                 | Radium-226     |
| Prepared By:             | Angela Johnson |
| Prep Date:               | 09/15/2000     |
| Verification Date:       | 01/23/2008     |
| Expiration Date:         | 01/23/2009     |
| Primary Code:            | 0299-A         |
| Dilution(mL):            | 100 mL         |
| Mass of Parent(g):       | 4.6634 g       |
| Density(g/mL):           | 1.0012         |
| Balance ID:              |                |

### Calculations Converting parent activity to dpm/mL|dpm/g

$$(\text{Mass of parent(g)}) * (\text{Parm Activity (kBq/g)}) * (\text{conversion dpm to kBq}) / (\text{Dilution Vol}) = \text{Parent Activity (dpm/mL)}$$

$$(\text{Mass of parent(g)}) * (\text{Parm Activity (kBq/g)}) * (\text{conversion dpm to kBq}) / \text{Density (g/mL)} / (\text{Dilution Vol}) = \text{Parent Activity (dpm/g)}$$

$$(4.6634 \text{ g}) * (43.75 \text{ kBq/g}) * (60000 \text{ dpm/kBq}) / (100 \text{ mL}) = 122414.2500 \text{ dpm/mL}$$

$$(4.6634 \text{ g}) * (43.75 \text{ kBq/g}) * (60000 \text{ dpm/kBq}) / (1.0012 \text{ g/mL}) / (100 \text{ mL}) = 122273.3377 \text{ dpm/g}$$

### Secondary Standards

| Prep Date  | Preparer       | Mass Primary | Dilution (mL) | Code   | Conc dpm/mL      | Verification Date | Expiration Date |
|------------|----------------|--------------|---------------|--------|------------------|-------------------|-----------------|
| 08/26/2003 | Angela Johnson | 1.9909       | 100           | 0299-E | 2434.34 dpm/mL   | 11/04/2004        | 11/04/2005      |
| 08/26/2003 | Angela Johnson | 1.9872       | 100           | 0299-F | 2429.82 dpm/mL   | 08/26/2004        | 08/26/2005      |
| 04/05/2005 | Amanda Fehr    | 5.0018       | 250           | 0299-G | 2446.3471 dpm/mL | 04/02/2008        | 04/02/2009      |

GEL Laboratories LLC  
Version 1.0 9/18/2000

*Kelli Dorell*

# Verification for Ra-226 Standard 0299-G

| 4/2/2008 | Isotope   | Detector CPM | BKG CPM | NET CPM   | Detector Eff | Standard Mass. Used (G) | Source DPM/G |
|----------|-----------|--------------|---------|-----------|--------------|-------------------------|--------------|
| D. Roy   | 0299-G N1 | 2536.9600    | 52.4000 | 2484.5600 | 1.917186     | 0.5057                  | 2562.667649  |
|          | 0299-G N2 | 2520.2500    | 52.4000 | 2467.8500 | 1.917186     | 0.5056                  | 2545.935781  |
|          | 0299-G N3 | 2532.5000    | 52.4000 | 2480.1000 | 1.917186     | 0.5042                  | 2565.677715  |
|          |           |              |         |           |              | Average =               | 2558.093715  |

Mean Value (Counting) = 2558.093715  
 Stdev = 10.63610098

Certificate Value = 2437.6 dpm/mL  
 Lower Limit = 2536.821513 dpm/mL  
 Upper Limit = 2579.365917 dpm/mL  
 Rule 1 Pass/Fail **Fail** \*exception taken due to full recovery of standard  
 Two sigma = 21.27220197 dpm/mL  
 10 % of Mean = 255.8093715 dpm/mL  
 Rule 2 (Pass/Fail) **Pass**

### Verification Rules

- Rule 1 = The certificate value (NOT including any uncertainty) shall lie within the 95% confidence interval determined from the mean and two sigma standard deviation of the three measurements
- Rule 2 = The two sigma value used for the 95% confidence interval shall not exceed 10% of the mean value of the three verification measurements.
- Rule 3 = The determined mean value shall be within 10% of the certificate value.

The analyst prepared three standard verification sources for Ra-226 source 0299-G by transferring portions of the standard into tared glass liquid scintillation vials. One mL of DI Water and ten mLs of Ready Gel liquid scintillation cocktail was added to each vial and the vials were shaken to mix. A Blank vial was prepared in a similar fashion using 1 mL of DI water and 10 mL of Ready Gel cocktail. The standard verification vials and Background source were dark adapted for two hours and counted on LSC Gold for Radium source standard verification. The Ra-226 efficiency calibration which was used for verification calculations was performed on 4/02/08 using source 0024-A (Ra-226). Calibration data is recorded in this logbook under Ra-226 0024. Each verification source calculation was performed as follows:

$$\text{Source dpm/g} = (A - B)/(C)(D)$$

where:

- A = Ver. source cpm,
- B = BKG cpm,
- C = System efficiency, (cpm/dpm), and
- D = mass used for standard verification.

BAD.SOP.M-001

*Handwritten notes:*  
 New Source 3/24/09  
 4/19/08  
 David Dwyer 4/10/08

**General Engineering Laboratories**  
**Verification Source Preparation Sheet**  
*Calibration*

Applicable SOP Number GL RAD-A-008 Isotope RA-226  
 Date Standards Prepared 4/15/09 Cocktail Type Used NA  
 Standard ID 0249-G Matrix of Vial/Planchett NA  
 Amount Used (g or ml) 0.1 NA  
 Standard Activity (DPM/g or ml) 2446.347 Type of Scintillation Vial NA  
 Reference Date 12/15/99 Pipette ID Used 1429303  
 Expiration Date 4/2/09 Balance ID Used 36240216  
 Residue/Carrier Agent D.5M HCl Quenching Agent NA

|    | Standard Number | Quenching Vol (uL)<br>Residue Volume (mL) | Initial Wt.<br>(g) | Final Wt.<br>(g) | Net Wt.<br>(mg) |
|----|-----------------|---|--------------------|------------------|-----------------|
| 15 | Ca115           |   |                    |                  |                 |
| 46 | Ca146           |   |                    |                  |                 |
| 47 | Ca147           |   |                    |                  |                 |
| 16 | Ca116           |   |                    |                  |                 |
| 25 | Ca125           |   |                    |                  |                 |
| 23 | Ca123           |   |                    |                  |                 |
| 39 | Ca139           |   |                    |                  |                 |
| 28 | Ca128           |   |                    |                  |                 |
| 9  | Ca19            |   |                    |                  |                 |
| 34 | Ca134           |   |                    |                  |                 |
| 42 | Ca142           |   |                    |                  |                 |
| 19 | Ca119           |   |                    |                  |                 |
| 44 | Ca144           |   |                    |                  |                 |
| 7  | Ca17            |   |                    |                  |                 |
| 13 | Ca113           |   |                    |                  |                 |

VLD 3/24/09

Prepared By: Kelli D'Amico Date 3/24/09  
 Reviewed By: \_\_\_\_\_ Date \_\_\_\_\_

Rev 1 RLM 9/10/97

**General Engineering Laboratories**  
**Verification Source Preparation Sheet**  
*Calibration*

*3/25/09*

Applicable SOP Number GLDMD-A-008 Isotope DIA 226

Date Standards Prepared 4/5/09 Cocktail Type Used NA

Standard ID 02946 Matrix of Vial/Planchett NA  
NA  
NA

Amount Used (g or ml) 0.1 Type of Scintillation Vial NA

Standard Activity (DPM/g or mL) 2146.347 Pipette ID Used 1429303

Reference Date 12/15/99 Balance ID Used 3604026

Expiration Date 4/2/09 Quenching Agent NA

Residue/Carrier Agent 0.5M HCl

|           | Standard Number | Quenching Vol (uL)/<br>Residue Volume (mL) | Initial Wt.<br>(g) | Final Wt.<br>(g) | Net Wt.<br>(mg) |
|-----------|-----------------|--|--------------------|------------------|-----------------|
| <i>43</i> | <i>Cal 43</i>   |  |                    |                  |                 |
| <i>3</i>  | <i>Cal 3</i>    |  |                    |                  |                 |
| <i>36</i> | <i>Cal 36</i>   |  |                    |                  |                 |
| <i>35</i> | <i>Cal 35</i>   |  |                    |                  |                 |
| <i>37</i> | <i>Cal 37</i>   |  |                    |                  |                 |
| <i>38</i> | <i>Cal 38</i>   |  |                    |                  |                 |
|           |                 |  |                    |                  |                 |
|           |                 |  |                    |                  |                 |
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|           |                 |  |                    |                  |                 |

*160 3/24/09*

Prepared By: Kelli Dease Date: 3/24/09

Reviewed By: \_\_\_\_\_ Date: \_\_\_\_\_

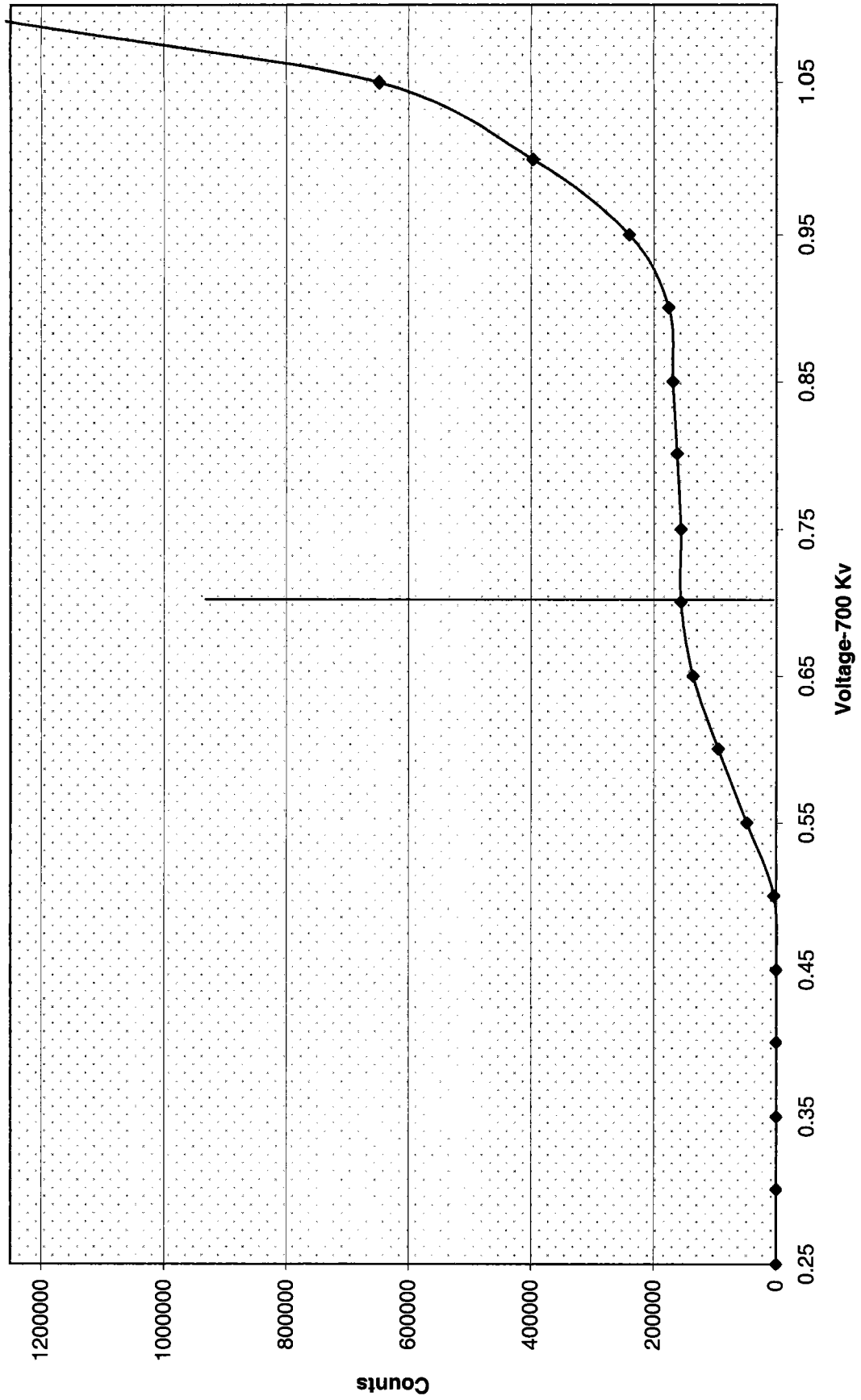


Voltage

| Voltage Curve Ludlum # 5 |        |           |      |          |
|--------------------------|--------|-----------|------|----------|
| Volts                    | Counts | Date      | Time | Detector |
| 0.00                     | 0      | 2/25/2009 | 9:20 | 5        |
| 0.05                     | 0      | 2/25/2009 | 9:20 | 5        |
| 0.10                     | 0      | 2/25/2009 | 9:20 | 5        |
| 0.15                     | 0      | 2/25/2009 | 9:20 | 5        |
| 0.20                     | 0      | 2/25/2009 | 9:20 | 5        |
| 0.25                     | 0      | 2/25/2009 | 9:20 | 5        |
| 0.30                     | 0      | 2/25/2009 | 9:20 | 5        |
| 0.35                     | 0      | 2/25/2009 | 9:20 | 5        |
| 0.40                     | 0      | 2/25/2009 | 9:20 | 5        |
| 0.45                     | 0      | 2/25/2009 | 9:20 | 5        |
| 0.50                     | 3611   | 2/25/2009 | 9:20 | 5        |
| 0.55                     | 47984  | 2/25/2009 | 9:20 | 5        |
| 0.60                     | 94752  | 2/25/2009 | 9:20 | 5        |
| 0.65                     | 135854 | 2/25/2009 | 9:20 | 5        |
| 0.70                     | 155952 | 2/25/2009 | 9:20 | 5        |
| 0.75                     | 155696 | 2/25/2009 | 9:20 | 5        |
| 0.80                     | 161972 | 2/25/2009 | 9:20 | 5        |
| 0.85                     | 168840 | 2/25/2009 | 9:20 | 5        |
| 0.90                     | 175598 | 2/25/2009 | 9:20 | 5        |
| 0.95                     | 239969 | 2/25/2009 | 9:20 | 5        |
| 1.00                     | 397249 | 2/25/2009 | 9:20 | 5        |

UD 3/25/09

# Ludlum 5 Voltage Curve



KAP 3/24/09

# Ra-226 WATER

Batch : LCSVER  
 Date : 2/20/2008  
 Analyst : DXM2

Procedure Code : LUC26RAL  
 Parmname : Radium-226  
 MDA : 1 pCi/L

Bkg Count Time: 30 min Instrument Used : LUCAS CELL DETECTOR

| Sample ID | Sample Vol L | Count Time min | Gross counts cts | Cell # num | Cell Const. num | BKG cpm | Ra-226 MDA pCi/L | Ra-226 RESULT pCi/L | Ra-226 ERROR pCi/L | COUNT DATE/TIME |
|-----------|--------------|----------------|------------------|------------|-----------------|---------|------------------|---------------------|--------------------|-----------------|
| Ver 1     | 0.500        | 30             | 766              | 501        | 2.087           | 0.267   | 0.6041           | 28.8142             | 2.0728             | 3/16/2009 15:10 |
| Ver 2     | 0.500        | 30             | 537              | 502        | 1.878           | 0.167   | 0.5682           | 23.0223             | 1.9747             | 3/16/2009 19:25 |
| Ver 3     | 0.500        | 30             | 518              | 503        | 1.601           | 0.267   | 0.8071           | 25.9035             | 2.2832             | 3/16/2009 20:20 |
| Ver 4     | 0.500        | 30             | 701              | 504        | 1.615           | 0.267   | 0.6021           | 26.2570             | 1.9774             | 3/20/2009 19:00 |
| Ver 5     | 0.500        | 30             | 680              | 505        | 2.331           | 0.033   | 0.2559           | 23.5744             | 1.7758             | 3/16/2009 22:00 |
| Ver 6     | 0.500        | 30             | 893              | 506        | 2.004           | 0.267   | 0.4859           | 27.0593             | 1.7988             | 3/20/2009 19:40 |
| Ver 7     | 0.500        | 30             | 488              | 507        | 1.701           | 0.267   | 0.7287           | 22.0004             | 2.0008             | 3/16/2009 23:00 |
| Ver 8     | 0.500        | 30             | 544              | 508        | 1.534           | 0.033   | 0.3760           | 27.7023             | 2.3344             | 3/16/2009 23:30 |
| Ver 9     | 0.500        | 30             | 768              | 509        | 1.798           | 0.267   | 0.5430           | 25.9694             | 1.8657             | 3/20/2009 20:50 |
| Ver 10    | 0.500        | 30             | 432              | 510        | 1.458           | 0.033   | 0.3700           | 21.6379             | 2.0476             | 3/17/2009 5:00  |
| Ver 11    | 0.500        | 30             | 577              | 511        | 1.959           | 0.267   | 0.5934           | 21.2369             | 1.7694             | 3/17/2009 5:35  |
| Ver 12    | 0.500        | 30             | 723              | 512        | 1.956           | 0.267   | 0.5945           | 26.7349             | 1.9815             | 3/17/2009 6:10  |

| Sample ID | Sample Dup | Det # | Run Date        | Sample Type | Standard ID | NC    | NC units | Recovery/RPD |
|-----------|------------|-------|-----------------|-------------|-------------|-------|----------|--------------|
| 501       |            | 5     | 3/16/2009 15:10 | LCS         | 0638-F      | 24.05 | pCi/L    | 120%         |
| 502       |            | 5     | 3/16/2009 19:25 | LCS         | 0638-F      | 24.05 | pCi/L    | 96%          |
| 503       |            | 5     | 3/16/2009 20:20 | LCS         | 0638-F      | 24.05 | pCi/L    | 108%         |
| 504       |            | 5     | 3/20/2009 19:00 | LCS         | 0638-F      | 24.05 | pCi/L    | 109%         |
| 505       |            | 5     | 3/16/2009 22:00 | LCS         | 0638-F      | 24.05 | pCi/L    | 98%          |
| 506       |            | 5     | 3/20/2009 19:40 | LCS         | 0638-F      | 24.05 | pCi/L    | 113%         |
| 507       |            | 5     | 3/16/2009 23:00 | LCS         | 0638-F      | 24.05 | pCi/L    | 91%          |
| 508       |            | 5     | 3/16/2009 23:30 | LCS         | 0638-F      | 24.05 | pCi/L    | 115%         |
| 509       |            | 5     | 3/20/2009 20:50 | LCS         | 0638-F      | 24.05 | pCi/L    | 108%         |
| 510       |            | 5     | 3/17/2009 5:00  | LCS         | 0638-F      | 24.05 | pCi/L    | 90%          |
| 511       |            | 5     | 3/17/2009 5:35  | LCS         | 0638-F      | 24.05 | pCi/L    | 88%          |
| 512       |            | 5     | 3/17/2009 6:10  | LCS         | 0638-F      | 24.05 | pCi/L    | 111%         |

| DEGASSING DATE/TIME | DE-EMAN. DATE/TIME | DEGASS-DE-EM | dE-EM-COUNT | constant | constant | constant | Net CPM | Ingrowth constant |
|---------------------|--------------------|--------------|-------------|----------|----------|----------|---------|-------------------|
| 3/13/2009 15:30     | 3/16/2009 9:45     | 66.25        | 5.42        | 0.3936   | 0.9599   | 1.0019   | 25.2667 | 0.3785            |
| 3/13/2009 15:30     | 3/16/2009 10:10    | 66.67        | 9.25        | 0.3955   | 0.9325   | 1.0019   | 17.7333 | 0.3695            |
| 3/13/2009 15:30     | 3/16/2009 10:30    | 67.00        | 9.83        | 0.3970   | 0.9284   | 1.0019   | 17.0000 | 0.3693            |
| 3/16/2009 14:00     | 3/20/2009 13:05    | 95.08        | 5.92        | 0.5122   | 0.9563   | 1.0019   | 23.1000 | 0.4908            |
| 3/13/2009 15:30     | 3/16/2009 11:25    | 67.92        | 10.58       | 0.4012   | 0.9232   | 1.0019   | 22.6333 | 0.3711            |
| 3/16/2009 14:00     | 3/20/2009 13:20    | 95.33        | 6.33        | 0.5131   | 0.9533   | 1.0019   | 29.5000 | 0.4901            |
| 3/13/2009 15:30     | 3/16/2009 13:50    | 70.33        | 9.17        | 0.4120   | 0.9331   | 1.0019   | 15.9997 | 0.3852            |
| 3/13/2009 15:30     | 3/16/2009 13:50    | 70.33        | 9.67        | 0.4120   | 0.9296   | 1.0019   | 18.1000 | 0.3837            |
| 3/16/2009 14:00     | 3/20/2009 13:45    | 95.75        | 7.08        | 0.5147   | 0.9479   | 1.0019   | 25.3333 | 0.4888            |
| 3/13/2009 5:30      | 3/16/2009 14:25    | 80.92        | 14.58       | 0.4571   | 0.8957   | 1.0019   | 14.3667 | 0.4103            |
| 3/13/2009 5:30      | 3/16/2009 14:45    | 81.25        | 14.83       | 0.4585   | 0.8941   | 1.0019   | 18.9663 | 0.4107            |
| 3/13/2009 5:30      | 3/16/2009 15:00    | 81.50        | 15.17       | 0.4595   | 0.8918   | 1.0019   | 23.8330 | 0.4106            |

Ra-226 Verification Sheet

| Sample ID        | Volume (mL)    | End Degas Date/Time     | End De-em Date/Time     | Start Count Date/Time   | Cell #         | Det #        | Background CPM               | Total Counts   |
|------------------|----------------|-------------------------|-------------------------|---|----------------|--------------|------------------------------|----------------|
| NUN 1            | 500            | 3/16/09 1530            | 3/16/09 0945            | 3/16/09 1510<br><del>3/16/09 1510</del><br><del>3/16/09 1510</del>            | 501            | 5            | 8                            | 766            |
| NUN 2            | 500            | 3/13/09 1530            | 3/16/09 1010            | 3/16/09 1925  | 502            | 5            | 85<br><del>140 3124109</del> | 537            |
| NUN 3            | 500            | 3/13/09 1530            | 3/16/09 1030            | 3/16/09 2020  | 503            | 5            | 8                            | 518            |
| <del>NUN 4</del> | <del>500</del> | <del>3/13/09 1530</del> | <del>3/16/09 1100</del> | <del>3/16/09 2115</del>   | <del>504</del> | <del>5</del> | <del>8</del>                 | <del>577</del> |
| NUN 5            | 500            | 3/13/09 1530            | 3/16/09 1125            | 3/16/09 2200  | 505            | 5            | 8<br><del>140 3124109</del>  | 680            |
| <del>NUN 6</del> | <del>500</del> | <del>3/13/09 1530</del> | <del>3/16/09 1155</del> | <del>3/16/09 2230</del>   | <del>506</del> | <del>5</del> | <del>8</del>                 | <del>707</del> |
| NUN 7            | 500            | 3/13/09 1530            | 3/16/09 1320            | 3/16/09 2300  | 507            | 5            | 8                            | 488            |
| NUN 8            | 500            | 3/13/09 1530            | 3/16/09 1350            | 3/16/09 2330  | 508            | 5            | 8<br><del>140 3124109</del>  | 544            |
| <del>NUN 9</del> | <del>500</del> | <del>3/13/09 1530</del> | <del>3/16/09 1410</del> | <del>3/17/09 0445</del><br><del>3/17/09 0515</del><br><del>3/17/09 0545</del> | <del>509</del> | <del>5</del> | <del>8</del>                 | <del>640</del> |
| NUN 10           | 500            | 3/13/09 1530            | 3/16/09 1415            | 3/17/09 0500  | 510            | 5            | 8<br><del>140 3124109</del>  | 432            |
| NUN 11           | 500            | 3/13/09 1530            | 3/16/09 1445            | 3/17/09 0535  | 511            | 5            | 8                            | 577            |
| NUN 12           | 500            | 3/13/09 1530            | 3/16/09 1500            | 3/17/09 0610  | 512            | 5            | 8                            | 723            |
|                  |                |                         |                         |   |                |              |                              |                |
|                  |                |                         |                         |   |                |              |                              |                |
|                  |                |                         |                         |   |                |              |                              |                |
|                  |                |                         |                         |   |                |              |                              |                |
|                  |                |                         |                         |   |                |              |                              |                |
|                  |                |                         |                         |   |                |              |                              |                |
|                  |                |                         |                         |   |                |              |                              |                |
|                  |                |                         |                         |   |                |              |                              |                |
|                  |                |                         |                         |   |                |              |                              |                |

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3/25/09

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140

# Ra-226 Verification Sheet

Standard ID: 0638F

Volume Added (mL): 0.1

Expiration Date: 12/10

| Sample ID        | Volume (mL)    | End Degas Date/Time     | End De-em Date/Time     | Start Count Date/Time                        | Cell #         | Det #        | Background Counts | Total Counts  |
|------------------|----------------|-------------------------|-------------------------|--|----------------|--------------|-------------------|---------------|
| <del>VEN 1</del> | <del>500</del> | <del>3/16/09 1400</del> | <del>3/20/09 1245</del> | <del>3/20/09 1820</del>                      | <del>501</del> | <del>5</del> | <del>8</del>      | <del>70</del> |
| VEN 2            | 500            | 3/16/09 1400            | 3/20/09 1305            | 3/20/09 1900                                 | 504            | 5            | 8                 | 701           |
| VEN 3            | 500            | 3/16/09 1400            | 3/20/09 1320            | 3/30/09 1940<br><small>10/10/09 1940</small> | 506            | 5            | 8                 | 893           |
| VEN 4            | 500            | 3/16/09 1400            | 3/20/09 1345            | 3/30/09 2050<br><small>10/10/09 2050</small> | 509            | 5            | 8                 | 768           |
|                  |                |                         |                         |  |                |              |                   |               |
|                  |                |                         |                         |  |                |              |                   |               |
|                  |                |                         |                         |  |                |              |                   |               |
|                  |                |                         |                         |  |                |              |                   |               |
|                  |                |                         |                         |  |                |              |                   |               |
|                  |                |                         |                         |  |                |              |                   |               |
|                  |                |                         |                         |  |                |              |                   |               |
|                  |                |                         |                         |  |                |              |                   |               |
|                  |                |                         |                         |  |                |              |                   |               |

VEN 3/24/09

VEN 3/24/09

VEN 3/24/09

# General Engineering Laboratories Verification Source Preparation Sheet

Applicable SOP Number GL-APP-D-008 Isotope RA 226

Date Standards Prepared 11/6/09 Cocktail Type Used NA

Standard ID 0638-F Matrix of Vial/Planchett NA

Amount Used (g or ml) 0.1 Type of Scintillation Vial NA

Standard Activity (DPM/g or mL) 267.519 Pipette ID Used 1429303

Reference Date 11/23/04 Balance ID Used 38080204

Expiration Date 2/2/10 Quenching Agent NA

Residue/Carrier Agent NA

|    | Standard Number | Quenching Vol (uL)<br>Residue Volume(mL) | Initial Wt.<br>(g) | Final Wt.<br>(g) | Net Wt.<br>(mg) |
|----|-----------------|--|--------------------|------------------|-----------------|
| 1  | Ver 1           |  |                    |                  |                 |
| 2  | Ver 2           |  |                    |                  |                 |
| 3  | Ver 3           |  |                    |                  |                 |
| 4  | Ver 4           |  |                    |                  |                 |
| 5  | Ver 5           |  |                    |                  |                 |
| 6  | Ver 6           |  |                    |                  |                 |
| 7  | Ver 7           |  |                    |                  |                 |
| 8  | Ver 8           |  |                    |                  |                 |
| 9  | Ver 9           |  |                    |                  |                 |
| 10 | Ver 10          |  |                    |                  |                 |
| 11 | Ver 11          |  |                    |                  |                 |
| 12 | Ver 12          |  |                    |                  |                 |
|    |                 |  |                    |                  |                 |
|    |                 |  |                    |                  |                 |
|    |                 |  |                    |                  |                 |
|    |                 |  |                    |                  |                 |

~~11/23/09  
38080204~~

Prepared By: Kelli Daniels Date: 3/24/09

Reviewed By: Angela A. G... Date: 3/25/09

# GEL Standard Traceability Log Rad

| Source Material Info |              | A Solution Material Info |             |
|----------------------|--------------|--------------------------|-------------|
| Parent Code:         | 0638         | Isotope:                 | Radium-226  |
| Prepared By:         | Amanda Fehr  | Prepared By:             | Amanda Fehr |
| Carrier Conc:        | 0.1M HCl     | Prep Date:               | 01/16/2006  |
| Reference Date:      | 01/23/2004   | Verification Date:       | 03/04/2007  |
| Ampoule Mass (g):    | 5.01065 g    | Expiration Date:         | 03/04/2008  |
| Uncertainty:         | +/- 3.3 %    | Primary Code:            | 0638-A      |
| LogBook No:          | RC-S-037-037 | Dilution(mL):            | 100 mL      |
|                      |              | Mass of Parent(g):       | 4.8398 g    |
|                      |              | Density(g/mL):           | 1.0266      |
|                      |              | Balance ID:              | 38080204    |

### Calculations Converting parent activity to dpm/mL|dpm/g

|  |
|--|
| $(\text{Mass of parent(g)}) * (\text{Parm Activity (dps)}) * (\text{conversion dpm to dps}) / (\text{Ampoule Mass(g)} * (\text{Dilution Vol})) = \text{Parent Activity (dpm/mL)}$                  |
| $(\text{Mass of parent(g)}) * (\text{Parm Activity (dps)}) * (\text{conversion dpm to dps}) / \text{Density} / (\text{Ampoule Mass (g)} * (\text{Dilution Vol})) = \text{Parent Activity (dpm/g)}$ |
| $(4.8398 \text{ g}) * (23530 \text{ dps}) * (60 \text{ dpm/dps}) / (5.01065 \text{ g} * 100 \text{ mL}) = 13636.6133 \text{ dpm/mL}$   |
| $(4.8398 \text{ g}) * (23530 \text{ dps}) * (60 \text{ dpm/dps}) / (1.0266 \text{ g/mL}) / (5.01065 \text{ g} * 100 \text{ mL}) = 13282.9676 \text{ dpm/g}$  |

### Secondary Standards

| Prep Date  | Preparer    | Mass Primary | Dilution (mL) | Code   | Conc dpm/mL      | Verification Date | Expiration Date |
|------------|-------------|--------------|---------------|--------|------------------|-------------------|-----------------|
| 01/17/2006 | Amanda Fehr | 2.1041       | 100           | 0638-B | 279.0211 dpm/mL  | 01/17/2007        | 01/17/2008      |
| 07/17/2006 | Mary Aders  | 2.1313       | 100           | 0638-C | 282.6281 dpm/mL  | 07/26/2006        | 07/26/2007      |
| 03/28/2007 | Daniel Roy  | 2.1025       | 100           | 0638-D | 279.2744 dpm/ml  | 04/08/2007        | 04/08/2008      |
| 03/28/2007 | Daniel Roy  | 45.468       | 250           | 0638-E | 2415.7999 dpm/ml | 04/09/2008        | 04/08/2009      |
| 12/18/2007 | Daniel Roy  | 2.014        | 100           | 0638-F | 267.519 dpm/ml   | 02/02/2009        | 02/02/2010      |
| 02/12/2008 | Daniel Roy  | .5004        | 100           | 0638-G | 66.468 dpm/ml    | 03/04/2008        | 03/04/2009      |
| 07/23/2008 | Daniel Roy  | 5.0607       | 250           | 0638-H | 268.8845 dpm/ml  | 07/23/2008        | 07/23/2009      |



## Verification for Ra-226 Standard 0638-F

|                                |                |              |                           |
|--------------------------------|----------------|--------------|---------------------------|
| D. Roy<br>2/2/2009             | <b>Isotope</b> | <b>Value</b> | <b>Uncertainty</b>        |
|                                | 0638-F #1      | 24.629       | 1.7426                    |
|                                | 0638-F #2      | 24.438       | 1.7557                    |
|                                | 0638-F #3      | 22.791       | 1.6808                    |
| <b>Mean Value (Counting) =</b> | 23.953         | 99.60        | <b>Pass</b>               |
| <b>Stdev =</b>                 | 1.010781096    |              | <b>Rule 3 (Pass/Fail)</b> |
| <b>Target =</b>                | 24.05          |              |                           |
| <b>Lower Limit =</b>           | 21.93100448    |              |                           |
| <b>Upper Limit =</b>           | 25.97412886    |              |                           |
| <b>Rule 1 Pass/Fail</b>        | <b>Pass</b>    |              |                           |
| <b>Two sigma =</b>             | 2.021562191    |              |                           |
| <b>10 % of Mean =</b>          | 2.395256667    |              |                           |
| <b>Rule 2 (Pass/Fail)</b>      | <b>Pass</b>    |              |                           |

**Rule 1 = The certificate value (NOT including any uncertainty) shall lie within the 95% confidence interval determined from the mean and two sigma standard deviation of the three measurements**

**Rule 2 = The two sigma value used for the 95% confidence interval shall not exceed 10% of the mean value of the three verification measurements.**

**Rule 3 = The determined mean value shall be within 5% of the certificate value.**

The analyst prepared three standard verification sources for standard 0638-F using 0.1 mL for each source. Each source was counted using routine Lucas cell procedures. Calibration for 0299-G was used in this verification.

140 3124109

# General Engineering Laboratories

2040 Savage Road, Charleston, SC 29414  
 (843)556-8171

## Lucas Cell Calibration Package

|  | YES | NO | Comments |
|--|-----|----|----------|
| 1) Is all calibration standard information enclosed for:<br>the primary standard certificate?<br>the second standard standard(s) documentation?<br>standard preparation information?<br>standard < 1 Year old or verified? | ✓   |    |          |
|  | ✓   |    |          |
|  | ✓   |    |          |
|  | ✓   |    |          |
| 2) Is the efficiency calibration report included ?   | ✓   |    |          |
| 3) Is the raw count data included for:<br>Cell constant determination?<br>Plateau generation?  | ✓   |    |          |
|  | ✓   |    |          |
| 4) Are the calibration verifications included?   | ✓   |    |          |
| 5) Are the instrument settings included:<br>HVPS settings?   | ✓   |    |          |
| 6) Has the CELLEFF.xls file been updated ?   | ✓   |    |          |
| 7) Have the calibration dates been updated in ALPHALIMS ?  | ✓   |    |          |

Prepared By: KD Dene

Date: 8/4/09

Reviewed By: Angela Dene

Date: 8/6/09

Effective Date: 8/4/09

KD 8/6/09

# Ra-226 Cell Constants

Standard Reference date: 12/15/1999  
 Standard ID: 0299-G  
 Volume added (mL): 0.1  
 Standard Reference Activity (DPM/mL): 2446.3471

| Lucas cell # | Cell constant | Standard Source | Date/Time of count | Date/time flushed to cell | Date/time end of degas | total counts    | count time min  | Known activity dpm | t1 (days) end-degas to flush | t2 (days) end-flush to count | t3 (days) Std Ref Date to count | Decay from Std Ref Date to count |         |      |        |
|--------------|---------------|-----------------|--------------------|---------------------------|------------------------|-----------------|-----------------|--------------------|------------------------------|------------------------------|---------------------------------|----------------------------------|---------|------|--------|
|              |               |                 |                    |                           |                        |                 |                 |                    |                              |                              |                                 |                                  | cpm     | cpm  | cpm    |
| 601          | 2.164         | Average         | 2.181              | 9                         | 5/26/2009 13:30        | 5/26/2009 9:30  | 5/19/2009 14:00 | 10883              | 30                           | 362.77                       | 244.63                          | 6.81250                          | 0.16667 | 3451 | 0.9959 |
| 601          | 2.253         | Stdev           | 0.065              | 1                         | 5/22/2009 12:55        | 5/22/2009 9:15  | 5/19/2009 14:00 | 6378               | 30                           | 212.60                       | 244.63                          | 2.80208                          | 0.15278 | 3447 | 0.9959 |
| 601          | 2.126         |                 |                    | 5                         | 5/29/2009 14:45        | 5/29/2009 9:50  | 5/22/2009 10:45 | 10735              | 30                           | 357.83                       | 244.63                          | 6.96181                          | 0.20486 | 3454 | 0.9959 |
| 602          | 2.007         | Average         | 2.168              | 6                         | 5/29/2009 15:20        | 5/29/2009 10:15 | 5/22/2009 10:45 | 10133              | 30                           | 337.77                       | 244.63                          | 6.97917                          | 0.21181 | 3454 | 0.9959 |
| 602          | 2.194         | Stdev           | 0.150              | 10                        | 5/26/2009 14:05        | 5/26/2009 9:55  | 5/19/2009 14:00 | 11033              | 30                           | 367.77                       | 244.63                          | 6.82986                          | 0.17361 | 3451 | 0.9959 |
| 602          | 2.304         |                 |                    | 5                         | 6/2/2009 14:45         | 6/2/2009 11:30  | 5/29/2009 9:50  | 8575               | 30                           | 285.83                       | 244.63                          | 4.06944                          | 0.13542 | 3458 | 0.9959 |
| 604          | 2.244         | Average         | 2.133              | 6                         | 6/2/2009 15:50         | 6/2/2009 11:50  | 5/29/2009 9:50  | 8321               | 30                           | 277.37                       | 244.63                          | 4.08333                          | 0.16667 | 3458 | 0.9959 |
| 604          | 2.076         | Stdev           | 0.096              | 7                         | 5/29/2009 15:55        | 5/29/2009 10:45 | 5/22/2009 12:00 | 10451              | 30                           | 348.37                       | 244.63                          | 6.94792                          | 0.21528 | 3454 | 0.9959 |
| 604          | 2.079         |                 |                    | 11                        | 5/26/2009 15:45        | 5/26/2009 10:20 | 5/19/2009 14:00 | 10372              | 30                           | 345.73                       | 244.63                          | 6.84722                          | 0.22569 | 3451 | 0.9959 |
| 605          | 2.096         | Average         | 2.149              | 12                        | 5/26/2009 16:15        | 5/26/2009 10:50 | 5/19/2009 14:00 | 10474              | 30                           | 349.13                       | 244.63                          | 6.86806                          | 0.22569 | 3451 | 0.9959 |
| 605          | 2.228         | Stdev           | 0.070              | 4                         | 5/22/2009 16:25        | 5/22/2009 10:45 | 5/19/2009 14:00 | 6318               | 30                           | 210.60                       | 244.63                          | 2.86458                          | 0.23611 | 3447 | 0.9959 |
| 605          | 2.122         |                 |                    | 8                         | 5/29/2009 17:15        | 5/29/2009 11:05 | 5/22/2009 12:50 | 10587              | 30                           | 352.90                       | 244.63                          | 6.92708                          | 0.25694 | 3454 | 0.9959 |
| 606          | 2.543         | Average         | 2.348              | 9                         | 5/29/2009 17:45        | 5/29/2009 13:10 | 5/26/2009 9:30  | 7816               | 30                           | 260.53                       | 244.63                          | 3.15278                          | 0.19097 | 3454 | 0.9959 |
| 606          | 2.202         | Stdev           | 0.176              | 1                         | 5/26/2009 16:45        | 5/26/2009 12:25 | 5/22/2009 12:00 | 8057               | 30                           | 288.57                       | 244.63                          | 4.01736                          | 0.18056 | 3451 | 0.9959 |
| 606          | 2.298         |                 |                    | 7                         | 6/2/2009 18:20         | 6/2/2009 12:55  | 5/29/2009 9:50  | 8495               | 30                           | 283.17                       | 244.63                          | 4.12847                          | 0.22569 | 3458 | 0.9959 |
| 607          | 2.454         | Average         | 2.450              | 8                         | 6/2/2009 19:00         | 6/2/2009 13:10  | 5/29/2009 9:50  | 9057               | 30                           | 301.90                       | 244.63                          | 4.13889                          | 0.24306 | 3458 | 0.9959 |
| 607          | 2.572         | Stdev           | 0.123              | 10                        | 5/29/2009 19:00        | 5/29/2009 13:25 | 5/26/2009 9:55  | 7832               | 30                           | 261.07                       | 244.63                          | 3.14583                          | 0.23264 | 3454 | 0.9959 |
| 607          | 2.325         |                 |                    | 2                         | 5/26/2009 17:15        | 5/26/2009 12:50 | 5/22/2009 12:00 | 8527               | 30                           | 284.23                       | 244.63                          | 4.03472                          | 0.18403 | 3451 | 0.9959 |
| 609          | 2.277         | Average         | 2.316              | 3                         | 5/26/2009 19:20        | 5/26/2009 13:10 | 5/22/2009 12:00 | 8261               | 30                           | 275.37                       | 244.63                          | 4.04861                          | 0.25694 | 3451 | 0.9959 |
| 609          | 2.280         | Stdev           | 0.066              | 7                         | 5/22/2009 19:20        | 5/22/2009 12:00 | 5/19/2009 14:00 | 6473               | 30                           | 215.77                       | 244.63                          | 2.91667                          | 0.30556 | 3447 | 0.9959 |
| 609          | 2.392         |                 |                    | 11                        | 5/29/2009 19:40        | 5/29/2009 13:45 | 5/26/2009 10:20 | 7261               | 30                           | 242.03                       | 244.63                          | 3.14236                          | 0.24653 | 3454 | 0.9959 |
| 611          | 2.488         | Average         | 2.307              | 12                        | 5/29/2009 20:20        | 5/29/2009 14:00 | 5/26/2009 10:50 | 7510               | 30                           | 250.33                       | 244.63                          | 3.13194                          | 0.26389 | 3454 | 0.9959 |
| 611          | 2.245         | Stdev           | 0.160              | 4                         | 5/26/2009 22:00        | 5/26/2009 13:25 | 5/22/2009 12:00 | 8010               | 30                           | 267.00                       | 244.63                          | 4.05903                          | 0.35764 | 3451 | 0.9959 |
| 611          | 2.187         |                 |                    | 9                         | 6/2/2009 19:50         | 6/2/2009 13:25  | 5/29/2009 9:50  | 8052               | 30                           | 288.40                       | 244.63                          | 4.14931                          | 0.26736 | 3458 | 0.9959 |

EffEr 0.066051 ← Put in Machines.xls (Lucas Cell Tab)

Backgrounds are not significant enough to be included in calculations ANSI N42.25-1997 (B.2).

*Original of 9/16/09*  
*WJ 8/16/09*

|     |       |          |
|-----|-------|----------|
| 601 | 2.181 | 8/4/2009 |
| 602 | 2.168 | 8/4/2009 |
| 604 | 2.133 | 8/4/2009 |
| 605 | 2.149 | 8/4/2009 |
| 606 | 2.348 | 8/4/2009 |
| 607 | 2.45  | 8/4/2009 |
| 609 | 2.316 | 8/4/2009 |
| 611 | 2.307 | 8/4/2009 |

| <b>Lucas</b>    | <b>Ra-226</b>    |                 |
|-----------------|------------------|-----------------|
| Oldest Cal      | 01/23/2008       |                 |
| <b>Detector</b> | <b>Eff Error</b> | <b>Cal Date</b> |
| 1               | 0.0958           | 8/29/2008       |
| 2               | 0.0772           | 12/19/2008      |
| 3               | 0.0608           | 1/23/2008       |
| 4               | 0.1237           | 3/2/2009        |
| 5               | 0.1438           | 3/25/2009       |
| 6               | 0.0661           | 8/4/2009        |
| 7               | 0.0855           | 11/21/2008      |

**General Engineering Laboratories  
Calibration Source Preparation Sheet**

Applicable SOP Number GL-RAD-A-008

Isotope Ra226

Date Standards Prepared 4/5/05

Cocktail Type Used NA

Standard ID 0299-G

Matrix of Vial/Planchett NA

Amount Used (g or ml) 0.1

NA  
NA

Standard Activity (DPM/g or mL) 2446.3471

Type of Scintillation Vial NA

Reference Date 12/15/99

Pipette ID Used 1429303

Expiration Date 1/26/10

Balance ID Used 38080204

Residue/Carrier Agent 0.1M HCl

Quenching Agent NA

|    | Standard Number | Quenching Vol (uL)/<br>Residue Volume(mL) | Initial Wt.<br>(g) | Final Wt.<br>(g) | Net Wt.<br>(mg) |
|----|-----------------|---|--------------------|------------------|-----------------|
| 1  | cal 1           |   |                    |                  |                 |
| 2  | cal 2           |   |                    |                  |                 |
| 3  | cal 3           |   |                    |                  |                 |
| 4  | cal 4           |   |                    |                  |                 |
| 5  | cal 5           |   |                    |                  |                 |
| 6  | cal 6           |   |                    |                  |                 |
| 7  | cal 7           |   |                    |                  |                 |
| 8  | cal 8           |   |                    |                  |                 |
| 9  | cal 9           |   |                    |                  |                 |
| 10 | cal 10          |   |                    |                  |                 |
| 11 | cal 11          |   |                    |                  |                 |
| 12 | cal 12          |   |                    |                  |                 |
|    |                 |   |                    |                  |                 |
|    |                 |   |                    |                  |                 |
|    |                 |   |                    |                  |                 |
|    |                 |   |                    |                  |                 |

JBG  
8/4/09

JBG  
8/4/09

Prepared By: Kelli Rowell Date 8/4/09

Reviewed By: Angela Gh... Date 8/4/09

Rev 1 RLM 9/10/97

# Ra-226 Calibration Sheet

Standard ID: ~~0299-G~~ 0299-G  
 Volume Added (mL): 0.1 \*19814109

Expiration Date: ~~4/11/10~~ \*19814109

| Sample ID | Volume (mL) | End Degas Date/Time | End De-em Date/Time | Start Count Date/Time             | Cell # | Det # | Total Counts |
|-----------|-------------|---------------------|---------------------|-----------------------------------|--------|-------|--------------|
| Cal 5     | 500         | 5/22/09 1045        | 5/24/09 0950        | 5/29/09 14:45                     | 601    | 6     | 10735        |
| Cal 6     | 500         | 5/22/09 1045        | 5/24/09 1015        | 5/29/09 15:20                     | 602    | 6     | 10133        |
| Cal 7     | 500         | 5/22/09 1200        | 5/24/09 1045        | 5/29/09 15:55                     | 604    | 6     | 10451        |
| Cal 8     | 500         | 5/22/09 1250        | 5/24/09 1105        | 5/29/09 17:15<br><del>17:20</del> | 605    | 6     | 10587        |
| Cal 9     | 500         | 5/24/09 0930        | 5/24/09 1310        | 5/29/09 17:45                     | 606    | 6     | 7816         |
| Cal 10    | 500         | 5/24/09 0955        | 5/24/09 1325        | 5/29/09 19:00                     | 607    | 6     | 7832         |
| Cal 11    | 500         | 5/24/09 1000        | 5/24/09 1345        | 5/29/09 19:40                     | 609    | 6     | 7261         |
| Cal 12    | 500         | 5/24/09 1050        | 5/24/09 1400        | 5/29/09 20:20                     | 611    | 6     | 7510         |
|           |             |                     |                     |                                   |        |       |              |
|           |             |                     |                     |                                   | 608    | 6     |              |
|           |             |                     |                     |                                   |        |       |              |
|           |             |                     |                     |                                   |        |       |              |

\*19814109  
 \*19814109

# Ra-226 Calibration Sheet

Standard ID: ~~0299-6~~ 0299-6  
 Volume Added (mL): 0.1 19 816109  
 Expiration Date: ~~1126110~~ 1126110  
 19 814109

| Sample ID        | Volume (mL)    | End Degas Date/Time     | End De-em Date/Time     | Start Count Date/Time   | Cell #         | Det #        | Total Counts    |
|------------------|----------------|-------------------------|-------------------------|-------------------------|----------------|--------------|-----------------|
| Cal 1            | 500            | 5/19/09 1400            | 5/22/09 0915            | 5/20/09 1255            | 601            | 6            | 6318            |
| <del>Cal 2</del> | <del>500</del> | <del>5/19/09 1400</del> | <del>5/22/09 0945</del> | <del>5/22/09 1325</del> | <del>602</del> | <del>6</del> | <del>6358</del> |
| <del>Cal 3</del> | <del>500</del> | <del>5/19/09 1400</del> | <del>5/22/09 1010</del> | <del>5/22/09 1420</del> | <del>604</del> | <del>6</del> | <del>4600</del> |
| Cal 4            | 500            | 5/19/09 1400            | 5/22/09 1045            | 5/22/09 1625            | 605            | 6            | 6318            |
| <del>Cal 5</del> | <del>500</del> | <del>5/19/09 1400</del> | <del>5/22/09 1115</del> | <del>5/22/09 1700</del> | <del>606</del> | <del>6</del> | <del>6494</del> |
| <del>Cal 6</del> | <del>500</del> | <del>5/19/09 1400</del> | <del>5/22/09 1140</del> | <del>5/22/09 1735</del> | <del>607</del> | <del>6</del> | <del>6428</del> |
| Cal 7            | 500            | 5/19/09 1400            | 5/22/09 1200            | 5/22/09 1920            | 609            | 6            | 6473            |
| <del>Cal 8</del> | <del>500</del> | <del>5/19/09 1400</del> | <del>5/22/09 1250</del> | <del>5/22/09 2035</del> | <del>611</del> | <del>6</del> | <del>6455</del> |
| Cal 9            |                |                         |                         |                         |                |              |                 |
| Cal 10           |                |                         |                         |                         |                |              |                 |
| Cal 11           |                |                         |                         |                         |                |              |                 |
| Cal 12           |                |                         |                         |                         |                |              |                 |

100 814109  
 100 814109

100 814109  
 100 814109

6162-100  
 814109

100 814109

219  
 814109  
 100 816109



# Ra-226 Calibration Sheet

Standard ID: ~~0229-E~~ 0299-G  
 Volume Added (mL): 0.1 ~~219~~ 214109  
 Expiration Date: 4/24/09 ~~1/26/10~~ 219 214109

| Sample ID | Volume (mL) | End Degas Date/Time | End De-em Date/Time | Start Count Date/Time | Cell # | Det # | Total Counts |
|-----------|-------------|---------------------|---------------------|-----------------------|--------|-------|--------------|
| Cal 5     | 500         | 5/24/09 0450        | 6/12/09 1130        | 6/20/09 1445          | 602    | 6     | 8575         |
| Cal 6     | 500         | 5/24/09 0450        | 6/12/09 1150        | 6/20/09 1650          | 604    | 6     | 8321         |
| Cal 7     | 500         | 5/24/09 0450        | 6/12/09 1255        | 6.2.09 1820           | 606    | 6     | 8495         |
| Cal 8     | 500         | 5/24/09 0450        | 6/12/09 1310        | 6.2.09 1900           | 607    | 6     | 9057         |
| Cal 9     | 500         | 5/24/09 0450        | 6/12/09 1325        | 6.2.09 1950           | 611    | 6     | 8052         |
|           |             |                     |                     |                       |        |       |              |
|           |             |                     |                     |                       |        |       |              |
|           |             |                     |                     |                       |        |       |              |
|           |             |                     |                     |                       |        |       |              |
|           |             |                     |                     |                       |        |       |              |
|           |             |                     |                     |                       |        |       |              |
|           |             |                     |                     |                       |        |       |              |
|           |             |                     |                     |                       |        |       |              |
|           |             |                     |                     |                       |        |       |              |
|           |             |                     |                     |                       |        |       |              |
|           |             |                     |                     |                       |        |       |              |
|           |             |                     |                     |                       |        |       |              |
|           |             |                     |                     |                       |        |       |              |
|           |             |                     |                     |                       |        |       |              |
|           |             |                     |                     |                       |        |       |              |
|           |             |                     |                     |                       |        |       |              |
|           |             |                     |                     |                       |        |       |              |

MAN  
SMT09

219  
214109  
K1087660

### Ra-226 Calibration Sheet

Standard ID: ~~10386~~ 0299-G  
 Volume Added (mL): 0.1 ~~1.1~~ 4/19 8/14/09  
 Expiration Date: ~~4/19/09~~ 11/26/10 4/19 8/14/09

| Sample ID | Volume (mL) | End Degas Date/Time | End De-em Date/Time | Start Count Date/Time | Cell # | Det # | Total Counts |
|-----------|-------------|---------------------|---------------------|-----------------------|--------|-------|--------------|
| Cal 9     | 500         | 5/19/09 1400        | 5/20/09 1430        | 5/20/09 1330          | 601    | 6     | 10883        |
| Cal 10    | 500         | 5/19/09 1400        | 5/20/09 1455        | 5/20/09 1405          | 602    | 6     | 11033        |
| Cal 11    | 500         | 5/19/09 1400        | 5/20/09 1020        | 5/26/09 1545          | 604    | 6     | 10372        |
| Cal 12    | 500         | 5/19/09 1400        | 5/20/09 1050        | 5/26/09 1615          | 605    | 6     | 10474        |
| Cal 1     | 500         | 5/22/09 1200        | 5/26/09 1725        | 5/26/09 1645          | 606    | 6     | 8857         |
| Cal 2     | 500         | 5/22/09 1200        | 5/26/09 1250        | 5/26/09 1715          | 607    | 6     | 8527         |
| Cal 3     | 500         | 5/22/09 1200        | 5/26/09 1310        | 5/26/09 1920          | 609    | 6     | 8261         |
| Cal 4     | 500         | 5/22/09 1200        | 5/26/09 1325        | 5/26/09 2200          | 611    | 6     | 8010         |
|           |             |                     |                     |                       |        |       |              |
|           |             |                     |                     | 100 8/14/09           |        |       |              |
|           |             |                     |                     |                       |        |       |              |
|           |             |                     |                     |                       |        |       |              |
|           |             |                     |                     |                       |        |       |              |

4/19  
 8/14/09  
 4/19 8/14/09

EEC

8-21-00

Nycomed Amersham plc  
Amersham Laboratories

0299

CALIBRATION  
No. 0146

ISSUED BY: Nycomed Amersham plc  
Radiation & Radioactivity  
Calibration Laboratory  
Amersham Laboratories  
White Lion Road  
Amersham  
Buckinghamshire  
HP7 9LL

ISSUED FOR: AEA Technology plc  
Isotrak  
Amersham Laboratories  
White Lion Road  
Amersham  
Buckinghamshire  
HP7 9LL

Description Principal radionuclide: Radium-226

Product code: RAY44  
Solution number: R4/131/89

Measurement Reference time: 1200 GMT on 15 December 1999

Nuclear data Nuclear data quoted on this certificate are taken from the Joint European File, Version 2.2.

Expression of uncertainties The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor  $k = 2.00$ , which for a  $t$ -distribution with  $\nu_{eff} = \infty$  effective degrees of freedom corresponds to a coverage probability of approximately 95%. The uncertainty evaluation has been carried out in accordance with UKAS requirements.

Unless indicated, all other uncertainties are expressed at the confidence level associated with one standard uncertainty.

The format used for the uncertainties in the values of radionuclidic purity is illustrated in the following examples;

|           |   |               |
|-----------|---|---------------|
| 6.5(21)   | - | 6.5 ± 2.1     |
| 6.54(21)  | - | 6.54 ± 0.21   |
| 6.543(21) | - | 6.543 ± 0.021 |

Approved  
Signature

Date of issue

17<sup>th</sup> December 1999

## Verification for Ra-226 Standard 0299-G

| M. Aders<br>1/26/2009          | Isotope     | Value DPM  | Uncertainty               |
|--------------------------------|-------------|--|---------------------------|
|                                | 0299-A #1   | 220.970  | 0.2670                    |
|                                | 0299-A #2   | 241.730  | 0.2670                    |
|                                | 0299-A #3   | 257.470  | 0.2670                    |
| <b>Mean Value (Counting) =</b> | 240.057     | 98.52  | <b>Pass</b>               |
| <b>Stdev =</b>                 | 18.30744475 |  | <b>Rule 3 (Pass/Fail)</b> |
| <b>Target =</b>                | 243.67      |  |                           |
| <b>Lower Limit =</b>           | 203.4417772 |  |                           |
| <b>Upper Limit =</b>           | 276.6715562 |  |                           |
| <b>Rule 1 Pass/Fail</b>        | <b>Pass</b> |  |                           |
| <b>Two sigma =</b>             | 36.6148895  |  |                           |
| <b>10 % of Mean =</b>          | 24.00566667 |  |                           |
| <b>Rule 2 (Pass/Fail)</b>      | <b>Fail</b> | <b>*exception taken due to full recovery of standard</b> |                           |

- Rule 1 = The certificate value (NOT including any uncertainty) shall lie within the 95% confidence interval determined from the mean and two sigma standard deviation of the three measurements**
- Rule 2 = The two sigma value used for the 95% confidence interval shall not exceed 10% of the mean value of the three verification measurements.**
- Rule 3 = The determined mean value shall be within 5% of the certificate value.**

The analyst prepared three standard verification sources for standard 0299-A using 0.1 mL for each source. Each standard was degassed and transferred according to SOP GL-RAD-A-008. Each source was counted using Ra-226 procedures.

*M. Aders 241.730*  
*August 9th 8/4/09*

# Ra-226 Cell Constants

Standard Reference date: 12/15/1999  
standard ID: 0299-G  
Volume added (mL): 0.1  
Standard Reference Activity (DPM/mL): 2446.35

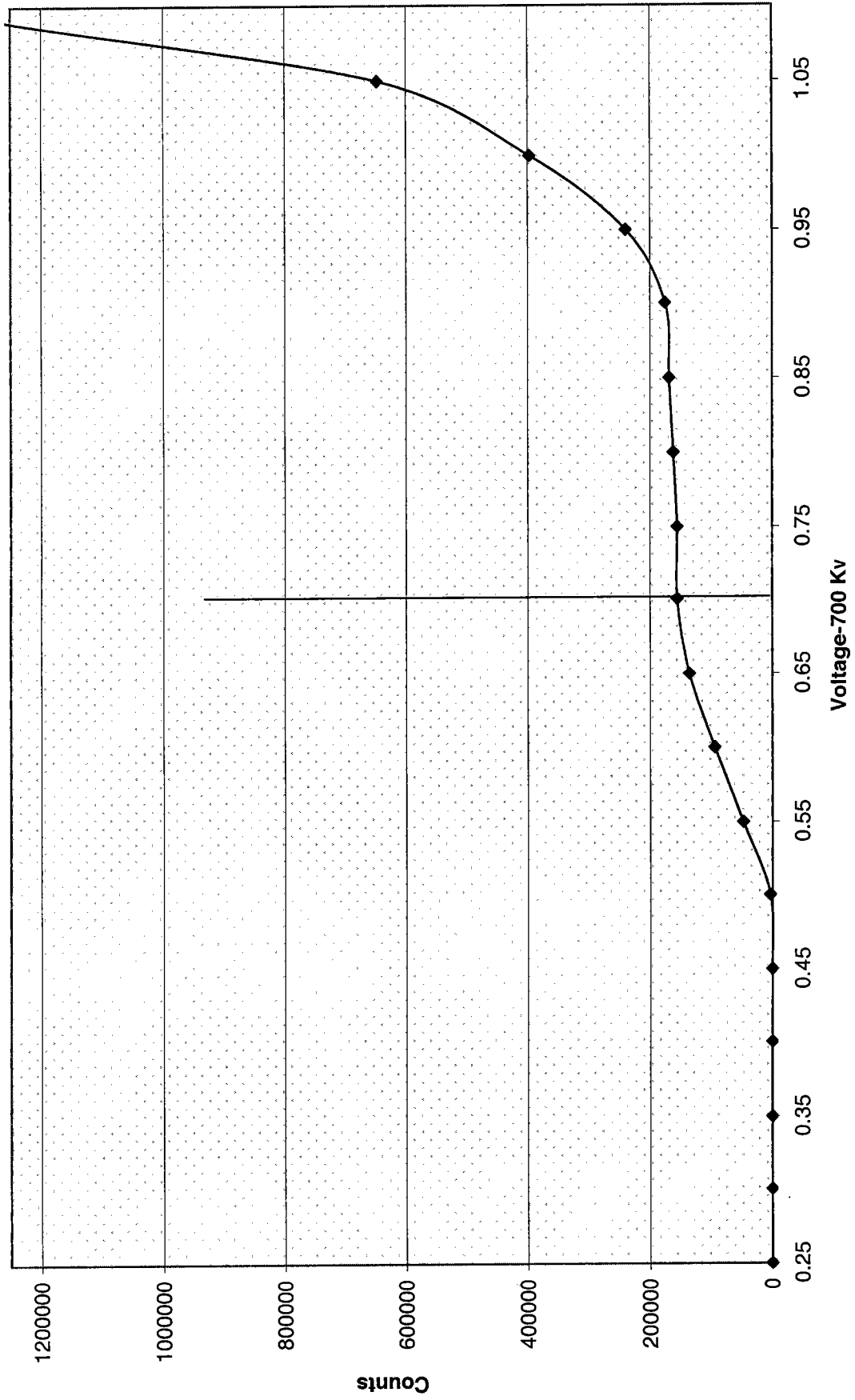
| Lucas cell # | Cell constant | Standard Source | Date/Time of count | Date/Time flushed to cell | Date/Time end of degas | bkg cpm | total counts | count time min | cpm    | Known activity dpm | t1 (days) end-degas to flush | t2 (days) end-flush to count | t3 (days) Std Ref Date to count | Decay from Std Ref Date to count |
|--------------|---------------|-----------------|--------------------|---------------------------|------------------------|---------|--------------|----------------|--------|--------------------|------------------------------|------------------------------|---------------------------------|----------------------------------|
| 301          | 2.021         | 43              | 39839.60764        | 39839.39236               | 39835.38194            | 0.267   | 7282         | 30             | 242.73 | 243.6698           | 4.01041667                   | 0.2152778                    | 3330.607639                     | 0.996055555                      |
| 302          | 2.131         | 47              | 39839.64583        | 39839.41319               | 39835.38194            | 0.267   | 7555         | 30             | 251.83 | 243.6698           | 4.03125                      | 0.2326389                    | 3330.645833                     | 0.996055551                      |
| 303          | 2.136         | 19              | 39839.72222        | 39839.43403               | 39835.38194            | 0.267   | 8028         | 30             | 267.60 | 243.6697           | 4.05208333                   | 0.2881944                    | 3330.722222                     | 0.996055419                      |

VOLTAGE CURVE 3\_08

| Voltage Curve Ludlum # 6 |        |           |      |          |
|--------------------------|--------|-----------|------|----------|
| Volts                    | Counts | Date      | Time | Detector |
| 0.00                     | 0      | 5/20/2009 | 9:00 | 6        |
| 0.05                     | 0      | 5/20/2009 | 9:01 | 6        |
| 0.10                     | 0      | 5/20/2009 | 9:02 | 6        |
| 0.15                     | 0      | 5/20/2009 | 9:03 | 6        |
| 0.20                     | 0      | 5/20/2009 | 9:04 | 6        |
| 0.25                     | 0      | 5/20/2009 | 9:05 | 6        |
| 0.30                     | 0      | 5/20/2009 | 9:06 | 6        |
| 0.35                     | 0      | 5/20/2009 | 9:07 | 6        |
| 0.40                     | 0      | 5/20/2009 | 9:08 | 6        |
| 0.45                     | 512    | 5/20/2009 | 9:09 | 6        |
| 0.50                     | 3625   | 5/20/2009 | 9:10 | 6        |
| 0.55                     | 47990  | 5/20/2009 | 9:11 | 6        |
| 0.60                     | 94752  | 5/20/2009 | 9:12 | 6        |
| 0.65                     | 135854 | 5/20/2009 | 9:13 | 6        |
| 0.70                     | 155952 | 5/20/2009 | 9:14 | 6        |
| 0.75                     | 155700 | 5/20/2009 | 9:15 | 6        |
| 0.80                     | 161972 | 5/20/2009 | 9:16 | 6        |
| 0.85                     | 168860 | 5/20/2009 | 9:17 | 6        |
| 0.90                     | 175598 | 5/20/2009 | 9:18 | 6        |
| 0.95                     | 239969 | 5/20/2009 | 9:19 | 6        |
| 1.00                     | 397270 | 5/20/2009 | 9:20 | 6        |

*M 8/4/09*

Ludlum 6 Voltage Curve



WGS

# Ra-226 WATER

Batch : LCSVER  
Date : 6/2/2009  
Analyst : KSD1

Procedure Code : LUC26RAL  
Parmname : Radium-226

MDA : 1 pCi/L

Instrument Used : LUCAS CELL DETECTOR

Bkg Count Time: 30 min

| Sample ID | Sample Vol L | Count Time min | Gross counts cts | Cell # num | Cell Const. num | BKG cpm | Ra-226 MDA pCi/L | Ra-226 RESULT pCi/L | Ra-226 ERROR pCi/L | COUNT DATE/TIME |
|-----------|--------------|----------------|------------------|------------|-----------------|---------|------------------|---------------------|--------------------|-----------------|
| ver 1     | 0.800        | 30             | 1018             | 601        | 2.181           | 0.267   | 0.2115           | 13.4431             | 0.8356             | 6/8/2009 15:35  |
| ver 2     | 0.800        | 30             | 994              | 602        | 2.168           | 0.100   | 0.1442           | 13.2563             | 0.8279             | 6/8/2009 16:05  |
| ver 3     | 0.800        | 30             | 955              | 604        | 2.133           | 0.167   | 0.1786           | 12.9119             | 0.8254             | 6/8/2009 16:40  |
| ver 4     | 0.800        | 30             | 1144             | 605        | 2.149           | 0.267   | 0.2143           | 15.3201             | 0.8971             | 6/8/2009 17:15  |
| ver 5     | 0.800        | 30             | 1046             | 606        | 2.348           | 0.233   | 0.1867           | 12.8971             | 0.7895             | 6/8/2009 18:30  |
| ver 6     | 0.800        | 30             | 1001             | 607        | 2.450           | 0.267   | 0.1893           | 11.8239             | 0.7413             | 6/8/2009 19:15  |
| ver 7     | 0.800        | 30             | 1060             | 609        | 2.316           | 0.267   | 0.2007           | 13.2848             | 0.8089             | 6/8/2009 20:05  |
| ver 8     | 0.800        | 30             | 943              | 611        | 2.307           | 0.267   | 0.2053           | 12.0754             | 0.7806             | 6/8/2009 23:10  |

Handwritten notes: 8/6/09 and 8/16/09



| Sample ID | Cell # | Det # | Run Date       | Sample Type | Standard ID | NC    | NC units | Recovery/RPD |
|-----------|--------|-------|----------------|-------------|-------------|-------|----------|--------------|
| ver 1     | 601    | 6     | 6/8/2009 15:35 | LCS         | 0638-F      | 15.03 | pCi/L    | 89%          |
| ver 2     | 602    | 6     | 6/8/2009 16:05 | LCS         | 0638-F      | 15.03 | pCi/L    | 88%          |
| ver 3     | 604    | 6     | 6/8/2009 16:40 | LCS         | 0638-F      | 15.03 | pCi/L    | 86%          |
| ver 4     | 605    | 6     | 6/8/2009 17:15 | LCS         | 0638-F      | 15.03 | pCi/L    | 102%         |
| ver 5     | 606    | 6     | 6/8/2009 18:30 | LCS         | 0638-F      | 15.03 | pCi/L    | 86%          |
| ver 6     | 607    | 6     | 6/8/2009 19:15 | LCS         | 0638-F      | 15.03 | pCi/L    | 79%          |
| ver 7     | 609    | 6     | 6/8/2009 20:05 | LCS         | 0638-F      | 15.03 | pCi/L    | 88%          |
| ver 8     | 611    | 6     | 6/8/2009 23:10 | LCS         | 0638-F      | 15.03 | pCi/L    | 80%          |

| DEGASSING DATE/TIME | DE-EMAN. DATE/TIME | DEGASS-DE-EM | dE-EM-COUNT | constant | constant | constant | Net CPM | Ingrowth constant |
|---------------------|--------------------|--------------|-------------|----------|----------|----------|---------|-------------------|
| 6/2/2009 12:40      | 6/8/2009 12:15     | 143.58       | 3.33        | 0.6618   | 0.9751   | 1.0019   | 33.6667 | 0.6466            |
| 6/2/2009 12:40      | 6/8/2009 12:40     | 144.00       | 3.42        | 0.6628   | 0.9745   | 1.0019   | 33.0333 | 0.6472            |
| 6/2/2009 12:40      | 6/8/2009 13:05     | 144.42       | 3.58        | 0.6639   | 0.9733   | 1.0019   | 31.6663 | 0.6474            |
| 6/2/2009 12:40      | 6/8/2009 13:30     | 144.83       | 3.75        | 0.6650   | 0.9721   | 1.0019   | 37.8667 | 0.6476            |
| 6/2/2009 12:40      | 6/8/2009 13:50     | 145.17       | 4.67        | 0.6658   | 0.9654   | 1.0019   | 34.6333 | 0.6440            |
| 6/2/2009 12:40      | 6/8/2009 14:15     | 145.58       | 5.00        | 0.6668   | 0.9630   | 1.0019   | 33.0997 | 0.6434            |
| 6/2/2009 12:40      | 6/8/2009 14:35     | 145.92       | 5.50        | 0.6677   | 0.9593   | 1.0019   | 35.0667 | 0.6417            |
| 6/2/2009 12:40      | 6/8/2009 15:00     | 146.33       | 8.17        | 0.6687   | 0.9402   | 1.0019   | 31.1663 | 0.6299            |

Handwritten notes:   
 8/16/09   
 11/18/10/09

Re-226 Verification Sheet

VEX #6

| Sample ID | Volume (mL) | End Degas Date/Time | End De-em Date/Time | Start Count Date/Time | Cell # | Det # | Background CPM | Total Counts |
|-----------|-------------|---------------------|---------------------|-----------------------|--------|-------|----------------|--------------|
| VEX 1     | 500         | 6/21/09 1240        | 6/18/09 1415        | 6-8-09 1535           | 601    | 6     | 8              | 1018         |
| VEX 2     | 500         | 6/21/09 1240        | 6/18/09 1240        | 6-8-09 1605           | 602    | 6     | 3              | 994          |
| VEX 3     | 500         | 6/21/09 1240        | 6/18/09 1305        | 6-8-09 1640           | 604    | 6     | 5              | 955          |
| VEX 4     | 500         | 6/21/09 1240        | 6/18/09 1330        | 6-8-09 1715           | 605    | 6     | 8              | 1144         |
| VEX 5     | 500         | 6/21/09 1240        | 6/18/09 1350        | 6-8-09 1830           | 606    | 6     | 7              | 1046         |
| VEX 6     | 500         | 6/21/09 1240        | 6/18/09 1415        | 6-8-09 1915           | 607    | 6     | 8              | 1001         |
| VEX 7     | 500         | 6/21/09 1240        | 6/18/09 1435        | 6-8-09 2005           | 609    | 6     | 8              | 1060         |
| VEX 8     | 500         | 6/21/09 1240        | 6/18/09 1500        | 6-8-09 2310           | 611    | 6     | 8              | 943          |
| VEX 9     | 500         |                     |                     |                       |        |       |                |              |
| VEX 10    | 500         |                     |                     |                       |        |       |                |              |
| VEX 11    | 500         |                     |                     |                       |        |       |                |              |
| VEX 12    | 500         |                     |                     |                       |        |       |                |              |
|           |             |                     |                     |                       |        |       |                |              |
|           |             |                     |                     |                       |        |       |                |              |
|           |             |                     |                     |                       |        |       |                |              |
|           |             |                     |                     |                       |        |       |                |              |
|           |             |                     |                     |                       |        |       |                |              |
|           |             |                     |                     |                       |        |       |                |              |
|           |             |                     |                     |                       |        |       |                |              |
|           |             |                     |                     |                       |        |       |                |              |
|           |             |                     |                     |                       |        |       |                |              |
|           |             |                     |                     |                       |        |       |                |              |
|           |             |                     |                     |                       |        |       |                |              |
|           |             |                     |                     |                       |        |       |                |              |
|           |             |                     |                     |                       |        |       |                |              |

2 6/11/09

10/18/09  
11/11/09

NO SIGNATURES

## General Engineering Laboratories Verification Source Preparation Sheet

*A W 8/4/09*

Applicable SOP Number *GL 2007-008* Isotope *Yt-91*

Date Standards Prepared *11/16/09* Cocktail Type Used *NA*

Standard ID *6038-F* Matrix of Vial/Pipichett *NA*

Amount Used (g or ml) *0.1* Type of Scintillation Vial *NA*

Standard Activity (DPM/g or ml) *267.519* Pipette ID Used *1175203*

Reference Date *1/23/04* Balance ID Used *38080104*

Expiration Date *2/1/10* Quenching Agent *NA*

Residue/Carrier Agent *NA*

|   | Standard Number | Quenching Vol (uL)<br>Residue Volume (mL) | Initial Wt.<br>(g) | Final Wt.<br>(g) | Net Wt.<br>(mg) |
|---|-----------------|---|--------------------|------------------|-----------------|
| 1 | <i>Ver 1</i>    |   |                    |                  |                 |
| 2 | <i>Ver 2</i>    |   |                    |                  |                 |
| 3 | <i>Ver 3</i>    |   |                    |                  |                 |
| 4 | <i>Ver 4</i>    |   |                    |                  |                 |
| 5 | <i>Ver 5</i>    |   |                    |                  |                 |
| 6 | <i>Ver 6</i>    |   |                    |                  |                 |
| 7 | <i>Ver 7</i>    |   |                    |                  |                 |
| 8 | <i>Ver 8</i>    |   |                    |                  |                 |
|   |                 |   |                    |                  |                 |
|   |                 |   |                    |                  |                 |
|   |                 |   |                    |                  |                 |
|   |                 |   |                    |                  |                 |
|   |                 |   |                    |                  |                 |
|   |                 |   |                    |                  |                 |
|   |                 |   |                    |                  |                 |
|   |                 |   |                    |                  |                 |
|   |                 |   |                    |                  |                 |
|   |                 |   |                    |                  |                 |
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|   |                 |   |                    |                  |                 |
|   |                 |   |                    |                  |                 |
|   |                 |   |                    |                  |                 |
|   |                 |   |                    |                  |                 |
|   |                 |   |                    |                  |                 |

Prepared By: *Willi + Dancer* Date: *8/4/09*

Reviewed By: *Angela Ghe* Date: *8/4/09*

0638

**CERTIFICATE OF CALIBRATION**  
**Standard Radionuclide Source**

67519-278

Ra-226 5 mL Liquid in Flame Sealed Vial

This standard radionuclide source was prepared gravimetrically from a calibrated master solution. The master solution was calibrated using a germanium gamma spectrometer system.

Radionuclide purity and calibration were checked using a germanium gamma spectrometer system. The nuclear decay rate and assay date for this source are given below.

Analytics maintains traceability to the National Institute of Standards and Technology through participation in a Measurements Assurance Program as described in USNRC Reg. Guide 4.15, Revision 1, February 1979.

|   |                            |
|---|----------------------------|
| ISOTOPE:                                | Ra-226                     |
| ACTIVITY (dps):                         | 2.353 E4                   |
| HALF-LIFE:                              | 1.600 E3 years             |
| CALIBRATION DATE:                       | January 23, 2004 12:00 EST |
| RELATIVE EXPANDED<br>UNCERTAINTY (k=2): | 3.3%                       |

Impurities:  $\gamma$ -impurities (other than decay products) <0.1%

5.01065 grams 0.1M HCl solution with 50  $\mu\text{g/g}$  Ba carrier.

P O NUMBER 3231RD, Item 5

SOURCE PREPARED BY:

M. D. Currie  
M. D. Currie, Radiochemist

Q A APPROVED:

RCUW 1/26/04

# GEL Standard Traceability Log Rad

| Source Material Info |              |
|----------------------|--------------|
| Parent Code:         | 0638         |
| Prepared By:         | Amanda Fehr  |
| Carrier Conc:        | 0.1M HCl     |
| Reference Date:      | 01/23/2004   |
| Ampoule Mass (g):    | 5.01065 g    |
| Uncertainty:         | +/- 3.3 %    |
| LogBook No:          | RC-S-037-037 |

| A Solution Material Info |             |
|--------------------------|-------------|
| Isotope:                 | Radium-226  |
| Prepared By:             | Amanda Fehr |
| Prep Date:               | 01/16/2006  |
| Verification Date:       | 04/09/2009  |
| Expiration Date:         | 04/09/2010  |
| Primary Code:            | 0638-A      |
| Dilution(mL):            | 100 mL      |
| Mass of Parent(g):       | 4.8398 g    |
| Density(g/mL):           | 1.0266      |
| Balance ID:              | 38080204    |

### Calculations Converting parent activity to dpm/mL|dpm/g

$$(\text{Mass of parent(g)}) * (\text{Parm Activity (dps)}) * (\text{conversion dpm to dps}) / (\text{Ampoule Mass(g)} * (\text{Dilution Vol})) = \text{Parent Activity (dpm/mL)}$$

$$(\text{Mass of parent(g)}) * (\text{Parm Activity (dps)}) * (\text{conversion dpm to dps}) / \text{Density} / (\text{Ampoule Mass (g)} * (\text{Dilution Vol})) = \text{Parent Activity (dpm/g)}$$

$$(4.8398 \text{ g}) * (23530 \text{ dps}) * (60 \text{ dpm/dps}) / (5.01065 \text{ g} * 100 \text{ mL}) = 13636.6133 \text{ dpm/mL}$$

$$(4.8398 \text{ g}) * (23530 \text{ dps}) * (60 \text{ dpm/dps}) / (1.0266 \text{ g/mL}) / (5.01065 \text{ g} * 100 \text{ mL}) = 13282.9676 \text{ dpm/g}$$

WMO 8/14/09

## Secondary Standards

| Prep Date  | Preparer    | Mass Primary | Dilution (mL) | Code   | Conc dpm/mL      | Verification Date | Expiration Date |
|------------|-------------|--------------|---------------|--------|------------------|-------------------|-----------------|
| 01/17/2006 | Amanda Fehr | 2.1041       | 100           | 0638-B | 279.0211 dpm/mL  | 01/17/2007        | 01/17/2008      |
| 07/17/2006 | Mary Aders  | 2.1313       | 100           | 0638-C | 282.6281 dpm/mL  | 07/26/2006        | 07/26/2007      |
| 03/28/2007 | Daniel Roy  | 2.1025       | 100           | 0638-D | 279.2744 dpm/ml  | 04/08/2007        | 04/08/2008      |
| 03/28/2007 | Daniel Roy  | 45.468       | 250           | 0638-E | 2415.7999 dpm/ml | 04/09/2009        | 04/09/2010      |
| 12/18/2007 | Daniel Roy  | 2.014        | 100           | 0638-F | 267.519 dpm/ml   | 02/02/2009        | 02/02/2010      |
| 02/12/2008 | Daniel Roy  | .5004        | 100           | 0638-G | 66.468 dpm/ml    | 03/02/2009        | 03/02/2010      |
| 07/23/2008 | Daniel Roy  | 5.0607       | 250           | 0638-H | 268.8845 dpm/ml  | 07/17/2009        | 07/17/2010      |

GEL Laboratories LLC  
Version 1.0 9/18/2000

W084116

# Verification for Ra-226 Standard 0638-F

|                                | Isotope     | Value  | Uncertainty               |
|--------------------------------|-------------|--------|---------------------------|
| D. Roy                         | 0638-F #1   | 24.629 | 1.7426                    |
| 2/2/2009                       | 0638-F #2   | 24.438 | 1.7557                    |
|                                | 0638-F #3   | 22.791 | 1.6808                    |
| <b>Mean Value (Counting) =</b> | 23.953      | 99.60  | <b>Pass</b>               |
| <b>Stdev =</b>                 | 1.010781096 |        | <b>Rule 3 (Pass/Fail)</b> |
| <b>Target =</b>                | 24.05       |        |                           |
| <b>Lower Limit =</b>           | 21.93100448 |        |                           |
| <b>Upper Limit =</b>           | 25.97412886 |        |                           |
| <b>Rule 1 Pass/Fail</b>        | <b>Pass</b> |        |                           |
| <b>Two sigma =</b>             | 2.021562191 |        |                           |
| <b>10 % of Mean =</b>          | 2.395256667 |        |                           |
| <b>Rule 2 (Pass/Fail)</b>      | <b>Pass</b> |        |                           |

Rule 1 = The certificate value (NOT including any uncertainty) shall lie within the 95% confidence interval determined from the mean and two sigma standard deviation of the three measurements

Rule 2 = The two sigma value used for the 95% confidence interval shall not exceed 10% of the mean value of the three verification measurements.

Rule 3 = The determined mean value shall be within 5% of the certificate value.

The analyst prepared three standard verification sources for standard 0638-F using 0.1 mL for each source. Each source was counted using routine Lucas cell procedures. Calibration for 0299-G was used in this verification.

*Handwritten notes:*  
 0638-F #1  
 2/2/2009  
 Amanda [Signature]

# Radium-226 Que Sheet

General Engineering Laboratories, Radiochemistry Division

02/03/2009

Batch #: 838839

Analyst: KSDI

First Client Due Date:

Internal Due Date: 02/07/2009

Spike Isotope: Radium-226 Spike Code: 0003-0

Expiration Date: 12/27/08

Nom Conc: \_\_\_\_\_

LCS Isotope: Radium-226 LCS Code: 003000

Expiration Date: 12/27/08

Nom Conc: \_\_\_\_\_

Prep Date: 12/27/08 Pipet ID: \_\_\_\_\_ Initials: VSD Witness: \_\_\_\_\_

Sample Count Time: 30 (Min)

Bkg Count Time: 30 (Min)

| Sample I     | Client Description   | Type | Hazard Code | Matrix | Min CRDL | Client     | Vol (mL) | End Init Degas Date/Tin | End LN Date/Time | De-em Date/Time | Start Count Date/Time | Cell # | Det # | Bkg counts | Total Counts |
|--------------|----------------------|------|-------------|--------|----------|------------|----------|-------------------------|------------------|-----------------|-----------------------|--------|-------|------------|--------------|
| 1201770521-1 | LCS for batch 838839 | LCS  | GROUND      | WAJ 1  | 1 pCi/L  | QC ACCOUNT | 5.0      | 1/26/09 10:05           | 1/26/09 11:30    | 1/30/09 17:05   | 1/30/09 17:05         | 305    | 3     | 9          | 741          |
| 1201770522-1 | LCS for batch 838839 | LCS  | GROUND      | WAJ 1  | 1 pCi/L  | QC ACCOUNT | 5.0      | 1/26/09 10:05           | 1/26/09 11:45    | 1/30/09 17:57   | 1/30/09 17:57         | 304    | 3     | 9          | 748          |
| 1201770523-1 | LCS for batch 838839 | LCS  | GROUND      | WAJ 1  | 1 pCi/L  | QC ACCOUNT | 5.0      | 1/26/09 10:05           | 1/26/09 12:00    | 1/30/09 17:55   | 1/30/09 17:55         | 305    | 3     | 9          | 743          |

VO 8/16/09

Comments: \_\_\_\_\_ Data Reviewed By: \_\_\_\_\_

Instrument ID #: \_\_\_\_\_  
 LUGA515028, LUGA52130417, LUGA53090899, LUGA54102753, LUGA5132286, LFC6:17055



# Radium-226 Liquid

Filename : RA226.XLS  
 File type : Excel  
 Version # : 1.2.3

Pipet, 0.1 ml Stdev : +/- 0.000701 ml  
 Pipet, 0.5 ml Stdev : +/- 0.002564 ml  
 Pipet, 1 ml Stdev : +/- 0.005480 ml

Spike S/N : N/A  
 Spike Exp Date : N/A  
 Spike Activity (dpm/ml): N/A  
 Spike Volume Added: N/A

Batch : 838839

Analyst : KSD1  
 Prep Date : 1/26/2009

Ra-226 Abundance : 1

Ra-226 Method Uncertainty : 0.0918

Procedure Code : LUC26RAL

Parname : Radium-226

Required MDA : 1 pCi/L

Half-life of Ra-226 : 1600 years

Half-life of Rn-222: 3.823 days

Batch counted on : LUCAS CELL DETECTOR

BKG Count time : 30 min

| Sample Characteristics |                  | Count Raw Data          |                  |             |                      | Weekly Background |           |        | Detector Efficiency |                   |                      |
|------------------------|------------------|-------------------------|------------------|-------------|----------------------|-------------------|-----------|--------|---------------------|-------------------|----------------------|
| Sample ID              | Sample Aliquot L | Sample Aliquot StDev. L | Sample Date/Time | Cell Number | Counting Time (min.) | Gross Counts      | Gross CPM | Counts | CPM                 | Count Time (min.) | Efficiency (cpm/dpm) |
| 1201770521.1           | 0.5000           | 2.0256E-05              | 1/26/2009 0:00   | 305         | 30                   | 791               | 26.367    | 8      | 0.267               | 30                | 1.9930               |
| 1201770522.1           | 0.5000           | 2.0256E-05              | 1/26/2009 0:00   | 306         | 30                   | 768               | 25.600    | 8      | 0.267               | 30                | 1.9500               |
| 1201770523.1           | 0.5000           | 2.0256E-05              | 1/26/2009 0:00   | 308         | 30                   | 730               | 24.333    | 8      | 0.267               | 30                | 2.0010               |

*Handwritten notes:*  
 UNSM105  
 1/26/09

| Detector Efficiency Error (cpm/dpm) | Cell Calibration Date | Cell Calibration Due Date | De-Gas Date/Time | Rn-222 Ingrow End Date/Time | Count Start Date/Time | De-Gas to Ingrowth | Rn-222 Corrections Ingrowth to Count | During Count | Ra-226 Decay |
|-------------------------------------|-----------------------|---------------------------|------------------|-----------------------------|-----------------------|--------------------|--------------------------------------|--------------|--------------|
| 0.06082                             | 1/23/2008             | 1/22/2009                 | 1/26/2009 16:05  | 1/30/2009 11:30             | 1/30/2009 17:05       | 0.499              | 0.959                                | 1.002        | 1.000        |
| 0.06082                             | 1/23/2008             | 1/22/2009                 | 1/26/2009 16:05  | 1/30/2009 11:45             | 1/30/2009 17:37       | 0.500              | 0.957                                | 1.002        | 1.000        |
| 0.06082                             | 1/23/2008             | 1/22/2009                 | 1/26/2009 16:05  | 1/30/2009 12:00             | 1/30/2009 19:05       | 0.501              | 0.948                                | 1.002        | 1.000        |

40816104  
04/21/09

- Notes.
- 1 - Results are decay corrected to Sample Date/Time
  - 2 - Reference date for Spike Activity (dpm/ml) is the batch Prep Date
  - 3 - Spike Nominals are decay corrected to Sample Date/Time

| Results<br>Decision<br>Level<br>pCi/L | Critical<br>Level<br>pCi/L | MDA<br>pCi/L | Sample Act.    |                | Net Count<br>Rate<br>CPM | Net Count<br>Rate Error<br>CPM | 2 SIGMA<br>Counting<br>Uncertainty<br>pCi/L |                  | 2 SIGMA<br>Total Prop.<br>Uncertainty<br>pCi/L |                  | Sample<br>QC | Sample<br>Type | RPD | RER     | Nominal<br>pCi/L | Recovery |
|---------------------------------------|----------------------------|--------------|----------------|----------------|--------------------------|--------------------------------|---|------------------|--|------------------|--------------|----------------|-----|---------|------------------|----------|
|                                       |                            |              | Conc.<br>pCi/L | Error<br>pCi/L |                          |                                | 1 SIGMA<br>pCi/L                            | 2 SIGMA<br>pCi/L | 1 SIGMA<br>pCi/L                               | 2 SIGMA<br>pCi/L |              |                |     |         |                  |          |
| 0.2932                                | 0.2070                     | 0.5083       | 24.6287        | 0.0707         | 26.1000                  | 0.9422                         | 1.7426                                      | 5.5940           | LCS  |                  |              |                |     | 24.0486 | 102.4%           |          |
| 0.2997                                | 0.2116                     | 0.5196       | 24.4384        | 0.0710         | 25.3333                  | 0.9286                         | 1.7557                                      | 5.5591           | LCS  |                  |              |                |     | 24.0486 | 101.6%           |          |
| 0.2942                                | 0.2077                     | 0.5101       | 22.7906        | 0.0715         | 24.0667                  | 0.9055                         | 1.6808                                      | 5.1982           | LCS  |                  |              |                |     | 24.0486 | 94.8%            |          |

11/28/10  
(15)

# ALPHA SPECTROSCOPY

## Alpha Spectroscopy Calibration Sources

The following is a summary of the procedure performed for preparing mixed alpha calibration standards:

A calibration stock solution was prepared by combining the following in a volumetric flask and diluting to 50 ml (51.4561 grams). These individual standards were first verified by direct precipitation of small aliquots of each standard (as described in Attachment I).

| Isotope | Serial #  | amount used (g) | dpm (note 1) |
|---------|-----------|-----------------|--------------|
| Gd-148  | 64445-278 | 0.2471          | 212.159287   |
| Np-237  | 4341      | 1.8075          | 204.438594   |
| Cm-244  | 4320A     | 7.2704          | 240.144737   |

Note 1: Dpm values are decay corrected to 2/7/2003.

Forty one weighted aliquots were then directly precipitated using Neodymium Flouride /HF system. The sources were then mounted on 0.1Poly-propylene filters and taped securely to 1 inch stainless steel planchettes for counting in an Alpha Spectroscopy system. The liquid fraction that passes through the filter is collected, traced with Am-241 and prepared for counting using the identical procedure. These samples are counted to ensure there is no more than 1% loss in the filtering processes. All sources pass this requirement. The DPM information for each source is listed in attachment II.

Certificate files were then created on the Alpha system used for acquisition and processing of data. Each source is assigned a name (AESS-001 through AESS-041). The information for the source activities is entered into the certificate files appropriate for the detector being used.

For example: If source AESS-001 is used for calibrating detector 25, the source data is entered into the certificate file name [env\_alpha.cer]U025.cer.

The computer software uses these certificate files to calculate an energy calibration and determine the efficiency of the detector after counting the source.

*Ante Hill*  
4/1/03

2002 Alpha Eff Source Stock Verification

Curium-244

| Isotope         | Value pCi/g |
|-----------------|-------------|
| SSTOCK2002A2_AM | 106.000     |
| SSTOCK2002B2_AM | 106.000     |
| SSTOCK2002C2_AM | 106.000     |

Mean Value (Counting) = 106.000 98.04%  
 Stdev = 0 pCi/g

Target = 108.1230  
 Lower Limit = 106  
 Upper Limit = 106  
 Rule 1 Pass/Fail Pass  
 Two sigma = 0  
 10 % of Mean = 10.6  
 Rule 2 (Pass/Fail) Pass

PASS  
 Fair 3/2/0

Neptunium-237

| Isotope         | Value pCi/g |
|-----------------|-------------|
| SSTOCK2002A2_AM | 90.100      |
| SSTOCK2002B2_AM | 87.200      |
| SSTOCK2002C2_AM | 93.500      |

Mean Value (Counting) = 90.267 98.02%  
 Stdev = 3.153305144 pCi/g

Target = 92.0900  
 Lower Limit = 83.96005638  
 Upper Limit = 96.57327696  
 Rule 1 Pass/Fail Pass  
 Two sigma = 6.306610289  
 10 % of Mean = 9.026666667  
 Rule 2 (Pass/Fail) Pass

Gadolinium-148

| Isotope         | Value pCi/g |
|-----------------|-------------|
| SSTOCK2002A2_AM | 95.080      |
| SSTOCK2002B2_AM | 93.750      |
| SSTOCK2002C2_AM | 96.560      |

Mean Value (Counting) = 95.463 99.81%  
 Stdev = 1.503074627 pCi/g

Target = 95.6460  
 Lower Limit = 92.45718408  
 Upper Limit = 98.46948259  
 Rule 1 Pass/Fail Pass  
 Two sigma = 3.006148253  
 10 % of Mean = 9.546333333  
 Rule 2 (Pass/Fail) Pass

The analyst prepared three standard verification sources for the mixed alpha stock standard using 0.1030 g for source #1, 0.1035 g for source #2 and 0.1028 g for source #3. Each standard was combined with 1.0 mL of Am-243 standard 0454-A and 0.1 mL of Nd carrier in a disposable centrifuge tube. Four mL of 2 M HCl was added to each standard and then diluted with 4 mL of DI water. 5 mL of ascorbic acid was added to each sample then one mL of 48% HF was added to precipitate Nd (and Curium) fluoride. After 30 minutes, each sample was filtered following routine procedures for alpha spectroscopy source preparation. Each source was counted using routine alpha spec procedures. pCi/L values for the Mixed Alpha Stock were calculated and compared to Am-243 certified values.

① The rule failed because the 3 results from 3 sources were the same. Therefore, the stdev was zero. The intent of this rule is to ensure an appropriate amount of counts are achieved for proper determinations. ~~Surfaces~~ For each standard the # of counts achieved was

Just under 10000 which has a counting error of nearly 1%. Because the standard's bias is < 2% from the known value the standard is acceptable.

Robertson 02/20/03

Attachment II

| Mixed alpha isotope | Reference date = Source | Stock Dpm/g | Reference date | Half-life (years) | amount used for mixed | Dpm/g mixed | Decay corr dpm/g |
|---------------------|-------------------------|-------------|----------------|-------------------|-----------------------|-------------|------------------|
| Gd-148              | 64445-278 (0502)        | 44354.59289 | 9/5/2002       | 74.60             | 0.2471                | 212.9974853 | 212.159287       |
| Np-237              | Srm 4341 (0493)         | 5820        | 3/1/1992       | 2.14E+06          | 1.8075                | 204.4393182 | 204.438594       |
| Cm-244              | SRM 4320a (0490)        | 2223.6      | 2/1/1996       | 18.1              | 7.2704                | 314.1796879 | 240.144737       |
| Source              | Amount of standard used | dpm Gd-148  | dpm Np-237     | dpm Cm-244        | dps Gd-148            | dps Np-237  | dps Cm-244       |
| AESS-001            | 1.0362                  | 219.839     | 211.839        | 248.838           | 3.664                 | 3.531       | 4.147            |
| AESS-002            | 1.0344                  | 219.458     | 211.471        | 248.406           | 3.658                 | 3.525       | 4.140            |
| AESS-003            | 1.034                   | 219.373     | 211.390        | 248.310           | 3.656                 | 3.523       | 4.138            |
| AESS-004            | 1.0331                  | 219.182     | 211.206        | 248.094           | 3.653                 | 3.520       | 4.135            |
| AESS-005            | 1.0353                  | 219.649     | 211.655        | 248.622           | 3.661                 | 3.528       | 4.144            |
| AESS-006            | 1.0331                  | 219.182     | 211.206        | 248.094           | 3.653                 | 3.520       | 4.135            |
| AESS-007            | 1.0348                  | 219.542     | 211.553        | 248.502           | 3.659                 | 3.526       | 4.142            |
| AESS-008            | 1.0363                  | 219.861     | 211.860        | 248.862           | 3.664                 | 3.531       | 4.148            |
| AESS-009            | 1.0352                  | 219.627     | 211.635        | 248.598           | 3.660                 | 3.527       | 4.143            |
| AESS-010            | 1.0346                  | 219.500     | 211.512        | 248.454           | 3.658                 | 3.525       | 4.141            |
| AESS-011            | 1.0353                  | 219.649     | 211.655        | 248.622           | 3.661                 | 3.528       | 4.144            |
| AESS-012            | 1.0367                  | 219.946     | 211.941        | 248.958           | 3.666                 | 3.532       | 4.149            |
| AESS-013            | 1.0396                  | 220.561     | 212.534        | 249.654           | 3.676                 | 3.542       | 4.161            |
| AESS-014            | 1.0368                  | 219.967     | 211.962        | 248.982           | 3.666                 | 3.533       | 4.150            |
| AESS-015            | 1.0363                  | 219.861     | 211.860        | 248.862           | 3.664                 | 3.531       | 4.148            |
| AESS-016            | 1.0353                  | 219.649     | 211.655        | 248.622           | 3.661                 | 3.528       | 4.144            |
| AESS-017            | 1.0356                  | 219.712     | 211.717        | 248.694           | 3.662                 | 3.529       | 4.145            |
| AESS-018            | 1.0359                  | 219.776     | 211.778        | 248.766           | 3.663                 | 3.530       | 4.146            |
| AESS-019            | 1.0349                  | 219.564     | 211.574        | 248.526           | 3.659                 | 3.526       | 4.142            |
| AESS-020            | 1.0361                  | 219.818     | 211.819        | 248.814           | 3.664                 | 3.530       | 4.147            |
| AESS-021            | 1.0348                  | 219.542     | 211.553        | 248.502           | 3.659                 | 3.526       | 4.142            |
| AESS-022            | 1.0353                  | 219.649     | 211.655        | 248.622           | 3.661                 | 3.528       | 4.144            |
| AESS-023            | 1.0353                  | 219.649     | 211.655        | 248.622           | 3.661                 | 3.528       | 4.144            |
| AESS-024            | 1.0343                  | 219.436     | 211.451        | 248.382           | 3.657                 | 3.524       | 4.140            |
| AESS-025            | 1.0364                  | 219.882     | 211.880        | 248.886           | 3.665                 | 3.531       | 4.148            |
| AESS-026            | 1.0336                  | 219.288     | 211.308        | 248.214           | 3.655                 | 3.522       | 4.137            |
| AESS-027            | 1.0353                  | 219.649     | 211.655        | 248.622           | 3.661                 | 3.528       | 4.144            |
| AESS-028            | 1.0366                  | 219.924     | 211.921        | 248.934           | 3.665                 | 3.532       | 4.149            |

Attachment II

|          |        |         |         |         |       |       |       |
|----------|--------|---------|---------|---------|-------|-------|-------|
| AESS-029 | 1.0355 | 219.691 | 211.696 | 248.670 | 3.662 | 3.528 | 4.144 |
| AESS-030 | 1.0349 | 219.564 | 211.574 | 248.526 | 3.659 | 3.526 | 4.142 |
| AESS-031 | 1.0343 | 219.436 | 211.451 | 248.382 | 3.657 | 3.524 | 4.140 |
| AESS-032 | 1.0326 | 219.076 | 211.103 | 247.973 | 3.651 | 3.518 | 4.133 |
| AESS-033 | 1.0308 | 218.694 | 210.735 | 247.541 | 3.645 | 3.512 | 4.126 |
| AESS-034 | 1.0314 | 218.821 | 210.858 | 247.685 | 3.647 | 3.514 | 4.128 |
| AESS-035 | 1.0303 | 218.588 | 210.633 | 247.421 | 3.643 | 3.511 | 4.124 |
| AESS-036 | 1.0343 | 219.436 | 211.451 | 248.382 | 3.657 | 3.524 | 4.140 |
| AESS-037 | 1.0353 | 219.649 | 211.655 | 248.622 | 3.661 | 3.528 | 4.144 |
| AESS-038 | 1.0373 | 220.073 | 212.064 | 249.102 | 3.668 | 3.534 | 4.152 |
| AESS-039 | 1.0334 | 219.245 | 211.267 | 248.166 | 3.654 | 3.521 | 4.136 |
| AESS-040 | 1.0346 | 219.500 | 211.512 | 248.454 | 3.658 | 3.525 | 4.141 |
| AESS-041 | 1.0352 | 219.627 | 211.635 | 248.598 | 3.660 | 3.527 | 4.143 |





0490  
0491

# National Institute of Standards & Technology

## Certificate

### Standard Reference Material 4320A Curium-244 Radioactivity Standard

This Standard Reference Material (SRM) consists of radioactive curium-244 nitrate and nitric acid dissolved in 5 mL of distilled water. The solution is contained in a flame-sealed NIST borosilicate-glass ampoule. The SRM is intended for the calibration of alpha-particle counting instruments and for the monitoring of radiochemical procedures.

#### Radiological Hazard

The SRM ampoule contains curium-244 with a total activity of approximately 200 Bq. Curium-244 decays by alpha-particle emission to plutonium-240, which also decays by alpha-particle emission. None of the alpha particles escape from the SRM ampoule. During the decay process X-rays and gamma rays with energies from 40 keV to 1100 keV are also emitted. Most of these photons escape from the SRM ampoule but their intensities are so small that they do not represent a radiation hazard. Approximate unshielded dose rates at several distances (as of the reference time) are given in note [a]\*. The SRM should be used only by persons qualified to handle radioactive material.

#### Chemical Hazard

The SRM ampoule contains nitric acid ( $\text{HNO}_3$ ) with a concentration of 1 mole per liter of water. The solution is corrosive and represents a health hazard if it comes in contact with eyes or skin. If the ampoule is to be opened to transfer the solution, the recommended procedure is given on page 2. The ampoule should be opened only by persons qualified to handle both radioactive material and strong acid solution.

#### Storage and Handling

The SRM should be stored and used at a temperature between 5 and 65 °C. The solution in an unopened ampoule should remain stable and homogeneous until at least February 2006.

The ampoule (or any subsequent container) should always be clearly marked as containing radioactive material. If the ampoule is transported it should be packed, marked, labeled, and shipped in accordance with the applicable national, international, and carrier regulations. The solution in the ampoule is a dangerous good (hazardous material) both because of the radioactivity and because of the strong acid.

#### Preparation

This Standard Reference Material was prepared in the Physics Laboratory, Ionizing Radiation Division, Radioactivity Group, J.M.R. Hutchinson, Group Leader. The overall technical direction and physical measurements leading to certification were provided by L.L. Lucas of the Radioactivity Group.

The support aspects involved in the preparation, certification, and issuance of this SRM were coordinated through the Standard Reference Materials Program by N.M. Trahey.

Gaithersburg, Maryland 20899  
February 1996 (Text only revised November 1997)

Thomas E. Gills, Chief  
Standard Reference Materials Program

### Recommended Procedure for Opening the SRM Ampoule

- 1) If the SRM solution is to be diluted, it is recommended that the diluting solution have a composition comparable to that of the SRM solution.
- 2) Wear eye protection, gloves, and protective clothing and work over a tray with absorbent paper in it. Work in a fume hood. In addition to the radioactive material, the solution contains strong acid and is corrosive.
- 3) Shake the ampoule to wet all of the inside surface of the ampoule. Return the ampoule to the upright position.
- 4) Check that all of the liquid has drained out of the neck of the ampoule. If necessary, gently tap the neck to speed the process.
- 5) Holding the ampoule upright, score the narrowest part of the neck with a scribe or diamond pencil.
- 6) Lightly wet the scored line. This reduces the crack propagation velocity and makes for a cleaner break.
- 7) Hold the ampoule upright with a paper towel, a wiper, or a support jig. Position the scored line away from you. Using a paper towel or wiper to avoid contamination, snap off the top of the ampoule by pressing the narrowest part of the neck away from you while pulling the tip of the ampoule towards you.
- 8) Transfer the solution from the ampoule using a pycnometer or a pipet with dispenser handle.  
**NEVER PIPETTE BY MOUTH**
- 9) Seal any unused SRM solution in a flame-sealed glass ampoule, if possible, to minimize the evaporation loss.

See also reference [4]\*.

PROPERTIES OF SRM 4320A  
(Certified values are shown in bold type)

|  |   |                                      |                                    |
|--|---|--------------------------------------|------------------------------------|
| Source identification number             | NIST SRM 4320A  |                                      |                                    |
| Physical Properties:                     |   |                                      |                                    |
| Source description                       | Liquid in flame-sealed NIST borosilicate-glass ampoule              |                                      |                                    |
| Ampoule specifications                   | Body outside diameter   | (16.5 ± 0.5) mm                      |                                    |
|  | Wall Thickness  | (0.60 ± 0.04) mm                     |                                    |
|  | Barium content  | Less than 2.5%                       |                                    |
|  | Lead-oxide content  | Less than 0.02%                      |                                    |
|  | Other heavy elements  | Trace quantities                     |                                    |
| Solution density                         | (1.030 ± 0.002) g·mL <sup>-1</sup> at 22.8 °C [b]*                  |                                      |                                    |
| Solution mass                            | Approximately 5.15 g  |                                      |                                    |
| Chemical Properties:                     |   |                                      |                                    |
| Solution composition                     | Chemical Formula  | Concentration (mol·L <sup>-1</sup> ) | Mass Fraction (g·g <sup>-1</sup> ) |
|  | H <sub>2</sub> O  | 54                                   | 0.94                               |
|  | HNO <sub>3</sub>  | 1.0                                  | 0.06                               |
|  | HCl   | <0.001                               | <4 × 10 <sup>-5</sup>              |
|  | <sup>244</sup> Cm +3  | 5 × 10 <sup>-11</sup>                | 1 × 10 <sup>-11</sup>              |
| Radiological Properties:                 |   |                                      |                                    |
| Radionuclide                             | Curium-244  |                                      |                                    |
| Reference time                           | 1230 EST, 1 February 1996 [c]                                       |                                      |                                    |
| Massic activity of the solution [d]      | 37.06 Bq·g <sup>-1</sup> 24.12 Bq·g <sup>-1</sup>                   |                                      |                                    |
| Relative expanded uncertainty (k=2)      | 0.68% [e] [f]   |                                      |                                    |
| Alpha-particle-emitting daughters        | Plutonium-240: (0.22 ± 0.11) Bq·g <sup>-1</sup> [b] [c]             |                                      |                                    |
| Alpha-particle-emitting impurities       | Curium-243: (0.005 ± 0.004) Bq·g <sup>-1</sup> [b] [g]              |                                      |                                    |
| Photon-emitting impurities               | None detected [h]   |                                      |                                    |
| Half lives used in the decay corrections | Curium-244: (18.10 ± 0.02) a [i]<br>Plutonium-240: (6563 ± 7) a [i] |                                      |                                    |
| Calibration method                       | Two 4π liquid-scintillation counting systems                        |                                      |                                    |

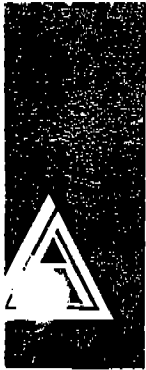
37.06 x 2      2004

6

- [i] The stated uncertainty is the standard uncertainty. See reference [5].
- [j] Relative standard uncertainty of the input quantity  $x_i$ .
- [k] The relative change in the output quantity  $y$  divided by the relative change in the input quantity  $x_i$ . If  $|\partial y/\partial x_i| \cdot (x_i/y) = 1.0$ , then a 1% change in  $x_i$  results in a 1% change in  $y$ . If  $|\partial y/\partial x_i| \cdot (x_i/y) = 0.05$ , then a 1% change in  $x_i$  results in a 0.05% change in  $y$ .
- [m] Relative component of combined standard uncertainty of output quantity  $y$ , rounded to two significant figures or less. The relative component of combined standard uncertainty of  $y$  is given by  $u_i(y)/y = |\partial y/\partial x_i| \cdot u(x_i)/y = |\partial y/\partial x_i| \cdot (x_i/y) \cdot u(x_i)/x_i$ . The numerical values of  $u(x_i)/x_i$ ,  $|\partial y/\partial x_i| \cdot (x_i/y)$ , and  $u_i(y)/y$ , all dimensionless quantities, are listed in columns 3, 4, and 5, respectively. Thus, the value in column 5 is equal to the value in column 4 multiplied by the value in column 3. The input quantities are independent, or very nearly so. Hence the covariances are zero or negligible.
- [n] The relative standard uncertainty of  $\lambda \cdot t$  is determined by the relative standard uncertainty of  $\lambda$  (i.e., of the half life). The relative standard uncertainty of  $t$  is negligible.
- [p]  $|\partial y/\partial x_i| \cdot (x_i/y) = |\lambda \cdot t|$
- [q] The live time is determined by counting the pulses from a gated oscillator.
- [r] The standard uncertainty given is for the detected Cm-243 impurity.  $|\partial y/\partial x_i| \cdot (x_i/y) = \{(\text{response per Bq of impurity})/(\text{response per Bq of Cm-244})\} \cdot \{(\text{Bq of impurity})/(\text{Bq of Cm-244})\}$ .
- [s] The standard uncertainty for each undetected impurity that might reasonably be expected to be present is estimated to be equal to the estimated limit of detection for that impurity, i.e.  $u(x_i)/x_i = 100\%$ .  $|\partial y/\partial x_i| \cdot (x_i/y) = \{(\text{response per Bq of impurity})/(\text{response per Bq of Cm-244})\} \cdot \{(\text{Bq of impurity})/(\text{Bq of Cm-244})\}$ . Thus  $u_i(y)/y$  is the relative change in  $y$  if the impurity were present with a massic activity equal to the estimated limit of detection.

#### REFERENCES

- [1] International Organization for Standardization (ISO), *ISO Standards Handbook - Quantities and Units*, 1993. Available from the American National Standards Institute, 11 West 42nd Street, New York, NY 10036, U.S.A. 1-212-642-4900.
- [2] International Organization for Standardization (ISO), *Guide to the Expression of Uncertainty in Measurement*, 1993. Available from the American National Standards Institute, 11 West 42nd Street, New York, NY 10036, U.S.A. 1-212-642-4900. (Listed under ISO miscellaneous publications as "ISO Guide to the Expression 1993".)
- [3] B. N. Taylor and C. E. Kuyatt, *Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Results*, NIST Technical Note 1297, 1994. Available from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20407, U.S.A.
- [4] National Council on Radiation Protection and Measurements Report No. 58, *A Handbook of Radioactivity Measurements Procedures*, Second Edition, 1985. Available from the National Council on Radiation Protection and Measurements, 7910 Woodmont Avenue, Bethesda, MD 20814 U.S.A.
- [5] Evaluated Nuclear Structure Data File (ENSDF), February 1996.



# CERTIFICATE OF CALIBRATION

Standard Radionuclide Source

64445-278

Gd-148 5 mL Liquid in Flame Sealed Vial

This standard radionuclide source was prepared gravimetrically from a calibrated master liquid radionuclide solution source. The master source was calibrated by liquid scintillation counting.

ANALYTICS maintains traceability to the National Institute of Standards and Technology through Measurements Assurance Programs as described in USNRC Reg. Guide 4.15, Revision 1.

Radionuclide purity and calibration were checked using a germanium gamma spectrometer system. The nuclear decay rate and assay date for this source are given below.

|                     |                             |
|---------------------|-----------------------------|
| ISOTOPE:            | Gd-148                      |
| ACTIVITY (dps):     | <u>3.759 E3</u>             |
| HALF-LIFE:          | <u>74.6 years</u>           |
| CALIBRATION DATE:   | September 5, 2002 12:00 EST |
| TOTAL UNCERTAINTY*: | 2.7%                        |
| SYSTEMATIC:         | 1.9%                        |
| RANDOM:             | 0.8%                        |

99% confidence level.

5.08493 grams 0.1M HCl solution.

P O NUMBER 3207RD, Item 1

SOURCE PREPARED BY:

M.D. Currie  
M.D. Currie, Radiochemist

Q A APPROVED:

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# National Institute of Standards & Technology

## Certificate

### Standard Reference Material 4341 Radioactivity Standard

|                                    |   |
|------------------------------------|---|
| Radionuclide                       | Neptunium-237   |
| Source identification              | SRM 4341  |
| Source description                 | Liquid in flame-sealed NIST borosilicate-glass ampoule <sup>(1)</sup> * |
| Solution mass                      | Approximately 5 grams   |
| Solution composition               | Neptunium-237 in 2 mol·L <sup>-1</sup> nitric acid                      |
| Reference time                     | March 1992  |
| Radioactivity concentration        | 97.0 Bq·g <sup>-1</sup>   |
| Overall uncertainty                | 1.28 percent <sup>(2)</sup>   |
| Photon-emitting impurities         | None detected <sup>(3)</sup>  |
| Alpha-particle-emitting impurities | None detected <sup>(4)</sup>  |
| Half life                          | (2.14 ± 0.11) × 10 <sup>6</sup> years <sup>(5)</sup>                    |
| Measuring instrument               | NIST "0.8π" α defined-solid-angle counter with scintillation detector   |

This standard reference material was prepared in the Physics Laboratory, Ionizing Radiation Division, Radioactivity Group, J.M. Robin Hutchinson, Acting Group Leader.

Gaithersburg, MD  
January 1993

William P. Reed, Chief  
Standard Reference Materials Program

\*Notes on back

## NOTES

- (1) Approximately five milliliters of solution. Ampoule specifications:
- |                      |                        |
|----------------------|------------------------|
| body diameter        | $16.5 \pm 0.5$ mm      |
| wall thickness       | $0.60 \pm 0.04$ mm     |
| barium content       | less than 2.5 percent  |
| lead oxide content   | less than 0.02 percent |
| other heavy elements | trace quantities       |
- (2) The overall uncertainty was formed by taking three times the quadratic combination of the standard deviations of the mean, or approximations thereof, for the following:
- |  |              |
|--|--------------|
| a) alpha-particle-emission-rate measurements         | 0.34 percent |
| b) background  | 0.01 percent |
| c) livetime  | 0.10 percent |
| d) detection efficiency                              | 0.16 percent |
| e) count-rate-vs-energy extrapolation to zero energy | 0.10 percent |
| f) half life   | 0.00 percent |
| g) gravimetric measurements                          | 0.10 percent |
| h) alpha-emitting impurities                         | 0.10 percent |
- (3) The protactinium-233 daughter of neptunium-237 is approximately in equilibrium.  
The limit of detection for photon-emitting impurities is
- $0.19 \text{ } \gamma \cdot \text{s}^{-1} \cdot \text{g}^{-1}$  for energies between 30 and 307 keV and  
 $0.01 \text{ } \gamma \cdot \text{s}^{-1} \cdot \text{g}^{-1}$  for energies between 317 and 1750 keV,  
provided that the impurity photons are separated in energy by 5 keV or more  
from photons emitted in the decay of neptunium-237 and progeny.
- (4) The limit of detection for alpha-particle-emitting impurities is
- $0.10 \text{ } \alpha \cdot \text{s}^{-1} \cdot \text{g}^{-1}$  for energies between 1.0 and 4.3 MeV and  
 $0.05 \text{ } \alpha \cdot \text{s}^{-1} \cdot \text{g}^{-1}$  for energies between 4.9 and 10 MeV.
- (5) Evaluated Nuclear Structure Data File (ENSDF), February 1990.

For further information please contact Dr. J.M. Robin Hutchinson at NIST.  
Telephone: (301) 975-5532  
FAX: (301) 926-7416

## Subsection 1: Energy Calibration

The Energy Calibration energy=Cal\_Zero+(e1\*C)+(e2\*C^2)

where : Cal\_Zero = Energy Calibration Zero  
 e1 = Energy Calibration Slope  
 e2 = Energy Calibration Quadratic  
 C = Channel

Instrument : CHAMBER 001  
 Detector : 78788  
 Calibration Date/Time : 5-AUG-2009 14:45:15  
 Calibration Source Id : AESS-001

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3182.768      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.589      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5794.928      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2541.111  
 Energy Calibration Slope : 5.103021  
 Energy Calibration Quadratic : 3.7696620E-04  
 Energy Calibration Range : 8162.000

Instrument : CHAMBER 002  
 Detector : 78266  
 Calibration Date/Time : 5-AUG-2009 14:45:26  
 Calibration Source Id : AESS-002

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3174.754      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4760.313      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5783.900      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2454.309  
 Energy Calibration Slope : 5.127246  
 Energy Calibration Quadratic : 2.9634204E-04  
 Energy Calibration Range : 8015.000

Instrument : CHAMBER 003  
 Detector : 67617  
 Calibration Date/Time : 5-AUG-2009 14:45:38  
 Calibration Source Id : AESS-003

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3181.710      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4767.829      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5794.321      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2595.909  
 Energy Calibration Slope : 5.495871  
 Energy Calibration Quadratic : 3.8085488E-04  
 Energy Calibration Range : 8623.000



Instrument : CHAMBER 004  
 Detector : 64279  
 Calibration Date/Time : 5-AUG-2009 14:45:54  
 Calibration Source Id : AESS-004

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.926      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4769.257      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.158      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2531.198  
 Energy Calibration Slope : 5.085382  
 Energy Calibration Quadratic : 3.7076508E-04  
 Energy Calibration Range : 8127.000

Instrument : CHAMBER 005  
 Detector : 67612  
 Calibration Date/Time : 5-AUG-2009 14:46:05  
 Calibration Source Id : AESS-005

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.615      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.917      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.262      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2383.824  
 Energy Calibration Slope : 5.018230  
 Energy Calibration Quadratic : 2.9044802E-04  
 Energy Calibration Range : 7827.000

Instrument : CHAMBER 006  
 Detector : 67613  
 Calibration Date/Time : 5-AUG-2009 14:46:15  
 Calibration Source Id : AESS-006

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3182.663      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.540      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5794.813      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2372.455  
 Energy Calibration Slope : 4.968300  
 Energy Calibration Quadratic : 3.0602218E-04  
 Energy Calibration Range : 7781.000

Instrument : CHAMBER 007  
 Detector : 67607  
 Calibration Date/Time : 3-AUG-2009 15:08:14  
 Calibration Source Id : AESS-007  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.242  
 NP-237 4341 2/28/10 4768.800 4768.799  
 CM-244 4320A 2/28/10 5795.020 5795.021  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2434.070  
 Energy Calibration Slope : 5.126286  
 Energy Calibration Quadratic : 3.2231462E-04  
 Energy Calibration Range : 8021.000

Instrument : CHAMBER 008  
 Detector : 78788  
 Calibration Date/Time : 3-AUG-2009 15:08:25  
 Calibration Source Id : AESS-008  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.886  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2371.872  
 Energy Calibration Slope : 4.982497  
 Energy Calibration Quadratic : 2.9716187E-04  
 Energy Calibration Range : 7786.000

Instrument : CHAMBER 009  
 Detector : 72528  
 Calibration Date/Time : 3-AUG-2009 15:08:37  
 Calibration Source Id : AESS-009  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.800  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2376.048  
 Energy Calibration Slope : 4.954385  
 Energy Calibration Quadratic : 3.3214918E-04  
 Energy Calibration Range : 7798.000

Instrument : CHAMBER 010  
 Detector : 72529  
 Calibration Date/Time : 3-AUG-2009 15:08:47  
 Calibration Source Id : AESS-010

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.799      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.021      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2369.197  
 Energy Calibration Slope : 4.976785  
 Energy Calibration Quadratic : 2.5434556E-04  
 Energy Calibration Range : 7732.000

Instrument : CHAMBER 011  
 Detector : 72531  
 Calibration Date/Time : 3-AUG-2009 15:10:05  
 Calibration Source Id : AESS-011

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.798      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5794.773      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2352.745  
 Energy Calibration Slope : 4.989676  
 Energy Calibration Quadratic : 3.1640983E-04  
 Energy Calibration Range : 7794.000

Instrument : CHAMBER 012  
 Detector : 67594  
 Calibration Date/Time : 3-AUG-2009 15:10:47  
 Calibration Source Id : AESS-012

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3182.999      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.892      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.162      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2380.763  
 Energy Calibration Slope : 4.944053  
 Energy Calibration Quadratic : 2.9969949E-04  
 Energy Calibration Range : 7758.000

Instrument : CHAMBER 013  
 Detector : 78790  
 Calibration Date/Time : 3-AUG-2009 15:10:57  
 Calibration Source Id : AESS-013

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3182.313      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.407      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5794.604      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2363.188  
 Energy Calibration Slope : 4.918418  
 Energy Calibration Quadratic : 2.9963398E-04  
 Energy Calibration Range : 7714.000

Instrument : CHAMBER 014  
 Detector : 67616  
 Calibration Date/Time : 3-AUG-2009 15:11:09  
 Calibration Source Id : AESS-014

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.775      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4769.221      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.274      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2348.951  
 Energy Calibration Slope : 4.947984  
 Energy Calibration Quadratic : 3.1622496E-04  
 Energy Calibration Range : 7747.000

Instrument : CHAMBER 015  
 Detector : 61581  
 Calibration Date/Time : 3-AUG-2009 15:11:19  
 Calibration Source Id : AESS-015

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3182.428      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.094      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5794.472      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2351.056  
 Energy Calibration Slope : 4.893757  
 Energy Calibration Quadratic : 3.2378119E-04  
 Energy Calibration Range : 7702.000

Instrument : CHAMBER 016  
 Detector : 78774  
 Calibration Date/Time : 3-AUG-2009 15:11:28  
 Calibration Source Id : AESS-016

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.555      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.020      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2352.841  
 Energy Calibration Slope : 4.901042  
 Energy Calibration Quadratic : 2.9683873E-04  
 Energy Calibration Range : 7683.000

Instrument : CHAMBER 017  
 Detector : 78791  
 Calibration Date/Time : 3-AUG-2009 15:12:45  
 Calibration Source Id : AESS-017

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.274      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.745      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.020      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2363.135  
 Energy Calibration Slope : 4.992663  
 Energy Calibration Quadratic : 2.7446265E-04  
 Energy Calibration Range : 7763.000

Instrument : CHAMBER 018  
 Detector : 78782  
 Calibration Date/Time : 3-AUG-2009 15:12:56  
 Calibration Source Id : AESS-018

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3182.695      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.801      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.113      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2352.853  
 Energy Calibration Slope : 4.963830  
 Energy Calibration Quadratic : 3.1513936E-04  
 Energy Calibration Range : 7766.000

Instrument : CHAMBER 019  
 Detector : 78786  
 Calibration Date/Time : 3-AUG-2009 15:13:21  
 Calibration Source Id : AESS-019  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.801  
 CM-244 4320A 2/28/10 5795.020 5794.625  
  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2342.911  
 Energy Calibration Slope : 5.075375  
 Energy Calibration Quadratic : 2.0290195E-04  
 Energy Calibration Range : 7753.000

Instrument : CHAMBER 020  
 Detector : 78787  
 Calibration Date/Time : 3-AUG-2009 15:13:30  
 Calibration Source Id : AESS-020  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3182.407  
 NP-237 4341 2/28/10 4768.800 4768.798  
 CM-244 4320A 2/28/10 5795.020 5794.754  
  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2341.178  
 Energy Calibration Slope : 4.974929  
 Energy Calibration Quadratic : 3.0557165E-04  
 Energy Calibration Range : 7756.000

Instrument : CHAMBER 021  
 Detector : 67047  
 Calibration Date/Time : 3-AUG-2009 15:13:40  
 Calibration Source Id : AESS-021  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3182.625  
 NP-237 4341 2/28/10 4768.800 4768.133  
 CM-244 4320A 2/28/10 5795.020 5794.606  
  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2275.519  
 Energy Calibration Slope : 4.971471  
 Energy Calibration Quadratic : 2.7405904E-04  
 Energy Calibration Range : 7654.000

Instrument : CHAMBER 022  
 Detector : 72530  
 Calibration Date/Time : 3-AUG-2009 15:13:53  
 Calibration Source Id : AESS-022  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.547  
 CM-244 4320A 2/28/10 5795.020 5795.021  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2376.547  
 Energy Calibration Slope : 4.977059  
 Energy Calibration Quadratic : 2.7739155E-04  
 Energy Calibration Range : 7764.000

Instrument : CHAMBER 023  
 Detector : 78264  
 Calibration Date/Time : 3-AUG-2009 15:14:51  
 Calibration Source Id : AESS-023  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3182.979  
 NP-237 4341 2/28/10 4768.800 4768.454  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2383.134  
 Energy Calibration Slope : 4.999145  
 Energy Calibration Quadratic : 2.8956190E-04  
 Energy Calibration Range : 7806.000

Instrument : CHAMBER 024  
 Detector : 76542  
 Calibration Date/Time : 3-AUG-2009 15:15:01  
 Calibration Source Id : AESS-024  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.799  
 CM-244 4320A 2/28/10 5795.020 5795.021  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2348.727  
 Energy Calibration Slope : 4.965035  
 Energy Calibration Quadratic : 2.7366623E-04  
 Energy Calibration Range : 7720.000

Instrument : CHAMBER 025  
 Detector : 45-149AA5  
 Calibration Date/Time : 3-AUG-2009 15:15:13  
 Calibration Source Id : AESS-025  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.326  
 NP-237 4341 2/28/10 4768.800 4769.288  
 CM-244 4320A 2/28/10 5795.020 5795.321  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2318.480  
 Energy Calibration Slope : 4.856905  
 Energy Calibration Quadratic : 3.0368069E-04  
 Energy Calibration Range : 7610.000

Instrument : CHAMBER 026  
 Detector : 78204  
 Calibration Date/Time : 3-AUG-2009 15:15:23  
 Calibration Source Id : AESS-026  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.821  
 CM-244 4320A 2/28/10 5795.020 5795.028  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2356.528  
 Energy Calibration Slope : 4.940171  
 Energy Calibration Quadratic : 3.3160963E-04  
 Energy Calibration Range : 7763.000

Instrument : CHAMBER 027  
 Detector : 42484  
 Calibration Date/Time : 3-AUG-2009 15:15:36  
 Calibration Source Id : AESS-027  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.779  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2362.956  
 Energy Calibration Slope : 4.971167  
 Energy Calibration Quadratic : 3.1741365E-04  
 Energy Calibration Range : 7786.000



Instrument : CHAMBER 028  
 Detector : 78792  
 Calibration Date/Time : 3-AUG-2009 15:15:45  
 Calibration Source Id : AESS-028  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.319  
 NP-237 4341 2/28/10 4768.800 4768.977  
 CM-244 4320A 2/28/10 5795.020 5795.122  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2311.473  
 Energy Calibration Slope : 4.929708  
 Energy Calibration Quadratic : 3.5385601E-04  
 Energy Calibration Range : 7731.000

Instrument : CHAMBER 029  
 Detector : 33454  
 Calibration Date/Time : 3-AUG-2009 15:15:55  
 Calibration Source Id : AESS-029  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3184.453  
 NP-237 4341 2/28/10 4768.800 4773.209  
 CM-244 4320A 2/28/10 5795.020 5802.449  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2339.797  
 Energy Calibration Slope : 4.857889  
 Energy Calibration Quadratic : 3.2029144E-04  
 Energy Calibration Range : 7650.000

Instrument : CHAMBER 030  
 Detector : 33447  
 Calibration Date/Time : 3-AUG-2009 15:16:05  
 Calibration Source Id : AESS-030  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3182.504  
 NP-237 4341 2/28/10 4768.800 4768.116  
 CM-244 4320A 2/28/10 5795.020 5794.519  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2378.547  
 Energy Calibration Slope : 4.952705  
 Energy Calibration Quadratic : 3.1284252E-04  
 Energy Calibration Range : 7778.000

Instrument : CHAMBER 031  
 Detector : 67042  
 Calibration Date/Time : 3-AUG-2009 15:16:16  
 Calibration Source Id : AESS-031  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.466  
 NP-237 4341 2/28/10 4768.800 4769.878  
 CM-244 4320A 2/28/10 5795.020 5796.077  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2364.033  
 Energy Calibration Slope : 4.931703  
 Energy Calibration Quadratic : 3.3940026E-04  
 Energy Calibration Range : 7770.000

Instrument : CHAMBER 032  
 Detector : 67041  
 Calibration Date/Time : 3-AUG-2009 15:16:28  
 Calibration Source Id : AESS-032  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.801  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2370.812  
 Energy Calibration Slope : 4.912539  
 Energy Calibration Quadratic : 3.7134811E-04  
 Energy Calibration Range : 7791.000

Instrument : CHAMBER 033  
 Detector : 78785  
 Calibration Date/Time : 3-AUG-2009 15:16:44  
 Calibration Source Id : AESS-033  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.937  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2376.592  
 Energy Calibration Slope : 4.933960  
 Energy Calibration Quadratic : 3.4911980E-04  
 Energy Calibration Range : 7795.000

Instrument : CHAMBER 034  
 Detector : 61586  
 Calibration Date/Time : 3-AUG-2009 15:16:57  
 Calibration Source Id : AESS-034

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3182.237      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.352      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5794.135      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2382.364  
 Energy Calibration Slope : 5.064843  
 Energy Calibration Quadratic : 3.7605409E-04  
 Energy Calibration Range : 7963.000

Instrument : CHAMBER 035  
 Detector : 78202  
 Calibration Date/Time : 3-AUG-2009 15:17:07  
 Calibration Source Id : AESS-035

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.976      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.068      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2332.455  
 Energy Calibration Slope : 4.961503  
 Energy Calibration Quadratic : 3.2716690E-04  
 Energy Calibration Range : 7756.000

Instrument : CHAMBER 036  
 Detector : 78203  
 Calibration Date/Time : 3-AUG-2009 15:17:19  
 Calibration Source Id : AESS-036

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.831      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.020      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2351.688  
 Energy Calibration Slope : 4.934670  
 Energy Calibration Quadratic : 3.2679725E-04  
 Energy Calibration Range : 7747.000

Instrument : CHAMBER 037  
 Detector : 45-149BB5  
 Calibration Date/Time : 3-AUG-2009 15:17:30  
 Calibration Source Id : AESS-037  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.360  
 NP-237 4341 2/28/10 4768.800 4770.173  
 CM-244 4320A 2/28/10 5795.020 5795.449  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2380.215  
 Energy Calibration Slope : 4.934037  
 Energy Calibration Quadratic : 2.6879812E-04  
 Energy Calibration Range : 7715.000

Instrument : CHAMBER 038  
 Detector : 72532  
 Calibration Date/Time : 3-AUG-2009 15:17:42  
 Calibration Source Id : AESS-038  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3182.992  
 NP-237 4341 2/28/10 4768.800 4768.694  
 CM-244 4320A 2/28/10 5795.020 5794.956  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2374.738  
 Energy Calibration Slope : 4.941356  
 Energy Calibration Quadratic : 3.2555324E-04  
 Energy Calibration Range : 7776.000

Instrument : CHAMBER 039  
 Detector : 45-149BB2  
 Calibration Date/Time : 3-AUG-2009 15:17:50  
 Calibration Source Id : AESS-039  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4769.047  
 CM-244 4320A 2/28/10 5795.020 5795.021  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2386.341  
 Energy Calibration Slope : 4.892657  
 Energy Calibration Quadratic : 3.3502636E-04  
 Energy Calibration Range : 7748.000

Instrument : CHAMBER 040  
 Detector : 78773  
 Calibration Date/Time : 3-AUG-2009 15:18:00  
 Calibration Source Id : AESS-040  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.801  
 CM-244 4320A 2/28/10 5795.020 5795.091  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2353.680  
 Energy Calibration Slope : 4.886324  
 Energy Calibration Quadratic : 3.3744561E-04  
 Energy Calibration Range : 7711.000

Instrument : CHAMBER 041  
 Detector : 78205  
 Calibration Date/Time : 3-AUG-2009 15:18:09  
 Calibration Source Id : AESS-041  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.801  
 CM-244 4320A 2/28/10 5795.020 5795.019  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2360.991  
 Energy Calibration Slope : 4.934965  
 Energy Calibration Quadratic : 3.5826201E-04  
 Energy Calibration Range : 7790.000

Instrument : CHAMBER 042  
 Detector : 78793  
 Calibration Date/Time : 3-AUG-2009 15:18:18  
 Calibration Source Id : AESS-042  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.799  
 CM-244 4320A 2/28/10 5795.020 5795.021  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2378.631  
 Energy Calibration Slope : 4.903480  
 Energy Calibration Quadratic : 3.3252311E-04  
 Energy Calibration Range : 7748.000

Instrument : CHAMBER 043  
 Detector : 76543  
 Calibration Date/Time : 3-AUG-2009 15:18:26  
 Calibration Source Id : AESS-043  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.829  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2368.789  
 Energy Calibration Slope : 4.934124  
 Energy Calibration Quadratic : 3.2330386E-04  
 Energy Calibration Range : 7760.000

Instrument : CHAMBER 044  
 Detector : 79459  
 Calibration Date/Time : 3-AUG-2009 15:18:36  
 Calibration Source Id : AESS-044  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.302  
 NP-237 4341 2/28/10 4768.800 4768.800  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2359.457  
 Energy Calibration Slope : 4.939529  
 Energy Calibration Quadratic : 3.2710869E-04  
 Energy Calibration Range : 7761.000

Instrument : CHAMBER 045  
 Detector : 78783  
 Calibration Date/Time : 3-AUG-2009 15:18:46  
 Calibration Source Id : AESS-045  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3182.992  
 NP-237 4341 2/28/10 4768.800 4768.800  
 CM-244 4320A 2/28/10 5795.020 5795.021  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2366.479  
 Energy Calibration Slope : 4.912705  
 Energy Calibration Quadratic : 3.5802016E-04  
 Energy Calibration Range : 7773.000

Instrument : CHAMBER 046  
 Detector : 76544  
 Calibration Date/Time : 3-AUG-2009 15:18:55  
 Calibration Source Id : AESS-046

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.801      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.020      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2361.703  
 Energy Calibration Slope : 4.888400  
 Energy Calibration Quadratic : 3.3994557E-04  
 Energy Calibration Range : 7724.000

Instrument : CHAMBER 047  
 Detector : 46-089B1  
 Calibration Date/Time : 3-AUG-2009 15:19:03  
 Calibration Source Id : AESS-047

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.340      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.922      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.151      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2354.429  
 Energy Calibration Slope : 4.963282  
 Energy Calibration Quadratic : 3.1133511E-04  
 Energy Calibration Range : 7763.000

Instrument : CHAMBER 048  
 Detector : 42483  
 Calibration Date/Time : 3-AUG-2009 15:19:12  
 Calibration Source Id : AESS-048

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.266      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.972      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.095      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2377.788  
 Energy Calibration Slope : 4.957360  
 Energy Calibration Quadratic : 2.8386535E-04  
 Energy Calibration Range : 7752.000

Instrument : CHAMBER 065  
 Detector : 68551  
 Calibration Date/Time : 11-AUG-2009 11:32:36  
 Calibration Source Id : AESS-001

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.849      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4769.466      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.163      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2372.264  
 Energy Calibration Slope : 4.908353  
 Energy Calibration Quadratic : 3.3354512E-04  
 Energy Calibration Range : 7748.000

Instrument : CHAMBER 066  
 Detector : 46-089C1  
 Calibration Date/Time : 11-AUG-2009 11:33:22  
 Calibration Source Id : AESS-002

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.390      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4769.085      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.154      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2366.405  
 Energy Calibration Slope : 4.987269  
 Energy Calibration Quadratic : 2.6785664E-04  
 Energy Calibration Range : 7754.000

Instrument : CHAMBER 067  
 Detector : 46-089B4  
 Calibration Date/Time : 11-AUG-2009 11:33:34  
 Calibration Source Id : AESS-003

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.001      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.295      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5794.813      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2395.106  
 Energy Calibration Slope : 4.966452  
 Energy Calibration Quadratic : 2.8820083E-04  
 Energy Calibration Range : 7783.000



Instrument : CHAMBER 068  
 Detector : 78794  
 Calibration Date/Time : 11-AUG-2009 11:38:02  
 Calibration Source Id : AESS-004

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.980      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.141      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2363.999  
 Energy Calibration Slope : 4.959627  
 Energy Calibration Quadratic : 3.2675461E-04  
 Energy Calibration Range : 7785.000

Instrument : CHAMBER 069  
 Detector : 78795  
 Calibration Date/Time : 11-AUG-2009 11:38:36  
 Calibration Source Id : AESS-005

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.715      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.021      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2374.161  
 Energy Calibration Slope : 4.934980  
 Energy Calibration Quadratic : 3.3370449E-04  
 Energy Calibration Range : 7777.000

Instrument : CHAMBER 070  
 Detector : 46-089B2  
 Calibration Date/Time : 11-AUG-2009 11:38:49  
 Calibration Source Id : AESS-006

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.376      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.799      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.021      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2384.967  
 Energy Calibration Slope : 4.940035  
 Energy Calibration Quadratic : 3.0117441E-04  
 Energy Calibration Range : 7759.000

Instrument : CHAMBER 071  
 Detector : 64259  
 Calibration Date/Time : 11-AUG-2009 11:39:05  
 Calibration Source Id : AESS-007

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.799      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.020      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2380.222  
 Energy Calibration Slope : 4.972534  
 Energy Calibration Quadratic : 3.0923611E-04  
 Energy Calibration Range : 7796.000

Instrument : CHAMBER 072  
 Detector : 45-149AA3  
 Calibration Date/Time : 11-AUG-2009 11:41:05  
 Calibration Source Id : AESS-008

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.799      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5794.779      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2367.289  
 Energy Calibration Slope : 4.936321  
 Energy Calibration Quadratic : 3.1663457E-04  
 Energy Calibration Range : 7754.000

Instrument : CHAMBER 073  
 Detector : 78775  
 Calibration Date/Time : 11-AUG-2009 11:41:19  
 Calibration Source Id : AESS-009

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.800      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.020      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2340.294  
 Energy Calibration Slope : 4.933617  
 Energy Calibration Quadratic : 3.0803526E-04  
 Energy Calibration Range : 7715.000

Instrument : CHAMBER 074  
 Detector : 78266  
 Calibration Date/Time : 11-AUG-2009 11:41:50  
 Calibration Source Id : AESS-010

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.800      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.020      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2357.238  
 Energy Calibration Slope : 4.957754  
 Energy Calibration Quadratic : 3.2763465E-04  
 Energy Calibration Range : 7778.000

Instrument : CHAMBER 075  
 Detector : 68550  
 Calibration Date/Time : 11-AUG-2009 11:42:08  
 Calibration Source Id : AESS-011

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.795      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4769.246      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.020      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2357.909  
 Energy Calibration Slope : 4.956091  
 Energy Calibration Quadratic : 3.1667759E-04  
 Energy Calibration Range : 7765.000

Instrument : CHAMBER 076  
 Detector : 78779  
 Calibration Date/Time : 11-AUG-2009 11:42:40  
 Calibration Source Id : AESS-012

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.799      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.193      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2353.146  
 Energy Calibration Slope : 4.949463  
 Energy Calibration Quadratic : 3.2361425E-04  
 Energy Calibration Range : 7761.000

Instrument : CHAMBER 077  
 Detector : 67576  
 Calibration Date/Time : 11-AUG-2009 11:42:53  
 Calibration Source Id : AESS-013

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.800      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5794.739      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2362.830  
 Energy Calibration Slope : 4.939044  
 Energy Calibration Quadratic : 3.0275399E-04  
 Energy Calibration Range : 7738.000

Instrument : CHAMBER 078  
 Detector : 67577  
 Calibration Date/Time : 11-AUG-2009 11:43:47  
 Calibration Source Id : AESS-014

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3181.433      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4767.846      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5793.522      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2407.798  
 Energy Calibration Slope : 4.964797  
 Energy Calibration Quadratic : 3.3742035E-04  
 Energy Calibration Range : 7846.000

Instrument : CHAMBER 079  
 Detector : 67598  
 Calibration Date/Time : 11-AUG-2009 11:44:09  
 Calibration Source Id : AESS-015

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.694      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.021      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2369.132  
 Energy Calibration Slope : 4.920986  
 Energy Calibration Quadratic : 3.1385853E-04  
 Energy Calibration Range : 7737.000

Instrument : CHAMBER 080  
 Detector : 78197  
 Calibration Date/Time : 12-AUG-2009 06:47:19  
 Calibration Source Id : AESS-016

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.250      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4769.057      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.270      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2352.236  
 Energy Calibration Slope : 4.998828  
 Energy Calibration Quadratic : 2.8291933E-04  
 Energy Calibration Range : 7768.000

Instrument : CHAMBER 081  
 Detector : 72533  
 Calibration Date/Time : 11-AUG-2009 11:46:32  
 Calibration Source Id : AESS-017

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3204.930      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4703.826      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5726.761      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2219.847  
 Energy Calibration Slope : 9.458302  
 Energy Calibration Quadratic : -5.2725184E-03  
 Energy Calibration Range : 6377.000

Instrument : CHAMBER 082  
 Detector : 64263  
 Calibration Date/Time : 11-AUG-2009 11:47:05  
 Calibration Source Id : AESS-018

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3182.619      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4767.967      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5794.591      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2389.567  
 Energy Calibration Slope : 4.987039  
 Energy Calibration Quadratic : 3.1898782E-04  
 Energy Calibration Range : 7831.000

Instrument : CHAMBER 083  
 Detector : 64278  
 Calibration Date/Time : 11-AUG-2009 11:47:29  
 Calibration Source Id : AESS-019

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.777      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.800      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.020      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2373.204  
 Energy Calibration Slope : 5.041853  
 Energy Calibration Quadratic : 2.3808437E-04  
 Energy Calibration Range : 7786.000

Instrument : CHAMBER 084  
 Detector : 78265  
 Calibration Date/Time : 11-AUG-2009 11:47:52  
 Calibration Source Id : AESS-020

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.799      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5794.867      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2362.363  
 Energy Calibration Slope : 5.016379  
 Energy Calibration Quadratic : 2.7867779E-04  
 Energy Calibration Range : 7791.000

Instrument : CHAMBER 085  
 Detector : 78776  
 Calibration Date/Time : 11-AUG-2009 11:48:19  
 Calibration Source Id : AESS-021

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.802      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.019      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2368.057  
 Energy Calibration Slope : 4.984862  
 Energy Calibration Quadratic : 2.9382212E-04  
 Energy Calibration Range : 7781.000

Instrument : CHAMBER 086  
 Detector : 78198  
 Calibration Date/Time : 11-AUG-2009 11:48:41  
 Calibration Source Id : AESS-022

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3182.458      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.482      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5794.558      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2358.351  
 Energy Calibration Slope : 5.023737  
 Energy Calibration Quadratic : 2.3622859E-04  
 Energy Calibration Range : 7750.000

Instrument : CHAMBER 087  
 Detector : 78199  
 Calibration Date/Time : 11-AUG-2009 11:49:08  
 Calibration Source Id : AESS-023

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3182.717      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.539      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5794.745      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2342.553  
 Energy Calibration Slope : 4.976685  
 Energy Calibration Quadratic : 2.4361881E-04  
 Energy Calibration Range : 7694.000

Instrument : CHAMBER 088  
 Detector : 33452  
 Calibration Date/Time : 11-AUG-2009 11:50:14  
 Calibration Source Id : AESS-024

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.801      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.020      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2348.450  
 Energy Calibration Slope : 4.985291  
 Energy Calibration Quadratic : 2.0228673E-04  
 Energy Calibration Range : 7666.000

Instrument : CHAMBER 089  
 Detector : 78262  
 Calibration Date/Time : 11-AUG-2009 11:50:54  
 Calibration Source Id : AESS-025

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3182.822      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.800      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.020      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2360.236  
 Energy Calibration Slope : 4.993787  
 Energy Calibration Quadratic : 3.1235311E-04  
 Energy Calibration Range : 7801.000

Instrument : CHAMBER 090  
 Detector : 78263  
 Calibration Date/Time : 11-AUG-2009 11:51:07  
 Calibration Source Id : AESS-026

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.689      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5794.864      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2367.944  
 Energy Calibration Slope : 4.912088  
 Energy Calibration Quadratic : 3.3423179E-04  
 Energy Calibration Range : 7748.000

Instrument : CHAMBER 091  
 Detector : 78259  
 Calibration Date/Time : 11-AUG-2009 11:51:19  
 Calibration Source Id : AESS-027

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3182.501      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.562      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5794.908      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2373.294  
 Energy Calibration Slope : 4.962712  
 Energy Calibration Quadratic : 3.3628431E-04  
 Energy Calibration Range : 7808.000



Instrument : CHAMBER 092  
 Detector : 79457  
 Calibration Date/Time : 11-AUG-2009 11:52:08  
 Calibration Source Id : AESS-028  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3182.999  
 NP-237 4341 2/28/10 4768.800 4769.086  
 CM-244 4320A 2/28/10 5795.020 5795.236  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2353.207  
 Energy Calibration Slope : 4.920592  
 Energy Calibration Quadratic : 3.2561756E-04  
 Energy Calibration Range : 7733.000

Instrument : CHAMBER 093  
 Detector : 33206  
 Calibration Date/Time : 11-AUG-2009 11:52:22  
 Calibration Source Id : AESS-029  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3182.729  
 NP-237 4341 2/28/10 4768.800 4768.662  
 CM-244 4320A 2/28/10 5795.020 5794.973  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2374.507  
 Energy Calibration Slope : 4.905449  
 Energy Calibration Quadratic : 3.4070064E-04  
 Energy Calibration Range : 7755.000

Instrument : CHAMBER 094  
 Detector : 78267  
 Calibration Date/Time : 11-AUG-2009 11:52:36  
 Calibration Source Id : AESS-030  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3182.615  
 NP-237 4341 2/28/10 4768.800 4768.657  
 CM-244 4320A 2/28/10 5795.020 5794.828  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2364.661  
 Energy Calibration Slope : 4.944430  
 Energy Calibration Quadratic : 3.0602465E-04  
 Energy Calibration Range : 7749.000

Instrument : CHAMBER 095  
 Detector : 64279  
 Calibration Date/Time : 11-AUG-2009 11:53:20  
 Calibration Source Id : AESS-031

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.800      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5794.924      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2360.997  
 Energy Calibration Slope : 4.923662  
 Energy Calibration Quadratic : 3.3134571E-04  
 Energy Calibration Range : 7750.000

Instrument : CHAMBER 096  
 Detector : 67605  
 Calibration Date/Time : 11-AUG-2009 11:53:35  
 Calibration Source Id : AESS-032

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3182.861      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.801      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5794.970      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2352.669  
 Energy Calibration Slope : 4.930194  
 Energy Calibration Quadratic : 3.4499675E-04  
 Energy Calibration Range : 7763.000

Instrument : CHAMBER 097  
 Detector : 67599  
 Calibration Date/Time : 11-AUG-2009 11:54:04  
 Calibration Source Id : AESS-033

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3182.385      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.497      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5794.575      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2366.630  
 Energy Calibration Slope : 4.955770  
 Energy Calibration Quadratic : 3.2342706E-04  
 Energy Calibration Range : 7780.000

Instrument : CHAMBER 098  
 Detector : 68644  
 Calibration Date/Time : 11-AUG-2009 11:54:57  
 Calibration Source Id : AESS-034

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.677      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.020      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2384.988  
 Energy Calibration Slope : 4.980790  
 Energy Calibration Quadratic : 3.1301824E-04  
 Energy Calibration Range : 7814.000

Instrument : CHAMBER 099  
 Detector : 70317  
 Calibration Date/Time : 11-AUG-2009 11:55:11  
 Calibration Source Id : AESS-035

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3182.657      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.798      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5794.872      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2370.271  
 Energy Calibration Slope : 4.896307  
 Energy Calibration Quadratic : 3.5264078E-04  
 Energy Calibration Range : 7754.000

Instrument : CHAMBER 100  
 Detector : 79456  
 Calibration Date/Time : 11-AUG-2009 11:55:23  
 Calibration Source Id : AESS-046

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.007      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.931      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.248      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2353.091  
 Energy Calibration Slope : 4.889555  
 Energy Calibration Quadratic : 3.4731548E-04  
 Energy Calibration Range : 7724.000

Instrument : CHAMBER 101  
 Detector : 64253  
 Calibration Date/Time : 11-AUG-2009 11:55:41  
 Calibration Source Id : AESS-037

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3182.482      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.628      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.004      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2413.378  
 Energy Calibration Slope : 4.941072  
 Energy Calibration Quadratic : 3.1744229E-04  
 Energy Calibration Range : 7806.000

Instrument : CHAMBER 102  
 Detector : 72525  
 Calibration Date/Time : 11-AUG-2009 11:55:55  
 Calibration Source Id : AESS-038

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3182.620      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.759      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.021      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2365.023  
 Energy Calibration Slope : 4.877947  
 Energy Calibration Quadratic : 3.3410732E-04  
 Energy Calibration Range : 7710.000

Instrument : CHAMBER 103  
 Detector : 79461  
 Calibration Date/Time : 11-AUG-2009 11:56:06  
 Calibration Source Id : AESS-039

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.724      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.020      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2388.602  
 Energy Calibration Slope : 4.925415  
 Energy Calibration Quadratic : 3.3399722E-04  
 Energy Calibration Range : 7782.000

Instrument : CHAMBER 104  
 Detector : 72524  
 Calibration Date/Time : 11-AUG-2009 11:56:56  
 Calibration Source Id : AESS-040  
 Cal. Isotopes    Source Id    Expiration Date    Standard Energy    Actual Energy  
   GD-148        6445-278      2/28/10            3183.000        3182.731  
   NP-237        4341          2/28/10            4768.800        4768.746  
   CM-244        4320A        2/28/10            5795.020        5794.950  
  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2361.164  
 Energy Calibration Slope : 4.875978  
 Energy Calibration Quadratic : 3.5914616E-04  
 Energy Calibration Range : 7731.000

Instrument : CHAMBER 105  
 Detector : 78777  
 Calibration Date/Time : 11-AUG-2009 11:57:20  
 Calibration Source Id : AESS-041  
 Cal. Isotopes    Source Id    Expiration Date    Standard Energy    Actual Energy  
   GD-148        6445-278      2/28/10            3183.000        3183.000  
   NP-237        4341          2/28/10            4768.800        4768.800  
   CM-244        4320A        2/28/10            5795.020        5795.021  
  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2374.957  
 Energy Calibration Slope : 4.877512  
 Energy Calibration Quadratic : 3.5687728E-04  
 Energy Calibration Range : 7744.000

Instrument : CHAMBER 106  
 Detector : 64274  
 Calibration Date/Time : 11-AUG-2009 11:57:33  
 Calibration Source Id : AESS-042  
 Cal. Isotopes    Source Id    Expiration Date    Standard Energy    Actual Energy  
   GD-148        6445-278      2/28/10            3183.000        3183.000  
   NP-237        4341          2/28/10            4768.800        4768.799  
   CM-244        4320A        2/28/10            5795.020        5795.021  
  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2386.397  
 Energy Calibration Slope : 4.925849  
 Energy Calibration Quadratic : 3.5619634E-04  
 Energy Calibration Range : 7804.000

Instrument : CHAMBER 107  
 Detector : 67578  
 Calibration Date/Time : 11-AUG-2009 11:58:23  
 Calibration Source Id : AESS-043

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3182.757      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.431      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5794.760      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2365.165  
 Energy Calibration Slope : 4.989622  
 Energy Calibration Quadratic : 3.0367926E-04  
 Energy Calibration Range : 7793.000

Instrument : CHAMBER 108  
 Detector : 78778  
 Calibration Date/Time : 11-AUG-2009 12:00:02  
 Calibration Source Id : AESS-044

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.799      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.085      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2361.750  
 Energy Calibration Slope : 4.889173  
 Energy Calibration Quadratic : 3.3859405E-04  
 Energy Calibration Range : 7723.000

Instrument : CHAMBER 109  
 Detector : 79463  
 Calibration Date/Time : 11-AUG-2009 12:00:23  
 Calibration Source Id : AESS-045

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.801      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.011      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2361.956  
 Energy Calibration Slope : 4.902098  
 Energy Calibration Quadratic : 3.6021773E-04  
 Energy Calibration Range : 7759.000

Instrument : CHAMBER 110  
 Detector : 67602  
 Calibration Date/Time : 11-AUG-2009 12:01:03  
 Calibration Source Id : AESS-046

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3180.240      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4767.627      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5792.351      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2450.737  
 Energy Calibration Slope : 5.078455  
 Energy Calibration Quadratic : 3.6329794E-04  
 Energy Calibration Range : 8032.000

Instrument : CHAMBER 111  
 Detector : 79462  
 Calibration Date/Time : 11-AUG-2009 12:01:21  
 Calibration Source Id : AESS-047

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3182.689      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.620      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5794.913      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2360.863  
 Energy Calibration Slope : 4.982990  
 Energy Calibration Quadratic : 3.1839884E-04  
 Energy Calibration Range : 7797.000

Instrument : CHAMBER 112  
 Detector : 78261  
 Calibration Date/Time : 11-AUG-2009 12:02:06  
 Calibration Source Id : AESS-048

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.798      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.021      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2372.713  
 Energy Calibration Slope : 4.922604  
 Energy Calibration Quadratic : 3.2149741E-04  
 Energy Calibration Range : 7751.000

Instrument : CHAMBER 113  
 Detector : 45-111B4  
 Calibration Date/Time : 17-AUG-2009 14:57:05  
 Calibration Source Id : AESS-001

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.693      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.021      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2388.351  
 Energy Calibration Slope : 4.986037  
 Energy Calibration Quadratic : 2.9112995E-04  
 Energy Calibration Range : 7799.000

Instrument : CHAMBER 114  
 Detector : 78258  
 Calibration Date/Time : 17-AUG-2009 14:57:42  
 Calibration Source Id : AESS-007

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3182.738      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.375      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5794.878      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2341.717  
 Energy Calibration Slope : 4.967946  
 Energy Calibration Quadratic : 2.6719994E-04  
 Energy Calibration Range : 7709.000

Instrument : CHAMBER 115  
 Detector : 45-132FF4  
 Calibration Date/Time : 17-AUG-2009 14:57:55  
 Calibration Source Id : AESS-002

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.996      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.124      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2360.484  
 Energy Calibration Slope : 5.001271  
 Energy Calibration Quadratic : 2.5857674E-04  
 Energy Calibration Range : 7753.000



Instrument : CHAMBER 116  
 Detector : 45-132FF2  
 Calibration Date/Time : 17-AUG-2009 14:58:06  
 Calibration Source Id : AESS-008  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.296  
 NP-237 4341 2/28/10 4768.800 4768.799  
 CM-244 4320A 2/28/10 5795.020 5795.021  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2358.140  
 Energy Calibration Slope : 4.998592  
 Energy Calibration Quadratic : 2.4986797E-04  
 Energy Calibration Range : 7739.000

Instrument : CHAMBER 117  
 Detector : 33450  
 Calibration Date/Time : 17-AUG-2009 14:58:17  
 Calibration Source Id : AESS-003  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3182.212  
 NP-237 4341 2/28/10 4768.800 4768.136  
 CM-244 4320A 2/28/10 5795.020 5794.829  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2377.331  
 Energy Calibration Slope : 4.984442  
 Energy Calibration Quadratic : 2.6023277E-04  
 Energy Calibration Range : 7754.000

Instrument : CHAMBER 118  
 Detector : 75544  
 Calibration Date/Time : 17-AUG-2009 14:58:27  
 Calibration Source Id : AESS-009  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3182.453  
 NP-237 4341 2/28/10 4768.800 4768.624  
 CM-244 4320A 2/28/10 5795.020 5794.893  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2343.030  
 Energy Calibration Slope : 4.970738  
 Energy Calibration Quadratic : 2.7650801E-04  
 Energy Calibration Range : 7723.000

Instrument : CHAMBER 119  
 Detector : 74429  
 Calibration Date/Time : 2-FEB-2009 15:15:38  
 Calibration Source Id : AESS-004  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3069.001  
 NP-237 4341 2/28/10 4768.800 4669.281  
 CM-244 4320A 2/28/10 5795.020 5706.875  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2437.949  
 Energy Calibration Slope : 5.036866  
 Energy Calibration Quadratic :  
 Energy Calibration Range : 7596.000

Instrument : CHAMBER 120  
 Detector : 74430  
 Calibration Date/Time : 16-JUL-2009 09:29:36  
 Calibration Source Id : AESS-010  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.243  
 NP-237 4341 2/28/10 4768.800 4768.978  
 CM-244 4320A 2/28/10 5795.020 5795.142  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2311.106  
 Energy Calibration Slope : 4.960131  
 Energy Calibration Quadratic : 2.6160042E-04  
 Energy Calibration Range : 7665.000

Instrument : CHAMBER 121  
 Detector : 75545  
 Calibration Date/Time : 17-AUG-2009 14:58:37  
 Calibration Source Id : AESS-005  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3182.992  
 NP-237 4341 2/28/10 4768.800 4768.800  
 CM-244 4320A 2/28/10 5795.020 5794.910  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2338.077  
 Energy Calibration Slope : 4.950966  
 Energy Calibration Quadratic : 2.8139201E-04  
 Energy Calibration Range : 7703.000

Instrument : CHAMBER 122  
 Detector : 75546  
 Calibration Date/Time : 17-AUG-2009 14:58:49  
 Calibration Source Id : AESS-011

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3182.767      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.557      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.021      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2334.596  
 Energy Calibration Slope : 4.961221  
 Energy Calibration Quadratic : 2.6947071E-04  
 Energy Calibration Range : 7697.000

Instrument : CHAMBER 123  
 Detector : 45-142V3  
 Calibration Date/Time : 17-AUG-2009 14:58:58  
 Calibration Source Id : AESS-006

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3182.626      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.419      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5794.913      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2377.630  
 Energy Calibration Slope : 4.988592  
 Energy Calibration Quadratic : 2.4062325E-04  
 Energy Calibration Range : 7738.000

Instrument : CHAMBER 124  
 Detector : 45-142V2  
 Calibration Date/Time : 17-AUG-2009 14:59:08  
 Calibration Source Id : AESS-012

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3182.737      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.348      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5794.822      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2389.445  
 Energy Calibration Slope : 5.014465  
 Energy Calibration Quadratic : 2.5700411E-04  
 Energy Calibration Range : 7794.000

Instrument : CHAMBER 125  
 Detector : 75547  
 Calibration Date/Time : 17-AUG-2009 14:59:18  
 Calibration Source Id : AESS-013  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3182.519  
 NP-237 4341 2/28/10 4768.800 4768.590  
 CM-244 4320A 2/28/10 5795.020 5794.968  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2346.234  
 Energy Calibration Slope : 4.935012  
 Energy Calibration Quadratic : 2.8653492E-04  
 Energy Calibration Range : 7700.000

Instrument : CHAMBER 126  
 Detector : 75548  
 Calibration Date/Time : 17-AUG-2009 14:59:32  
 Calibration Source Id : AESS-019  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3182.586  
 NP-237 4341 2/28/10 4768.800 4768.494  
 CM-244 4320A 2/28/10 5795.020 5794.836  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2351.831  
 Energy Calibration Slope : 5.025319  
 Energy Calibration Quadratic : 2.1107355E-04  
 Energy Calibration Range : 7719.000

Instrument : CHAMBER 127  
 Detector : 78770  
 Calibration Date/Time : 17-AUG-2009 14:59:46  
 Calibration Source Id : AESS-014  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3182.831  
 NP-237 4341 2/28/10 4768.800 4768.741  
 CM-244 4320A 2/28/10 5795.020 5794.894  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2339.154  
 Energy Calibration Slope : 4.970251  
 Energy Calibration Quadratic : 2.5652250E-04  
 Energy Calibration Range : 7698.000

Instrument : CHAMBER 128  
 Detector : 75549  
 Calibration Date/Time : 17-AUG-2009 15:00:39  
 Calibration Source Id : AESS-020  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3182.531  
 NP-237 4341 2/28/10 4768.800 4768.610  
 CM-244 4320A 2/28/10 5795.020 5794.838  
  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2330.388  
 Energy Calibration Slope : 5.000057  
 Energy Calibration Quadratic : 2.3812153E-04  
 Energy Calibration Range : 7700.000

Instrument : CHAMBER 129  
 Detector : 76227  
 Calibration Date/Time : 17-AUG-2009 15:00:50  
 Calibration Source Id : AESS-015  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3182.843  
 NP-237 4341 2/28/10 4768.800 4768.717  
 CM-244 4320A 2/28/10 5795.020 5794.874  
  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2351.215  
 Energy Calibration Slope : 4.930460  
 Energy Calibration Quadratic : 2.9455224E-04  
 Energy Calibration Range : 7709.000

Instrument : CHAMBER 130  
 Detector : 76228  
 Calibration Date/Time : 17-AUG-2009 15:01:00  
 Calibration Source Id : AESS-021  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3182.985  
 NP-237 4341 2/28/10 4768.800 4768.658  
 CM-244 4320A 2/28/10 5795.020 5794.729  
  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2337.606  
 Energy Calibration Slope : 4.982665  
 Energy Calibration Quadratic : 2.2944069E-04  
 Energy Calibration Range : 7680.000

Instrument : CHAMBER 131  
 Detector : 33448  
 Calibration Date/Time : 17-AUG-2009 15:01:10  
 Calibration Source Id : AESS-016  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3178.948  
 NP-237 4341 2/28/10 4768.800 4766.564  
 CM-244 4320A 2/28/10 5795.020 5793.610  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2408.823  
 Energy Calibration Slope : 4.963500  
 Energy Calibration Quadratic : 2.8727154E-04  
 Energy Calibration Range : 7793.000

Instrument : CHAMBER 132  
 Detector : 67579  
 Calibration Date/Time : 17-AUG-2009 15:01:19  
 Calibration Source Id : AESS-022  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.495  
 CM-244 4320A 2/28/10 5795.020 5794.895  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2326.639  
 Energy Calibration Slope : 5.034670  
 Energy Calibration Quadratic : 2.1709618E-04  
 Energy Calibration Range : 7710.000

Instrument : CHAMBER 133  
 Detector : 76229  
 Calibration Date/Time : 17-AUG-2009 15:01:29  
 Calibration Source Id : AESS-017  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3182.802  
 NP-237 4341 2/28/10 4768.800 4768.798  
 CM-244 4320A 2/28/10 5795.020 5794.855  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2310.723  
 Energy Calibration Slope : 4.901457  
 Energy Calibration Quadratic : 2.6648620E-04  
 Energy Calibration Range : 7609.000

Instrument : CHAMBER 134  
 Detector : 76230  
 Calibration Date/Time : 17-AUG-2009 15:01:38  
 Calibration Source Id : AESS-023

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3182.670      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.734      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.020      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2328.671  
 Energy Calibration Slope : 4.971330  
 Energy Calibration Quadratic : 2.3919715E-04  
 Energy Calibration Range : 7670.000

Instrument : CHAMBER 135  
 Detector : 64270  
 Calibration Date/Time : 17-AUG-2009 15:01:50  
 Calibration Source Id : AESS-018

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.220      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.800      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.020      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2334.713  
 Energy Calibration Slope : 4.950563  
 Energy Calibration Quadratic : 2.6665861E-04  
 Energy Calibration Range : 7684.000

Instrument : CHAMBER 136  
 Detector : 68549  
 Calibration Date/Time : 17-AUG-2009 15:02:00  
 Calibration Source Id : AESS-024

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.547      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4769.648      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.176      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2352.961  
 Energy Calibration Slope : 4.996480  
 Energy Calibration Quadratic : 2.6544984E-04  
 Energy Calibration Range : 7748.000

Instrument : CHAMBER 137  
 Detector : 64288  
 Calibration Date/Time : 17-AUG-2009 15:14:28  
 Calibration Source Id : AESS-025

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.799      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.021      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2378.268  
 Energy Calibration Slope : 5.007382  
 Energy Calibration Quadratic : 3.1592944E-04  
 Energy Calibration Range : 7837.000

Instrument : CHAMBER 138  
 Detector : 65877  
 Calibration Date/Time : 17-AUG-2009 15:10:23  
 Calibration Source Id : AESS-031

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.778      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5794.902      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2376.472  
 Energy Calibration Slope : 4.997972  
 Energy Calibration Quadratic : 2.8433124E-04  
 Energy Calibration Range : 7793.000

Instrument : CHAMBER 139  
 Detector : 76231  
 Calibration Date/Time : 17-AUG-2009 15:10:36  
 Calibration Source Id : AESS-026

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3182.807      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.778      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.020      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2353.050  
 Energy Calibration Slope : 4.923675  
 Energy Calibration Quadratic : 3.2614564E-04  
 Energy Calibration Range : 7737.000



Instrument : CHAMBER 140  
 Detector : 78771  
 Calibration Date/Time : 17-AUG-2009 15:10:53  
 Calibration Source Id : AESS-032

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.800      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5794.950      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2343.606  
 Energy Calibration Slope : 4.949296  
 Energy Calibration Quadratic : 3.0935110E-04  
 Energy Calibration Range : 7736.000

Instrument : CHAMBER 141  
 Detector : 76232  
 Calibration Date/Time : 17-AUG-2009 15:11:05  
 Calibration Source Id : AESS-027

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3182.704      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.701      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.020      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2354.080  
 Energy Calibration Slope : 4.967496  
 Energy Calibration Quadratic : 2.7667297E-04  
 Energy Calibration Range : 7731.000

Instrument : CHAMBER 142  
 Detector : 64261  
 Calibration Date/Time : 17-AUG-2009 15:11:22  
 Calibration Source Id : AESS-033

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.800      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5794.996      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2377.858  
 Energy Calibration Slope : 4.966272  
 Energy Calibration Quadratic : 3.0408424E-04  
 Energy Calibration Range : 7782.000

Instrument : CHAMBER 143  
 Detector : 65882  
 Calibration Date/Time : 17-AUG-2009 15:11:35  
 Calibration Source Id : AESS-028  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3182.838  
 NP-237 4341 2/28/10 4768.800 4768.801  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2353.476  
 Energy Calibration Slope : 4.958334  
 Energy Calibration Quadratic : 2.9036327E-04  
 Energy Calibration Range : 7735.000

Instrument : CHAMBER 144  
 Detector : 75551  
 Calibration Date/Time : 17-AUG-2009 15:11:48  
 Calibration Source Id : AESS-034  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.149  
 NP-237 4341 2/28/10 4768.800 4768.801  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2348.280  
 Energy Calibration Slope : 4.953019  
 Energy Calibration Quadratic : 2.9027942E-04  
 Energy Calibration Range : 7725.000

Instrument : CHAMBER 145  
 Detector : 72526  
 Calibration Date/Time : 17-AUG-2009 15:12:06  
 Calibration Source Id : AESS-029  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.799  
 CM-244 4320A 2/28/10 5795.020 5794.950  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2358.188  
 Energy Calibration Slope : 4.950538  
 Energy Calibration Quadratic : 3.1101296E-04  
 Energy Calibration Range : 7754.000

Instrument : CHAMBER 146  
 Detector : 72527  
 Calibration Date/Time : 17-AUG-2009 15:12:19  
 Calibration Source Id : AESS-035

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3182.841      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.589      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.021      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2352.896  
 Energy Calibration Slope : 4.936564  
 Energy Calibration Quadratic : 2.8588294E-04  
 Energy Calibration Range : 7708.000

Instrument : CHAMBER 147  
 Detector : 75550  
 Calibration Date/Time : 17-AUG-2009 15:12:37  
 Calibration Source Id : AESS-030

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3182.991      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.681      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5794.852      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2344.357  
 Energy Calibration Slope : 4.979820  
 Energy Calibration Quadratic : 2.4974984E-04  
 Energy Calibration Range : 7706.000

Instrument : CHAMBER 148  
 Detector : 74429  
 Calibration Date/Time : 17-AUG-2009 15:12:57  
 Calibration Source Id : AESS-036

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3182.790      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.746      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5794.901      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2347.048  
 Energy Calibration Slope : 4.952481  
 Energy Calibration Quadratic : 2.8881739E-04  
 Energy Calibration Range : 7721.000

Instrument : CHAMBER 149  
 Detector : 33449  
 Calibration Date/Time : 17-AUG-2009 15:02:09  
 Calibration Source Id : AESS-037

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3182.635      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.444      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5794.948      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2393.262  
 Energy Calibration Slope : 4.951241  
 Energy Calibration Quadratic : 3.0021602E-04  
 Energy Calibration Range : 7778.000

Instrument : CHAMBER 150  
 Detector : 75552  
 Calibration Date/Time : 17-AUG-2009 15:02:19  
 Calibration Source Id : AESS-043

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.799      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.021      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2357.177  
 Energy Calibration Slope : 4.964990  
 Energy Calibration Quadratic : 2.8429780E-04  
 Energy Calibration Range : 7739.000

Instrument : CHAMBER 151  
 Detector : 75556  
 Calibration Date/Time : 17-AUG-2009 15:02:29  
 Calibration Source Id : AESS-038

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.755      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5794.925      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2344.746  
 Energy Calibration Slope : 4.932197  
 Energy Calibration Quadratic : 2.7974858E-04  
 Energy Calibration Range : 7689.000

Instrument : CHAMBER 152  
 Detector : 76222  
 Calibration Date/Time : 17-AUG-2009 15:02:41  
 Calibration Source Id : AESS-044

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3182.811      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.798      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5794.877      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2344.480  
 Energy Calibration Slope : 4.936235  
 Energy Calibration Quadratic : 2.8715734E-04  
 Energy Calibration Range : 7700.000

Instrument : CHAMBER 153  
 Detector : 76223  
 Calibration Date/Time : 17-AUG-2009 15:02:59  
 Calibration Source Id : AESS-039

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3182.810      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.800      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5794.996      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2337.684  
 Energy Calibration Slope : 4.933674  
 Energy Calibration Quadratic : 3.0187287E-04  
 Energy Calibration Range : 7706.000

Instrument : CHAMBER 154  
 Detector : 76224  
 Calibration Date/Time : 17-AUG-2009 15:03:12  
 Calibration Source Id : AESS-045

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.801      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.019      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2342.948  
 Energy Calibration Slope : 4.948957  
 Energy Calibration Quadratic : 2.8683257E-04  
 Energy Calibration Range : 7711.000

Instrument : CHAMBER 155  
 Detector : 75553  
 Calibration Date/Time : 17-AUG-2009 15:03:49  
 Calibration Source Id : AESS-040  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3182.770  
 NP-237 4341 2/28/10 4768.800 4768.662  
 CM-244 4320A 2/28/10 5795.020 5794.902  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2367.728  
 Energy Calibration Slope : 4.983710  
 Energy Calibration Quadratic : 2.8808211E-04  
 Energy Calibration Range : 7773.000

Instrument : CHAMBER 156  
 Detector : 75554  
 Calibration Date/Time : 17-AUG-2009 15:03:58  
 Calibration Source Id : AESS-046  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3182.851  
 NP-237 4341 2/28/10 4768.800 4768.705  
 CM-244 4320A 2/28/10 5795.020 5794.899  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2362.355  
 Energy Calibration Slope : 4.999010  
 Energy Calibration Quadratic : 2.6741659E-04  
 Energy Calibration Range : 7762.000

Instrument : CHAMBER 157  
 Detector : 75555  
 Calibration Date/Time : 17-AUG-2009 15:04:07  
 Calibration Source Id : AESS-041  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3182.868  
 NP-237 4341 2/28/10 4768.800 4768.768  
 CM-244 4320A 2/28/10 5795.020 5794.925  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2358.092  
 Energy Calibration Slope : 4.979420  
 Energy Calibration Quadratic : 2.8018607E-04  
 Energy Calibration Range : 7751.000

Instrument : CHAMBER 158  
 Detector : 33451  
 Calibration Date/Time : 17-AUG-2009 15:04:18  
 Calibration Source Id : AESS-047  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3182.449  
 NP-237 4341 2/28/10 4768.800 4768.432  
 CM-244 4320A 2/28/10 5795.020 5794.938  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2389.976  
 Energy Calibration Slope : 5.006801  
 Energy Calibration Quadratic : 3.0287215E-04  
 Energy Calibration Range : 7835.000

Instrument : CHAMBER 159  
 Detector : 76225  
 Calibration Date/Time : 17-AUG-2009 15:04:28  
 Calibration Source Id : AESS-042  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.800  
 CM-244 4320A 2/28/10 5795.020 5795.021  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2354.720  
 Energy Calibration Slope : 4.980748  
 Energy Calibration Quadratic : 2.9428111E-04  
 Energy Calibration Range : 7764.000

Instrument : CHAMBER 160  
 Detector : 76226  
 Calibration Date/Time : 17-AUG-2009 15:04:40  
 Calibration Source Id : AESS-048  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.799  
 CM-244 4320A 2/28/10 5795.020 5795.021  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2355.649  
 Energy Calibration Slope : 4.990073  
 Energy Calibration Quadratic : 2.8874222E-04  
 Energy Calibration Range : 7768.000

Instrument : CHAMBER 161  
 Detector : 70321  
 Calibration Date/Time : 23-JUL-2009 13:58:35  
 Calibration Source Id : AESS-001  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.800  
 CM-244 4320A 2/28/10 5795.020 5795.021  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2371.155  
 Energy Calibration Slope : 4.901179  
 Energy Calibration Quadratic : 3.3258999E-04  
 Energy Calibration Range : 7739.000

Instrument : CHAMBER 162  
 Detector : 70323  
 Calibration Date/Time : 4-AUG-2009 07:05:59  
 Calibration Source Id : AESS-007  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.799  
 CM-244 4320A 2/28/10 5795.020 5795.021  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2367.666  
 Energy Calibration Slope : 4.932856  
 Energy Calibration Quadratic : 2.9126366E-04  
 Energy Calibration Range : 7724.000

Instrument : CHAMBER 163  
 Detector : 70324  
 Calibration Date/Time : 23-JUL-2009 13:58:54  
 Calibration Source Id : AESS-002  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.799  
 CM-244 4320A 2/28/10 5795.020 5795.021  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2378.440  
 Energy Calibration Slope : 4.923447  
 Energy Calibration Quadratic : 3.2373652E-04  
 Energy Calibration Range : 7760.000



Instrument : CHAMBER 164  
 Detector : 70325  
 Calibration Date/Time : 23-JUL-2009 13:59:02  
 Calibration Source Id : AESS-008  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.800  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2380.008  
 Energy Calibration Slope : 4.927452  
 Energy Calibration Quadratic : 3.2609751E-04  
 Energy Calibration Range : 7768.000

Instrument : CHAMBER 165  
 Detector : 72544  
 Calibration Date/Time : 23-JUL-2009 13:59:11  
 Calibration Source Id : AESS-003  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.800  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2387.218  
 Energy Calibration Slope : 4.942940  
 Energy Calibration Quadratic : 3.0943105E-04  
 Energy Calibration Range : 7773.000

Instrument : CHAMBER 166  
 Detector : 74545  
 Calibration Date/Time : 23-JUL-2009 13:59:23  
 Calibration Source Id : AESS-009  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.801  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2373.718  
 Energy Calibration Slope : 4.929422  
 Energy Calibration Quadratic : 3.2212323E-04  
 Energy Calibration Range : 7759.000

Instrument : CHAMBER 167  
 Detector : 72546  
 Calibration Date/Time : 23-JUL-2009 13:59:32  
 Calibration Source Id : AESS-004  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.799  
 CM-244 4320A 2/28/10 5795.020 5795.021  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2375.899  
 Energy Calibration Slope : 4.924172  
 Energy Calibration Quadratic : 3.2251154E-04  
 Energy Calibration Range : 7756.000

Instrument : CHAMBER 168  
 Detector : 72547  
 Calibration Date/Time : 23-JUL-2009 13:59:40  
 Calibration Source Id : AESS-010  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.799  
 CM-244 4320A 2/28/10 5795.020 5795.021  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2378.301  
 Energy Calibration Slope : 4.935927  
 Energy Calibration Quadratic : 3.1537362E-04  
 Energy Calibration Range : 7763.000

Instrument : CHAMBER 169  
 Detector : 72548  
 Calibration Date/Time : 4-AUG-2009 07:06:12  
 Calibration Source Id : AESS-005  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.800  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2378.366  
 Energy Calibration Slope : 4.930755  
 Energy Calibration Quadratic : 3.1649129E-04  
 Energy Calibration Range : 7759.000

Instrument : CHAMBER 170  
 Detector : 72549  
 Calibration Date/Time : 23-JUL-2009 13:59:58  
 Calibration Source Id : AESS-011

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.801      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.020      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2381.389  
 Energy Calibration Slope : 4.912318  
 Energy Calibration Quadratic : 3.5837301E-04  
 Energy Calibration Range : 7787.000

Instrument : CHAMBER 171  
 Detector : 78260  
 Calibration Date/Time : 23-JUL-2009 14:00:07  
 Calibration Source Id : AESS-006

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.798      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.021      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2368.307  
 Energy Calibration Slope : 4.932293  
 Energy Calibration Quadratic : 3.2247280E-04  
 Energy Calibration Range : 7757.000

Instrument : CHAMBER 172  
 Detector : 78772  
 Calibration Date/Time : 23-JUL-2009 14:00:15  
 Calibration Source Id : AESS-012

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.799      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.021      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2365.785  
 Energy Calibration Slope : 4.920015  
 Energy Calibration Quadratic : 3.3008555E-04  
 Energy Calibration Range : 7750.000

Instrument : CHAMBER 173  
 Detector : 74431  
 Calibration Date/Time : 22-JUL-2009 14:12:56  
 Calibration Source Id : AESS-013  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.926  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2364.405  
 Energy Calibration Slope : 4.981549  
 Energy Calibration Quadratic : 2.6860670E-04  
 Energy Calibration Range : 7747.000

Instrument : CHAMBER 174  
 Detector : 74432  
 Calibration Date/Time : 22-JUL-2009 14:13:10  
 Calibration Source Id : AESS-019  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.799  
 CM-244 4320A 2/28/10 5795.020 5795.021  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2358.379  
 Energy Calibration Slope : 5.035265  
 Energy Calibration Quadratic : 2.0271989E-04  
 Energy Calibration Range : 7727.000

Instrument : CHAMBER 175  
 Detector : 74433  
 Calibration Date/Time : 22-JUL-2009 14:13:33  
 Calibration Source Id : AESS-014  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3182.817  
 NP-237 4341 2/28/10 4768.800 4768.732  
 CM-244 4320A 2/28/10 5795.020 5794.897  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2361.060  
 Energy Calibration Slope : 4.980610  
 Energy Calibration Quadratic : 2.6701824E-04  
 Energy Calibration Range : 7741.000

Instrument : CHAMBER 176  
 Detector : 74434  
 Calibration Date/Time : 22-JUL-2009 14:13:51  
 Calibration Source Id : AESS-020  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3182.546  
 NP-237 4341 2/28/10 4768.800 4768.799  
 CM-244 4320A 2/28/10 5795.020 5795.021  
  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2357.097  
 Energy Calibration Slope : 5.018647  
 Energy Calibration Quadratic : 2.3654266E-04  
 Energy Calibration Range : 7744.000

Instrument : CHAMBER 177  
 Detector : 74435  
 Calibration Date/Time : 22-JUL-2009 14:14:02  
 Calibration Source Id : AESS-015  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.801  
 CM-244 4320A 2/28/10 5795.020 5795.020  
  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2358.948  
 Energy Calibration Slope : 4.983318  
 Energy Calibration Quadratic : 2.6383059E-04  
 Energy Calibration Range : 7739.000

Instrument : CHAMBER 178  
 Detector : 74436  
 Calibration Date/Time : 22-JUL-2009 14:14:14  
 Calibration Source Id : AESS-021  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.799  
 CM-244 4320A 2/28/10 5795.020 5795.021  
  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2354.644  
 Energy Calibration Slope : 4.987851  
 Energy Calibration Quadratic : 2.6228666E-04  
 Energy Calibration Range : 7737.000

Instrument : CHAMBER 179  
 Detector : 74437  
 Calibration Date/Time : 22-JUL-2009 14:14:24  
 Calibration Source Id : AESS-016

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.260      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.966      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.056      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2353.987  
 Energy Calibration Slope : 4.982908  
 Energy Calibration Quadratic : 2.6569929E-04  
 Energy Calibration Range : 7735.000

Instrument : CHAMBER 180  
 Detector : 74438  
 Calibration Date/Time : 22-JUL-2009 14:14:36  
 Calibration Source Id : AESS-022

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.799      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.167      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2352.144  
 Energy Calibration Slope : 5.023554  
 Energy Calibration Quadratic : 2.2043443E-04  
 Energy Calibration Range : 7727.000

Instrument : CHAMBER 181  
 Detector : 74439  
 Calibration Date/Time : 22-JUL-2009 14:14:47  
 Calibration Source Id : AESS-017

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.801      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.020      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2357.233  
 Energy Calibration Slope : 4.973598  
 Energy Calibration Quadratic : 2.7286567E-04  
 Energy Calibration Range : 7736.000

Instrument : CHAMBER 182  
 Detector : 74440  
 Calibration Date/Time : 22-JUL-2009 14:14:57  
 Calibration Source Id : AESS-023

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.653      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.021      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2348.571  
 Energy Calibration Slope : 4.995710  
 Energy Calibration Quadratic : 2.4269641E-04  
 Energy Calibration Range : 7719.000

Instrument : CHAMBER 183  
 Detector : 74441  
 Calibration Date/Time : 22-JUL-2009 14:15:07  
 Calibration Source Id : AESS-018

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.801      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.020      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2357.181  
 Energy Calibration Slope : 4.984746  
 Energy Calibration Quadratic : 2.6386807E-04  
 Energy Calibration Range : 7738.000

Instrument : CHAMBER 184  
 Detector : 74442  
 Calibration Date/Time : 22-JUL-2009 14:15:18  
 Calibration Source Id : AESS-024

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.800      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.020      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2352.411  
 Energy Calibration Slope : 5.026765  
 Energy Calibration Quadratic : 2.1738216E-04  
 Energy Calibration Range : 7728.000

Instrument : CHAMBER 185  
 Detector : 68615  
 Calibration Date/Time : 22-JUL-2009 14:15:30  
 Calibration Source Id : AESS-025

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.262      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4769.011      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.113      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2354.510  
 Energy Calibration Slope : 4.938845  
 Energy Calibration Quadratic : 2.7730624E-04  
 Energy Calibration Range : 7703.000

Instrument : CHAMBER 186  
 Detector : 68616  
 Calibration Date/Time : 22-JUL-2009 14:15:43  
 Calibration Source Id : AESS-031

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.191      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.800      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.143      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2359.547  
 Energy Calibration Slope : 4.938616  
 Energy Calibration Quadratic : 2.9074642E-04  
 Energy Calibration Range : 7722.000

Instrument : CHAMBER 187  
 Detector : 68620  
 Calibration Date/Time : 22-JUL-2009 14:15:58  
 Calibration Source Id : AESS-026

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.775      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.020      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2367.921  
 Energy Calibration Slope : 4.980083  
 Energy Calibration Quadratic : 2.9012386E-04  
 Energy Calibration Range : 7772.000



Instrument : CHAMBER 188  
 Detector : 68621  
 Calibration Date/Time : 22-JUL-2009 14:16:10  
 Calibration Source Id : AESS-032

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.008      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.799      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.044      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2361.934  
 Energy Calibration Slope : 4.976158  
 Energy Calibration Quadratic : 2.7708741E-04  
 Energy Calibration Range : 7748.000

Instrument : CHAMBER 189  
 Detector : 68622  
 Calibration Date/Time : 22-JUL-2009 14:16:25  
 Calibration Source Id : AESS-027

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.799      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.093      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2355.697  
 Energy Calibration Slope : 4.939315  
 Energy Calibration Quadratic : 2.8903113E-04  
 Energy Calibration Range : 7717.000

Instrument : CHAMBER 190  
 Detector : 68623  
 Calibration Date/Time : 22-JUL-2009 14:16:38  
 Calibration Source Id : AESS-033

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.298      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.799      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.045      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2351.739  
 Energy Calibration Slope : 4.948914  
 Energy Calibration Quadratic : 2.8685224E-04  
 Energy Calibration Range : 7720.000

Instrument : CHAMBER 191  
 Detector : 68624  
 Calibration Date/Time : 22-JUL-2009 14:17:15  
 Calibration Source Id : AESS-028

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.925      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.090      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2367.921  
 Energy Calibration Slope : 4.966295  
 Energy Calibration Quadratic : 3.1035815E-04  
 Energy Calibration Range : 7779.000

Instrument : CHAMBER 192  
 Detector : 74430  
 Calibration Date/Time : 22-JUL-2009 14:17:47  
 Calibration Source Id : AESS-034

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.903      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.089      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2362.162  
 Energy Calibration Slope : 4.978550  
 Energy Calibration Quadratic : 2.9185213E-04  
 Energy Calibration Range : 7766.000

Instrument : CHAMBER 193  
 Detector : 68627  
 Calibration Date/Time : 22-JUL-2009 14:18:09  
 Calibration Source Id : AESS-029

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3182.786      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.800      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.042      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2363.145  
 Energy Calibration Slope : 4.920224  
 Energy Calibration Quadratic : 3.1340783E-04  
 Energy Calibration Range : 7730.000

Instrument : CHAMBER 194  
 Detector : 68635  
 Calibration Date/Time : 22-JUL-2009 14:18:45  
 Calibration Source Id : AESS-035  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.799  
 CM-244 4320A 2/28/10 5795.020 5795.021  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2356.478  
 Energy Calibration Slope : 4.939730  
 Energy Calibration Quadratic : 2.9438961E-04  
 Energy Calibration Range : 7723.000

Instrument : CHAMBER 195  
 Detector : 68636  
 Calibration Date/Time : 22-JUL-2009 14:19:31  
 Calibration Source Id : AESS-030  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.800  
 CM-244 4320A 2/28/10 5795.020 5795.181  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2359.634  
 Energy Calibration Slope : 4.956642  
 Energy Calibration Quadratic : 2.8082752E-04  
 Energy Calibration Range : 7730.000

Instrument : CHAMBER 196  
 Detector : 68637  
 Calibration Date/Time : 22-JUL-2009 14:19:51  
 Calibration Source Id : AESS-036  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.156  
 NP-237 4341 2/28/10 4768.800 4768.801  
 CM-244 4320A 2/28/10 5795.020 5795.019  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2357.884  
 Energy Calibration Slope : 4.943155  
 Energy Calibration Quadratic : 2.9007217E-04  
 Energy Calibration Range : 7724.000

Instrument : CHAMBER 197  
 Detector : 78894  
 Calibration Date/Time : 23-JUL-2009 14:00:24  
 Calibration Source Id : AESS-037

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.799      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.021      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2369.600  
 Energy Calibration Slope : 4.961125  
 Energy Calibration Quadratic : 2.9980636E-04  
 Energy Calibration Range : 7764.000

Instrument : CHAMBER 198  
 Detector : 78895  
 Calibration Date/Time : 23-JUL-2009 14:00:36  
 Calibration Source Id : AESS-043

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.801      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.020      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2364.985  
 Energy Calibration Slope : 4.958083  
 Energy Calibration Quadratic : 2.9077829E-04  
 Energy Calibration Range : 7747.000

Instrument : CHAMBER 199  
 Detector : 78896  
 Calibration Date/Time : 23-JUL-2009 14:00:47  
 Calibration Source Id : AESS-038

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.799      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.021      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2363.893  
 Energy Calibration Slope : 4.975142  
 Energy Calibration Quadratic : 2.8265564E-04  
 Energy Calibration Range : 7755.000

Instrument : CHAMBER 200  
 Detector : 78900  
 Calibration Date/Time : 23-JUL-2009 14:00:57  
 Calibration Source Id : AESS-044

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.799      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.021      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2366.560  
 Energy Calibration Slope : 4.944607  
 Energy Calibration Quadratic : 3.1754555E-04  
 Energy Calibration Range : 7763.000

Instrument : CHAMBER 201  
 Detector : 78902  
 Calibration Date/Time : 23-JUL-2009 14:01:05  
 Calibration Source Id : AESS-039

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.799      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.021      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2365.274  
 Energy Calibration Slope : 4.952928  
 Energy Calibration Quadratic : 3.1035283E-04  
 Energy Calibration Range : 7763.000

Instrument : CHAMBER 202  
 Detector : 78903  
 Calibration Date/Time : 23-JUL-2009 14:01:14  
 Calibration Source Id : AESS-045

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.799      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.021      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2355.391  
 Energy Calibration Slope : 4.951035  
 Energy Calibration Quadratic : 2.9712555E-04  
 Energy Calibration Range : 7737.000

Instrument : CHAMBER 203  
 Detector : 78905  
 Calibration Date/Time : 23-JUL-2009 14:01:22  
 Calibration Source Id : AESS-040

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.801      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.020      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2359.621  
 Energy Calibration Slope : 4.976038  
 Energy Calibration Quadratic : 2.7450506E-04  
 Energy Calibration Range : 7743.000

Instrument : CHAMBER 204  
 Detector : 78907  
 Calibration Date/Time : 23-JUL-2009 14:01:31  
 Calibration Source Id : AESS-046

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.800      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.021      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2360.966  
 Energy Calibration Slope : 4.954226  
 Energy Calibration Quadratic : 2.9946532E-04  
 Energy Calibration Range : 7748.000

Instrument : CHAMBER 205  
 Detector : 78908  
 Calibration Date/Time : 23-JUL-2009 14:01:40  
 Calibration Source Id : AESS-041

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.801      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.020      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2367.589  
 Energy Calibration Slope : 4.954722  
 Energy Calibration Quadratic : 3.0296977E-04  
 Energy Calibration Range : 7759.000

Instrument : CHAMBER 206  
 Detector : 78909  
 Calibration Date/Time : 23-JUL-2009 14:01:49  
 Calibration Source Id : AESS-047

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.799      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.021      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2361.905  
 Energy Calibration Slope : 4.955875  
 Energy Calibration Quadratic : 2.9360279E-04  
 Energy Calibration Range : 7745.000

Instrument : CHAMBER 207  
 Detector : 78910  
 Calibration Date/Time : 23-JUL-2009 14:01:57  
 Calibration Source Id : AESS-042

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.800      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.021      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2368.030  
 Energy Calibration Slope : 4.964427  
 Energy Calibration Quadratic : 2.9426123E-04  
 Energy Calibration Range : 7760.000

Instrument : CHAMBER 208  
 Detector : 78911  
 Calibration Date/Time : 23-JUL-2009 14:02:06  
 Calibration Source Id : AESS-048

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.800      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.021      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2364.066  
 Energy Calibration Slope : 4.968146  
 Energy Calibration Quadratic : 2.8974371E-04  
 Energy Calibration Range : 7755.000

Instrument : CHAMBER 209  
 Detector : 79188  
 Calibration Date/Time : 28-JUL-2009 13:59:46  
 Calibration Source Id : AESS-001

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.800      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.020      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2390.309  
 Energy Calibration Slope : 4.907889  
 Energy Calibration Quadratic : 3.5155186E-04  
 Energy Calibration Range : 7785.000

Instrument : CHAMBER 210  
 Detector : 79189  
 Calibration Date/Time : 28-JUL-2009 13:59:55  
 Calibration Source Id : AESS-002

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.801      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.019      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2382.719  
 Energy Calibration Slope : 4.945560  
 Energy Calibration Quadratic : 3.0519743E-04  
 Energy Calibration Range : 7767.000

Instrument : CHAMBER 211  
 Detector : 79190  
 Calibration Date/Time : 28-JUL-2009 14:00:03  
 Calibration Source Id : AESS-003

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.800      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.020      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2388.786  
 Energy Calibration Slope : 4.957439  
 Energy Calibration Quadratic : 3.0850343E-04  
 Energy Calibration Range : 7789.000



Instrument : CHAMBER 212  
 Detector : 79191  
 Calibration Date/Time : 28-JUL-2009 14:00:11  
 Calibration Source Id : AESS-004  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.801  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2386.612  
 Energy Calibration Slope : 4.941330  
 Energy Calibration Quadratic : 3.1567214E-04  
 Energy Calibration Range : 7778.000

Instrument : CHAMBER 213  
 Detector : 79192  
 Calibration Date/Time : 28-JUL-2009 14:00:20  
 Calibration Source Id : AESS-005  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.801  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2392.102  
 Energy Calibration Slope : 4.949504  
 Energy Calibration Quadratic : 3.0747624E-04  
 Energy Calibration Range : 7783.000

Instrument : CHAMBER 214  
 Detector : 79193  
 Calibration Date/Time : 28-JUL-2009 14:00:29  
 Calibration Source Id : AESS-006  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.799  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2383.299  
 Energy Calibration Slope : 4.938057  
 Energy Calibration Quadratic : 3.2320846E-04  
 Energy Calibration Range : 7779.000

Instrument : CHAMBER 215  
 Detector : 79194  
 Calibration Date/Time : 28-JUL-2009 14:00:38  
 Calibration Source Id : AESS-007

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.800      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.021      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2391.097  
 Energy Calibration Slope : 4.946728  
 Energy Calibration Quadratic : 3.2361320E-04  
 Energy Calibration Range : 7796.000

Instrument : CHAMBER 216  
 Detector : 79195  
 Calibration Date/Time : 28-JUL-2009 14:00:46  
 Calibration Source Id : AESS-008

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.001      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.798      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.021      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2389.871  
 Energy Calibration Slope : 4.924810  
 Energy Calibration Quadratic : 3.3861332E-04  
 Energy Calibration Range : 7788.000

Instrument : CHAMBER 217  
 Detector : 79410  
 Calibration Date/Time : 28-JUL-2009 14:00:55  
 Calibration Source Id : AESS-009

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.799      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.021      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2391.358  
 Energy Calibration Slope : 4.934552  
 Energy Calibration Quadratic : 3.3054961E-04  
 Energy Calibration Range : 7791.000

Instrument : CHAMBER 218  
 Detector : 79411  
 Calibration Date/Time : 28-JUL-2009 14:01:03  
 Calibration Source Id : AESS-010  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.801  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2388.335  
 Energy Calibration Slope : 4.946022  
 Energy Calibration Quadratic : 3.1945287E-04  
 Energy Calibration Range : 7788.000

Instrument : CHAMBER 219  
 Detector : 79412  
 Calibration Date/Time : 28-JUL-2009 14:01:48  
 Calibration Source Id : AESS-011  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.801  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2390.188  
 Energy Calibration Slope : 4.929147  
 Energy Calibration Quadratic : 3.3767600E-04  
 Energy Calibration Range : 7792.000

Instrument : CHAMBER 220  
 Detector : 79413  
 Calibration Date/Time : 28-JUL-2009 14:02:00  
 Calibration Source Id : AESS-012  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.800  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2382.449  
 Energy Calibration Slope : 4.943600  
 Energy Calibration Quadratic : 3.1373679E-04  
 Energy Calibration Range : 7774.000

Instrument : CHAMBER 221  
 Detector : 79414  
 Calibration Date/Time : 28-JUL-2009 14:02:09  
 Calibration Source Id : AESS-013  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.800  
 CM-244 4320A 2/28/10 5795.020 5795.021  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2387.174  
 Energy Calibration Slope : 4.970656  
 Energy Calibration Quadratic : 3.0409341E-04  
 Energy Calibration Range : 7796.000

Instrument : CHAMBER 222  
 Detector : 79415  
 Calibration Date/Time : 28-JUL-2009 14:02:19  
 Calibration Source Id : AESS-014  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.800  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2382.306  
 Energy Calibration Slope : 5.025091  
 Energy Calibration Quadratic : 2.4377843E-04  
 Energy Calibration Range : 7784.000

Instrument : CHAMBER 223  
 Detector : 79416  
 Calibration Date/Time : 28-JUL-2009 14:02:29  
 Calibration Source Id : AESS-015  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.799  
 CM-244 4320A 2/28/10 5795.020 5795.021  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2389.067  
 Energy Calibration Slope : 4.958123  
 Energy Calibration Quadratic : 3.2477293E-04  
 Energy Calibration Range : 7807.000

Instrument : CHAMBER 224  
 Detector : 79417  
 Calibration Date/Time : 28-JUL-2009 14:02:37  
 Calibration Source Id : AESS-016  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.027  
 NP-237 4341 2/28/10 4768.800 4768.799  
 CM-244 4320A 2/28/10 5795.020 5795.021  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2386.695  
 Energy Calibration Slope : 5.011842  
 Energy Calibration Quadratic : 2.6290418E-04  
 Energy Calibration Range : 7794.000

Instrument : CHAMBER 225  
 Detector : 79418  
 Calibration Date/Time : 28-JUL-2009 14:02:46  
 Calibration Source Id : AESS-017  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.801  
 CM-244 4320A 2/28/10 5795.020 5795.019  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2392.776  
 Energy Calibration Slope : 4.933724  
 Energy Calibration Quadratic : 3.3852886E-04  
 Energy Calibration Range : 7800.000

Instrument : CHAMBER 226  
 Detector : 79419  
 Calibration Date/Time : 28-JUL-2009 14:02:55  
 Calibration Source Id : AESS-018  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.800  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2384.150  
 Energy Calibration Slope : 4.973210  
 Energy Calibration Quadratic : 2.9508519E-04  
 Energy Calibration Range : 7786.000

Instrument : CHAMBER 227  
 Detector : 79420  
 Calibration Date/Time : 28-JUL-2009 14:03:04  
 Calibration Source Id : AESS-019  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.799  
 CM-244 4320A 2/28/10 5795.020 5795.021  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2391.061  
 Energy Calibration Slope : 4.938961  
 Energy Calibration Quadratic : 3.3045741E-04  
 Energy Calibration Range : 7795.000

Instrument : CHAMBER 228  
 Detector : 79421  
 Calibration Date/Time : 28-JUL-2009 14:03:13  
 Calibration Source Id : AESS-020  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.799  
 CM-244 4320A 2/28/10 5795.020 5795.021  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2386.005  
 Energy Calibration Slope : 4.959556  
 Energy Calibration Quadratic : 3.0744984E-04  
 Energy Calibration Range : 7787.000

Instrument : CHAMBER 229  
 Detector : 79422  
 Calibration Date/Time : 28-JUL-2009 14:03:22  
 Calibration Source Id : AESS-021  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.800  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2387.995  
 Energy Calibration Slope : 4.940877  
 Energy Calibration Quadratic : 3.3899915E-04  
 Energy Calibration Range : 7803.000

Instrument : CHAMBER 230  
 Detector : 79423  
 Calibration Date/Time : 28-JUL-2009 14:03:31  
 Calibration Source Id : AESS-022

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.800      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.020      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2384.573  
 Energy Calibration Slope : 4.960246  
 Energy Calibration Quadratic : 3.1046796E-04  
 Energy Calibration Range : 7789.000

Instrument : CHAMBER 231  
 Detector : 79424  
 Calibration Date/Time : 28-JUL-2009 14:03:40  
 Calibration Source Id : AESS-023

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.801      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.020      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2387.425  
 Energy Calibration Slope : 4.946337  
 Energy Calibration Quadratic : 3.1792521E-04  
 Energy Calibration Range : 7786.000

Instrument : CHAMBER 232  
 Detector : 79425  
 Calibration Date/Time : 28-JUL-2009 14:03:48  
 Calibration Source Id : AESS-024

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.799      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.021      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2384.962  
 Energy Calibration Slope : 5.004478  
 Energy Calibration Quadratic : 2.5898189E-04  
 Energy Calibration Range : 7781.000

Instrument : CHAMBER 233  
 Detector : 79426  
 Calibration Date/Time : 28-JUL-2009 14:03:57  
 Calibration Source Id : AESS-025

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.800      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.020      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2384.858  
 Energy Calibration Slope : 4.908395  
 Energy Calibration Quadratic : 3.6085595E-04  
 Energy Calibration Range : 7789.000

Instrument : CHAMBER 234  
 Detector : 79427  
 Calibration Date/Time : 28-JUL-2009 14:04:08  
 Calibration Source Id : AESS-026

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.801      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.019      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2378.557  
 Energy Calibration Slope : 4.936086  
 Energy Calibration Quadratic : 3.1737317E-04  
 Energy Calibration Range : 7766.000

Instrument : CHAMBER 235  
 Detector : 79428  
 Calibration Date/Time : 28-JUL-2009 14:04:17  
 Calibration Source Id : AESS-027

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.800      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.020      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2386.048  
 Energy Calibration Slope : 4.937345  
 Energy Calibration Quadratic : 3.3249237E-04  
 Energy Calibration Range : 7791.000



Instrument : CHAMBER 236  
 Detector : 79429  
 Calibration Date/Time : 28-JUL-2009 14:04:27  
 Calibration Source Id : AESS-028

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.801      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.020      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2388.810  
 Energy Calibration Slope : 4.906125  
 Energy Calibration Quadratic : 3.6270331E-04  
 Energy Calibration Range : 7793.000

Instrument : CHAMBER 237  
 Detector : 79430  
 Calibration Date/Time : 28-JUL-2009 14:04:36  
 Calibration Source Id : AESS-029

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.800      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.021      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2387.128  
 Energy Calibration Slope : 4.944391  
 Energy Calibration Quadratic : 3.2767057E-04  
 Energy Calibration Range : 7794.000

Instrument : CHAMBER 238  
 Detector : 79431  
 Calibration Date/Time : 28-JUL-2009 14:04:46  
 Calibration Source Id : AESS-030

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.800      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.020      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2381.338  
 Energy Calibration Slope : 4.929770  
 Energy Calibration Quadratic : 3.3144769E-04  
 Energy Calibration Range : 7777.000

Instrument : CHAMBER 239  
 Detector : 79432  
 Calibration Date/Time : 28-JUL-2009 14:04:55  
 Calibration Source Id : AESS-031

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.798      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.021      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2390.132  
 Energy Calibration Slope : 4.920120  
 Energy Calibration Quadratic : 3.5708508E-04  
 Energy Calibration Range : 7803.000

Instrument : CHAMBER 240  
 Detector : 79433  
 Calibration Date/Time : 28-JUL-2009 14:05:04  
 Calibration Source Id : AESS-032

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.799      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.021      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2385.205  
 Energy Calibration Slope : 4.918474  
 Energy Calibration Quadratic : 3.4866974E-04  
 Energy Calibration Range : 7787.000

Instrument : CHAMBER 241  
 Detector : 79434  
 Calibration Date/Time : 28-JUL-2009 14:05:13  
 Calibration Source Id : AESS-033

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.800      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.021      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2385.825  
 Energy Calibration Slope : 4.908836  
 Energy Calibration Quadratic : 3.6050563E-04  
 Energy Calibration Range : 7790.000

Instrument : CHAMBER 242  
 Detector : 79435  
 Calibration Date/Time : 28-JUL-2009 14:05:21  
 Calibration Source Id : AESS-034

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.801      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.020      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2385.009  
 Energy Calibration Slope : 4.945025  
 Energy Calibration Quadratic : 3.1615721E-04  
 Energy Calibration Range : 7780.000

Instrument : CHAMBER 243  
 Detector : 79436  
 Calibration Date/Time : 28-JUL-2009 14:05:30  
 Calibration Source Id : AESS-035

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.801      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.020      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2386.770  
 Energy Calibration Slope : 4.934989  
 Energy Calibration Quadratic : 3.3655608E-04  
 Energy Calibration Range : 7793.000

Instrument : CHAMBER 244  
 Detector : 79437  
 Calibration Date/Time : 28-JUL-2009 14:05:39  
 Calibration Source Id : AESS-036

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.801      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.019      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2391.069  
 Energy Calibration Slope : 4.911016  
 Energy Calibration Quadratic : 3.5919523E-04  
 Energy Calibration Range : 7797.000

Instrument : CHAMBER 245  
 Detector : 79438  
 Calibration Date/Time : 28-JUL-2009 14:05:48  
 Calibration Source Id : AESS-037  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.800  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2392.602  
 Energy Calibration Slope : 4.941990  
 Energy Calibration Quadratic : 3.3874813E-04  
 Energy Calibration Range : 7808.000

Instrument : CHAMBER 246  
 Detector : 78912  
 Calibration Date/Time : 28-JUL-2009 14:05:57  
 Calibration Source Id : AESS-038  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.799  
 CM-244 4320A 2/28/10 5795.020 5795.021  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2392.768  
 Energy Calibration Slope : 4.935872  
 Energy Calibration Quadratic : 3.3401168E-04  
 Energy Calibration Range : 7797.000

Instrument : CHAMBER 247  
 Detector : 79440  
 Calibration Date/Time : 28-JUL-2009 14:06:06  
 Calibration Source Id : AESS-039  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.799  
 CM-244 4320A 2/28/10 5795.020 5795.021  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2393.687  
 Energy Calibration Slope : 4.919972  
 Energy Calibration Quadratic : 3.6322643E-04  
 Energy Calibration Range : 7813.000

Instrument : CHAMBER 248  
 Detector : 79441  
 Calibration Date/Time : 28-JUL-2009 14:06:15  
 Calibration Source Id : AESS-040

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.799      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.020      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2386.829  
 Energy Calibration Slope : 4.935865  
 Energy Calibration Quadratic : 3.3986062E-04  
 Energy Calibration Range : 7798.000

Instrument : CHAMBER 249  
 Detector : 79442  
 Calibration Date/Time : 28-JUL-2009 14:10:21  
 Calibration Source Id : AESS-041

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.799      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.021      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2391.737  
 Energy Calibration Slope : 4.913334  
 Energy Calibration Quadratic : 3.7958668E-04  
 Energy Calibration Range : 7821.000

Instrument : CHAMBER 250  
 Detector : 79443  
 Calibration Date/Time : 28-JUL-2009 14:07:02  
 Calibration Source Id : AESS-042

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.798      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.021      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2383.582  
 Energy Calibration Slope : 4.915850  
 Energy Calibration Quadratic : 3.5610356E-04  
 Energy Calibration Range : 7791.000

Instrument : CHAMBER 251  
 Detector : 79444  
 Calibration Date/Time : 28-JUL-2009 14:07:11  
 Calibration Source Id : AESS-043

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.800      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.021      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2390.072  
 Energy Calibration Slope : 4.920268  
 Energy Calibration Quadratic : 3.7023224E-04  
 Energy Calibration Range : 7817.000

Instrument : CHAMBER 252  
 Detector : 79445  
 Calibration Date/Time : 28-JUL-2009 14:07:24  
 Calibration Source Id : AESS-044

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.800      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.021      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2391.797  
 Energy Calibration Slope : 4.906192  
 Energy Calibration Quadratic : 3.7361679E-04  
 Energy Calibration Range : 7808.000

Instrument : CHAMBER 253  
 Detector : 79446  
 Calibration Date/Time : 28-JUL-2009 14:07:35  
 Calibration Source Id : AESS-045

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.799      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.021      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2393.983  
 Energy Calibration Slope : 4.947714  
 Energy Calibration Quadratic : 3.5550338E-04  
 Energy Calibration Range : 7833.000

Instrument : CHAMBER 254  
 Detector : 79447  
 Calibration Date/Time : 28-JUL-2009 14:07:52  
 Calibration Source Id : AESS-046

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.801      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.020      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2389.038  
 Energy Calibration Slope : 4.937405  
 Energy Calibration Quadratic : 3.4224574E-04  
 Energy Calibration Range : 7804.000

Instrument : CHAMBER 255  
 Detector : 79448  
 Calibration Date/Time : 28-JUL-2009 14:08:10  
 Calibration Source Id : AESS-047

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.800      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.020      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2391.216  
 Energy Calibration Slope : 4.920984  
 Energy Calibration Quadratic : 3.7234218E-04  
 Energy Calibration Range : 7821.000

Instrument : CHAMBER 256  
 Detector : 79449  
 Calibration Date/Time : 28-JUL-2009 14:08:26  
 Calibration Source Id : AESS-048

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.801      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.020      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2387.279  
 Energy Calibration Slope : 4.932406  
 Energy Calibration Quadratic : 3.4164111E-04  
 Energy Calibration Range : 7796.000

## Subsection 2: Background Calibration

Instrument : CHAMBER 001  
 Detector : 78788  
 Background Analysis Date/Time : 2-AUG-2009 17:38:31  
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2987.927     | 3299.401   | 3.000000              | 0.7200001            | 57.73503 | 95.00000   |
| NP-237        | 4432.428     | 4902.923   | 11.000000             | 2.640001             | 30.15113 | 95.00000   |
| CM-244        | 5533.599     | 5883.327   | 10.000000             | 2.400001             | 31.62278 | 95.00000   |

Instrument : CHAMBER 002  
 Detector : 78266  
 Background Analysis Date/Time : 2-AUG-2009 17:38:31  
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2990.748     | 3297.924   | 4.000000              | 0.9600002            | 50.00000 | 95.00000   |
| NP-237        | 4434.751     | 4902.555   | 3.000000              | 0.7200001            | 57.73503 | 95.00000   |
| CM-244        | 5533.273     | 5884.668   | 1.000000              | 0.2400001            | 100.0000 | 95.00000   |

Instrument : CHAMBER 003  
 Detector : 67617  
 Background Analysis Date/Time : 2-AUG-2009 17:38:31  
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2988.035     | 3300.027   | 6.000000              | 1.440000             | 40.82483 | 95.00000   |
| NP-237        | 4433.783     | 4901.623   | 9.000000              | 2.160001             | 33.33334 | 95.00000   |
| CM-244        | 5533.183     | 5887.889   | 9.000000              | 2.160001             | 33.33334 | 95.00000   |

Instrument : CHAMBER 004  
 Detector : 64279  
 Background Analysis Date/Time : 2-AUG-2009 17:38:31  
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2991.885     | 3302.347   | 4.000000              | 0.9600002            | 50.00000 | 95.00000   |
| NP-237        | 4436.757     | 4905.540   | 7.000000              | 1.680000             | 37.79645 | 95.00000   |
| CM-244        | 5533.807     | 5887.698   | 4.000000              | 0.9600002            | 50.00000 | 95.00000   |



Instrument : CHAMBER 005  
 Detector : 67612  
 Background Analysis Date/Time : 2-AUG-2009 17:38:31  
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2990.194     | 3301.639   | 3.000000              | 0.7200001            | 57.73503 | 95.00000   |
| NP-237        | 4437.588     | 4901.889   | 8.000000              | 1.920000             | 35.35534 | 95.00000   |
| CM-244        | 5531.535     | 5887.236   | 1.000000              | 0.2400001            | 100.0000 | 95.00000   |

Instrument : CHAMBER 006  
 Detector : 67613  
 Background Analysis Date/Time : 2-AUG-2009 17:38:31  
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error       | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|---------------|------------|
| GD-148        | 2988.186     | 3302.064   | 0.0000000E+00         | 0.0000000E+00        | 0.0000000E+00 | 95.00000   |
| NP-237        | 4434.812     | 4901.476   | 9.000000              | 2.160001             | 33.33334      | 95.00000   |
| CM-244        | 5533.017     | 5887.020   | 8.000000              | 1.920000             | 35.35534      | 95.00000   |

Instrument : CHAMBER 007  
 Detector : 67607  
 Background Analysis Date/Time : 2-AUG-2009 17:38:32  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2991.468     | 3299.148   | 8.000000              | 1.920000             | 35.35534 | 95.00000   |
| NP-237        | 4433.972     | 4903.766   | 11.00000              | 2.640000             | 30.15113 | 95.00000   |
| CM-244        | 5532.246     | 5885.701   | 17.00000              | 4.080001             | 24.25356 | 95.00000   |

Instrument : CHAMBER 008  
 Detector : 78788  
 Background Analysis Date/Time : 2-AUG-2009 17:38:32  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2989.215     | 3298.713   | 3.000000              | 0.7200001            | 57.73503 | 95.00000   |
| NP-237        | 4433.303     | 4905.744   | 4.000000              | 0.9600002            | 50.00000 | 95.00000   |
| CM-244        | 5532.461     | 5886.606   | 2.000000              | 0.4800001            | 70.71068 | 95.00000   |

Instrument : CHAMBER 009  
 Detector : 72528  
 Background Analysis Date/Time : 2-AUG-2009 17:38:32  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2990.462     | 3298.900   | 5.000000              | 1.200000             | 44.72136 | 95.00000   |
| NP-237        | 4437.055     | 4904.570   | 10.000000             | 2.400000             | 31.62278 | 95.00000   |
| CM-244        | 5532.536     | 5882.399   | 13.000000             | 3.120001             | 27.73501 | 95.00000   |

Instrument : CHAMBER 010  
 Detector : 72529  
 Background Analysis Date/Time : 2-AUG-2009 17:38:32  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2990.229     | 3298.607   | 8.000000              | 1.920000             | 35.35534 | 95.00000   |
| NP-237        | 4436.880     | 4905.484   | 9.000000              | 2.160000             | 33.33334 | 95.00000   |
| CM-244        | 5531.409     | 5886.990   | 4.000000              | 0.9600002            | 50.00000 | 95.00000   |

Instrument : CHAMBER 011  
 Detector : 72531  
 Background Analysis Date/Time : 2-AUG-2009 17:38:32  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2991.538     | 3301.988   | 3.000000              | 0.7200001            | 57.73503 | 95.00000   |
| NP-237        | 4435.957     | 4905.467   | 9.000000              | 2.160000             | 33.33334 | 95.00000   |
| CM-244        | 5530.314     | 5886.614   | 3.000000              | 0.7200001            | 57.73503 | 95.00000   |

Instrument : CHAMBER 012  
 Detector : 67594  
 Background Analysis Date/Time : 2-AUG-2009 17:38:32  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2988.398     | 3300.615   | 3.000000              | 0.7200001            | 57.73503 | 95.00000   |
| NP-237        | 4437.450     | 4901.503   | 9.000000              | 2.160000             | 33.33334 | 95.00000   |
| CM-244        | 5534.709     | 5886.652   | 16.000000             | 3.840001             | 25.00000 | 95.00000   |

Instrument : CHAMBER 013  
 Detector : 78790  
 Background Analysis Date/Time : 2-AUG-2009 17:38:33  
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error       | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|---------------|------------|
| GD-148        | 2987.666     | 3298.441   | 1.000000              | 0.2400001            | 100.0000      | 95.00000   |
| NP-237        | 4435.272     | 4902.524   | 6.000000              | 1.440000             | 40.82483      | 95.00000   |
| CM-244        | 5533.077     | 5883.559   | 0.0000000E+00         | 0.0000000E+00        | 0.0000000E+00 | 95.00000   |

Instrument : CHAMBER 014  
 Detector : 67616  
 Background Analysis Date/Time : 2-AUG-2009 17:38:33  
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2992.504     | 3300.484   | 2.000000              | 0.4800001            | 70.71068 | 95.00000   |
| NP-237        | 4435.990     | 4902.000   | 4.000000              | 0.9600002            | 50.00000 | 95.00000   |
| CM-244        | 5532.918     | 5886.701   | 23.00000              | 5.520001             | 20.85144 | 95.00000   |

Instrument : CHAMBER 015  
 Detector : 61581  
 Background Analysis Date/Time : 2-AUG-2009 17:38:33  
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error       | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|---------------|------------|
| GD-148        | 2987.739     | 3297.575   | 0.0000000E+00         | 0.0000000E+00        | 0.0000000E+00 | 95.00000   |
| NP-237        | 4432.566     | 4904.976   | 10.00000              | 2.400001             | 31.62278      | 95.00000   |
| CM-244        | 5530.833     | 5887.242   | 22.00000              | 5.280001             | 21.32007      | 95.00000   |

Instrument : CHAMBER 016  
 Detector : 78774  
 Background Analysis Date/Time : 2-AUG-2009 17:38:33  
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2990.015     | 3299.769   | 3.000000              | 0.7200001            | 57.73503 | 95.00000   |
| NP-237        | 4432.750     | 4903.568   | 3.000000              | 0.7200001            | 57.73503 | 95.00000   |
| CM-244        | 5531.945     | 5886.508   | 2.000000              | 0.4800001            | 70.71068 | 95.00000   |

Instrument : CHAMBER 017  
 Detector : 78791  
 Background Analysis Date/Time : 2-AUG-2009 17:38:33  
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error      | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|--------------|------------|
| GD-148        | 2991.506     | 3301.266   | 0.000000E+00          | 0.000000E+00         | 0.000000E+00 | 95.00000   |
| NP-237        | 4435.397     | 4901.753   | 6.000000              | 1.440000             | 40.82483     | 95.00000   |
| CM-244        | 5532.102     | 5885.058   | 2.000000              | 0.4800001            | 70.71068     | 95.00000   |

Instrument : CHAMBER 018  
 Detector : 78782  
 Background Analysis Date/Time : 2-AUG-2009 17:38:33  
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2988.342     | 3302.274   | 1.000000              | 0.2400001            | 100.0000 | 95.00000   |
| NP-237        | 4435.776     | 4902.996   | 4.000000              | 0.9600002            | 50.00000 | 95.00000   |
| CM-244        | 5535.506     | 5884.764   | 1.000000              | 0.2400001            | 100.0000 | 95.00000   |

Instrument : CHAMBER 019  
 Detector : 78786  
 Background Analysis Date/Time : 2-AUG-2009 17:38:34  
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2990.757     | 3299.102   | 1.000000              | 0.2399998            | 100.0000 | 95.00000   |
| NP-237        | 4436.959     | 4904.938   | 5.000000              | 1.199999             | 44.72136 | 95.00000   |
| CM-244        | 5530.360     | 5882.637   | 4.000000              | 0.9599994            | 50.00000 | 95.00000   |

Instrument : CHAMBER 020  
 Detector : 78787  
 Background Analysis Date/Time : 2-AUG-2009 17:38:34  
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error      | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|--------------|------------|
| GD-148        | 2988.029     | 3302.537   | 0.000000E+00          | 0.000000E+00         | 0.000000E+00 | 95.00000   |
| NP-237        | 4437.491     | 4905.035   | 10.00000              | 2.399998             | 31.62278     | 95.00000   |
| CM-244        | 5532.389     | 5886.993   | 5.000000              | 1.199999             | 44.72136     | 95.00000   |

Instrument : CHAMBER 021  
 Detector : 67047  
 Background Analysis Date/Time : 2-AUG-2009 17:38:34  
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2992.044     | 3301.105   | 4.000000              | 0.9599994            | 50.00000 | 95.00000   |
| NP-237        | 4432.692     | 4903.261   | 8.000000              | 1.919999             | 35.35534 | 95.00000   |
| CM-244        | 5532.273     | 5884.483   | 16.00000              | 3.839998             | 25.00000 | 95.00000   |

Instrument : CHAMBER 022  
 Detector : 72530  
 Background Analysis Date/Time : 2-AUG-2009 17:38:34  
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2987.876     | 3301.717   | 5.000000              | 1.199999             | 44.72136 | 95.00000   |
| NP-237        | 4432.553     | 4902.907   | 4.000000              | 0.9599994            | 50.00000 | 95.00000   |
| CM-244        | 5531.719     | 5883.858   | 21.00000              | 5.039997             | 21.82179 | 95.00000   |

Instrument : CHAMBER 023  
 Detector : 78264  
 Background Analysis Date/Time : 2-AUG-2009 17:38:34  
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2992.270     | 3297.465   | 1.000000              | 0.2399998            | 100.0000 | 95.00000   |
| NP-237        | 4434.353     | 4902.238   | 12.00000              | 2.879998             | 28.86751 | 95.00000   |
| CM-244        | 5535.006     | 5884.098   | 4.000000              | 0.9599994            | 50.00000 | 95.00000   |

Instrument : CHAMBER 024  
 Detector : 76542  
 Background Analysis Date/Time : 2-AUG-2009 17:38:34  
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2988.735     | 3301.963   | 3.000000              | 0.7199996            | 57.73503 | 95.00000   |
| NP-237        | 4435.585     | 4904.900   | 14.00000              | 3.359998             | 26.72612 | 95.00000   |
| CM-244        | 5532.247     | 5883.527   | 6.000000              | 1.439999             | 40.82483 | 95.00000   |

Instrument : CHAMBER 025  
 Detector : 45-149AA5  
 Background Analysis Date/Time : 2-AUG-2009 17:38:35  
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error      | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|--------------|------------|
| GD-148        | 2989.576     | 3302.009   | 0.000000E+00          | 0.000000E+00         | 0.000000E+00 | 95.00000   |
| NP-237        | 4437.518     | 4905.500   | 4.000000              | 0.9600002            | 50.00000     | 95.00000   |
| CM-244        | 5535.553     | 5882.966   | 61.00000              | 14.64000             | 12.80369     | 95.00000   |

Instrument : CHAMBER 026  
 Detector : 78204  
 Background Analysis Date/Time : 2-AUG-2009 17:38:35  
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2989.278     | 3302.066   | 1.000000              | 0.2400001            | 100.0000 | 95.00000   |
| NP-237        | 4432.530     | 4904.245   | 8.000000              | 1.920000             | 35.35534 | 95.00000   |
| CM-244        | 5530.854     | 5885.357   | 35.00000              | 8.400002             | 16.90309 | 95.00000   |

Instrument : CHAMBER 027  
 Detector : 42484  
 Background Analysis Date/Time : 2-AUG-2009 17:38:35  
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2989.311     | 3298.574   | 1.000000              | 0.2400001            | 100.0000 | 95.00000   |
| NP-237        | 4433.571     | 4901.458   | 4.000000              | 0.9600002            | 50.00000 | 95.00000   |
| CM-244        | 5534.916     | 5884.719   | 37.00000              | 8.880002             | 16.43990 | 95.00000   |

Instrument : CHAMBER 028  
 Detector : 78792  
 Background Analysis Date/Time : 2-AUG-2009 17:38:35  
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2988.458     | 3301.428   | 1.000000              | 0.2400001            | 100.0000 | 95.00000   |
| NP-237        | 4433.918     | 4901.793   | 10.00000              | 2.400001             | 31.62278 | 95.00000   |
| CM-244        | 5530.766     | 5886.861   | 36.00000              | 8.640002             | 16.66667 | 95.00000   |

Instrument : CHAMBER 029  
 Detector : 33454  
 Background Analysis Date/Time : 2-AUG-2009 17:38:35  
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2991.561     | 3299.264   | 4.000000              | 0.9600002            | 50.00000 | 95.00000   |
| NP-237        | 4436.609     | 4905.813   | 5.000000              | 1.200000             | 44.72136 | 95.00000   |
| CM-244        | 5532.652     | 5886.650   | 41.00000              | 9.840002             | 15.61738 | 95.00000   |

Instrument : CHAMBER 030  
 Detector : 33447  
 Background Analysis Date/Time : 2-AUG-2009 17:38:35  
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2992.462     | 3300.436   | 4.000000              | 0.9600002            | 50.00000 | 95.00000   |
| NP-237        | 4435.706     | 4901.528   | 10.00000              | 2.400001             | 31.62278 | 95.00000   |
| CM-244        | 5532.111     | 5885.667   | 49.00000              | 11.76000             | 14.28572 | 95.00000   |

Instrument : CHAMBER 031  
 Detector : 67042  
 Background Analysis Date/Time : 2-AUG-2009 17:38:35  
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2990.816     | 3298.130   | 4.000000              | 0.9599994            | 50.00000 | 95.00000   |
| NP-237        | 4432.666     | 4904.194   | 11.00000              | 2.639998             | 30.15113 | 95.00000   |
| CM-244        | 5530.750     | 5885.317   | 50.00000              | 11.99999             | 14.14214 | 95.00000   |

Instrument : CHAMBER 032  
 Detector : 67041  
 Background Analysis Date/Time : 2-AUG-2009 17:38:35  
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2990.681     | 3302.442   | 2.000000              | 0.4799997            | 70.71068 | 95.00000   |
| NP-237        | 4436.943     | 4904.070   | 8.000000              | 1.919999             | 35.35534 | 95.00000   |
| CM-244        | 5532.476     | 5883.050   | 63.00000              | 15.11999             | 12.59882 | 95.00000   |

Instrument : CHAMBER 033  
 Detector : 78785  
 Background Analysis Date/Time : 2-AUG-2009 17:38:35  
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2988.750     | 3301.323   | 2.000000              | 0.4799997            | 70.71068 | 95.00000   |
| NP-237        | 4437.327     | 4904.445   | 7.000000              | 1.679999             | 37.79645 | 95.00000   |
| CM-244        | 5532.298     | 5882.301   | 47.00000              | 11.27999             | 14.58650 | 95.00000   |

Instrument : CHAMBER 034  
 Detector : 61586  
 Background Analysis Date/Time : 2-AUG-2009 17:38:35  
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2990.405     | 3301.020   | 3.000000              | 0.7199996            | 57.73503 | 95.00000   |
| NP-237        | 4436.289     | 4905.558   | 6.000000              | 1.439999             | 40.82483 | 95.00000   |
| CM-244        | 5534.591     | 5883.408   | 6.000000              | 1.439999             | 40.82483 | 95.00000   |

Instrument : CHAMBER 035  
 Detector : 78202  
 Background Analysis Date/Time : 2-AUG-2009 17:38:35  
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2988.026     | 3302.211   | 3.000000              | 0.7199996            | 57.73503 | 95.00000   |
| NP-237        | 4437.360     | 4905.577   | 20.00000              | 4.799997             | 22.36068 | 95.00000   |
| CM-244        | 5534.350     | 5884.600   | 61.00000              | 14.63999             | 12.80369 | 95.00000   |

Instrument : CHAMBER 036  
 Detector : 78203  
 Background Analysis Date/Time : 2-AUG-2009 17:38:35  
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2988.680     | 3301.073   | 2.000000              | 0.4799997            | 70.71068 | 95.00000   |
| NP-237        | 4435.041     | 4905.984   | 9.000000              | 2.159999             | 33.33334 | 95.00000   |
| CM-244        | 5531.465     | 5885.278   | 47.00000              | 11.27999             | 14.58650 | 95.00000   |



Instrument : CHAMBER 037  
 Detector : 45-149BB5  
 Background Analysis Date/Time : 2-AUG-2009 17:38:36  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2991.168     | 3302.212   | 3.000000              | 0.7199995            | 57.73503 | 95.00000   |
| NP-237        | 4432.895     | 4904.029   | 13.00000              | 3.119998             | 27.73501 | 95.00000   |
| CM-244        | 5532.110     | 5886.157   | 66.00000              | 15.83999             | 12.30915 | 95.00000   |

Instrument : CHAMBER 038  
 Detector : 72532  
 Background Analysis Date/Time : 2-AUG-2009 17:38:36  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2992.472     | 3300.031   | 4.000000              | 0.9599993            | 50.00000 | 95.00000   |
| NP-237        | 4434.591     | 4905.742   | 16.00000              | 3.839997             | 25.00000 | 95.00000   |
| CM-244        | 5531.463     | 5885.396   | 50.00000              | 11.99999             | 14.14214 | 95.00000   |

Instrument : CHAMBER 039  
 Detector : 45-149BB2  
 Background Analysis Date/Time : 2-AUG-2009 17:38:36  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2988.231     | 3297.932   | 6.000000              | 1.439999             | 40.82483 | 95.00000   |
| NP-237        | 4433.148     | 4905.972   | 6.000000              | 1.439999             | 40.82483 | 95.00000   |
| CM-244        | 5532.651     | 5884.312   | 76.00000              | 18.23999             | 11.47079 | 95.00000   |

Instrument : CHAMBER 040  
 Detector : 78773  
 Background Analysis Date/Time : 2-AUG-2009 17:38:36  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2989.631     | 3299.278   | 2.000000              | 0.4799997            | 70.71068 | 95.00000   |
| NP-237        | 4434.455     | 4902.104   | 2.000000              | 0.4799997            | 70.71068 | 95.00000   |
| CM-244        | 5534.140     | 5885.901   | 43.00000              | 10.31999             | 15.24986 | 95.00000   |

Instrument : CHAMBER 041  
 Detector : 78205  
 Background Analysis Date/Time : 2-AUG-2009 17:38:36  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2988.485     | 3301.427   | 8.000000              | 1.919999             | 35.35534 | 95.00000   |
| NP-237        | 4434.095     | 4902.163   | 8.000000              | 1.919999             | 35.35534 | 95.00000   |
| CM-244        | 5531.498     | 5882.427   | 43.00000              | 10.31999             | 15.24986 | 95.00000   |

Instrument : CHAMBER 042  
 Detector : 78793  
 Background Analysis Date/Time : 2-AUG-2009 17:38:36  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2991.775     | 3302.182   | 3.000000              | 0.7199995            | 57.73503 | 95.00000   |
| NP-237        | 4434.604     | 4903.031   | 12.00000              | 2.879998             | 28.86751 | 95.00000   |
| CM-244        | 5530.666     | 5882.826   | 45.00000              | 10.79999             | 14.90712 | 95.00000   |

Instrument : CHAMBER 043  
 Detector : 76543  
 Background Analysis Date/Time : 2-AUG-2009 17:38:37  
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2990.605     | 3297.721   | 2.000000              | 0.4799997            | 70.71068 | 95.00000   |
| NP-237        | 4435.729     | 4906.163   | 7.000000              | 1.679999             | 37.79645 | 95.00000   |
| CM-244        | 5530.889     | 5884.237   | 59.00000              | 14.15999             | 13.01889 | 95.00000   |

Instrument : CHAMBER 044  
 Detector : 79459  
 Background Analysis Date/Time : 2-AUG-2009 17:38:37  
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2992.053     | 3299.650   | 4.000000              | 0.9599994            | 50.00000 | 95.00000   |
| NP-237        | 4434.444     | 4905.733   | 8.000000              | 1.919999             | 35.35534 | 95.00000   |
| CM-244        | 5531.674     | 5885.749   | 67.00000              | 16.07999             | 12.21694 | 95.00000   |

Instrument : CHAMBER 045  
 Detector : 78783  
 Background Analysis Date/Time : 2-AUG-2009 17:38:37  
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2991.163     | 3297.674   | 2.000000              | 0.4799997            | 70.71068 | 95.00000   |
| NP-237        | 4435.665     | 4901.796   | 4.000000              | 0.9599994            | 50.00000 | 95.00000   |
| CM-244        | 5533.912     | 5883.468   | 60.00000              | 14.39999             | 12.90994 | 95.00000   |

Instrument : CHAMBER 046  
 Detector : 76544  
 Background Analysis Date/Time : 2-AUG-2009 17:38:37  
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2988.013     | 3297.754   | 6.000000              | 1.439999             | 40.82483 | 95.00000   |
| NP-237        | 4433.428     | 4906.578   | 9.000000              | 2.159999             | 33.33334 | 95.00000   |
| CM-244        | 5533.808     | 5885.833   | 47.00000              | 11.27999             | 14.58650 | 95.00000   |

Instrument : CHAMBER 047  
 Detector : 46-089B1  
 Background Analysis Date/Time : 2-AUG-2009 17:38:37  
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error      | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|--------------|------------|
| GD-148        | 2989.788     | 3298.531   | 0.000000E+00          | 0.000000E+00         | 0.000000E+00 | 95.00000   |
| NP-237        | 4436.493     | 4903.356   | 9.000000              | 2.159999             | 33.33334     | 95.00000   |
| CM-244        | 5535.296     | 5884.198   | 73.00000              | 17.51999             | 11.70411     | 95.00000   |

Instrument : CHAMBER 048  
 Detector : 42483  
 Background Analysis Date/Time : 2-AUG-2009 17:38:37  
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error      | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|--------------|------------|
| GD-148        | 2991.838     | 3299.553   | 0.000000E+00          | 0.000000E+00         | 0.000000E+00 | 95.00000   |
| NP-237        | 4437.268     | 4906.475   | 10.00000              | 2.399998             | 31.62278     | 95.00000   |
| CM-244        | 5533.930     | 5885.396   | 49.00000              | 11.75999             | 14.28572     | 95.00000   |

Instrument : CHAMBER 065  
 Detector : 68551  
 Background Analysis Date/Time : 9-AUG-2009 15:42:44  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2991.020     | 3301.790   | 4.000000              | 0.9599993            | 50.00000 | 95.00000   |
| NP-237        | 4435.576     | 4904.585   | 11.00000              | 2.639998             | 30.15113 | 95.00000   |
| CM-244        | 5533.015     | 5885.628   | 14.00000              | 3.359998             | 26.72612 | 95.00000   |

Instrument : CHAMBER 066  
 Detector : 46-089C1  
 Background Analysis Date/Time : 9-AUG-2009 15:42:44  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2988.945     | 3298.217   | 3.000000              | 0.7199995            | 57.73503 | 95.00000   |
| NP-237        | 4435.388     | 4905.987   | 4.000000              | 0.9599993            | 50.00000 | 95.00000   |
| CM-244        | 5534.885     | 5886.957   | 15.00000              | 3.599998             | 25.81989 | 95.00000   |

Instrument : CHAMBER 067  
 Detector : 46-089B4  
 Background Analysis Date/Time : 9-AUG-2009 15:42:44  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2990.195     | 3298.405   | 1.000000              | 0.2399998            | 100.0000 | 95.00000   |
| NP-237        | 4432.996     | 4903.114   | 5.000000              | 1.199999             | 44.72136 | 95.00000   |
| CM-244        | 5531.881     | 5884.128   | 12.00000              | 2.879998             | 28.86751 | 95.00000   |

Instrument : CHAMBER 068  
 Detector : 78794  
 Background Analysis Date/Time : 9-AUG-2009 15:42:44  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2989.058     | 3297.794   | 2.000000              | 0.4799997            | 70.71068 | 95.00000   |
| NP-237        | 4436.694     | 4904.361   | 3.000000              | 0.7199995            | 57.73503 | 95.00000   |
| CM-244        | 5532.395     | 5887.637   | 15.00000              | 3.599998             | 25.81989 | 95.00000   |

Instrument : CHAMBER 069  
 Detector : 78795  
 Background Analysis Date/Time : 9-AUG-2009 15:42:44  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error      | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|--------------|------------|
| GD-148        | 2991.230     | 3298.554   | 0.000000E+00          | 0.000000E+00         | 0.000000E+00 | 95.00000   |
| NP-237        | 4432.770     | 4904.008   | 12.00000              | 2.879998             | 28.86751     | 95.00000   |
| CM-244        | 5535.390     | 5884.253   | 11.00000              | 2.639998             | 30.15113     | 95.00000   |

Instrument : CHAMBER 070  
 Detector : 46-089B2  
 Background Analysis Date/Time : 9-AUG-2009 15:42:44  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2992.134     | 3299.079   | 4.000000              | 0.9599993            | 50.00000 | 95.00000   |
| NP-237        | 4435.081     | 4904.079   | 12.00000              | 2.879998             | 28.86751 | 95.00000   |
| CM-244        | 5531.689     | 5883.454   | 10.00000              | 2.399998             | 31.62278 | 95.00000   |

Instrument : CHAMBER 071  
 Detector : 64259  
 Background Analysis Date/Time : 9-AUG-2009 15:42:45  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2991.474     | 3300.552   | 4.000000              | 0.9599993            | 50.00000 | 95.00000   |
| NP-237        | 4434.375     | 4901.563   | 12.00000              | 2.879998             | 28.86751 | 95.00000   |
| CM-244        | 5533.885     | 5882.968   | 9.000000              | 2.159998             | 33.33334 | 95.00000   |

Instrument : CHAMBER 072  
 Detector : 45-149AA3  
 Background Analysis Date/Time : 9-AUG-2009 15:42:45  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2989.276     | 3301.453   | 1.000000              | 0.2399998            | 100.0000 | 95.00000   |
| NP-237        | 4434.016     | 4904.104   | 11.00000              | 2.639998             | 30.15113 | 95.00000   |
| CM-244        | 5533.538     | 5886.502   | 15.00000              | 3.599998             | 25.81989 | 95.00000   |

Instrument : CHAMBER 073  
 Detector : 78775  
 Background Analysis Date/Time : 9-AUG-2009 15:42:45  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2991.884     | 3298.904   | 2.000000              | 0.4799997            | 70.71068 | 95.00000   |
| NP-237        | 4435.607     | 4905.083   | 10.00000              | 2.399998             | 31.62278 | 95.00000   |
| CM-244        | 5533.495     | 5885.787   | 1.000000              | 0.2399998            | 100.0000 | 95.00000   |

Instrument : CHAMBER 074  
 Detector : 78266  
 Background Analysis Date/Time : 9-AUG-2009 15:42:45  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2992.157     | 3300.875   | 6.000000              | 1.439999             | 40.82483 | 95.00000   |
| NP-237        | 4434.541     | 4902.170   | 10.00000              | 2.399998             | 31.62278 | 95.00000   |
| CM-244        | 5535.537     | 5885.413   | 5.000000              | 1.199999             | 44.72136 | 95.00000   |

Instrument : CHAMBER 075  
 Detector : 68550  
 Background Analysis Date/Time : 9-AUG-2009 15:42:45  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2992.440     | 3300.846   | 3.000000              | 0.7199995            | 57.73503 | 95.00000   |
| NP-237        | 4432.709     | 4904.580   | 14.00000              | 3.359998             | 26.72612 | 95.00000   |
| CM-244        | 5531.026     | 5885.258   | 12.00000              | 2.879998             | 28.86751 | 95.00000   |

Instrument : CHAMBER 076  
 Detector : 78779  
 Background Analysis Date/Time : 9-AUG-2009 15:42:45  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error      | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|--------------|------------|
| GD-148        | 2991.979     | 3300.154   | 1.000000              | 0.2399998            | 100.0000     | 95.00000   |
| NP-237        | 4436.825     | 4903.508   | 11.00000              | 2.639998             | 30.15113     | 95.00000   |
| CM-244        | 5535.510     | 5884.591   | 0.000000E+00          | 0.000000E+00         | 0.000000E+00 | 95.00000   |

Instrument : CHAMBER 077  
 Detector : 67576  
 Background Analysis Date/Time : 9-AUG-2009 15:42:46  
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2989.957     | 3302.071   | 2.000000              | 0.4800001            | 70.71068 | 95.00000   |
| NP-237        | 4433.544     | 4902.799   | 6.000000              | 1.440000             | 40.82483 | 95.00000   |
| CM-244        | 5530.788     | 5882.782   | 17.00000              | 4.080001             | 24.25356 | 95.00000   |

Instrument : CHAMBER 078  
 Detector : 67577  
 Background Analysis Date/Time : 9-AUG-2009 15:42:46  
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2988.255     | 3302.223   | 3.000000              | 0.7200001            | 57.73503 | 95.00000   |
| NP-237        | 4437.236     | 4905.680   | 5.000000              | 1.200000             | 44.72136 | 95.00000   |
| CM-244        | 5535.005     | 5885.680   | 6.000000              | 1.440000             | 40.82483 | 95.00000   |

Instrument : CHAMBER 079  
 Detector : 67598  
 Background Analysis Date/Time : 9-AUG-2009 15:42:46  
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error      | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|--------------|------------|
| GD-148        | 2989.159     | 3300.331   | 0.000000E+00          | 0.000000E+00         | 0.000000E+00 | 95.00000   |
| NP-237        | 4434.317     | 4902.854   | 5.000000              | 1.200000             | 44.72136     | 95.00000   |
| CM-244        | 5535.480     | 5887.277   | 7.000000              | 1.680000             | 37.79645     | 95.00000   |

Instrument : CHAMBER 080  
 Detector : 78197  
 Background Analysis Date/Time : 9-AUG-2009 15:42:46  
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2991.650     | 3302.015   | 2.000000              | 0.4799997            | 70.71068 | 95.00000   |
| NP-237        | 4433.624     | 4906.537   | 7.000000              | 1.679999             | 37.79645 | 95.00000   |
| CM-244        | 5533.522     | 5887.645   | 5.000000              | 1.199999             | 44.72136 | 95.00000   |

Instrument : CHAMBER 081  
 Detector : 72533  
 Background Analysis Date/Time : 9-AUG-2009 15:42:46  
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error      | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|--------------|------------|
| GD-148        | 2994.266     | 3303.451   | 0.000000E+00          | 0.000000E+00         | 0.000000E+00 | 95.00000   |
| NP-237        | 4435.242     | 4901.625   | 6.000000              | 1.440000             | 40.82483     | 95.00000   |
| CM-244        | 5531.807     | 5884.164   | 15.00000              | 3.600001             | 25.81989     | 95.00000   |

Instrument : CHAMBER 082  
 Detector : 64263  
 Background Analysis Date/Time : 9-AUG-2009 15:42:46  
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2987.542     | 3297.569   | 2.000000              | 0.4800001            | 70.71068 | 95.00000   |
| NP-237        | 4435.421     | 4904.506   | 14.00000              | 3.360001             | 26.72612 | 95.00000   |
| CM-244        | 5534.230     | 5884.907   | 8.000000              | 1.920000             | 35.35534 | 95.00000   |

Instrument : CHAMBER 083  
 Detector : 64278  
 Background Analysis Date/Time : 9-AUG-2009 15:42:47  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2991.854     | 3298.707   | 3.000000              | 0.7199995            | 57.73503 | 95.00000   |
| NP-237        | 4433.271     | 4906.151   | 10.00000              | 2.399998             | 31.62278 | 95.00000   |
| CM-244        | 5531.993     | 5884.932   | 8.000000              | 1.919999             | 35.35534 | 95.00000   |

Instrument : CHAMBER 084  
 Detector : 78265  
 Background Analysis Date/Time : 9-AUG-2009 15:42:47  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error      | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|--------------|------------|
| GD-148        | 2988.678     | 3299.931   | 1.000000              | 0.2399998            | 100.0000     | 95.00000   |
| NP-237        | 4434.465     | 4903.170   | 11.00000              | 2.639998             | 30.15113     | 95.00000   |
| CM-244        | 5531.407     | 5886.178   | 0.000000E+00          | 0.000000E+00         | 0.000000E+00 | 95.00000   |



Instrument : CHAMBER 085  
 Detector : 78776  
 Background Analysis Date/Time : 9-AUG-2009 15:42:47  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2990.698     | 3300.313   | 4.000000              | 0.9599993            | 50.00000 | 95.00000   |
| NP-237        | 4435.121     | 4902.282   | 7.000000              | 1.679999             | 37.79645 | 95.00000   |
| CM-244        | 5534.187     | 5882.859   | 5.000000              | 1.199999             | 44.72136 | 95.00000   |

Instrument : CHAMBER 086  
 Detector : 78198  
 Background Analysis Date/Time : 9-AUG-2009 15:42:47  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2990.009     | 3300.939   | 1.000000              | 0.2399998            | 100.0000 | 95.00000   |
| NP-237        | 4436.927     | 4902.983   | 9.000000              | 2.159998             | 33.33334 | 95.00000   |
| CM-244        | 5531.983     | 5883.724   | 1.000000              | 0.2399998            | 100.0000 | 95.00000   |

Instrument : CHAMBER 087  
 Detector : 78199  
 Background Analysis Date/Time : 9-AUG-2009 15:42:47  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2988.599     | 3301.987   | 2.000000              | 0.4799997            | 70.71068 | 95.00000   |
| NP-237        | 4434.300     | 4902.242   | 9.000000              | 2.159998             | 33.33334 | 95.00000   |
| CM-244        | 5532.304     | 5887.140   | 2.000000              | 0.4799997            | 70.71068 | 95.00000   |

Instrument : CHAMBER 088  
 Detector : 33452  
 Background Analysis Date/Time : 9-AUG-2009 15:42:47  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2989.881     | 3297.896   | 3.000000              | 0.7199995            | 57.73503 | 95.00000   |
| NP-237        | 4436.727     | 4902.043   | 10.00000              | 2.399998             | 31.62278 | 95.00000   |
| CM-244        | 5532.799     | 5884.609   | 11.00000              | 2.639998             | 30.15113 | 95.00000   |

Instrument : CHAMBER 089  
 Detector : 78262  
 Background Analysis Date/Time : 9-AUG-2009 15:42:48  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error       | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|---------------|------------|
| GD-148        | 2989.340     | 3299.886   | 3.000000              | 0.7200001            | 57.73503      | 95.00000   |
| NP-237        | 4433.954     | 4903.393   | 6.000000              | 1.440000             | 40.82483      | 95.00000   |
| CM-244        | 5533.423     | 5884.190   | 0.0000000E+00         | 0.0000000E+00        | 0.0000000E+00 | 95.00000   |

Instrument : CHAMBER 090  
 Detector : 78263  
 Background Analysis Date/Time : 9-AUG-2009 15:42:48  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2992.174     | 3298.193   | 2.000000              | 0.4800001            | 70.71068 | 95.00000   |
| NP-237        | 4432.899     | 4902.301   | 9.000000              | 2.160000             | 33.33334 | 95.00000   |
| CM-244        | 5531.267     | 5884.186   | 1.000000              | 0.2400000            | 100.0000 | 95.00000   |

Instrument : CHAMBER 091  
 Detector : 78259  
 Background Analysis Date/Time : 9-AUG-2009 15:42:48  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2988.796     | 3297.819   | 3.000000              | 0.7200001            | 57.73503 | 95.00000   |
| NP-237        | 4433.118     | 4901.645   | 4.000000              | 0.9600002            | 50.00000 | 95.00000   |
| CM-244        | 5531.054     | 5887.180   | 2.000000              | 0.4800001            | 70.71068 | 95.00000   |

Instrument : CHAMBER 092  
 Detector : 79457  
 Background Analysis Date/Time : 9-AUG-2009 15:42:48  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2988.378     | 3299.875   | 108.0000              | 25.92000             | 9.622504 | 95.00000   |
| NP-237        | 4435.762     | 4905.401   | 82.00000              | 19.68000             | 11.04315 | 95.00000   |
| CM-244        | 5534.466     | 5887.335   | 8.000000              | 1.920000             | 35.35534 | 95.00000   |

Instrument : CHAMBER 093  
 Detector : 33206  
 Background Analysis Date/Time : 9-AUG-2009 15:42:48  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2988.021     | 3298.707   | 5.000000              | 1.200000             | 44.72136 | 95.00000   |
| NP-237        | 4432.645     | 4901.916   | 6.000000              | 1.440000             | 40.82483 | 95.00000   |
| CM-244        | 5530.870     | 5883.862   | 2.000000              | 0.4800001            | 70.71068 | 95.00000   |

Instrument : CHAMBER 094  
 Detector : 78267  
 Background Analysis Date/Time : 9-AUG-2009 15:42:48  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2987.496     | 3299.970   | 8.000000              | 1.920000             | 35.35534 | 95.00000   |
| NP-237        | 4432.930     | 4902.883   | 1.000000              | 0.2400000            | 100.0000 | 95.00000   |
| CM-244        | 5531.875     | 5884.464   | 4.000000              | 0.9600002            | 50.00000 | 95.00000   |

Instrument : CHAMBER 095  
 Detector : 64279  
 Background Analysis Date/Time : 9-AUG-2009 17:08:35  
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2991.646     | 3298.356   | 3.000000              | 0.7199996            | 57.73503 | 95.00000   |
| NP-237        | 4435.397     | 4905.664   | 11.00000              | 2.639998             | 30.15113 | 95.00000   |
| CM-244        | 5530.369     | 5883.804   | 23.00000              | 5.519997             | 20.85144 | 95.00000   |

Instrument : CHAMBER 096  
 Detector : 67605  
 Background Analysis Date/Time : 9-AUG-2009 17:08:35  
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2989.386     | 3301.860   | 1.000000              | 0.2399998            | 100.0000 | 95.00000   |
| NP-237        | 4437.256     | 4904.015   | 24.00000              | 5.759996             | 20.41241 | 95.00000   |
| CM-244        | 5531.292     | 5886.331   | 5.000000              | 1.199999             | 44.72136 | 95.00000   |

Instrument : CHAMBER 097  
 Detector : 67599  
 Background Analysis Date/Time : 9-AUG-2009 17:08:35  
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2991.155     | 3299.592   | 5.000000              | 1.199999             | 44.72136 | 95.00000   |
| NP-237        | 4437.204     | 4904.260   | 9.000000              | 2.159999             | 33.33334 | 95.00000   |
| CM-244        | 5531.403     | 5886.106   | 16.00000              | 3.839998             | 25.00000 | 95.00000   |

Instrument : CHAMBER 098  
 Detector : 68644  
 Background Analysis Date/Time : 9-AUG-2009 17:08:35  
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2992.247     | 3301.860   | 4.000000              | 0.9599994            | 50.00000 | 95.00000   |
| NP-237        | 4432.619     | 4906.019   | 9.000000              | 2.159999             | 33.33334 | 95.00000   |
| CM-244        | 5534.382     | 5884.237   | 3.000000              | 0.7199996            | 57.73503 | 95.00000   |

Instrument : CHAMBER 099  
 Detector : 70317  
 Background Analysis Date/Time : 9-AUG-2009 17:08:35  
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2987.820     | 3298.212   | 1.000000              | 0.2399998            | 100.0000 | 95.00000   |
| NP-237        | 4437.036     | 4906.585   | 8.000000              | 1.919999             | 35.35534 | 95.00000   |
| CM-244        | 5530.871     | 5884.331   | 1.000000              | 0.2399998            | 100.0000 | 95.00000   |

Instrument : CHAMBER 100  
 Detector : 79456  
 Background Analysis Date/Time : 9-AUG-2009 17:08:35  
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2989.623     | 3299.666   | 6.000000              | 1.439999             | 40.82483 | 95.00000   |
| NP-237        | 4436.895     | 4905.650   | 17.00000              | 4.079998             | 24.25356 | 95.00000   |
| CM-244        | 5534.086     | 5886.872   | 12.00000              | 2.879998             | 28.86751 | 95.00000   |

Instrument : CHAMBER 101  
 Detector : 64253  
 Background Analysis Date/Time : 9-AUG-2009 15:42:49  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error      | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|--------------|------------|
| GD-148        | 2990.814     | 3297.893   | 8.000000              | 1.919999             | 35.35534     | 95.00000   |
| NP-237        | 4435.403     | 4905.470   | 5.000000              | 1.199999             | 44.72136     | 95.00000   |
| CM-244        | 5534.897     | 5882.499   | 0.000000E+00          | 0.000000E+00         | 0.000000E+00 | 95.00000   |

Instrument : CHAMBER 102  
 Detector : 72525  
 Background Analysis Date/Time : 9-AUG-2009 15:42:49  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2989.911     | 3298.890   | 2.000000              | 0.4799997            | 70.71068 | 95.00000   |
| NP-237        | 4436.604     | 4903.163   | 6.000000              | 1.439999             | 40.82483 | 95.00000   |
| CM-244        | 5533.661     | 5884.537   | 1.000000              | 0.2399998            | 100.0000 | 95.00000   |

Instrument : CHAMBER 103  
 Detector : 79461  
 Background Analysis Date/Time : 9-AUG-2009 15:42:49  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error      | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|--------------|------------|
| GD-148        | 2989.467     | 3301.138   | 2.000000              | 0.4799997            | 70.71068     | 95.00000   |
| NP-237        | 4432.983     | 4903.264   | 8.000000              | 1.919999             | 35.35534     | 95.00000   |
| CM-244        | 5533.387     | 5886.945   | 0.000000E+00          | 0.000000E+00         | 0.000000E+00 | 95.00000   |

Instrument : CHAMBER 104  
 Detector : 72524  
 Background Analysis Date/Time : 9-AUG-2009 15:42:49  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2991.174     | 3300.565   | 4.000000              | 0.9599993            | 50.00000 | 95.00000   |
| NP-237        | 4436.202     | 4904.648   | 8.000000              | 1.919999             | 35.35534 | 95.00000   |
| CM-244        | 5532.970     | 5885.836   | 3.000000              | 0.7199995            | 57.73503 | 95.00000   |

Instrument : CHAMBER 105  
 Detector : 78777  
 Background Analysis Date/Time : 9-AUG-2009 15:42:49  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2990.222     | 3299.531   | 4.000000              | 0.9599993            | 50.00000 | 95.00000   |
| NP-237        | 4434.728     | 4902.932   | 3.000000              | 0.7199995            | 57.73503 | 95.00000   |
| CM-244        | 5530.878     | 5883.508   | 1.000000              | 0.2399998            | 100.0000 | 95.00000   |

Instrument : CHAMBER 106  
 Detector : 64274  
 Background Analysis Date/Time : 9-AUG-2009 15:42:49  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2987.640     | 3299.757   | 6.000000              | 1.439999             | 40.82483 | 95.00000   |
| NP-237        | 4434.577     | 4901.415   | 11.00000              | 2.639998             | 30.15113 | 95.00000   |
| CM-244        | 5534.428     | 5884.452   | 4.000000              | 0.9599993            | 50.00000 | 95.00000   |

Instrument : CHAMBER 107  
 Detector : 67578  
 Background Analysis Date/Time : 9-AUG-2009 15:42:50  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2988.547     | 3298.638   | 3.000000              | 0.7199995            | 57.73503 | 95.00000   |
| NP-237        | 4435.772     | 4904.146   | 5.000000              | 1.199999             | 44.72136 | 95.00000   |
| CM-244        | 5532.554     | 5882.324   | 8.000000              | 1.919999             | 35.35534 | 95.00000   |

Instrument : CHAMBER 108  
 Detector : 78778  
 Background Analysis Date/Time : 9-AUG-2009 15:42:50  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error      | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|--------------|------------|
| GD-148        | 2988.136     | 3297.898   | 0.000000E+00          | 0.000000E+00         | 0.000000E+00 | 95.00000   |
| NP-237        | 4433.563     | 4901.441   | 2.000000              | 0.4799997            | 70.71068     | 95.00000   |
| CM-244        | 5533.812     | 5885.772   | 9.000000              | 2.159998             | 33.33334     | 95.00000   |

Instrument : CHAMBER 109  
 Detector : 79463  
 Background Analysis Date/Time : 9-AUG-2009 15:42:50  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2990.332     | 3301.320   | 1.000000              | 0.2399998            | 100.0000 | 95.00000   |
| NP-237        | 4437.566     | 4903.059   | 2.000000              | 0.4799997            | 70.71068 | 95.00000   |
| CM-244        | 5534.376     | 5883.521   | 6.000000              | 1.439999             | 40.82483 | 95.00000   |

Instrument : CHAMBER 110  
 Detector : 67602  
 Background Analysis Date/Time : 9-AUG-2009 15:42:50  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2987.980     | 3298.573   | 1.000000              | 0.2399998            | 100.0000 | 95.00000   |
| NP-237        | 4433.010     | 4901.606   | 8.000000              | 1.919999             | 35.35534 | 95.00000   |
| CM-244        | 5534.957     | 5883.028   | 14.00000              | 3.359998             | 26.72612 | 95.00000   |

Instrument : CHAMBER 111  
 Detector : 79462  
 Background Analysis Date/Time : 9-AUG-2009 15:42:50  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error      | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|--------------|------------|
| GD-148        | 2988.711     | 3298.714   | 0.000000E+00          | 0.000000E+00         | 0.000000E+00 | 95.00000   |
| NP-237        | 4436.440     | 4905.458   | 8.000000              | 1.919999             | 35.35534     | 95.00000   |
| CM-244        | 5535.080     | 5885.693   | 4.000000              | 0.9599993            | 50.00000     | 95.00000   |

Instrument : CHAMBER 112  
 Detector : 78261  
 Background Analysis Date/Time : 9-AUG-2009 15:42:50  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2988.059     | 3299.440   | 3.000000              | 0.7199995            | 57.73503 | 95.00000   |
| NP-237        | 4434.653     | 4903.902   | 1.000000              | 0.2399998            | 100.0000 | 95.00000   |
| CM-244        | 5532.350     | 5884.826   | 7.000000              | 1.679999             | 37.79645 | 95.00000   |

Instrument : CHAMBER 113  
 Detector : 45-111B4  
 Background Analysis Date/Time : 16-AUG-2009 16:34:44  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error       | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|---------------|------------|
| GD-148        | 2990.867     | 3300.361   | 1.000000              | 0.3000000            | 100.0000      | 95.00000   |
| NP-237        | 4434.565     | 4901.409   | 0.0000000E+00         | 0.0000000E+00        | 0.0000000E+00 | 95.00000   |
| CM-244        | 5532.822     | 5886.571   | 10.00000              | 3.000000             | 31.62278      | 95.00000   |

Instrument : CHAMBER 114  
 Detector : 78258  
 Background Analysis Date/Time : 16-AUG-2009 16:34:50  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2992.066     | 3300.343   | 1.000000              | 0.3000000            | 100.0000 | 95.00000   |
| NP-237        | 4433.866     | 4902.961   | 2.000000              | 0.6000000            | 70.71068 | 95.00000   |
| CM-244        | 5535.155     | 5886.142   | 4.000000              | 1.200000             | 50.00000 | 95.00000   |

Instrument : CHAMBER 115  
 Detector : 45-132FF4  
 Background Analysis Date/Time : 16-AUG-2009 16:34:55  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2989.683     | 3299.666   | 2.000000              | 0.6000000            | 70.71068 | 95.00000   |
| NP-237        | 4433.623     | 4904.729   | 6.000000              | 1.800000             | 40.82483 | 95.00000   |
| CM-244        | 5534.066     | 5886.268   | 10.00000              | 3.000000             | 31.62278 | 95.00000   |

Instrument : CHAMBER 116  
 Detector : 45-132FF2  
 Background Analysis Date/Time : 16-AUG-2009 16:34:59  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error       | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|---------------|------------|
| GD-148        | 2991.930     | 3301.615   | 0.0000000E+00         | 0.0000000E+00        | 0.0000000E+00 | 95.00000   |
| NP-237        | 4433.958     | 4904.160   | 3.000000              | 0.9000000            | 57.73503      | 95.00000   |
| CM-244        | 5532.087     | 5883.400   | 11.00000              | 3.300000             | 30.15113      | 95.00000   |



Instrument : CHAMBER 117  
 Detector : 33450  
 Background Analysis Date/Time : 16-AUG-2009 16:35:03  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2989.306     | 3298.199   | 2.000000              | 0.6000000            | 70.71068 | 95.00000   |
| NP-237        | 4433.520     | 4903.152   | 3.000000              | 0.9000000            | 57.73503 | 95.00000   |
| CM-244        | 5530.582     | 5887.083   | 11.00000              | 3.300000             | 30.15113 | 95.00000   |

Instrument : CHAMBER 118  
 Detector : 75544  
 Background Analysis Date/Time : 16-AUG-2009 16:35:08  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2988.856     | 3302.528   | 2.000000              | 0.6000000            | 70.71068 | 95.00000   |
| NP-237        | 4432.711     | 4902.773   | 2.000000              | 0.6000000            | 70.71068 | 95.00000   |
| CM-244        | 5531.177     | 5883.080   | 18.00000              | 5.400000             | 23.57022 | 95.00000   |

Instrument : CHAMBER 119  
 Detector : 74429  
 Background Analysis Date/Time : 12-JUL-2009 18:15:09  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error       | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|---------------|------------|
| GD-148        | 2992.004     | 3299.253   | 3.000000              | 0.9000000            | 57.73503      | 95.00000   |
| NP-237        | 4432.548     | 4906.013   | 1.000000              | 0.3000000            | 100.0000      | 95.00000   |
| CM-244        | 5530.584     | 5883.165   | 0.0000000E+00         | 0.0000000E+00        | 0.0000000E+00 | 95.00000   |

Instrument : CHAMBER 120  
 Detector : 74430  
 Background Analysis Date/Time : 12-JUL-2009 18:15:13  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2990.522     | 3298.404   | 3.000000              | 0.9000000            | 57.73503 | 95.00000   |
| NP-237        | 4435.328     | 4903.588   | 4.000000              | 1.200000             | 50.00000 | 95.00000   |
| CM-244        | 5534.528     | 5884.756   | 3.000000              | 0.9000000            | 57.73503 | 95.00000   |

Instrument : CHAMBER 121  
 Detector : 75545  
 Background Analysis Date/Time : 16-AUG-2009 16:35:22  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2991.483     | 3299.036   | 4.000000              | 1.200000             | 50.00000 | 95.00000   |
| NP-237        | 4436.007     | 4904.843   | 6.000000              | 1.800000             | 40.82483 | 95.00000   |
| CM-244        | 5531.746     | 5882.876   | 5.000000              | 1.500000             | 44.72136 | 95.00000   |

Instrument : CHAMBER 122  
 Detector : 75546  
 Background Analysis Date/Time : 16-AUG-2009 16:35:26  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error      | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|--------------|------------|
| GD-148        | 2989.140     | 3302.149   | 0.000000E+00          | 0.000000E+00         | 0.000000E+00 | 95.00000   |
| NP-237        | 4434.728     | 4903.501   | 14.00000              | 4.200000             | 26.72612     | 95.00000   |
| CM-244        | 5535.323     | 5886.133   | 13.00000              | 3.900000             | 27.73501     | 95.00000   |

Instrument : CHAMBER 123  
 Detector : 45-142V3  
 Background Analysis Date/Time : 16-AUG-2009 16:35:30  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2989.820     | 3298.601   | 3.000000              | 0.9000000            | 57.73503 | 95.00000   |
| NP-237        | 4437.478     | 4905.941   | 6.000000              | 1.800000             | 40.82483 | 95.00000   |
| CM-244        | 5531.339     | 5886.453   | 8.000000              | 2.400000             | 35.35534 | 95.00000   |

Instrument : CHAMBER 124  
 Detector : 45-142V2  
 Background Analysis Date/Time : 16-AUG-2009 16:35:35  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2989.806     | 3300.376   | 2.000000              | 0.6000000            | 70.71068 | 95.00000   |
| NP-237        | 4436.352     | 4902.974   | 9.000000              | 2.700000             | 33.33334 | 95.00000   |
| CM-244        | 5533.246     | 5885.946   | 6.000000              | 1.800000             | 40.82483 | 95.00000   |

Instrument : CHAMBER 125  
 Detector : 75547  
 Background Analysis Date/Time : 16-AUG-2009 16:35:39  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2987.619     | 3299.275   | 2.000000              | 0.6000000            | 70.71068 | 95.00000   |
| NP-237        | 4433.269     | 4906.266   | 7.000000              | 2.100000             | 37.79645 | 95.00000   |
| CM-244        | 5531.959     | 5882.482   | 4.000000              | 1.200000             | 50.00000 | 95.00000   |

Instrument : CHAMBER 126  
 Detector : 75548  
 Background Analysis Date/Time : 16-AUG-2009 16:35:44  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error       | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|---------------|------------|
| GD-148        | 2988.372     | 3298.946   | 0.0000000E+00         | 0.0000000E+00        | 0.0000000E+00 | 95.00000   |
| NP-237        | 4437.297     | 4901.551   | 16.00000              | 4.800000             | 25.00000      | 95.00000   |
| CM-244        | 5532.806     | 5882.587   | 4.000000              | 1.200000             | 50.00000      | 95.00000   |

Instrument : CHAMBER 127  
 Detector : 78770  
 Background Analysis Date/Time : 16-AUG-2009 16:35:48  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2989.622     | 3297.830   | 3.000000              | 0.9000000            | 57.73503 | 95.00000   |
| NP-237        | 4435.622     | 4904.092   | 1.000000              | 0.3000000            | 100.0000 | 95.00000   |
| CM-244        | 5535.184     | 5885.434   | 1.000000              | 0.3000000            | 100.0000 | 95.00000   |

Instrument : CHAMBER 128  
 Detector : 75549  
 Background Analysis Date/Time : 16-AUG-2009 16:35:52  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2989.482     | 3299.177   | 135.0000              | 40.50000             | 8.606629 | 95.00000   |
| NP-237        | 4436.028     | 4905.664   | 84.00000              | 25.20000             | 10.91089 | 95.00000   |
| CM-244        | 5532.549     | 5883.141   | 32.00000              | 9.600000             | 17.67767 | 95.00000   |

Instrument : CHAMBER 129  
 Detector : 76227  
 Background Analysis Date/Time : 16-AUG-2009 16:35:57  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2992.146     | 3298.635   | 1.000000              | 0.3000000            | 100.0000 | 95.00000   |
| NP-237        | 4432.563     | 4905.761   | 8.000000              | 2.400000             | 35.35534 | 95.00000   |
| CM-244        | 5531.918     | 5882.796   | 2.000000              | 0.6000000            | 70.71068 | 95.00000   |

Instrument : CHAMBER 130  
 Detector : 76228  
 Background Analysis Date/Time : 16-AUG-2009 16:36:01  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2989.230     | 3297.665   | 2.000000              | 0.6000000            | 70.71068 | 95.00000   |
| NP-237        | 4434.582     | 4901.937   | 8.000000              | 2.400000             | 35.35534 | 95.00000   |
| CM-244        | 5530.859     | 5884.881   | 4.000000              | 1.200000             | 50.00000 | 95.00000   |

Instrument : CHAMBER 131  
 Detector : 33448  
 Background Analysis Date/Time : 16-AUG-2009 16:36:05  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error       | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|---------------|------------|
| GD-148        | 2988.455     | 3301.428   | 0.0000000E+00         | 0.0000000E+00        | 0.0000000E+00 | 95.00000   |
| NP-237        | 4434.994     | 4904.668   | 4.000000              | 1.200000             | 50.00000      | 95.00000   |
| CM-244        | 5532.826     | 5884.723   | 5.000000              | 1.500000             | 44.72136      | 95.00000   |

Instrument : CHAMBER 132  
 Detector : 67579  
 Background Analysis Date/Time : 16-AUG-2009 16:36:09  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2989.906     | 3301.298   | 2.000000              | 0.6000000            | 70.71068 | 95.00000   |
| NP-237        | 4432.560     | 4903.500   | 5.000000              | 1.500000             | 44.72136 | 95.00000   |
| CM-244        | 5531.586     | 5882.587   | 2.000000              | 0.6000000            | 70.71068 | 95.00000   |

Instrument : CHAMBER 133  
 Detector : 76229  
 Background Analysis Date/Time : 16-AUG-2009 16:36:14  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2992.199     | 3301.674   | 1.000000              | 0.3000000            | 100.0000 | 95.00000   |
| NP-237        | 4436.849     | 4905.652   | 3.000000              | 0.9000000            | 57.73503 | 95.00000   |
| CM-244        | 5530.602     | 5882.872   | 5.000000              | 1.500000             | 44.72136 | 95.00000   |

Instrument : CHAMBER 134  
 Detector : 76230  
 Background Analysis Date/Time : 16-AUG-2009 16:36:19  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error       | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|---------------|------------|
| GD-148        | 2989.055     | 3302.112   | 0.0000000E+00         | 0.0000000E+00        | 0.0000000E+00 | 95.00000   |
| NP-237        | 4432.969     | 4905.408   | 21.00000              | 6.300000             | 21.82179      | 95.00000   |
| CM-244        | 5534.460     | 5883.375   | 9.000000              | 2.700000             | 33.33334      | 95.00000   |

Instrument : CHAMBER 135  
 Detector : 64270  
 Background Analysis Date/Time : 16-AUG-2009 16:36:23  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2987.813     | 3300.105   | 2.000000              | 0.6000000            | 70.71068 | 95.00000   |
| NP-237        | 4435.123     | 4902.752   | 2.000000              | 0.6000000            | 70.71068 | 95.00000   |
| CM-244        | 5532.979     | 5882.877   | 10.00000              | 3.000000             | 31.62278 | 95.00000   |

Instrument : CHAMBER 136  
 Detector : 68549  
 Background Analysis Date/Time : 16-AUG-2009 16:36:27  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2991.796     | 3301.682   | 3.000000              | 0.9000000            | 57.73503 | 95.00000   |
| NP-237        | 4435.713     | 4901.780   | 14.00000              | 4.200000             | 26.72612 | 95.00000   |
| CM-244        | 5531.520     | 5884.028   | 6.000000              | 1.800000             | 40.82483 | 95.00000   |

Instrument : CHAMBER 137  
 Detector : 64288  
 Background Analysis Date/Time : 12-JUL-2009 18:16:27  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2988.787     | 3300.077   | 3.000000              | 0.9000000            | 57.73503 | 95.00000   |
| NP-237        | 4437.030     | 4902.424   | 2.000000              | 0.6000000            | 70.71068 | 95.00000   |
| CM-244        | 5534.153     | 5885.897   | 13.00000              | 3.900000             | 27.73501 | 95.00000   |

Instrument : CHAMBER 138  
 Detector : 65877  
 Background Analysis Date/Time : 16-AUG-2009 16:36:35  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2990.457     | 3300.623   | 3.000000              | 0.9000000            | 57.73503 | 95.00000   |
| NP-237        | 4436.833     | 4904.301   | 13.00000              | 3.900000             | 27.73501 | 95.00000   |
| CM-244        | 5531.035     | 5885.034   | 10.00000              | 3.000000             | 31.62278 | 95.00000   |

Instrument : CHAMBER 139  
 Detector : 76231  
 Background Analysis Date/Time : 16-AUG-2009 16:36:40  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2988.624     | 3300.322   | 4.000000              | 1.200000             | 50.00000 | 95.00000   |
| NP-237        | 4436.965     | 4901.673   | 8.000000              | 2.400000             | 35.35534 | 95.00000   |
| CM-244        | 5531.099     | 5884.173   | 8.000000              | 2.400000             | 35.35534 | 95.00000   |

Instrument : CHAMBER 140  
 Detector : 78771  
 Background Analysis Date/Time : 16-AUG-2009 16:36:43  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2992.243     | 3300.208   | 3.000000              | 0.9000000            | 57.73503 | 95.00000   |
| NP-237        | 4435.227     | 4906.111   | 12.00000              | 3.600000             | 28.86751 | 95.00000   |
| CM-244        | 5531.085     | 5884.403   | 1.000000              | 0.3000000            | 100.0000 | 95.00000   |

Instrument : CHAMBER 141  
 Detector : 76232  
 Background Analysis Date/Time : 16-AUG-2009 16:36:48  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2989.414     | 3297.748   | 1.000000              | 0.3000000            | 100.0000 | 95.00000   |
| NP-237        | 4437.262     | 4901.753   | 5.000000              | 1.500000             | 44.72136 | 95.00000   |
| CM-244        | 5534.971     | 5886.637   | 5.000000              | 1.500000             | 44.72136 | 95.00000   |

Instrument : CHAMBER 142  
 Detector : 64261  
 Background Analysis Date/Time : 16-AUG-2009 16:36:52  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2988.269     | 3301.948   | 2.000000              | 0.6000000            | 70.71068 | 95.00000   |
| NP-237        | 4433.864     | 4905.404   | 11.00000              | 3.300000             | 30.15113 | 95.00000   |
| CM-244        | 5531.110     | 5884.773   | 12.00000              | 3.600000             | 28.86751 | 95.00000   |

Instrument : CHAMBER 143  
 Detector : 65882  
 Background Analysis Date/Time : 16-AUG-2009 16:36:56  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2987.868     | 3300.973   | 10.00000              | 3.000000             | 31.62278 | 95.00000   |
| NP-237        | 4435.203     | 4905.234   | 16.00000              | 4.800000             | 25.00000 | 95.00000   |
| CM-244        | 5533.941     | 5886.181   | 11.00000              | 3.300000             | 30.15113 | 95.00000   |

Instrument : CHAMBER 144  
 Detector : 75551  
 Background Analysis Date/Time : 16-AUG-2009 16:37:00  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2992.050     | 3299.833   | 2.000000              | 0.6000000            | 70.71068 | 95.00000   |
| NP-237        | 4433.005     | 4902.603   | 12.00000              | 3.600000             | 28.86751 | 95.00000   |
| CM-244        | 5530.735     | 5882.656   | 9.000000              | 2.700000             | 33.33334 | 95.00000   |

Instrument : CHAMBER 145  
 Detector : 72526  
 Background Analysis Date/Time : 16-AUG-2009 16:37:03  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2991.923     | 3299.882   | 3.000000              | 0.900000             | 57.73503 | 95.00000   |
| NP-237        | 4434.984     | 4905.949   | 4.000000              | 1.200000             | 50.00000 | 95.00000   |
| CM-244        | 5531.069     | 5884.490   | 6.000000              | 1.800000             | 40.82483 | 95.00000   |

Instrument : CHAMBER 146  
 Detector : 72527  
 Background Analysis Date/Time : 16-AUG-2009 16:37:08  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2989.460     | 3301.164   | 2.000000              | 0.600000             | 70.71068 | 95.00000   |
| NP-237        | 4435.288     | 4903.095   | 2.000000              | 0.600000             | 70.71068 | 95.00000   |
| CM-244        | 5534.042     | 5884.573   | 6.000000              | 1.800000             | 40.82483 | 95.00000   |

Instrument : CHAMBER 147  
 Detector : 75550  
 Background Analysis Date/Time : 16-AUG-2009 16:37:11  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2990.910     | 3299.539   | 10.00000              | 3.000000             | 31.62278 | 95.00000   |
| NP-237        | 4433.251     | 4901.935   | 8.000000              | 2.400000             | 35.35534 | 95.00000   |
| CM-244        | 5533.139     | 5883.368   | 12.00000              | 3.600000             | 28.86751 | 95.00000   |

Instrument : CHAMBER 148  
 Detector : 74429  
 Background Analysis Date/Time : 16-AUG-2009 16:37:16  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2990.725     | 3298.446   | 6.000000              | 1.800000             | 40.82483 | 95.00000   |
| NP-237        | 4436.496     | 4905.977   | 7.000000              | 2.100000             | 37.79645 | 95.00000   |
| CM-244        | 5533.919     | 5885.716   | 8.000000              | 2.400000             | 35.35534 | 95.00000   |



Instrument : CHAMBER 149  
 Detector : 33449  
 Background Analysis Date/Time : 16-AUG-2009 16:37:20  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2991.734     | 3299.272   | 1.000000              | 0.3000000            | 100.0000 | 95.00000   |
| NP-237        | 4437.371     | 4901.944   | 4.000000              | 1.200000             | 50.00000 | 95.00000   |
| CM-244        | 5530.548     | 5882.851   | 6.000000              | 1.800000             | 40.82483 | 95.00000   |

Instrument : CHAMBER 150  
 Detector : 75552  
 Background Analysis Date/Time : 16-AUG-2009 16:37:24  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2992.316     | 3300.643   | 2.000000              | 0.6000000            | 70.71068 | 95.00000   |
| NP-237        | 4435.415     | 4905.497   | 7.000000              | 2.100000             | 37.79645 | 95.00000   |
| CM-244        | 5534.121     | 5886.240   | 7.000000              | 2.100000             | 37.79645 | 95.00000   |

Instrument : CHAMBER 151  
 Detector : 75556  
 Background Analysis Date/Time : 16-AUG-2009 16:37:28  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2990.659     | 3302.040   | 1.000000              | 0.3000000            | 100.0000 | 95.00000   |
| NP-237        | 4434.623     | 4901.634   | 4.000000              | 1.200000             | 50.00000 | 95.00000   |
| CM-244        | 5531.364     | 5886.469   | 8.000000              | 2.400000             | 35.35534 | 95.00000   |

Instrument : CHAMBER 152  
 Detector : 76222  
 Background Analysis Date/Time : 16-AUG-2009 16:37:32  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2991.044     | 3297.777   | 4.000000              | 1.200000             | 50.00000 | 95.00000   |
| NP-237        | 4437.300     | 4905.285   | 5.000000              | 1.500000             | 44.72136 | 95.00000   |
| CM-244        | 5531.209     | 5887.199   | 8.000000              | 2.400000             | 35.35534 | 95.00000   |

Instrument : CHAMBER 153  
 Detector : 76223  
 Background Analysis Date/Time : 16-AUG-2009 16:37:35  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2989.175     | 3301.127   | 4.000000              | 1.200000             | 50.00000 | 95.00000   |
| NP-237        | 4437.148     | 4906.174   | 10.00000              | 3.000000             | 31.62278 | 95.00000   |
| CM-244        | 5533.838     | 5885.640   | 4.000000              | 1.200000             | 50.00000 | 95.00000   |

Instrument : CHAMBER 154  
 Detector : 76224  
 Background Analysis Date/Time : 16-AUG-2009 16:37:40  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2991.160     | 3298.663   | 3.000000              | 0.9000000            | 57.73503 | 95.00000   |
| NP-237        | 4435.792     | 4904.845   | 6.000000              | 1.800000             | 40.82483 | 95.00000   |
| CM-244        | 5532.170     | 5883.602   | 4.000000              | 1.200000             | 50.00000 | 95.00000   |

Instrument : CHAMBER 155  
 Detector : 75553  
 Background Analysis Date/Time : 16-AUG-2009 16:37:44  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2990.137     | 3299.574   | 8.000000              | 2.400000             | 35.35534 | 95.00000   |
| NP-237        | 4433.383     | 4905.252   | 9.000000              | 2.700000             | 33.33334 | 95.00000   |
| CM-244        | 5530.995     | 5884.485   | 8.000000              | 2.400000             | 35.35534 | 95.00000   |

Instrument : CHAMBER 156  
 Detector : 75554  
 Background Analysis Date/Time : 16-AUG-2009 16:37:48  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2991.410     | 3301.423   | 6.000000              | 1.800000             | 40.82483 | 95.00000   |
| NP-237        | 4436.034     | 4902.390   | 17.00000              | 5.100000             | 24.25356 | 95.00000   |
| CM-244        | 5532.563     | 5885.336   | 4.000000              | 1.200000             | 50.00000 | 95.00000   |

Instrument : CHAMBER 157  
 Detector : 75555  
 Background Analysis Date/Time : 16-AUG-2009 16:37:52  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2989.948     | 3299.042   | 1.000000              | 0.3000000            | 100.0000 | 95.00000   |
| NP-237        | 4436.337     | 4902.073   | 9.000000              | 2.700000             | 33.33334 | 95.00000   |
| CM-244        | 5531.733     | 5884.378   | 7.000000              | 2.100000             | 37.79645 | 95.00000   |

Instrument : CHAMBER 158  
 Detector : 33451  
 Background Analysis Date/Time : 16-AUG-2009 16:37:56  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2990.074     | 3301.013   | 2.000000              | 0.6000000            | 70.71068 | 95.00000   |
| NP-237        | 4435.907     | 4905.421   | 11.00000              | 3.300000             | 30.15113 | 95.00000   |
| CM-244        | 5535.323     | 5885.904   | 6.000000              | 1.800000             | 40.82483 | 95.00000   |

Instrument : CHAMBER 159  
 Detector : 76225  
 Background Analysis Date/Time : 16-AUG-2009 16:38:00  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2992.022     | 3301.502   | 4.000000              | 1.200000             | 50.00000 | 95.00000   |
| NP-237        | 4435.853     | 4902.842   | 7.000000              | 2.100000             | 37.79645 | 95.00000   |
| CM-244        | 5534.528     | 5883.086   | 12.00000              | 3.600000             | 28.86751 | 95.00000   |

Instrument : CHAMBER 160  
 Detector : 76226  
 Background Analysis Date/Time : 16-AUG-2009 16:38:03  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2988.982     | 3298.890   | 6.000000              | 1.800000             | 40.82483 | 95.00000   |
| NP-237        | 4434.439     | 4901.761   | 20.00000              | 6.000000             | 22.36068 | 95.00000   |
| CM-244        | 5533.753     | 5882.414   | 11.00000              | 3.300000             | 30.15113 | 95.00000   |

Instrument : CHAMBER 161  
 Detector : 70321  
 Background Analysis Date/Time : 19-JUL-2009 13:08:31  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2989.000     | 3299.306   | 2.000000              | 0.6000000            | 70.71068 | 95.00000   |
| NP-237        | 4436.547     | 4904.892   | 11.00000              | 3.300000             | 30.15113 | 95.00000   |
| CM-244        | 5532.420     | 5884.522   | 7.000000              | 2.100000             | 37.79645 | 95.00000   |

Instrument : CHAMBER 162  
 Detector : 70323  
 Background Analysis Date/Time : 2-AUG-2009 17:21:40  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2988.824     | 3300.295   | 1.000000              | 0.3000000            | 100.0000 | 95.00000   |
| NP-237        | 4433.927     | 4901.686   | 3.000000              | 0.9000000            | 57.73503 | 95.00000   |
| CM-244        | 5532.705     | 5883.340   | 7.000000              | 2.100000             | 37.79645 | 95.00000   |

Instrument : CHAMBER 163  
 Detector : 70324  
 Background Analysis Date/Time : 19-JUL-2009 13:08:40  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2988.922     | 3300.358   | 1.000000              | 0.3000000            | 100.0000 | 95.00000   |
| NP-237        | 4435.910     | 4905.359   | 19.00000              | 5.700000             | 22.94157 | 95.00000   |
| CM-244        | 5534.127     | 5886.809   | 10.00000              | 3.000000             | 31.62278 | 95.00000   |

Instrument : CHAMBER 164  
 Detector : 70325  
 Background Analysis Date/Time : 19-JUL-2009 13:08:44  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2991.018     | 3297.699   | 2.000000              | 0.6000000            | 70.71068 | 95.00000   |
| NP-237        | 4434.306     | 4904.250   | 9.000000              | 2.700000             | 33.33334 | 95.00000   |
| CM-244        | 5533.729     | 5886.834   | 9.000000              | 2.700000             | 33.33334 | 95.00000   |

Instrument : CHAMBER 165  
 Detector : 72544  
 Background Analysis Date/Time : 19-JUL-2009 13:08:49  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error      | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|--------------|------------|
| GD-148        | 2989.844     | 3302.139   | 0.000000E+00          | 0.000000E+00         | 0.000000E+00 | 95.00000   |
| NP-237        | 4434.670     | 4904.543   | 11.00000              | 3.300000             | 30.15113     | 95.00000   |
| CM-244        | 5533.515     | 5886.135   | 2.000000              | 0.6000000            | 70.71068     | 95.00000   |

Instrument : CHAMBER 166  
 Detector : 74545  
 Background Analysis Date/Time : 19-JUL-2009 13:08:54  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error      | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|--------------|------------|
| GD-148        | 2989.919     | 3301.734   | 0.000000E+00          | 0.000000E+00         | 0.000000E+00 | 95.00000   |
| NP-237        | 4433.352     | 4903.208   | 6.000000              | 1.800000             | 40.82483     | 95.00000   |
| CM-244        | 5532.473     | 5885.411   | 10.00000              | 3.000000             | 31.62278     | 95.00000   |

Instrument : CHAMBER 167  
 Detector : 72546  
 Background Analysis Date/Time : 19-JUL-2009 13:08:58  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2991.456     | 3297.909   | 2.000000              | 0.6000000            | 70.71068 | 95.00000   |
| NP-237        | 4433.461     | 4902.876   | 7.000000              | 2.100000             | 37.79645 | 95.00000   |
| CM-244        | 5531.568     | 5884.192   | 8.000000              | 2.400000             | 35.35534 | 95.00000   |

Instrument : CHAMBER 168  
 Detector : 72547  
 Background Analysis Date/Time : 19-JUL-2009 13:09:03  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error      | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|--------------|------------|
| GD-148        | 2990.191     | 3302.241   | 0.000000E+00          | 0.000000E+00         | 0.000000E+00 | 95.00000   |
| NP-237        | 4434.272     | 4904.107   | 10.00000              | 3.000000             | 31.62278     | 95.00000   |
| CM-244        | 5533.178     | 5885.925   | 7.000000              | 2.100000             | 37.79645     | 95.00000   |

Instrument : CHAMBER 169  
 Detector : 72548  
 Background Analysis Date/Time : 2-AUG-2009 17:22:11  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2989.637     | 3301.388   | 7.000000              | 2.100000             | 37.79645 | 95.00000   |
| NP-237        | 4432.422     | 4901.883   | 25.000000             | 7.500000             | 20.00000 | 95.00000   |
| CM-244        | 5530.486     | 5882.987   | 10.000000             | 3.000000             | 31.62278 | 95.00000   |

Instrument : CHAMBER 170  
 Detector : 72549  
 Background Analysis Date/Time : 19-JUL-2009 13:09:11  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2991.026     | 3302.433   | 1.000000              | 0.3000000            | 100.0000 | 95.00000   |
| NP-237        | 4434.863     | 4906.064   | 7.000000              | 2.100000             | 37.79645 | 95.00000   |
| CM-244        | 5532.657     | 5887.477   | 8.000000              | 2.400000             | 35.35534 | 95.00000   |

Instrument : CHAMBER 171  
 Detector : 78260  
 Background Analysis Date/Time : 19-JUL-2009 13:09:16  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2989.883     | 3301.923   | 1.000000              | 0.3000000            | 100.0000 | 95.00000   |
| NP-237        | 4434.363     | 4904.564   | 11.000000             | 3.300000             | 30.15113 | 95.00000   |
| CM-244        | 5534.294     | 5887.494   | 6.000000              | 1.800000             | 40.82483 | 95.00000   |

Instrument : CHAMBER 172  
 Detector : 78772  
 Background Analysis Date/Time : 19-JUL-2009 13:09:20  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2990.947     | 3302.414   | 1.000000              | 0.3000000            | 100.0000 | 95.00000   |
| NP-237        | 4433.288     | 4903.064   | 6.000000              | 1.800000             | 40.82483 | 95.00000   |
| CM-244        | 5532.422     | 5885.508   | 5.000000              | 1.500000             | 44.72136 | 95.00000   |

Instrument : CHAMBER 173  
 Detector : 74431  
 Background Analysis Date/Time : 19-JUL-2009 13:09:25  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2991.296     | 3300.266   | 2.000000              | 0.6000000            | 70.71068 | 95.00000   |
| NP-237        | 4436.390     | 4906.583   | 5.000000              | 1.500000             | 44.72136 | 95.00000   |
| CM-244        | 5534.964     | 5886.757   | 17.00000              | 5.100000             | 24.25356 | 95.00000   |

Instrument : CHAMBER 174  
 Detector : 74432  
 Background Analysis Date/Time : 19-JUL-2009 13:09:29  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2990.955     | 3301.951   | 3.000000              | 0.9000000            | 57.73503 | 95.00000   |
| NP-237        | 4436.112     | 4905.743   | 7.000000              | 2.100000             | 37.79645 | 95.00000   |
| CM-244        | 5531.741     | 5886.720   | 21.00000              | 6.300000             | 21.82179 | 95.00000   |

Instrument : CHAMBER 175  
 Detector : 74433  
 Background Analysis Date/Time : 19-JUL-2009 13:09:34  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2987.808     | 3301.771   | 2.000000              | 0.6000000            | 70.71068 | 95.00000   |
| NP-237        | 4437.598     | 4902.379   | 3.000000              | 0.9000000            | 57.73503 | 95.00000   |
| CM-244        | 5530.438     | 5887.378   | 15.00000              | 4.500000             | 25.81989 | 95.00000   |

Instrument : CHAMBER 176  
 Detector : 74434  
 Background Analysis Date/Time : 19-JUL-2009 13:09:39  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2988.124     | 3298.749   | 3.000000              | 0.9000000            | 57.73503 | 95.00000   |
| NP-237        | 4433.658     | 4904.539   | 5.000000              | 1.500000             | 44.72136 | 95.00000   |
| CM-244        | 5533.031     | 5884.495   | 15.00000              | 4.500000             | 25.81989 | 95.00000   |

Instrument : CHAMBER 177  
 Detector : 74435  
 Background Analysis Date/Time : 19-JUL-2009 13:09:43  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2991.035     | 3300.055   | 2.000000              | 0.6000000            | 70.71068 | 95.00000   |
| NP-237        | 4436.061     | 4906.072   | 4.000000              | 1.200000             | 50.00000 | 95.00000   |
| CM-244        | 5534.094     | 5885.629   | 20.00000              | 6.000000             | 22.36068 | 95.00000   |

Instrument : CHAMBER 178  
 Detector : 74436  
 Background Analysis Date/Time : 19-JUL-2009 13:09:47  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error       | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|---------------|------------|
| GD-148        | 2992.331     | 3301.630   | 0.0000000E+00         | 0.0000000E+00        | 0.0000000E+00 | 95.00000   |
| NP-237        | 4433.348     | 4903.642   | 11.00000              | 3.300000             | 30.15113      | 95.00000   |
| CM-244        | 5531.998     | 5883.700   | 21.00000              | 6.300000             | 21.82179      | 95.00000   |

Instrument : CHAMBER 179  
 Detector : 74437  
 Background Analysis Date/Time : 19-JUL-2009 13:09:52  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2991.102     | 3300.165   | 1.000000              | 0.3000000            | 100.0000 | 95.00000   |
| NP-237        | 4436.443     | 4906.617   | 6.000000              | 1.800000             | 40.82483 | 95.00000   |
| CM-244        | 5534.901     | 5886.605   | 25.00000              | 7.500000             | 20.00000 | 95.00000   |

Instrument : CHAMBER 180  
 Detector : 74438  
 Background Analysis Date/Time : 19-JUL-2009 13:09:56  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2988.611     | 3299.257   | 2.000000              | 0.6000000            | 70.71068 | 95.00000   |
| NP-237        | 4433.245     | 4903.299   | 9.000000              | 2.700000             | 33.33334 | 95.00000   |
| CM-244        | 5535.594     | 5886.061   | 21.00000              | 6.300000             | 21.82179 | 95.00000   |



Instrument : CHAMBER 181  
 Detector : 74439  
 Background Analysis Date/Time : 19-JUL-2009 13:10:01  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2988.239     | 3301.914   | 2.000000              | 0.6000000            | 70.71068 | 95.00000   |
| NP-237        | 4437.080     | 4901.757   | 3.000000              | 0.9000000            | 57.73503 | 95.00000   |
| CM-244        | 5535.131     | 5886.836   | 26.00000              | 7.800000             | 19.61161 | 95.00000   |

Instrument : CHAMBER 182  
 Detector : 74440  
 Background Analysis Date/Time : 19-JUL-2009 13:10:05  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2991.998     | 3301.429   | 2.000000              | 0.6000000            | 70.71068 | 95.00000   |
| NP-237        | 4432.415     | 4901.861   | 6.000000              | 1.800000             | 40.82483 | 95.00000   |
| CM-244        | 5533.907     | 5884.511   | 30.00000              | 9.000000             | 18.25742 | 95.00000   |

Instrument : CHAMBER 183  
 Detector : 74441  
 Background Analysis Date/Time : 19-JUL-2009 13:10:09  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error      | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|--------------|------------|
| GD-148        | 2989.448     | 3298.556   | 0.000000E+00          | 0.000000E+00         | 0.000000E+00 | 95.00000   |
| NP-237        | 4434.882     | 4905.025   | 5.000000              | 1.500000             | 44.72136     | 95.00000   |
| CM-244        | 5533.221     | 5884.854   | 26.00000              | 7.800000             | 19.61161     | 95.00000   |

Instrument : CHAMBER 184  
 Detector : 74442  
 Background Analysis Date/Time : 19-JUL-2009 13:10:15  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2989.235     | 3300.018   | 3.000000              | 0.9000000            | 57.73503 | 95.00000   |
| NP-237        | 4434.314     | 4904.409   | 4.000000              | 1.200000             | 50.00000 | 95.00000   |
| CM-244        | 5531.386     | 5887.098   | 30.00000              | 9.000000             | 18.25742 | 95.00000   |

Instrument : CHAMBER 185  
 Detector : 68615  
 Background Analysis Date/Time : 19-JUL-2009 13:10:19  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2991.225     | 3297.857   | 1.000000              | 0.3000000            | 100.0000 | 95.00000   |
| NP-237        | 4436.385     | 4903.692   | 1.000000              | 0.3000000            | 100.0000 | 95.00000   |
| CM-244        | 5533.756     | 5883.696   | 28.00000              | 8.400001             | 18.89822 | 95.00000   |

Instrument : CHAMBER 186  
 Detector : 68616  
 Background Analysis Date/Time : 19-JUL-2009 13:10:23  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2991.440     | 3298.282   | 2.000000              | 0.6000000            | 70.71068 | 95.00000   |
| NP-237        | 4433.254     | 4901.541   | 1.000000              | 0.3000000            | 100.0000 | 95.00000   |
| CM-244        | 5533.251     | 5884.261   | 30.00000              | 9.000000             | 18.25742 | 95.00000   |

Instrument : CHAMBER 187  
 Detector : 68620  
 Background Analysis Date/Time : 19-JUL-2009 13:10:27  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2989.912     | 3299.166   | 3.000000              | 0.9000000            | 57.73503 | 95.00000   |
| NP-237        | 4432.442     | 4904.149   | 11.00000              | 3.300000             | 30.15113 | 95.00000   |
| CM-244        | 5535.067     | 5883.156   | 22.00000              | 6.600000             | 21.32007 | 95.00000   |

Instrument : CHAMBER 188  
 Detector : 68621  
 Background Analysis Date/Time : 19-JUL-2009 13:10:31  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2988.283     | 3302.165   | 2.000000              | 0.6000000            | 70.71068 | 95.00000   |
| NP-237        | 4433.129     | 4903.527   | 2.000000              | 0.6000000            | 70.71068 | 95.00000   |
| CM-244        | 5532.390     | 5884.553   | 29.00000              | 8.700001             | 18.56953 | 95.00000   |

Instrument : CHAMBER 189  
 Detector : 68622  
 Background Analysis Date/Time : 19-JUL-2009 13:10:35  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2987.652     | 3299.552   | 2.000000              | 0.6000000            | 70.71068 | 95.00000   |
| NP-237        | 4434.579     | 4902.841   | 6.000000              | 1.800000             | 40.82483 | 95.00000   |
| CM-244        | 5534.475     | 5885.420   | 43.00000              | 12.90000             | 15.24986 | 95.00000   |

Instrument : CHAMBER 190  
 Detector : 68623  
 Background Analysis Date/Time : 19-JUL-2009 13:10:39  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2989.900     | 3302.388   | 5.000000              | 1.500000             | 44.72136 | 95.00000   |
| NP-237        | 4434.198     | 4903.145   | 22.00000              | 6.600000             | 21.32007 | 95.00000   |
| CM-244        | 5535.637     | 5887.028   | 30.00000              | 9.000000             | 18.25742 | 95.00000   |

Instrument : CHAMBER 191  
 Detector : 68624  
 Background Analysis Date/Time : 19-JUL-2009 13:10:43  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error       | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|---------------|------------|
| GD-148        | 2988.514     | 3302.389   | 0.0000000E+00         | 0.0000000E+00        | 0.0000000E+00 | 95.00000   |
| NP-237        | 4435.396     | 4902.283   | 1.000000              | 0.3000000            | 100.0000      | 95.00000   |
| CM-244        | 5534.230     | 5883.124   | 16.00000              | 4.800000             | 25.00000      | 95.00000   |

Instrument : CHAMBER 192  
 Detector : 74430  
 Background Analysis Date/Time : 19-JUL-2009 13:10:47  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2989.042     | 3298.270   | 2.000000              | 0.6000000            | 70.71068 | 95.00000   |
| NP-237        | 4436.778     | 4903.324   | 5.000000              | 1.500000             | 44.72136 | 95.00000   |
| CM-244        | 5534.357     | 5882.529   | 21.00000              | 6.300000             | 21.82179 | 95.00000   |

Instrument : CHAMBER 193  
 Detector : 68627  
 Background Analysis Date/Time : 19-JUL-2009 13:10:51  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2988.069     | 3299.225   | 2.000000              | 0.6000000            | 70.71068 | 95.00000   |
| NP-237        | 4433.121     | 4901.609   | 5.000000              | 1.500000             | 44.72136 | 95.00000   |
| CM-244        | 5534.158     | 5885.907   | 25.00000              | 7.500000             | 20.00000 | 95.00000   |

Instrument : CHAMBER 194  
 Detector : 68635  
 Background Analysis Date/Time : 19-JUL-2009 13:10:55  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error       | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|---------------|------------|
| GD-148        | 2988.572     | 3300.603   | 0.0000000E+00         | 0.0000000E+00        | 0.0000000E+00 | 95.00000   |
| NP-237        | 4436.435     | 4905.175   | 1.000000              | 0.3000000            | 100.0000      | 95.00000   |
| CM-244        | 5532.274     | 5883.671   | 22.00000              | 6.600000             | 21.32007      | 95.00000   |

Instrument : CHAMBER 195  
 Detector : 68636  
 Background Analysis Date/Time : 19-JUL-2009 13:10:59  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2988.629     | 3301.408   | 5.000000              | 1.500000             | 44.72136 | 95.00000   |
| NP-237        | 4433.877     | 4902.925   | 52.00000              | 15.60000             | 13.86751 | 95.00000   |
| CM-244        | 5535.397     | 5886.705   | 43.00000              | 12.90000             | 15.24986 | 95.00000   |

Instrument : CHAMBER 196  
 Detector : 68637  
 Background Analysis Date/Time : 19-JUL-2009 13:11:03  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2990.343     | 3302.501   | 2.000000              | 0.6000000            | 70.71068 | 95.00000   |
| NP-237        | 4433.338     | 4901.979   | 2.000000              | 0.6000000            | 70.71068 | 95.00000   |
| CM-244        | 5534.144     | 5885.395   | 20.00000              | 6.000000             | 22.36068 | 95.00000   |

Instrument : CHAMBER 197  
 Detector : 78894  
 Background Analysis Date/Time : 19-JUL-2009 13:11:08  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2989.389     | 3297.669   | 1.000000              | 0.3000000            | 100.0000 | 95.00000   |
| NP-237        | 4433.236     | 4904.076   | 1.000000              | 0.3000000            | 100.0000 | 95.00000   |
| CM-244        | 5534.086     | 5887.165   | 19.00000              | 5.700000             | 22.94157 | 95.00000   |

Instrument : CHAMBER 198  
 Detector : 78895  
 Background Analysis Date/Time : 19-JUL-2009 13:11:12  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error       | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|---------------|------------|
| GD-148        | 2989.288     | 3302.314   | 0.0000000E+00         | 0.0000000E+00        | 0.0000000E+00 | 95.00000   |
| NP-237        | 4436.287     | 4906.224   | 1.000000              | 0.3000000            | 100.0000      | 95.00000   |
| CM-244        | 5534.818     | 5887.000   | 15.00000              | 4.500000             | 25.81989      | 95.00000   |

Instrument : CHAMBER 199  
 Detector : 78896  
 Background Analysis Date/Time : 19-JUL-2009 13:11:16  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2990.202     | 3299.048   | 2.000000              | 0.6000000            | 70.71068 | 95.00000   |
| NP-237        | 4435.598     | 4906.357   | 2.000000              | 0.6000000            | 70.71068 | 95.00000   |
| CM-244        | 5530.513     | 5883.049   | 21.00000              | 6.300000             | 21.82179 | 95.00000   |

Instrument : CHAMBER 200  
 Detector : 78900  
 Background Analysis Date/Time : 19-JUL-2009 13:11:20  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2989.598     | 3302.306   | 3.000000              | 0.9000000            | 57.73503 | 95.00000   |
| NP-237        | 4436.820     | 4902.466   | 15.00000              | 4.500000             | 25.81989 | 95.00000   |
| CM-244        | 5532.933     | 5886.480   | 31.00000              | 9.300000             | 17.96053 | 95.00000   |

Instrument : CHAMBER 201  
 Detector : 78902  
 Background Analysis Date/Time : 19-JUL-2009 13:11:24  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2989.239     | 3302.324   | 1.000000              | 0.3000000            | 100.0000 | 95.00000   |
| NP-237        | 4432.525     | 4903.539   | 4.000000              | 1.200000             | 50.00000 | 95.00000   |
| CM-244        | 5534.042     | 5887.523   | 22.00000              | 6.600000             | 21.32007 | 95.00000   |

Instrument : CHAMBER 202  
 Detector : 78903  
 Background Analysis Date/Time : 19-JUL-2009 13:11:29  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error      | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|--------------|------------|
| GD-148        | 2988.965     | 3301.750   | 2.000000              | 0.6000000            | 70.71068     | 95.00000   |
| NP-237        | 4435.262     | 4905.190   | 0.000000E+00          | 0.0000000E+00        | 0.000000E+00 | 95.00000   |
| CM-244        | 5533.929     | 5886.269   | 31.00000              | 9.300000             | 17.96053     | 95.00000   |

Instrument : CHAMBER 203  
 Detector : 78905  
 Background Analysis Date/Time : 19-JUL-2009 13:11:32  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2990.960     | 3299.739   | 5.000000              | 1.500000             | 44.72136 | 95.00000   |
| NP-237        | 4435.540     | 4905.766   | 9.000000              | 2.700000             | 33.33334 | 95.00000   |
| CM-244        | 5534.337     | 5886.308   | 25.00000              | 7.500000             | 20.00000 | 95.00000   |

Instrument : CHAMBER 204  
 Detector : 78907  
 Background Analysis Date/Time : 19-JUL-2009 13:11:37  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2989.953     | 3297.878   | 13.00000              | 3.900000             | 27.73501 | 95.00000   |
| NP-237        | 4437.339     | 4902.439   | 14.00000              | 4.200000             | 26.72612 | 95.00000   |
| CM-244        | 5531.727     | 5884.400   | 31.00000              | 9.300000             | 17.96053 | 95.00000   |

Instrument : CHAMBER 205  
 Detector : 78908  
 Background Analysis Date/Time : 19-JUL-2009 13:11:41  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2991.664     | 3299.649   | 1.000000              | 0.3000000            | 100.0000 | 95.00000   |
| NP-237        | 4434.348     | 4904.923   | 3.000000              | 0.9000000            | 57.73503 | 95.00000   |
| CM-244        | 5534.662     | 5887.628   | 18.00000              | 5.400000             | 23.57022 | 95.00000   |

Instrument : CHAMBER 206  
 Detector : 78909  
 Background Analysis Date/Time : 19-JUL-2009 13:11:45  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2991.007     | 3298.921   | 2.000000              | 0.6000000            | 70.71068 | 95.00000   |
| NP-237        | 4432.777     | 4902.746   | 2.000000              | 0.6000000            | 70.71068 | 95.00000   |
| CM-244        | 5531.452     | 5883.730   | 22.00000              | 6.600000             | 21.32007 | 95.00000   |

Instrument : CHAMBER 207  
 Detector : 78910  
 Background Analysis Date/Time : 19-JUL-2009 13:11:49  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2988.143     | 3301.594   | 1.000000              | 0.3000000            | 100.0000 | 95.00000   |
| NP-237        | 4437.296     | 4902.779   | 2.000000              | 0.6000000            | 70.71068 | 95.00000   |
| CM-244        | 5532.449     | 5885.271   | 25.00000              | 7.500000             | 20.00000 | 95.00000   |

Instrument : CHAMBER 208  
 Detector : 78911  
 Background Analysis Date/Time : 19-JUL-2009 13:11:53  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2989.612     | 3298.165   | 3.000000              | 0.9000000            | 57.73503 | 95.00000   |
| NP-237        | 4434.097     | 4904.804   | 2.000000              | 0.6000000            | 70.71068 | 95.00000   |
| CM-244        | 5534.389     | 5887.108   | 8.000000              | 2.400000             | 35.35534 | 95.00000   |

Instrument : CHAMBER 209  
 Detector : 79188  
 Background Analysis Date/Time : 26-JUL-2009 17:06:41  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2989.310     | 3300.226   | 2.000000              | 0.6000000            | 70.71068 | 95.00000   |
| NP-237        | 4435.667     | 4905.853   | 1.000000              | 0.3000000            | 100.0000 | 95.00000   |
| CM-244        | 5530.947     | 5884.845   | 8.000000              | 2.400000             | 35.35534 | 95.00000   |

Instrument : CHAMBER 210  
 Detector : 79189  
 Background Analysis Date/Time : 26-JUL-2009 17:06:45  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error       | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|---------------|------------|
| GD-148        | 2990.620     | 3297.977   | 1.000000              | 0.3000000            | 100.0000      | 95.00000   |
| NP-237        | 4435.731     | 4905.552   | 0.0000000E+00         | 0.0000000E+00        | 0.0000000E+00 | 95.00000   |
| CM-244        | 5534.352     | 5886.824   | 9.000000              | 2.700000             | 33.33334      | 95.00000   |

Instrument : CHAMBER 211  
 Detector : 79190  
 Background Analysis Date/Time : 26-JUL-2009 17:06:49  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2988.121     | 3301.259   | 3.000000              | 0.9000000            | 57.73503 | 95.00000   |
| NP-237        | 4436.737     | 4902.524   | 1.000000              | 0.3000000            | 100.0000 | 95.00000   |
| CM-244        | 5532.952     | 5886.368   | 15.00000              | 4.500000             | 25.81989 | 95.00000   |

Instrument : CHAMBER 212  
 Detector : 79191  
 Background Analysis Date/Time : 26-JUL-2009 17:06:54  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error       | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|---------------|------------|
| GD-148        | 2989.135     | 3301.447   | 1.000000              | 0.3000000            | 100.0000      | 95.00000   |
| NP-237        | 4434.433     | 4904.665   | 0.0000000E+00         | 0.0000000E+00        | 0.0000000E+00 | 95.00000   |
| CM-244        | 5534.267     | 5887.313   | 12.00000              | 3.600000             | 28.86751      | 95.00000   |



Instrument : CHAMBER 213  
 Detector : 79192  
 Background Analysis Date/Time : 26-JUL-2009 17:06:58  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error      | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|--------------|------------|
| GD-148        | 2990.470     | 3298.036   | 0.000000E+00          | 0.000000E+00         | 0.000000E+00 | 95.00000   |
| NP-237        | 4436.689     | 4901.687   | 1.000000              | 0.3000000            | 100.0000     | 95.00000   |
| CM-244        | 5531.037     | 5883.842   | 3.000000              | 0.9000000            | 57.73503     | 95.00000   |

Instrument : CHAMBER 214  
 Detector : 79193  
 Background Analysis Date/Time : 26-JUL-2009 17:07:02  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error      | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|--------------|------------|
| GD-148        | 2990.553     | 3297.788   | 2.000000              | 0.6000000            | 70.71068     | 95.00000   |
| NP-237        | 4436.227     | 4901.574   | 1.000000              | 0.3000000            | 100.0000     | 95.00000   |
| CM-244        | 5531.780     | 5885.252   | 0.000000E+00          | 0.000000E+00         | 0.000000E+00 | 95.00000   |

Instrument : CHAMBER 215  
 Detector : 79194  
 Background Analysis Date/Time : 26-JUL-2009 17:07:06  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error      | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|--------------|------------|
| GD-148        | 2989.364     | 3302.121   | 0.000000E+00          | 0.000000E+00         | 0.000000E+00 | 95.00000   |
| NP-237        | 4437.186     | 4903.222   | 1.000000              | 0.3000000            | 100.0000     | 95.00000   |
| CM-244        | 5534.359     | 5882.968   | 6.000000              | 1.800000             | 40.82483     | 95.00000   |

Instrument : CHAMBER 216  
 Detector : 79195  
 Background Analysis Date/Time : 26-JUL-2009 17:07:10  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2990.730     | 3302.451   | 1.000000              | 0.3000000            | 100.0000 | 95.00000   |
| NP-237        | 4434.761     | 4905.361   | 2.000000              | 0.6000000            | 70.71068 | 95.00000   |
| CM-244        | 5530.680     | 5884.547   | 6.000000              | 1.800000             | 40.82483 | 95.00000   |

Instrument : CHAMBER 217  
 Detector : 79410  
 Background Analysis Date/Time : 26-JUL-2009 17:07:14  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2988.264     | 3300.395   | 1.000000              | 0.3000000            | 100.0000 | 95.00000   |
| NP-237        | 4433.666     | 4904.432   | 1.000000              | 0.3000000            | 100.0000 | 95.00000   |
| CM-244        | 5535.108     | 5883.550   | 8.000000              | 2.400000             | 35.35534 | 95.00000   |

Instrument : CHAMBER 218  
 Detector : 79411  
 Background Analysis Date/Time : 26-JUL-2009 17:07:19  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2991.480     | 3299.092   | 1.000000              | 0.3000000            | 100.0000 | 95.00000   |
| NP-237        | 4433.463     | 4904.366   | 6.000000              | 1.800000             | 40.82483 | 95.00000   |
| CM-244        | 5534.949     | 5883.207   | 1.000000              | 0.3000000            | 100.0000 | 95.00000   |

Instrument : CHAMBER 219  
 Detector : 79412  
 Background Analysis Date/Time : 26-JUL-2009 17:07:23  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error       | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|---------------|------------|
| GD-148        | 2991.558     | 3298.478   | 1.000000              | 0.3000000            | 100.0000      | 95.00000   |
| NP-237        | 4436.677     | 4902.329   | 2.000000              | 0.6000000            | 70.71068      | 95.00000   |
| CM-244        | 5533.300     | 5887.374   | 0.0000000E+00         | 0.0000000E+00        | 0.0000000E+00 | 95.00000   |

Instrument : CHAMBER 220  
 Detector : 79413  
 Background Analysis Date/Time : 26-JUL-2009 17:07:26  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error       | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|---------------|------------|
| GD-148        | 2990.238     | 3297.635   | 0.0000000E+00         | 0.0000000E+00        | 0.0000000E+00 | 95.00000   |
| NP-237        | 4436.067     | 4906.404   | 0.0000000E+00         | 0.0000000E+00        | 0.0000000E+00 | 95.00000   |
| CM-244        | 5530.768     | 5883.799   | 4.000000              | 1.200000             | 50.00000      | 95.00000   |

Instrument : CHAMBER 221  
 Detector : 79414  
 Background Analysis Date/Time : 26-JUL-2009 17:07:30  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error      | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|--------------|------------|
| GD-148        | 2988.031     | 3301.906   | 0.000000E+00          | 0.000000E+00         | 0.000000E+00 | 95.00000   |
| NP-237        | 4434.520     | 4906.347   | 1.000000              | 0.3000000            | 100.0000     | 95.00000   |
| CM-244        | 5532.427     | 5886.301   | 7.000000              | 2.100000             | 37.79645     | 95.00000   |

Instrument : CHAMBER 222  
 Detector : 79415  
 Background Analysis Date/Time : 26-JUL-2009 17:07:34  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error      | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|--------------|------------|
| GD-148        | 2988.828     | 3299.834   | 0.000000E+00          | 0.000000E+00         | 0.000000E+00 | 95.00000   |
| NP-237        | 4436.567     | 4903.132   | 0.000000E+00          | 0.000000E+00         | 0.000000E+00 | 95.00000   |
| CM-244        | 5532.999     | 5885.314   | 5.000000              | 1.500000             | 44.72136     | 95.00000   |

Instrument : CHAMBER 223  
 Detector : 79416  
 Background Analysis Date/Time : 26-JUL-2009 17:07:38  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error      | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|--------------|------------|
| GD-148        | 2988.719     | 3302.203   | 0.000000E+00          | 0.000000E+00         | 0.000000E+00 | 95.00000   |
| NP-237        | 4434.717     | 4901.802   | 1.000000              | 0.3000000            | 100.0000     | 95.00000   |
| CM-244        | 5534.370     | 5883.775   | 10.00000              | 3.000000             | 31.62278     | 95.00000   |

Instrument : CHAMBER 224  
 Detector : 79417  
 Background Analysis Date/Time : 26-JUL-2009 17:07:43  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2991.902     | 3302.451   | 1.000000              | 0.3000000            | 100.0000 | 95.00000   |
| NP-237        | 4433.496     | 4905.621   | 1.000000              | 0.3000000            | 100.0000 | 95.00000   |
| CM-244        | 5531.081     | 5884.107   | 5.000000              | 1.500000             | 44.72136 | 95.00000   |

Instrument : CHAMBER 225  
 Detector : 79418  
 Background Analysis Date/Time : 26-JUL-2009 17:07:47  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2989.698     | 3301.928   | 3.000000              | 0.9000000            | 57.73503 | 95.00000   |
| NP-237        | 4436.047     | 4902.115   | 1.000000              | 0.3000000            | 100.0000 | 95.00000   |
| CM-244        | 5533.662     | 5882.674   | 1.000000              | 0.3000000            | 100.0000 | 95.00000   |

Instrument : CHAMBER 226  
 Detector : 79419  
 Background Analysis Date/Time : 26-JUL-2009 17:07:51  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error       | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|---------------|------------|
| GD-148        | 2990.229     | 3299.048   | 0.0000000E+00         | 0.0000000E+00        | 0.0000000E+00 | 95.00000   |
| NP-237        | 4436.278     | 4902.399   | 1.000000              | 0.3000000            | 100.0000      | 95.00000   |
| CM-244        | 5532.943     | 5886.259   | 0.0000000E+00         | 0.0000000E+00        | 0.0000000E+00 | 95.00000   |

Instrument : CHAMBER 227  
 Detector : 79420  
 Background Analysis Date/Time : 26-JUL-2009 17:07:55  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2988.495     | 3300.898   | 1.000000              | 0.3000000            | 100.0000 | 95.00000   |
| NP-237        | 4435.132     | 4906.286   | 3.000000              | 0.9000000            | 57.73503 | 95.00000   |
| CM-244        | 5532.133     | 5886.196   | 1.000000              | 0.3000000            | 100.0000 | 95.00000   |

Instrument : CHAMBER 228  
 Detector : 79421  
 Background Analysis Date/Time : 26-JUL-2009 17:07:59  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error       | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|---------------|------------|
| GD-148        | 2990.613     | 3298.829   | 1.000000              | 0.3000000            | 100.0000      | 95.00000   |
| NP-237        | 4434.639     | 4905.792   | 0.0000000E+00         | 0.0000000E+00        | 0.0000000E+00 | 95.00000   |
| CM-244        | 5531.072     | 5884.538   | 0.0000000E+00         | 0.0000000E+00        | 0.0000000E+00 | 95.00000   |

Instrument : CHAMBER 229  
 Detector : 79422  
 Background Analysis Date/Time : 26-JUL-2009 17:08:03  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error       | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|---------------|------------|
| GD-148        | 2990.805     | 3298.464   | 3.000000              | 0.9000000            | 57.73503      | 95.00000   |
| NP-237        | 4434.226     | 4906.242   | 0.0000000E+00         | 0.0000000E+00        | 0.0000000E+00 | 95.00000   |
| CM-244        | 5533.427     | 5882.943   | 0.0000000E+00         | 0.0000000E+00        | 0.0000000E+00 | 95.00000   |

Instrument : CHAMBER 230  
 Detector : 79423  
 Background Analysis Date/Time : 26-JUL-2009 17:08:07  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error       | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|---------------|------------|
| GD-148        | 2989.308     | 3297.622   | 2.000000              | 0.6000000            | 70.71068      | 95.00000   |
| NP-237        | 4433.975     | 4905.433   | 0.0000000E+00         | 0.0000000E+00        | 0.0000000E+00 | 95.00000   |
| CM-244        | 5531.188     | 5884.956   | 1.000000              | 0.3000000            | 100.0000      | 95.00000   |

Instrument : CHAMBER 231  
 Detector : 79424  
 Background Analysis Date/Time : 26-JUL-2009 17:08:12  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error       | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|---------------|------------|
| GD-148        | 2990.586     | 3298.189   | 1.000000              | 0.3000000            | 100.0000      | 95.00000   |
| NP-237        | 4432.432     | 4903.240   | 4.000000              | 1.200000             | 50.00000      | 95.00000   |
| CM-244        | 5533.660     | 5887.186   | 0.0000000E+00         | 0.0000000E+00        | 0.0000000E+00 | 95.00000   |

Instrument : CHAMBER 232  
 Detector : 79425  
 Background Analysis Date/Time : 26-JUL-2009 17:08:16  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error       | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|---------------|------------|
| GD-148        | 2989.229     | 3299.258   | 1.000000              | 0.3000000            | 100.0000      | 95.00000   |
| NP-237        | 4433.403     | 4904.597   | 1.000000              | 0.3000000            | 100.0000      | 95.00000   |
| CM-244        | 5534.062     | 5886.338   | 0.0000000E+00         | 0.0000000E+00        | 0.0000000E+00 | 95.00000   |

Instrument : CHAMBER 233  
 Detector : 79426  
 Background Analysis Date/Time : 26-JUL-2009 17:08:20  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2989.053     | 3300.219   | 1.000000              | 0.3000000            | 100.0000 | 95.00000   |
| NP-237        | 4437.148     | 4902.933   | 1.000000              | 0.3000000            | 100.0000 | 95.00000   |
| CM-244        | 5534.654     | 5884.028   | 5.000000              | 1.500000             | 44.72136 | 95.00000   |

Instrument : CHAMBER 234  
 Detector : 79427  
 Background Analysis Date/Time : 26-JUL-2009 17:08:25  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2990.497     | 3297.542   | 2.000000              | 0.6000000            | 70.71068 | 95.00000   |
| NP-237        | 4434.922     | 4904.935   | 1.000000              | 0.3000000            | 100.0000 | 95.00000   |
| CM-244        | 5534.289     | 5887.217   | 7.000000              | 2.100000             | 37.79645 | 95.00000   |

Instrument : CHAMBER 235  
 Detector : 79428  
 Background Analysis Date/Time : 26-JUL-2009 17:08:29  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error       | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|---------------|------------|
| GD-148        | 2988.334     | 3300.717   | 0.0000000E+00         | 0.0000000E+00        | 0.0000000E+00 | 95.00000   |
| NP-237        | 4435.003     | 4906.236   | 2.000000              | 0.6000000            | 70.71068      | 95.00000   |
| CM-244        | 5532.236     | 5886.409   | 0.0000000E+00         | 0.0000000E+00        | 0.0000000E+00 | 95.00000   |

Instrument : CHAMBER 236  
 Detector : 79429  
 Background Analysis Date/Time : 26-JUL-2009 17:08:33  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error       | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|---------------|------------|
| GD-148        | 2987.761     | 3298.777   | 0.0000000E+00         | 0.0000000E+00        | 0.0000000E+00 | 95.00000   |
| NP-237        | 4435.283     | 4906.214   | 9.000000              | 2.700000             | 33.33334      | 95.00000   |
| CM-244        | 5532.557     | 5887.291   | 3.000000              | 0.9000000            | 57.73503      | 95.00000   |

Instrument : CHAMBER 237  
 Detector : 79430  
 Background Analysis Date/Time : 26-JUL-2009 17:08:37  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error       | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|---------------|------------|
| GD-148        | 2990.197     | 3297.861   | 1.000000              | 0.3000000            | 100.0000      | 95.00000   |
| NP-237        | 4432.935     | 4904.354   | 0.0000000E+00         | 0.0000000E+00        | 0.0000000E+00 | 95.00000   |
| CM-244        | 5530.478     | 5884.662   | 11.00000              | 3.300000             | 30.15113      | 95.00000   |

Instrument : CHAMBER 238  
 Detector : 79431  
 Background Analysis Date/Time : 26-JUL-2009 17:08:41  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error       | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|---------------|------------|
| GD-148        | 2987.703     | 3299.637   | 0.0000000E+00         | 0.0000000E+00        | 0.0000000E+00 | 95.00000   |
| NP-237        | 4437.459     | 4902.787   | 0.0000000E+00         | 0.0000000E+00        | 0.0000000E+00 | 95.00000   |
| CM-244        | 5533.171     | 5886.843   | 4.000000              | 1.200000             | 50.00000      | 95.00000   |

Instrument : CHAMBER 239  
 Detector : 79432  
 Background Analysis Date/Time : 26-JUL-2009 17:08:46  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error       | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|---------------|------------|
| GD-148        | 2990.694     | 3302.472   | 0.0000000E+00         | 0.0000000E+00        | 0.0000000E+00 | 95.00000   |
| NP-237        | 4436.142     | 4902.540   | 8.000000              | 2.400000             | 35.35534      | 95.00000   |
| CM-244        | 5534.989     | 5884.715   | 1.000000              | 0.3000000            | 100.0000      | 95.00000   |

Instrument : CHAMBER 240  
 Detector : 79433  
 Background Analysis Date/Time : 26-JUL-2009 17:08:50  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2990.448     | 3302.009   | 1.000000              | 0.3000000            | 100.0000 | 95.00000   |
| NP-237        | 4434.377     | 4905.282   | 1.000000              | 0.3000000            | 100.0000 | 95.00000   |
| CM-244        | 5531.249     | 5885.600   | 1.000000              | 0.3000000            | 100.0000 | 95.00000   |

Instrument : CHAMBER 241  
 Detector : 79434  
 Background Analysis Date/Time : 26-JUL-2009 17:08:54  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error       | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|---------------|------------|
| GD-148        | 2990.069     | 3301.257   | 3.000000              | 0.9000000            | 57.73503      | 95.00000   |
| NP-237        | 4433.036     | 4904.033   | 0.0000000E+00         | 0.0000000E+00        | 0.0000000E+00 | 95.00000   |
| CM-244        | 5530.409     | 5885.133   | 1.000000              | 0.3000000            | 100.0000      | 95.00000   |

Instrument : CHAMBER 242  
 Detector : 79435  
 Background Analysis Date/Time : 26-JUL-2009 17:08:58  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error       | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|---------------|------------|
| GD-148        | 2987.986     | 3300.537   | 1.000000              | 0.3000000            | 100.0000      | 95.00000   |
| NP-237        | 4434.402     | 4905.006   | 0.0000000E+00         | 0.0000000E+00        | 0.0000000E+00 | 95.00000   |
| CM-244        | 5535.112     | 5883.069   | 0.0000000E+00         | 0.0000000E+00        | 0.0000000E+00 | 95.00000   |

Instrument : CHAMBER 243  
 Detector : 79436  
 Background Analysis Date/Time : 26-JUL-2009 17:09:02  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error       | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|---------------|------------|
| GD-148        | 2988.831     | 3301.144   | 0.0000000E+00         | 0.0000000E+00        | 0.0000000E+00 | 95.00000   |
| NP-237        | 4435.437     | 4901.520   | 3.000000              | 0.9000000            | 57.73503      | 95.00000   |
| CM-244        | 5533.039     | 5887.402   | 2.000000              | 0.6000000            | 70.71068      | 95.00000   |

Instrument : CHAMBER 244  
 Detector : 79437  
 Background Analysis Date/Time : 26-JUL-2009 17:09:06  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error       | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|---------------|------------|
| GD-148        | 2990.561     | 3301.814   | 0.0000000E+00         | 0.0000000E+00        | 0.0000000E+00 | 95.00000   |
| NP-237        | 4433.746     | 4904.768   | 1.000000              | 0.3000000            | 100.0000      | 95.00000   |
| CM-244        | 5531.146     | 5885.854   | 0.0000000E+00         | 0.0000000E+00        | 0.0000000E+00 | 95.00000   |



Instrument : CHAMBER 245  
 Detector : 79438  
 Background Analysis Date/Time : 26-JUL-2009 17:09:11  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error      | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|--------------|------------|
| GD-148        | 2990.519     | 3298.200   | 0.000000E+00          | 0.000000E+00         | 0.000000E+00 | 95.00000   |
| NP-237        | 4434.025     | 4906.060   | 1.000000              | 0.3000000            | 100.0000     | 95.00000   |
| CM-244        | 5533.264     | 5882.788   | 0.000000E+00          | 0.000000E+00         | 0.000000E+00 | 95.00000   |

Instrument : CHAMBER 246  
 Detector : 78912  
 Background Analysis Date/Time : 26-JUL-2009 17:09:15  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error      | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|--------------|------------|
| GD-148        | 2989.883     | 3302.161   | 2.000000              | 0.6000000            | 70.71068     | 95.00000   |
| NP-237        | 4436.171     | 4902.069   | 2.000000              | 0.6000000            | 70.71068     | 95.00000   |
| CM-244        | 5533.279     | 5887.441   | 0.000000E+00          | 0.000000E+00         | 0.000000E+00 | 95.00000   |

Instrument : CHAMBER 247  
 Detector : 79440  
 Background Analysis Date/Time : 26-JUL-2009 17:09:20  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2989.314     | 3301.154   | 2.000000              | 0.6000000            | 70.71068 | 95.00000   |
| NP-237        | 4435.427     | 4902.237   | 2.000000              | 0.6000000            | 70.71068 | 95.00000   |
| CM-244        | 5535.390     | 5885.574   | 2.000000              | 0.6000000            | 70.71068 | 95.00000   |

Instrument : CHAMBER 248  
 Detector : 79441  
 Background Analysis Date/Time : 26-JUL-2009 17:09:23  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2989.045     | 3301.474   | 2.000000              | 0.6000000            | 70.71068 | 95.00000   |
| NP-237        | 4436.389     | 4902.813   | 1.000000              | 0.3000000            | 100.0000 | 95.00000   |
| CM-244        | 5534.872     | 5884.178   | 5.000000              | 1.500000             | 44.72136 | 95.00000   |

Instrument : CHAMBER 249  
 Detector : 79442  
 Background Analysis Date/Time : 26-JUL-2009 17:09:28  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error       | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|---------------|------------|
| GD-148        | 2991.808     | 3298.538   | 3.000000              | 0.9000000            | 57.73503      | 95.00000   |
| NP-237        | 4433.459     | 4906.270   | 0.0000000E+00         | 0.0000000E+00        | 0.0000000E+00 | 95.00000   |
| CM-244        | 5535.492     | 5886.613   | 0.0000000E+00         | 0.0000000E+00        | 0.0000000E+00 | 95.00000   |

Instrument : CHAMBER 250  
 Detector : 79443  
 Background Analysis Date/Time : 26-JUL-2009 17:09:32  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error       | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|---------------|------------|
| GD-148        | 2988.616     | 3300.155   | 0.0000000E+00         | 0.0000000E+00        | 0.0000000E+00 | 95.00000   |
| NP-237        | 4432.911     | 4904.182   | 6.000000              | 1.800000             | 40.82483      | 95.00000   |
| CM-244        | 5530.811     | 5885.622   | 0.0000000E+00         | 0.0000000E+00        | 0.0000000E+00 | 95.00000   |

Instrument : CHAMBER 251  
 Detector : 79444  
 Background Analysis Date/Time : 26-JUL-2009 17:09:36  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error       | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|---------------|------------|
| GD-148        | 2990.845     | 3297.824   | 0.0000000E+00         | 0.0000000E+00        | 0.0000000E+00 | 95.00000   |
| NP-237        | 4433.069     | 4905.749   | 2.000000              | 0.6000000            | 70.71068      | 95.00000   |
| CM-244        | 5534.571     | 5885.360   | 2.000000              | 0.6000000            | 70.71068      | 95.00000   |

Instrument : CHAMBER 252  
 Detector : 79445  
 Background Analysis Date/Time : 26-JUL-2009 17:09:40  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error       | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|---------------|------------|
| GD-148        | 2990.916     | 3302.142   | 1.000000              | 0.3000000            | 100.0000      | 95.00000   |
| NP-237        | 4434.879     | 4906.631   | 1.000000              | 0.3000000            | 100.0000      | 95.00000   |
| CM-244        | 5534.322     | 5884.528   | 0.0000000E+00         | 0.0000000E+00        | 0.0000000E+00 | 95.00000   |

Instrument : CHAMBER 253  
 Detector : 79446  
 Background Analysis Date/Time : 26-JUL-2009 17:09:45  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2987.796     | 3301.166   | 2.000000              | 0.6000000            | 70.71068 | 95.00000   |
| NP-237        | 4435.182     | 4903.720   | 9.000000              | 2.700000             | 33.33334 | 95.00000   |
| CM-244        | 5533.610     | 5884.813   | 2.000000              | 0.6000000            | 70.71068 | 95.00000   |

Instrument : CHAMBER 254  
 Detector : 79447  
 Background Analysis Date/Time : 26-JUL-2009 17:09:49  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2991.474     | 3298.982   | 1.000000              | 0.3000000            | 100.0000 | 95.00000   |
| NP-237        | 4434.396     | 4906.361   | 4.000000              | 1.200000             | 50.00000 | 95.00000   |
| CM-244        | 5533.560     | 5883.122   | 1.000000              | 0.3000000            | 100.0000 | 95.00000   |

Instrument : CHAMBER 255  
 Detector : 79448  
 Background Analysis Date/Time : 26-JUL-2009 17:09:53  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2992.107     | 3299.169   | 3.000000              | 0.9000000            | 57.73503 | 95.00000   |
| NP-237        | 4434.844     | 4902.471   | 4.000000              | 1.200000             | 50.00000 | 95.00000   |
| CM-244        | 5531.565     | 5882.529   | 6.000000              | 1.800000             | 40.82483 | 95.00000   |

Instrument : CHAMBER 256  
 Detector : 79449  
 Background Analysis Date/Time : 26-JUL-2009 17:09:57  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2989.102     | 3301.350   | 2.000000              | 0.6000000            | 70.71068 | 95.00000   |
| NP-237        | 4435.732     | 4901.991   | 8.000000              | 2.400000             | 35.35534 | 95.00000   |
| CM-244        | 5533.871     | 5883.102   | 3.000000              | 0.9000000            | 57.73503 | 95.00000   |

### Subsection 3: Efficiency Calibration

Instrument : CHAMBER 001  
 Detector : 78788  
 Standard ID : AESS-001  
 Standard Reference Date : 20-FEB-2008 09:54:53  
 Calibration Analysis Date/Time : 5-AUG-2009 09:23:09  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 5-AUG-2009 14:45:15  
 Average Efficiency : 0.3129051  
 Average Efficiency Error : 8.6269947E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 208.6698 | 28-FEB-2010 | 2987.927   | 3299.401 | 15169.00 | 0.3069817 | 1.3193288E-02 | 58.42078   |
| NP-237     | 171.0024 | 28-FEB-2010 | 4432.428   | 4902.923 | 12984.00 | 0.3163057 | 1.6057158E-02 | 73.48861   |
| CM-244     | 158.1060 | 28-FEB-2010 | 5533.599   | 5883.327 | 11428.00 | 0.3183713 | 1.6194897E-02 | 56.66428   |

Instrument : CHAMBER 002  
 Detector : 78266  
 Standard ID : AESS-002  
 Standard Reference Date : 19-FEB-2008 11:05:22  
 Calibration Analysis Date/Time : 5-AUG-2009 09:23:09  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 5-AUG-2009 14:45:26  
 Average Efficiency : 0.3058862  
 Average Efficiency Error : 8.4242094E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 200.1144 | 28-FEB-2010 | 2990.748   | 3297.924 | 14398.00 | 0.3038373 | 1.3070637E-02 | 49.74084   |
| NP-237     | 200.4990 | 28-FEB-2010 | 4434.751   | 4902.555 | 14828.00 | 0.3081331 | 1.5613098E-02 | 65.75996   |
| CM-244     | 196.5558 | 28-FEB-2010 | 5533.273   | 5884.668 | 13676.00 | 0.3065576 | 1.5550442E-02 | 56.66758   |

Instrument : CHAMBER 003  
 Detector : 67617  
 Standard ID : AESS-003  
 Standard Reference Date : 15-FEB-2008 13:12:27  
 Calibration Analysis Date/Time : 5-AUG-2009 09:23:09  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 5-AUG-2009 14:45:38  
 Average Efficiency : 0.3501697  
 Average Efficiency Error : 9.6245455E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 202.9740 | 28-FEB-2010 | 2988.035   | 3300.027 | 16505.00 | 0.3434206 | 1.4738046E-02 | 69.44512   |
| NP-237     | 203.2080 | 28-FEB-2010 | 4433.783   | 4901.623 | 17421.00 | 0.3571638 | 1.8062104E-02 | 78.56305   |
| CM-244     | 197.2236 | 28-FEB-2010 | 5533.183   | 5887.889 | 15808.00 | 0.3532508 | 1.7884690E-02 | 60.67228   |

Instrument : CHAMBER 004  
 Detector : 64279  
 Standard ID : AESS-004  
 Standard Reference Date : 14-FEB-2008 09:35:18  
 Calibration Analysis Date/Time : 5-AUG-2009 09:23:09  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 5-AUG-2009 14:45:54  
 Average Efficiency : 0.3004026  
 Average Efficiency Error : 8.2737673E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 206.1222 | 28-FEB-2010 | 2991.885   | 3302.347 | 14848.00 | 0.3042404 | 1.3080551E-02 | 53.10138   |
| NP-237     | 204.2586 | 28-FEB-2010 | 4436.757   | 4905.540 | 14917.00 | 0.3042575 | 1.5415543E-02 | 64.73015   |
| CM-244     | 198.8100 | 28-FEB-2010 | 5533.807   | 5887.698 | 13166.00 | 0.2919180 | 1.4816008E-02 | 57.85523   |

Instrument : CHAMBER 005  
 Detector : 67612  
 Standard ID : AESS-005  
 Standard Reference Date : 14-FEB-2008 09:35:18  
 Calibration Analysis Date/Time : 5-AUG-2009 09:23:09  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 5-AUG-2009 14:46:05  
 Average Efficiency : 0.2843162  
 Average Efficiency Error : 7.8336252E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 210.7452 | 28-FEB-2010 | 2990.194   | 3301.639 | 14157.00 | 0.2837222 | 1.2209224E-02 | 51.06648   |
| NP-237     | 209.5938 | 28-FEB-2010 | 4437.588   | 4901.889 | 14375.00 | 0.2857330 | 1.4484116E-02 | 69.27464   |
| CM-244     | 202.7478 | 28-FEB-2010 | 5531.535   | 5887.236 | 13050.00 | 0.2837417 | 1.4402892E-02 | 60.22887   |

Instrument : CHAMBER 006  
 Detector : 67613  
 Standard ID : AESS-006  
 Standard Reference Date : 14-FEB-2008 09:35:18  
 Calibration Analysis Date/Time : 5-AUG-2009 09:23:09  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 5-AUG-2009 14:46:15  
 Average Efficiency : 0.3150931  
 Average Efficiency Error : 8.6723948E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 203.6952 | 28-FEB-2010 | 2988.186   | 3302.064 | 15061.00 | 0.3123020 | 1.3423658E-02 | 54.65259   |
| NP-237     | 204.7038 | 28-FEB-2010 | 4434.812   | 4901.476 | 15598.00 | 0.3174475 | 1.6074667E-02 | 62.21717   |
| CM-244     | 195.0060 | 28-FEB-2010 | 5533.017   | 5887.020 | 14013.00 | 0.3167382 | 1.6061435E-02 | 59.32273   |

Instrument : CHAMBER 007  
 Detector : 67607  
 Standard ID : AESS-007  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:33  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:08:14  
 Average Efficiency : 0.3026176  
 Average Efficiency Error : 8.3323661E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 206.7342 | 28-FEB-2010 | 2991.468   | 3299.148 | 14693.00 | 0.3001373 | 1.2906651E-02 | 48.67664   |
| NP-237     | 205.0260 | 28-FEB-2010 | 4433.972   | 4903.766 | 14977.00 | 0.3043185 | 1.5417857E-02 | 59.64954   |
| CM-244     | 199.6806 | 28-FEB-2010 | 5532.246   | 5885.701 | 13798.00 | 0.3044618 | 1.5442326E-02 | 51.23282   |

Instrument : CHAMBER 008  
 Detector : 78788  
 Standard ID : AESS-008  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:33  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:08:25  
 Average Efficiency : 0.3224154  
 Average Efficiency Error : 8.8692745E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 206.0418 | 28-FEB-2010 | 2989.215   | 3298.713 | 15734.00 | 0.3225096 | 1.3851766E-02 | 44.71056   |
| NP-237     | 209.2716 | 28-FEB-2010 | 4433.303   | 4905.744 | 15863.00 | 0.3158187 | 1.5988812E-02 | 63.33889   |
| CM-244     | 199.6488 | 28-FEB-2010 | 5532.461   | 5886.606 | 14925.00 | 0.3294691 | 1.6692771E-02 | 51.66238   |

Instrument : CHAMBER 009  
 Detector : 72528  
 Standard ID : AESS-009  
 Standard Reference Date : 19-FEB-2008 11:05:22  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:33  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:08:37  
 Average Efficiency : 0.3431641  
 Average Efficiency Error : 9.4328979E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 203.3736 | 28-FEB-2010 | 2990.462   | 3298.900 | 16457.00 | 0.3417034 | 1.4665021E-02 | 47.76541   |
| NP-237     | 204.0192 | 28-FEB-2010 | 4437.055   | 4904.570 | 16959.00 | 0.3463034 | 1.7518245E-02 | 66.91080   |
| CM-244     | 197.2128 | 28-FEB-2010 | 5532.536   | 5882.399 | 15320.00 | 0.3421319 | 1.7328590E-02 | 53.20248   |

Instrument : CHAMBER 010  
 Detector : 72529  
 Standard ID : AESS-010  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:33  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:08:47  
 Average Efficiency : 0.3163380  
 Average Efficiency Error : 8.7065995E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 202.0008 | 28-FEB-2010 | 2990.229   | 3298.607 | 15141.00 | 0.3165374 | 1.3604476E-02 | 54.57225   |
| NP-237     | 202.9926 | 28-FEB-2010 | 4436.880   | 4905.484 | 15237.00 | 0.3127136 | 1.5839646E-02 | 70.41494   |
| CM-244     | 196.2330 | 28-FEB-2010 | 5531.409   | 5886.990 | 14242.00 | 0.3198532 | 1.6215732E-02 | 59.36025   |

Instrument : CHAMBER 011  
 Detector : 72531  
 Standard ID : AESS-011  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:33  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:10:05  
 Average Efficiency : 0.2947833  
 Average Efficiency Error : 8.1152376E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 212.8284 | 28-FEB-2010 | 2991.538   | 3301.988 | 14786.00 | 0.2934125 | 1.2615963E-02 | 51.15865   |
| NP-237     | 214.4868 | 28-FEB-2010 | 4435.957   | 4905.467 | 15318.00 | 0.2975290 | 1.5069493E-02 | 57.97636   |
| CM-244     | 208.4184 | 28-FEB-2010 | 5530.314   | 5886.614 | 13904.00 | 0.2940101 | 1.4910497E-02 | 52.04412   |

Instrument : CHAMBER 012  
 Detector : 67594  
 Standard ID : AESS-012  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:33  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:10:47  
 Average Efficiency : 0.2985670  
 Average Efficiency Error : 8.2218517E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 206.2200 | 28-FEB-2010 | 2988.398   | 3300.615 | 14557.00 | 0.2981249 | 1.2822272E-02 | 47.31236   |
| NP-237     | 205.8930 | 28-FEB-2010 | 4437.450   | 4901.503 | 14889.00 | 0.3012659 | 1.5264360E-02 | 60.85177   |
| CM-244     | 203.1954 | 28-FEB-2010 | 5534.709   | 5886.652 | 13676.00 | 0.2965543 | 1.5043142E-02 | 54.26840   |

Instrument : CHAMBER 013  
 Detector : 78790  
 Standard ID : AESS-013  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:35  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:10:57  
 Average Efficiency : 0.3409691  
 Average Efficiency Error : 9.3713822E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 203.6544 | 28-FEB-2010 | 2987.666   | 3298.441 | 16523.00 | 0.3426617 | 1.4705168E-02 | 49.16812   |
| NP-237     | 210.2526 | 28-FEB-2010 | 4435.272   | 4902.524 | 17040.00 | 0.3376607 | 1.7080082E-02 | 61.60270   |
| CM-244     | 201.9108 | 28-FEB-2010 | 5533.077   | 5883.559 | 15669.00 | 0.3420227 | 1.7318053E-02 | 54.98487   |

Instrument : CHAMBER 014  
 Detector : 67616  
 Standard ID : AESS-014  
 Standard Reference Date : 19-FEB-2008 11:05:22  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:35  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:11:09  
 Average Efficiency : 0.3130623  
 Average Efficiency Error : 8.6121503E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 214.7088 | 28-FEB-2010 | 2992.504   | 3300.484 | 15590.00 | 0.3066251 | 1.3171598E-02 | 52.69585   |
| NP-237     | 211.7160 | 28-FEB-2010 | 4435.990   | 4902.000 | 16202.00 | 0.3188440 | 1.6137818E-02 | 68.36411   |
| CM-244     | 207.3882 | 28-FEB-2010 | 5532.918   | 5886.701 | 14925.00 | 0.3169042 | 1.6056320E-02 | 53.58373   |

Instrument : CHAMBER 015  
 Detector : 61581  
 Standard ID : AESS-015  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:35  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:11:19  
 Average Efficiency : 0.3249588  
 Average Efficiency Error : 8.9409258E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 204.0270 | 28-FEB-2010 | 2987.739   | 3297.575 | 15440.00 | 0.3196218 | 1.3732214E-02 | 68.63618   |
| NP-237     | 200.6460 | 28-FEB-2010 | 4432.566   | 4904.976 | 15842.00 | 0.3289294 | 1.6652878E-02 | 78.34551   |
| CM-244     | 195.9270 | 28-FEB-2010 | 5530.833   | 5887.242 | 14624.00 | 0.3288428 | 1.6665678E-02 | 73.03269   |



Instrument : CHAMBER 016  
 Detector : 78774  
 Standard ID : AESS-016  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:35  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:11:28  
 Average Efficiency : 0.3372796  
 Average Efficiency Error : 9.2755891E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 204.0534 | 28-FEB-2010 | 2990.015   | 3299.769 | 15968.00 | 0.3304942 | 1.4191121E-02 | 47.63641   |
| NP-237     | 199.3962 | 28-FEB-2010 | 4432.750   | 4903.568 | 16594.00 | 0.3467403 | 1.7544748E-02 | 65.62801   |
| CM-244     | 198.6402 | 28-FEB-2010 | 5531.945   | 5886.508 | 15241.00 | 0.3381473 | 1.7127821E-02 | 51.73166   |

Instrument : CHAMBER 017  
 Detector : 78791  
 Standard ID : AESS-017  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:35  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:12:45  
 Average Efficiency : 0.2920910  
 Average Efficiency Error : 8.0447914E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 210.0798 | 28-FEB-2010 | 2991.506   | 3301.266 | 14360.00 | 0.2887001 | 1.2420051E-02 | 46.05902   |
| NP-237     | 208.5846 | 28-FEB-2010 | 4435.397   | 4901.753 | 14828.00 | 0.2961742 | 1.5007162E-02 | 55.70656   |
| CM-244     | 205.5828 | 28-FEB-2010 | 5532.102   | 5885.058 | 13665.00 | 0.2929415 | 1.4859928E-02 | 50.18596   |

Instrument : CHAMBER 018  
 Detector : 78782  
 Standard ID : AESS-018  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:35  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:12:56  
 Average Efficiency : 0.3172097  
 Average Efficiency Error : 8.7289969E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 202.1856 | 28-FEB-2010 | 2988.342   | 3302.274 | 15345.00 | 0.3205433 | 1.3773307E-02 | 42.03425   |
| NP-237     | 208.8990 | 28-FEB-2010 | 4435.776   | 4902.996 | 15628.00 | 0.3116947 | 1.5782947E-02 | 59.98587   |
| CM-244     | 198.1458 | 28-FEB-2010 | 5535.506   | 5884.764 | 14315.00 | 0.3183995 | 1.6140889E-02 | 46.41229   |

Instrument : CHAMBER 019  
 Detector : 78786  
 Standard ID : AESS-019  
 Standard Reference Date : 19-FEB-2008 11:05:22  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:38  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:13:21  
 Average Efficiency : 0.2910323  
 Average Efficiency Error : 8.0228020E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 204.6468 | 28-FEB-2010 | 2990.757   | 3299.102 | 13644.00 | 0.2815492 | 1.2124360E-02 | 48.88054   |
| NP-237     | 202.9140 | 28-FEB-2010 | 4436.959   | 4904.938 | 14592.00 | 0.2996101 | 1.5184480E-02 | 53.45035   |
| CM-244     | 199.3140 | 28-FEB-2010 | 5530.360   | 5882.637 | 13450.00 | 0.2972434 | 1.5081594E-02 | 50.55271   |

Instrument : CHAMBER 020  
 Detector : 78787  
 Standard ID : AESS-020  
 Standard Reference Date : 14-FEB-2008 21:55:55  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:38  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:13:30  
 Average Efficiency : 0.3471871  
 Average Efficiency Error : 9.5441081E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 205.5870 | 28-FEB-2010 | 2988.029   | 3302.537 | 16453.00 | 0.3380062 | 1.4506385E-02 | 51.08092   |
| NP-237     | 203.4984 | 28-FEB-2010 | 4437.491   | 4905.035 | 17379.00 | 0.3557895 | 1.7993098E-02 | 61.84319   |
| CM-244     | 197.1096 | 28-FEB-2010 | 5532.389   | 5886.993 | 15772.00 | 0.3526238 | 1.7853415E-02 | 51.51802   |

Instrument : CHAMBER 021  
 Detector : 67047  
 Standard ID : AESS-021  
 Standard Reference Date : 19-FEB-2008 15:31:52  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:38  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:13:40  
 Average Efficiency : 0.3035440  
 Average Efficiency Error : 8.3565973E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 208.3608 | 28-FEB-2010 | 2992.044   | 3301.105 | 14782.00 | 0.2995796 | 1.2881183E-02 | 58.16195   |
| NP-237     | 210.1548 | 28-FEB-2010 | 4432.692   | 4903.261 | 15300.00 | 0.3033102 | 1.5362527E-02 | 64.83363   |
| CM-244     | 200.7390 | 28-FEB-2010 | 5532.273   | 5884.483 | 14116.00 | 0.3096792 | 1.5701950E-02 | 51.57142   |

Instrument : CHAMBER 022  
 Detector : 72530  
 Standard ID : AESS-022  
 Standard Reference Date : 14-FEB-2008 21:55:55  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:38  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:13:53  
 Average Efficiency : 0.3171063  
 Average Efficiency Error : 8.7253209E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 209.6724 | 28-FEB-2010 | 2987.876   | 3301.717 | 15368.00 | 0.3095404 | 1.3300211E-02 | 46.46027   |
| NP-237     | 206.8830 | 28-FEB-2010 | 4432.553   | 4902.907 | 16121.00 | 0.3246614 | 1.6433254E-02 | 59.61079   |
| CM-244     | 203.0208 | 28-FEB-2010 | 5531.719   | 5883.858 | 14793.00 | 0.3210209 | 1.6266784E-02 | 54.93265   |

Instrument : CHAMBER 023  
 Detector : 78264  
 Standard ID : AESS-023  
 Standard Reference Date : 14-FEB-2008 21:55:55  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:38  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:14:51  
 Average Efficiency : 0.3475247  
 Average Efficiency Error : 9.5510995E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 207.4764 | 28-FEB-2010 | 2992.270   | 3297.465 | 16655.00 | 0.3390353 | 1.4547646E-02 | 44.65316   |
| NP-237     | 207.4998 | 28-FEB-2010 | 4434.353   | 4902.238 | 17621.00 | 0.3537784 | 1.7888635E-02 | 67.17326   |
| CM-244     | 199.8804 | 28-FEB-2010 | 5535.006   | 5884.098 | 16062.00 | 0.3541352 | 1.7925926E-02 | 50.59406   |

Instrument : CHAMBER 024  
 Detector : 76542  
 Standard ID : AESS-024  
 Standard Reference Date : 14-FEB-2008 21:55:55  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:38  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:15:01  
 Average Efficiency : 0.3329758  
 Average Efficiency Error : 9.1575533E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 203.5218 | 28-FEB-2010 | 2988.735   | 3301.963 | 15751.00 | 0.3268531 | 1.4038056E-02 | 48.09840   |
| NP-237     | 205.6662 | 28-FEB-2010 | 4435.585   | 4904.900 | 16552.00 | 0.3352655 | 1.6964708E-02 | 62.82615   |
| CM-244     | 198.3060 | 28-FEB-2010 | 5532.247   | 5883.527 | 15292.00 | 0.3398233 | 1.7212013E-02 | 54.96418   |

Instrument : CHAMBER 025  
 Detector : 45-149AA5  
 Standard ID : AESS-025  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:40  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:15:13  
 Average Efficiency : 0.3273577  
 Average Efficiency Error : 9.0229549E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 195.5670 | 28-FEB-2010 | 2989.576   | 3302.009 | 15260.00 | 0.3295556 | 1.4161936E-02 | 65.60141   |
| NP-237     | 167.9916 | 28-FEB-2010 | 4437.518   | 4905.500 | 13240.00 | 0.3283658 | 1.6664496E-02 | 71.67536   |
| CM-244     | 157.2432 | 28-FEB-2010 | 5535.553   | 5882.966 | 11554.00 | 0.3234104 | 1.6448844E-02 | 64.13462   |

Instrument : CHAMBER 026  
 Detector : 78204  
 Standard ID : AESS-026  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:40  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:15:23  
 Average Efficiency : 0.3163501  
 Average Efficiency Error : 9.2731481E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 199.5072 | 28-FEB-2010 | 2989.278   | 3302.066 | 15073.00 | 0.3190832 | 1.6165398E-02 | 47.54145   |
| NP-237     | 168.0294 | 28-FEB-2010 | 4432.530   | 4904.245 | 12818.00 | 0.3178037 | 1.6136298E-02 | 64.89447   |
| CM-244     | 160.5822 | 28-FEB-2010 | 5530.854   | 5885.357 | 11388.00 | 0.3123012 | 1.5887389E-02 | 53.07367   |

Instrument : CHAMBER 027  
 Detector : 42484  
 Standard ID : AESS-027  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:40  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:15:36  
 Average Efficiency : 0.3396688  
 Average Efficiency Error : 9.9549843E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 193.4238 | 28-FEB-2010 | 2989.311   | 3298.574 | 15139.00 | 0.3305598 | 1.6745884E-02 | 45.75581   |
| NP-237     | 161.6154 | 28-FEB-2010 | 4433.571   | 4901.458 | 13298.00 | 0.3428161 | 1.7396733E-02 | 58.91746   |
| CM-244     | 148.1754 | 28-FEB-2010 | 5534.916   | 5884.719 | 11660.00 | 0.3465259 | 1.7621491E-02 | 49.89463   |

Instrument : CHAMBER 028  
 Detector : 78792  
 Standard ID : AESS-028  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:40  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:15:45  
 Average Efficiency : 0.3070537  
 Average Efficiency Error : 9.0059368E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 199.6542 | 28-FEB-2010 | 2988.458   | 3301.428 | 14649.00 | 0.3098790 | 1.5704965E-02 | 43.03392   |
| NP-237     | 168.1992 | 28-FEB-2010 | 4433.918   | 4901.793 | 12445.00 | 0.3082309 | 1.5657367E-02 | 57.16418   |
| CM-244     | 156.7614 | 28-FEB-2010 | 5530.766   | 5886.861 | 10793.00 | 0.3031792 | 1.5437813E-02 | 42.94358   |

Instrument : CHAMBER 029  
 Detector : 33454  
 Standard ID : AESS-029  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:40  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:15:55  
 Average Efficiency : 0.3165512  
 Average Efficiency Error : 9.2795976E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 201.5742 | 28-FEB-2010 | 2991.561   | 3299.264 | 14962.00 | 0.3134704 | 1.5882587E-02 | 59.06260   |
| NP-237     | 169.7700 | 28-FEB-2010 | 4436.609   | 4905.813 | 12925.00 | 0.3171891 | 1.6103044E-02 | 65.57512   |
| CM-244     | 154.8234 | 28-FEB-2010 | 5532.652   | 5886.650 | 11221.00 | 0.3191230 | 1.6238619E-02 | 58.94875   |

Instrument : CHAMBER 030  
 Detector : 33447  
 Standard ID : AESS-030  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:40  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:16:05  
 Average Efficiency : 0.3195129  
 Average Efficiency Error : 9.3687959E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 198.9792 | 28-FEB-2010 | 2992.462   | 3300.436 | 14496.00 | 0.3076674 | 1.5595090E-02 | 51.22312   |
| NP-237     | 166.3758 | 28-FEB-2010 | 4435.706   | 4901.528 | 13016.00 | 0.3259090 | 1.6544048E-02 | 70.89224   |
| CM-244     | 157.1856 | 28-FEB-2010 | 5532.111   | 5885.667 | 11657.00 | 0.3264974 | 1.6603231E-02 | 58.51925   |

Instrument : CHAMBER 031  
 Detector : 67042  
 Standard ID : AESS-031  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:41  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:16:16  
 Average Efficiency : 0.3333972  
 Average Efficiency Error : 9.1897855E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 193.6650 | 28-FEB-2010 | 2990.816   | 3298.130 | 15264.00 | 0.3328327 | 1.4302717E-02 | 63.22559   |
| NP-237     | 162.9186 | 28-FEB-2010 | 4432.666   | 4904.194 | 13199.00 | 0.3374993 | 1.7128870E-02 | 85.39982   |
| CM-244     | 153.1968 | 28-FEB-2010 | 5530.750   | 5885.317 | 11495.00 | 0.3302312 | 1.6797049E-02 | 69.66753   |

Instrument : CHAMBER 032  
 Detector : 67041  
 Standard ID : AESS-032  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:41  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:16:28  
 Average Efficiency : 0.3079946  
 Average Efficiency Error : 8.4994007E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 195.2364 | 28-FEB-2010 | 2990.681   | 3302.442 | 14237.00 | 0.3079492 | 1.3250315E-02 | 56.35440   |
| NP-237     | 165.9822 | 28-FEB-2010 | 4436.943   | 4904.070 | 12286.00 | 0.3083688 | 1.5667509E-02 | 62.42379   |
| CM-244     | 153.7938 | 28-FEB-2010 | 5532.476   | 5883.050 | 10756.00 | 0.3076837 | 1.5668528E-02 | 54.99291   |

Instrument : CHAMBER 033  
 Detector : 78785  
 Standard ID : AESS-033  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:41  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:16:44  
 Average Efficiency : 0.3159786  
 Average Efficiency Error : 8.7208869E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 192.4158 | 28-FEB-2010 | 2988.750   | 3301.323 | 14152.00 | 0.3105978 | 1.3365801E-02 | 46.58186   |
| NP-237     | 161.7816 | 28-FEB-2010 | 4437.327   | 4904.445 | 12331.00 | 0.3175407 | 1.6132571E-02 | 57.74305   |
| CM-244     | 147.2670 | 28-FEB-2010 | 5532.298   | 5882.301 | 10791.00 | 0.3224820 | 1.6420925E-02 | 47.06204   |

Instrument : CHAMBER 034  
 Detector : 61586  
 Standard ID : AESS-034  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:41  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:16:57  
 Average Efficiency : 0.3186626  
 Average Efficiency Error : 8.7871859E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 200.5488 | 28-FEB-2010 | 2990.405   | 3301.020 | 14898.00 | 0.3137061 | 1.3486663E-02 | 63.62747   |
| NP-237     | 167.2962 | 28-FEB-2010 | 4436.289   | 4905.558 | 12847.00 | 0.3199310 | 1.6243735E-02 | 89.06429   |
| CM-244     | 154.4388 | 28-FEB-2010 | 5534.591   | 5883.408 | 11387.00 | 0.3247890 | 1.6522311E-02 | 62.47897   |

Instrument : CHAMBER 035  
 Detector : 78202  
 Standard ID : AESS-035  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:41  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:17:07  
 Average Efficiency : 0.3066753  
 Average Efficiency Error : 8.4610144E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 198.6666 | 28-FEB-2010 | 2988.026   | 3302.211 | 14579.00 | 0.3098971 | 1.3328200E-02 | 45.84651   |
| NP-237     | 168.2934 | 28-FEB-2010 | 4437.360   | 4905.577 | 12421.00 | 0.3074051 | 1.5615990E-02 | 59.70762   |
| CM-244     | 158.8128 | 28-FEB-2010 | 5534.350   | 5884.600 | 10890.00 | 0.3016905 | 1.5359893E-02 | 46.83206   |

Instrument : CHAMBER 036  
 Detector : 78203  
 Standard ID : AESS-036  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:41  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:17:19  
 Average Efficiency : 0.3238717  
 Average Efficiency Error : 8.9277234E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 201.3204 | 28-FEB-2010 | 2988.680   | 3301.073 | 15196.00 | 0.3187600 | 1.3699047E-02 | 53.56891   |
| NP-237     | 167.4312 | 28-FEB-2010 | 4435.041   | 4905.984 | 13273.00 | 0.3302565 | 1.6759887E-02 | 68.47729   |
| CM-244     | 156.4188 | 28-FEB-2010 | 5531.465   | 5885.278 | 11554.00 | 0.3251042 | 1.6534815E-02 | 54.91026   |

Instrument : CHAMBER 037  
 Detector : 45-149BB5  
 Standard ID : AESS-037  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:43  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:17:30  
 Average Efficiency : 0.3588454  
 Average Efficiency Error : 9.8783271E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 197.7372 | 28-FEB-2010 | 2991.168   | 3302.212 | 16427.00 | 0.3508205 | 1.5056745E-02 | 64.60843   |
| NP-237     | 167.1294 | 28-FEB-2010 | 4432.895   | 4904.029 | 14662.00 | 0.3654579 | 1.8520588E-02 | 77.87219   |
| CM-244     | 154.7664 | 28-FEB-2010 | 5532.110   | 5886.157 | 12816.00 | 0.3643632 | 1.8501068E-02 | 65.29257   |

Instrument : CHAMBER 038  
 Detector : 72532  
 Standard ID : AESS-038  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:43  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:17:42  
 Average Efficiency : 0.3401872  
 Average Efficiency Error : 9.3690762E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 200.1408 | 28-FEB-2010 | 2992.472   | 3300.031 | 15896.00 | 0.3353978 | 1.4402774E-02 | 52.10275   |
| NP-237     | 170.0886 | 28-FEB-2010 | 4434.591   | 4905.742 | 14074.00 | 0.3446777 | 1.7477222E-02 | 66.10255   |
| CM-244     | 157.7460 | 28-FEB-2010 | 5531.463   | 5885.396 | 12284.00 | 0.3427305 | 1.7413909E-02 | 59.13643   |

Instrument : CHAMBER 039  
 Detector : 45-149BB2  
 Standard ID : AESS-039  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:43  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:17:50  
 Average Efficiency : 0.3635030  
 Average Efficiency Error : 1.0010615E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 192.2418 | 28-FEB-2010 | 2988.231   | 3297.932 | 16136.00 | 0.3544406 | 1.5216673E-02 | 64.96208   |
| NP-237     | 159.1506 | 28-FEB-2010 | 4433.148   | 4905.972 | 14381.00 | 0.3764731 | 1.9083694E-02 | 79.22511   |
| CM-244     | 151.7142 | 28-FEB-2010 | 5532.651   | 5884.312 | 12578.00 | 0.3647127 | 1.8524269E-02 | 60.58306   |



Instrument : CHAMBER 040  
 Detector : 78773  
 Standard ID : AESS-040  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:43  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:18:00  
 Average Efficiency : 0.3197618  
 Average Efficiency Error : 8.8180574E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 194.4828 | 28-FEB-2010 | 2989.631   | 3299.278 | 14776.00 | 0.3208454 | 1.3795648E-02 | 47.91216   |
| NP-237     | 166.8174 | 28-FEB-2010 | 4434.455   | 4902.104 | 12719.00 | 0.3176762 | 1.6131660E-02 | 62.00956   |
| CM-244     | 155.0100 | 28-FEB-2010 | 5534.140   | 5885.901 | 11283.00 | 0.3203784 | 1.6300978E-02 | 46.47287   |

Instrument : CHAMBER 041  
 Detector : 78205  
 Standard ID : AESS-041  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:43  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:18:09  
 Average Efficiency : 0.3320726  
 Average Efficiency Error : 9.1476394E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 203.9034 | 28-FEB-2010 | 2988.485   | 3301.427 | 15744.00 | 0.3260407 | 1.4003299E-02 | 48.05792   |
| NP-237     | 171.2268 | 28-FEB-2010 | 4434.095   | 4902.163 | 13892.00 | 0.3380044 | 1.7141877E-02 | 64.23948   |
| CM-244     | 159.5796 | 28-FEB-2010 | 5531.498   | 5882.427 | 12150.00 | 0.3351395 | 1.7031105E-02 | 52.60388   |

Instrument : CHAMBER 042  
 Detector : 78793  
 Standard ID : AESS-042  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:43  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:18:18  
 Average Efficiency : 0.3355130  
 Average Efficiency Error : 9.2503820E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 188.7090 | 28-FEB-2010 | 2991.775   | 3302.182 | 14895.00 | 0.3333198 | 1.4329934E-02 | 45.19947   |
| NP-237     | 159.6558 | 28-FEB-2010 | 4434.604   | 4903.031 | 12973.00 | 0.3384922 | 1.7183678E-02 | 58.44910   |
| CM-244     | 150.5208 | 28-FEB-2010 | 5530.666   | 5882.826 | 11480.00 | 0.3356853 | 1.7074790E-02 | 51.00649   |

Instrument : CHAMBER 043  
 Detector : 76543  
 Standard ID : AESS-043  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:44  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:18:26  
 Average Efficiency : 0.3394984  
 Average Efficiency Error : 9.3512600E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 197.7708 | 28-FEB-2010 | 2990.605   | 3297.721 | 15848.00 | 0.3383991 | 1.4532390E-02 | 52.98521   |
| NP-237     | 168.7422 | 28-FEB-2010 | 4435.729   | 4906.163 | 13860.00 | 0.3421971 | 1.7355058E-02 | 63.69067   |
| CM-244     | 156.3252 | 28-FEB-2010 | 5530.889   | 5884.237 | 12022.00 | 0.3383877 | 1.7199298E-02 | 58.34155   |

Instrument : CHAMBER 044  
 Detector : 79459  
 Standard ID : AESS-044  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:44  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:18:36  
 Average Efficiency : 0.3472623  
 Average Efficiency Error : 9.5641837E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 194.4510 | 28-FEB-2010 | 2992.053   | 3299.650 | 16240.00 | 0.3526795 | 1.5139417E-02 | 46.60588   |
| NP-237     | 166.6248 | 28-FEB-2010 | 4434.444   | 4905.733 | 13868.00 | 0.3467396 | 1.7585307E-02 | 67.40435   |
| CM-244     | 155.8290 | 28-FEB-2010 | 5531.674   | 5885.749 | 12067.00 | 0.3406831 | 1.7315021E-02 | 50.52586   |

Instrument : CHAMBER 045  
 Detector : 78783  
 Standard ID : AESS-045  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:44  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:18:46  
 Average Efficiency : 0.3473964  
 Average Efficiency Error : 9.5752627E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 186.9936 | 28-FEB-2010 | 2991.163   | 3297.674 | 15321.00 | 0.3460006 | 1.4867575E-02 | 42.89996   |
| NP-237     | 160.8066 | 28-FEB-2010 | 4435.665   | 4901.796 | 13169.00 | 0.3411981 | 1.7317103E-02 | 61.13550   |
| CM-244     | 145.8384 | 28-FEB-2010 | 5533.912   | 5883.468 | 11808.00 | 0.3562486 | 1.8112443E-02 | 45.70908   |

Instrument : CHAMBER 046  
 Detector : 76544  
 Standard ID : AESS-046  
 Standard Reference Date : 19-FEB-2008 19:35:48  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:44  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:18:55  
 Average Efficiency : 0.3396656  
 Average Efficiency Error : 9.3595181E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 194.7474 | 28-FEB-2010 | 2988.013   | 3297.754 | 15574.00 | 0.3376833 | 1.4506049E-02 | 53.28547   |
| NP-237     | 164.6658 | 28-FEB-2010 | 4433.428   | 4906.578 | 13320.00 | 0.3369921 | 1.7100822E-02 | 64.03419   |
| CM-244     | 151.3824 | 28-FEB-2010 | 5533.808   | 5885.833 | 11881.00 | 0.3453883 | 1.7558334E-02 | 49.95901   |

Instrument : CHAMBER 047  
 Detector : 46-089B1  
 Standard ID : AESS-047  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:44  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:19:03  
 Average Efficiency : 0.3416091  
 Average Efficiency Error : 9.4094146E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 197.4804 | 28-FEB-2010 | 2989.788   | 3298.531 | 15812.00 | 0.3381371 | 1.4521689E-02 | 57.51329   |
| NP-237     | 168.3948 | 28-FEB-2010 | 4436.493   | 4903.356 | 13857.00 | 0.3428169 | 1.7386565E-02 | 66.01371   |
| CM-244     | 154.6032 | 28-FEB-2010 | 5535.296   | 5884.198 | 12141.00 | 0.3454518 | 1.7555740E-02 | 60.25008   |

Instrument : CHAMBER 048  
 Detector : 42483  
 Standard ID : AESS-048  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:44  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:19:12  
 Average Efficiency : 0.3123633  
 Average Efficiency Error : 8.6213006E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 191.8350 | 28-FEB-2010 | 2991.838   | 3299.553 | 14065.00 | 0.3096292 | 1.3325672E-02 | 54.65192   |
| NP-237     | 161.5530 | 28-FEB-2010 | 4437.268   | 4906.475 | 12285.00 | 0.3167912 | 1.6095465E-02 | 66.40394   |
| CM-244     | 151.1856 | 28-FEB-2010 | 5533.930   | 5885.396 | 10717.00 | 0.3119354 | 1.5885884E-02 | 57.74399   |

Instrument : CHAMBER 065  
 Detector : 68551  
 Standard ID : AESS-001  
 Standard Reference Date : 20-FEB-2008 09:54:53  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:10  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:32:36  
 Average Efficiency : 0.3083470  
 Average Efficiency Error : 8.5085379E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 208.6698 | 28-FEB-2010 | 2991.020   | 3301.790 | 14596.00 | 0.2954247 | 1.2705522E-02 | 58.52770   |
| NP-237     | 171.0024 | 28-FEB-2010 | 4435.576   | 4904.585 | 13191.00 | 0.3213498 | 1.6309390E-02 | 64.23100   |
| CM-244     | 158.1060 | 28-FEB-2010 | 5533.015   | 5885.628 | 11352.00 | 0.3164231 | 1.6097672E-02 | 59.22498   |

Instrument : CHAMBER 066  
 Detector : 46-089C1  
 Standard ID : AESS-002  
 Standard Reference Date : 19-FEB-2008 11:05:22  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:10  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:33:22  
 Average Efficiency : 0.3112474  
 Average Efficiency Error : 8.5695526E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 200.1144 | 28-FEB-2010 | 2988.945   | 3298.217 | 14657.00 | 0.3093549 | 1.3303596E-02 | 55.37485   |
| NP-237     | 200.4990 | 28-FEB-2010 | 4435.388   | 4905.987 | 14981.00 | 0.3113079 | 1.5771858E-02 | 67.81973   |
| CM-244     | 196.5558 | 28-FEB-2010 | 5534.885   | 5886.957 | 13998.00 | 0.3138950 | 1.5917554E-02 | 57.19744   |

Instrument : CHAMBER 067  
 Detector : 46-089B4  
 Standard ID : AESS-003  
 Standard Reference Date : 15-FEB-2008 13:12:27  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:10  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:33:34  
 Average Efficiency : 0.3251616  
 Average Efficiency Error : 8.9453170E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 202.9740 | 28-FEB-2010 | 2990.195   | 3298.405 | 15523.00 | 0.3230599 | 1.3878663E-02 | 73.01379   |
| NP-237     | 203.2080 | 28-FEB-2010 | 4432.996   | 4903.114 | 16006.00 | 0.3281700 | 1.6612297E-02 | 79.50097   |
| CM-244     | 197.2236 | 28-FEB-2010 | 5531.881   | 5884.128 | 14543.00 | 0.3251645 | 1.6480407E-02 | 73.28760   |

Instrument : CHAMBER 068  
 Detector : 78794  
 Standard ID : AESS-004  
 Standard Reference Date : 14-FEB-2008 09:35:18  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:10  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:38:02  
 Average Efficiency : 0.2988316  
 Average Efficiency Error : 8.2298918E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 206.1222 | 28-FEB-2010 | 2989.058   | 3297.794 | 14610.00 | 0.2994183 | 1.2877054E-02 | 47.51308   |
| NP-237     | 204.2586 | 28-FEB-2010 | 4436.694   | 4904.361 | 14617.00 | 0.2981576 | 1.5110506E-02 | 57.11169   |
| CM-244     | 198.8100 | 28-FEB-2010 | 5532.395   | 5887.637 | 13466.00 | 0.2986969 | 1.5155178E-02 | 48.38633   |

Instrument : CHAMBER 069  
 Detector : 78795  
 Standard ID : AESS-005  
 Standard Reference Date : 14-FEB-2008 09:35:18  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:10  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:38:36  
 Average Efficiency : 0.3175282  
 Average Efficiency Error : 8.7343659E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 210.7452 | 28-FEB-2010 | 2991.230   | 3298.554 | 15670.00 | 0.3141076 | 1.3491860E-02 | 49.70101   |
| NP-237     | 209.5938 | 28-FEB-2010 | 4432.770   | 4904.008 | 16141.00 | 0.3208218 | 1.6238715E-02 | 60.15531   |
| CM-244     | 202.7478 | 28-FEB-2010 | 5535.390   | 5884.253 | 14673.00 | 0.3191766 | 1.6174993E-02 | 51.27451   |

Instrument : CHAMBER 070  
 Detector : 46-089B2  
 Standard ID : AESS-006  
 Standard Reference Date : 14-FEB-2008 09:35:18  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:10  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:38:49  
 Average Efficiency : 0.3529845  
 Average Efficiency Error : 9.7008841E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 203.6952 | 28-FEB-2010 | 2992.134   | 3299.079 | 16742.00 | 0.3471912 | 1.4896408E-02 | 63.07681   |
| NP-237     | 204.7038 | 28-FEB-2010 | 4435.081   | 4904.079 | 17300.00 | 0.3520767 | 1.7806258E-02 | 82.77227   |
| CM-244     | 195.0060 | 28-FEB-2010 | 5531.689   | 5883.454 | 16039.00 | 0.3627528 | 1.8362503E-02 | 70.00533   |

Instrument : CHAMBER 071  
 Detector : 64259  
 Standard ID : AESS-007  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:11  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:39:05  
 Average Efficiency : 0.3208804  
 Average Efficiency Error : 8.8285562E-03  
 Confidence : 95.00000

| Cal. Istds | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 206.7342 | 28-FEB-2010 | 2991.474   | 3300.552 | 15413.00 | 0.3149293 | 1.3531087E-02 | 62.47171   |
| NP-237     | 205.0260 | 28-FEB-2010 | 4434.375   | 4901.563 | 15925.00 | 0.3235798 | 1.6380999E-02 | 71.98354   |
| CM-244     | 199.6806 | 28-FEB-2010 | 5533.885   | 5882.968 | 14807.00 | 0.3270442 | 1.6571697E-02 | 60.00851   |

Instrument : CHAMBER 072  
 Detector : 45-149AA3  
 Standard ID : AESS-008  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:11  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:41:05  
 Average Efficiency : 0.3267370  
 Average Efficiency Error : 8.9871846E-03  
 Confidence : 95.00000

| Cal. Istds | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 206.0418 | 28-FEB-2010 | 2989.276   | 3301.453 | 15650.00 | 0.3208615 | 1.3782272E-02 | 51.51645   |
| NP-237     | 209.2716 | 28-FEB-2010 | 4434.016   | 4904.104 | 16413.00 | 0.3267362 | 1.6534751E-02 | 70.18485   |
| CM-244     | 199.6488 | 28-FEB-2010 | 5533.538   | 5886.502 | 15197.00 | 0.3356811 | 1.7003637E-02 | 59.25634   |

Instrument : CHAMBER 073  
 Detector : 78775  
 Standard ID : AESS-009  
 Standard Reference Date : 19-FEB-2008 11:05:22  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:11  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:41:19  
 Average Efficiency : 0.3329331  
 Average Efficiency Error : 9.1557140E-03  
 Confidence : 95.00000

| Cal. Istds | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 203.3736 | 28-FEB-2010 | 2991.884   | 3298.904 | 15903.00 | 0.3302805 | 1.4182931E-02 | 45.72569   |
| NP-237     | 204.0192 | 28-FEB-2010 | 4435.607   | 4905.083 | 16398.00 | 0.3348464 | 1.6945357E-02 | 65.14548   |
| CM-244     | 197.2128 | 28-FEB-2010 | 5533.495   | 5885.787 | 14977.00 | 0.3348103 | 1.6962610E-02 | 52.22756   |

Instrument : CHAMBER 074  
 Detector : 78266  
 Standard ID : AESS-010  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:11  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:41:50  
 Average Efficiency : 0.3171463  
 Average Efficiency Error : 8.7284483E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 202.0008 | 28-FEB-2010 | 2992.157   | 3300.875 | 15091.00 | 0.3155650 | 1.3563500E-02 | 48.84003   |
| NP-237     | 202.9926 | 28-FEB-2010 | 4434.541   | 4902.170 | 15525.00 | 0.3186204 | 1.6135018E-02 | 61.89280   |
| CM-244     | 196.2330 | 28-FEB-2010 | 5535.537   | 5885.413 | 14144.00 | 0.3179084 | 1.6118674E-02 | 53.87412   |

Instrument : CHAMBER 075  
 Detector : 68550  
 Standard ID : AESS-011  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:11  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:42:08  
 Average Efficiency : 0.2994908  
 Average Efficiency Error : 8.2427450E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 212.8284 | 28-FEB-2010 | 2992.440   | 3300.846 | 15058.00 | 0.2988699 | 1.2846401E-02 | 51.75235   |
| NP-237     | 214.4868 | 28-FEB-2010 | 4432.709   | 4904.580 | 15499.00 | 0.3010221 | 1.5244178E-02 | 70.86993   |
| CM-244     | 208.4184 | 28-FEB-2010 | 5531.026   | 5885.258 | 14123.00 | 0.2988416 | 1.5152307E-02 | 52.88081   |

Instrument : CHAMBER 076  
 Detector : 78779  
 Standard ID : AESS-012  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:11  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:42:40  
 Average Efficiency : 0.3028130  
 Average Efficiency Error : 8.3379308E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 206.2200 | 28-FEB-2010 | 2991.979   | 3300.154 | 14630.00 | 0.2996896 | 1.2888389E-02 | 45.27155   |
| NP-237     | 205.8930 | 28-FEB-2010 | 4436.825   | 4903.508 | 15329.00 | 0.3101608 | 1.5709149E-02 | 64.17129   |
| CM-244     | 203.1954 | 28-FEB-2010 | 5535.510   | 5884.591 | 13832.00 | 0.3002685 | 1.5228972E-02 | 51.27063   |

Instrument : CHAMBER 077  
 Detector : 67576  
 Standard ID : AESS-013  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:12  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:42:53  
 Average Efficiency : 0.3266060  
 Average Efficiency Error : 8.9822784E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 203.6544 | 28-FEB-2010 | 2989.957   | 3302.071 | 15788.00 | 0.3274788 | 1.4064389E-02 | 50.84729   |
| NP-237     | 210.2526 | 28-FEB-2010 | 4433.544   | 4902.799 | 16283.00 | 0.3226589 | 1.6329939E-02 | 64.60262   |
| CM-244     | 201.9108 | 28-FEB-2010 | 5530.788   | 5882.782 | 15087.00 | 0.3295008 | 1.6692154E-02 | 50.76959   |

Instrument : CHAMBER 078  
 Detector : 67577  
 Standard ID : AESS-014  
 Standard Reference Date : 19-FEB-2008 11:05:22  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:12  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:43:47  
 Average Efficiency : 0.3266194  
 Average Efficiency Error : 8.9784693E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 214.7088 | 28-FEB-2010 | 2988.255   | 3302.223 | 16485.00 | 0.3242883 | 1.3917238E-02 | 54.47247   |
| NP-237     | 211.7160 | 28-FEB-2010 | 4437.236   | 4905.680 | 16830.00 | 0.3311986 | 1.6755598E-02 | 62.86163   |
| CM-244     | 207.3882 | 28-FEB-2010 | 5535.005   | 5885.680 | 15311.00 | 0.3254575 | 1.6484126E-02 | 54.68671   |

Instrument : CHAMBER 079  
 Detector : 67598  
 Standard ID : AESS-015  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:12  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:44:09  
 Average Efficiency : 0.3272116  
 Average Efficiency Error : 9.0027396E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 204.0270 | 28-FEB-2010 | 2989.159   | 3300.331 | 15511.00 | 0.3211554 | 1.3797027E-02 | 50.97751   |
| NP-237     | 200.6460 | 28-FEB-2010 | 4434.317   | 4902.854 | 16177.00 | 0.3359110 | 1.7001966E-02 | 61.88776   |
| CM-244     | 195.9270 | 28-FEB-2010 | 5535.480   | 5887.277 | 14557.00 | 0.3276861 | 1.6607955E-02 | 52.62397   |



Instrument : CHAMBER 080  
 Detector : 78197  
 Standard ID : AESS-016  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 11-AUG-2009 12:17:29  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 12-AUG-2009 06:47:19  
 Average Efficiency : 0.3321076  
 Average Efficiency Error : 9.1349650E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 204.0534 | 28-FEB-2010 | 2991.650   | 3302.015 | 15752.00 | 0.3260951 | 1.4005513E-02 | 48.00739   |
| NP-237     | 199.3962 | 28-FEB-2010 | 4433.624   | 4906.537 | 16268.00 | 0.3399083 | 1.7203139E-02 | 68.49010   |
| CM-244     | 198.6402 | 28-FEB-2010 | 5533.522   | 5887.645 | 15012.00 | 0.3333320 | 1.6887236E-02 | 53.20805   |

Instrument : CHAMBER 081  
 Detector : 72533  
 Standard ID : AESS-017  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:12  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:46:32  
 Average Efficiency : 6.1864634E-03  
 Average Efficiency Error : 2.9860463E-04  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.          | EFF Err       | Resolution    |
|------------|----------|-------------|------------|----------|----------|---------------|---------------|---------------|
| GD-148     | 210.0798 | 28-FEB-2010 | 2994.266   | 3303.451 | 1475.000 | 2.9659975E-02 | 2.4708204E-03 | 0.0000000E+00 |
| NP-237     | 208.5846 | 28-FEB-2010 | 4435.242   | 4901.625 | 202.0000 | 4.0063704E-03 | 3.4766502E-04 | 575.4393      |
| CM-244     | 205.5828 | 28-FEB-2010 | 5531.807   | 5884.164 | 427.0000 | 9.0843663E-03 | 3.3504453E-04 | 562.1900      |

Instrument : CHAMBER 082  
 Detector : 64263  
 Standard ID : AESS-018  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:12  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:47:05  
 Average Efficiency : 0.3226976  
 Average Efficiency Error : 8.8783512E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 202.1856 | 28-FEB-2010 | 2987.542   | 3297.569 | 15428.00 | 0.3223361 | 1.3849068E-02 | 64.65321   |
| NP-237     | 208.8990 | 28-FEB-2010 | 4435.421   | 4904.506 | 15892.00 | 0.3169125 | 1.6043896E-02 | 93.68992   |
| CM-244     | 198.1458 | 28-FEB-2010 | 5534.230   | 5884.907 | 14803.00 | 0.3294876 | 1.6695555E-02 | 84.86885   |

Instrument : CHAMBER 083  
 Detector : 64278  
 Standard ID : AESS-019  
 Standard Reference Date : 19-FEB-2008 11:05:22  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:14  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:47:29  
 Average Efficiency : 0.3395500  
 Average Efficiency Error : 9.3379803E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 204.6468 | 28-FEB-2010 | 2991.854   | 3298.707 | 15947.00 | 0.3291289 | 1.4132823E-02 | 53.16394   |
| NP-237     | 202.9140 | 28-FEB-2010 | 4433.271   | 4906.151 | 16931.00 | 0.3476149 | 1.7584924E-02 | 67.04104   |
| CM-244     | 199.3140 | 28-FEB-2010 | 5531.993   | 5884.932 | 15718.00 | 0.3476342 | 1.7601561E-02 | 59.50858   |

Instrument : CHAMBER 084  
 Detector : 78265  
 Standard ID : AESS-020  
 Standard Reference Date : 14-FEB-2008 21:55:55  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:14  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:47:52  
 Average Efficiency : 0.3397457  
 Average Efficiency Error : 9.3453201E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 205.5870 | 28-FEB-2010 | 2988.678   | 3299.931 | 15922.00 | 0.3271575 | 1.4048551E-02 | 47.08979   |
| NP-237     | 203.4984 | 28-FEB-2010 | 4434.465   | 4903.170 | 17250.00 | 0.3531433 | 1.7860783E-02 | 67.92932   |
| CM-244     | 197.1096 | 28-FEB-2010 | 5531.407   | 5886.178 | 15482.00 | 0.3464514 | 1.7544933E-02 | 50.18247   |

Instrument : CHAMBER 085  
 Detector : 78776  
 Standard ID : AESS-021  
 Standard Reference Date : 19-FEB-2008 15:31:52  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:14  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:48:19  
 Average Efficiency : 0.3272626  
 Average Efficiency Error : 8.9994660E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 208.3608 | 28-FEB-2010 | 2990.698   | 3300.313 | 15918.00 | 0.3226679 | 1.3855824E-02 | 49.75027   |
| NP-237     | 210.1548 | 28-FEB-2010 | 4435.121   | 4902.282 | 16630.00 | 0.3296844 | 1.6681336E-02 | 59.70044   |
| CM-244     | 200.7390 | 28-FEB-2010 | 5534.187   | 5882.859 | 15098.00 | 0.3315589 | 1.6796166E-02 | 51.87433   |

Instrument : CHAMBER 086  
 Detector : 78198  
 Standard ID : AESS-022  
 Standard Reference Date : 14-FEB-2008 21:55:55  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:14  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:48:41  
 Average Efficiency : 0.3012526  
 Average Efficiency Error : 8.2951793E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 209.6724 | 28-FEB-2010 | 2990.009   | 3300.939 | 14622.00 | 0.2945913 | 1.2669257E-02 | 46.73733   |
| NP-237     | 206.8830 | 28-FEB-2010 | 4436.927   | 4902.983 | 15242.00 | 0.3069340 | 1.5546833E-02 | 58.46733   |
| CM-244     | 203.0208 | 28-FEB-2010 | 5531.983   | 5883.724 | 14065.00 | 0.3055728 | 1.5494397E-02 | 51.66624   |

Instrument : CHAMBER 087  
 Detector : 78199  
 Standard ID : AESS-023  
 Standard Reference Date : 14-FEB-2008 21:55:55  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:14  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:49:08  
 Average Efficiency : 0.3135695  
 Average Efficiency Error : 8.6297104E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 207.4764 | 28-FEB-2010 | 2988.599   | 3301.987 | 15111.00 | 0.3076608 | 1.3223418E-02 | 48.25697   |
| NP-237     | 207.4998 | 28-FEB-2010 | 4434.300   | 4902.242 | 15867.00 | 0.3185670 | 1.6127942E-02 | 61.93990   |
| CM-244     | 199.8804 | 28-FEB-2010 | 5532.304   | 5887.140 | 14381.00 | 0.3173418 | 1.6086275E-02 | 50.20942   |

Instrument : CHAMBER 088  
 Detector : 33452  
 Standard ID : AESS-024  
 Standard Reference Date : 14-FEB-2008 21:55:55  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:14  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:50:14  
 Average Efficiency : 0.3028336  
 Average Efficiency Error : 8.3410190E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 203.5218 | 28-FEB-2010 | 2989.881   | 3297.896 | 14259.00 | 0.2959496 | 1.2733680E-02 | 60.40763   |
| NP-237     | 205.6662 | 28-FEB-2010 | 4436.727   | 4902.043 | 15208.00 | 0.3080562 | 1.5604130E-02 | 68.20498   |
| CM-244     | 198.3060 | 28-FEB-2010 | 5532.799   | 5884.609 | 13848.00 | 0.3079579 | 1.5618804E-02 | 57.90837   |

Instrument : CHAMBER 089  
 Detector : 78262  
 Standard ID : AESS-025  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:15  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:50:54  
 Average Efficiency : 0.2999636  
 Average Efficiency Error : 8.2814181E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 195.5670 | 28-FEB-2010 | 2989.340   | 3299.886 | 14192.00 | 0.3065364 | 1.3190371E-02 | 47.47885   |
| NP-237     | 167.9916 | 28-FEB-2010 | 4433.954   | 4903.393 | 12026.00 | 0.2982433 | 1.5158199E-02 | 61.37537   |
| CM-244     | 157.2432 | 28-FEB-2010 | 5533.423   | 5884.190 | 10453.00 | 0.2932044 | 1.4938097E-02 | 52.58473   |

Instrument : CHAMBER 090  
 Detector : 78263  
 Standard ID : AESS-026  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:15  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:51:07  
 Average Efficiency : 0.3280271  
 Average Efficiency Error : 9.6107582E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 199.5072 | 28-FEB-2010 | 2992.174   | 3298.193 | 15340.00 | 0.3247949 | 1.6451096E-02 | 48.79327   |
| NP-237     | 168.0294 | 28-FEB-2010 | 4432.899   | 4902.301 | 13513.00 | 0.3350319 | 1.6997805E-02 | 59.73701   |
| CM-244     | 160.5822 | 28-FEB-2010 | 5531.267   | 5884.186 | 11821.00 | 0.3246754 | 1.6506171E-02 | 54.24763   |

Instrument : CHAMBER 091  
 Detector : 78259  
 Standard ID : AESS-027  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:15  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:51:19  
 Average Efficiency : 0.3422945  
 Average Efficiency Error : 1.0031743E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 193.4238 | 28-FEB-2010 | 2988.796   | 3297.819 | 15212.00 | 0.3322093 | 1.6828449E-02 | 48.17033   |
| NP-237     | 161.6154 | 28-FEB-2010 | 4433.118   | 4901.645 | 13301.00 | 0.3428935 | 1.7400602E-02 | 71.25236   |
| CM-244     | 148.1754 | 28-FEB-2010 | 5531.054   | 5887.180 | 11864.00 | 0.3531335 | 1.7951898E-02 | 54.03432   |

Instrument : CHAMBER 092  
 Detector : 79457  
 Standard ID : AESS-028  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:15  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:52:08  
 Average Efficiency : 0.3126248  
 Average Efficiency Error : 9.1664707E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 199.6542 | 28-FEB-2010 | 2988.378   | 3299.875 | 14752.00 | 0.3115867 | 1.5790872E-02 | 44.92863   |
| NP-237     | 168.1992 | 28-FEB-2010 | 4435.762   | 4905.401 | 12691.00 | 0.3138909 | 1.5940819E-02 | 59.90319   |
| CM-244     | 156.7614 | 28-FEB-2010 | 5534.466   | 5887.335 | 11106.00 | 0.3124176 | 1.5899830E-02 | 46.96757   |

Instrument : CHAMBER 093  
 Detector : 33206  
 Standard ID : AESS-029  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:15  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:52:22  
 Average Efficiency : 0.3223998  
 Average Efficiency Error : 9.4486484E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 201.5742 | 28-FEB-2010 | 2988.021   | 3298.707 | 15183.00 | 0.3181591 | 1.6117128E-02 | 52.68830   |
| NP-237     | 169.7700 | 28-FEB-2010 | 4432.645   | 4901.916 | 13165.00 | 0.3230736 | 1.6397305E-02 | 66.05635   |
| CM-244     | 154.8234 | 28-FEB-2010 | 5530.870   | 5883.862 | 11451.00 | 0.3262046 | 1.6592693E-02 | 55.78003   |

Instrument : CHAMBER 094  
 Detector : 78267  
 Standard ID : AESS-030  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:15  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:52:36  
 Average Efficiency : 0.3070784  
 Average Efficiency Error : 9.0072202E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 198.9792 | 28-FEB-2010 | 2987.496   | 3299.970 | 14244.00 | 0.3023582 | 1.5329675E-02 | 44.82082   |
| NP-237     | 166.3758 | 28-FEB-2010 | 4432.930   | 4902.883 | 12450.00 | 0.3117883 | 1.5837880E-02 | 57.18416   |
| CM-244     | 157.1856 | 28-FEB-2010 | 5531.875   | 5884.464 | 10956.00 | 0.3073991 | 1.5648084E-02 | 55.69304   |

Instrument : CHAMBER 095  
 Detector : 64279  
 Standard ID : AESS-031  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:16  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:53:20  
 Average Efficiency : 0.3112848  
 Average Efficiency Error : 8.5905641E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 193.6650 | 28-FEB-2010 | 2991.646   | 3298.356 | 14103.00 | 0.3075817 | 1.3236930E-02 | 52.02211   |
| NP-237     | 162.9186 | 28-FEB-2010 | 4435.397   | 4905.664 | 12249.00 | 0.3132029 | 1.5913907E-02 | 59.25825   |
| CM-244     | 153.1968 | 28-FEB-2010 | 5530.369   | 5883.804 | 10942.00 | 0.3147666 | 1.6023749E-02 | 56.52655   |

Instrument : CHAMBER 096  
 Detector : 67605  
 Standard ID : AESS-032  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:16  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:53:35  
 Average Efficiency : 0.3007939  
 Average Efficiency Error : 8.3044088E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 195.2364 | 28-FEB-2010 | 2989.386   | 3301.860 | 13969.00 | 0.3022173 | 1.3008440E-02 | 46.72513   |
| NP-237     | 165.9822 | 28-FEB-2010 | 4437.256   | 4904.015 | 11834.00 | 0.2969258 | 1.5095386E-02 | 61.08714   |
| CM-244     | 153.7938 | 28-FEB-2010 | 5531.292   | 5886.331 | 10564.00 | 0.3028315 | 1.5425657E-02 | 47.63036   |

Instrument : CHAMBER 097  
 Detector : 67599  
 Standard ID : AESS-033  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:16  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:54:04  
 Average Efficiency : 0.3450123  
 Average Efficiency Error : 9.5089795E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 192.4158 | 28-FEB-2010 | 2991.155   | 3299.592 | 15339.00 | 0.3367012 | 1.4467746E-02 | 59.45457   |
| NP-237     | 161.7816 | 28-FEB-2010 | 4437.204   | 4904.260 | 13605.00 | 0.3503401 | 1.7772736E-02 | 79.89651   |
| CM-244     | 147.2670 | 28-FEB-2010 | 5531.403   | 5886.106 | 11772.00 | 0.3523416 | 1.7914115E-02 | 60.43928   |

Instrument : CHAMBER 098  
 Detector : 68644  
 Standard ID : AESS-034  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:16  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:54:57  
 Average Efficiency : 0.3358550  
 Average Efficiency Error : 9.2535829E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 200.5488 | 28-FEB-2010 | 2992.247   | 3301.860 | 15657.00 | 0.3297495 | 1.4163947E-02 | 50.47488   |
| NP-237     | 167.2962 | 28-FEB-2010 | 4432.619   | 4906.019 | 13588.00 | 0.3383684 | 1.7165720E-02 | 63.83917   |
| CM-244     | 154.4388 | 28-FEB-2010 | 5534.382   | 5884.237 | 11997.00 | 0.3424924 | 1.7407812E-02 | 51.17926   |

Instrument : CHAMBER 099  
 Detector : 70317  
 Standard ID : AESS-035  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:16  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:55:11  
 Average Efficiency : 0.3432277  
 Average Efficiency Error : 9.4517590E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 198.6666 | 28-FEB-2010 | 2987.820   | 3298.212 | 15976.00 | 0.3396714 | 1.4585057E-02 | 54.44847   |
| NP-237     | 168.2934 | 28-FEB-2010 | 4437.036   | 4906.585 | 14008.00 | 0.3467679 | 1.7584279E-02 | 71.12630   |
| CM-244     | 158.8128 | 28-FEB-2010 | 5530.871   | 5884.331 | 12421.00 | 0.3448446 | 1.7517686E-02 | 52.96134   |

Instrument : CHAMBER 100  
 Detector : 79456  
 Standard ID : AESS-046  
 Standard Reference Date : 19-FEB-2008 19:35:48  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:16  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:55:23  
 Average Efficiency : 0.3455574  
 Average Efficiency Error : 9.5195137E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 194.7474 | 28-FEB-2010 | 2989.623   | 3299.666 | 15783.00 | 0.3422834 | 1.4700302E-02 | 52.09954   |
| NP-237     | 164.6658 | 28-FEB-2010 | 4436.895   | 4905.650 | 13580.00 | 0.3435225 | 1.7427422E-02 | 69.24625   |
| CM-244     | 151.3824 | 28-FEB-2010 | 5534.086   | 5886.872 | 12110.00 | 0.3525722 | 1.7917577E-02 | 56.51697   |

Instrument : CHAMBER 101  
 Detector : 64253  
 Standard ID : AESS-037  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:17  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:55:41  
 Average Efficiency : 0.3333714  
 Average Efficiency Error : 9.1898674E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 197.7372 | 28-FEB-2010 | 2990.814   | 3297.893 | 15101.00 | 0.3225393 | 1.3863103E-02 | 69.71876   |
| NP-237     | 167.1294 | 28-FEB-2010 | 4435.403   | 4905.470 | 13614.00 | 0.3393782 | 1.7216442E-02 | 75.26087   |
| CM-244     | 154.7664 | 28-FEB-2010 | 5534.897   | 5882.499 | 12090.00 | 0.3444314 | 1.7504154E-02 | 64.32682   |

Instrument : CHAMBER 102  
 Detector : 72525  
 Standard ID : AESS-038  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:17  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:55:55  
 Average Efficiency : 0.3351222  
 Average Efficiency Error : 9.2311725E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 200.1408 | 28-FEB-2010 | 2989.911   | 3298.890 | 15784.00 | 0.3331057 | 1.4306106E-02 | 52.96164   |
| NP-237     | 170.0886 | 28-FEB-2010 | 4436.604   | 4903.163 | 13774.00 | 0.3373874 | 1.7112618E-02 | 67.26456   |
| CM-244     | 157.7460 | 28-FEB-2010 | 5533.661   | 5884.537 | 12012.00 | 0.3357387 | 1.7064173E-02 | 56.82374   |

Instrument : CHAMBER 103  
 Detector : 79461  
 Standard ID : AESS-039  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:17  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:56:06  
 Average Efficiency : 0.3326890  
 Average Efficiency Error : 9.1751814E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 192.2418 | 28-FEB-2010 | 2989.467   | 3301.138 | 14760.00 | 0.3242984 | 1.3944432E-02 | 47.60223   |
| NP-237     | 159.1506 | 28-FEB-2010 | 4432.983   | 4903.264 | 13171.00 | 0.3447756 | 1.7498676E-02 | 57.68694   |
| CM-244     | 151.7142 | 28-FEB-2010 | 5533.387   | 5886.945 | 11484.00 | 0.3337491 | 1.6975598E-02 | 51.22444   |



Instrument : CHAMBER 104  
 Detector : 72524  
 Standard ID : AESS-040  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:17  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:56:56  
 Average Efficiency : 0.3150799  
 Average Efficiency Error : 8.6921128E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 194.4828 | 28-FEB-2010 | 2991.174   | 3300.565 | 14723.00 | 0.3197476 | 1.3749403E-02 | 50.59072   |
| NP-237     | 166.8174 | 28-FEB-2010 | 4436.202   | 4904.648 | 12311.00 | 0.3074494 | 1.5620295E-02 | 55.80039   |
| CM-244     | 155.0100 | 28-FEB-2010 | 5532.970   | 5885.836 | 11138.00 | 0.3167908 | 1.6121507E-02 | 49.72461   |

Instrument : CHAMBER 105  
 Detector : 78777  
 Standard ID : AESS-041  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:17  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:57:20  
 Average Efficiency : 0.3276281  
 Average Efficiency Error : 9.0270750E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 203.9034 | 28-FEB-2010 | 2990.222   | 3299.531 | 15562.00 | 0.3223552 | 1.3847793E-02 | 46.50069   |
| NP-237     | 171.2268 | 28-FEB-2010 | 4434.728   | 4902.932 | 13744.00 | 0.3344322 | 1.6963221E-02 | 65.77631   |
| CM-244     | 159.5796 | 28-FEB-2010 | 5530.878   | 5883.508 | 11897.00 | 0.3287036 | 1.6709210E-02 | 49.01804   |

Instrument : CHAMBER 106  
 Detector : 64274  
 Standard ID : AESS-042  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:17  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:57:33  
 Average Efficiency : 0.3250493  
 Average Efficiency Error : 8.9671388E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 188.7090 | 28-FEB-2010 | 2987.640   | 3299.757 | 14336.00 | 0.3208575 | 1.3803991E-02 | 53.47353   |
| NP-237     | 159.6558 | 28-FEB-2010 | 4434.577   | 4901.415 | 12565.00 | 0.3278506 | 1.6651530E-02 | 72.39591   |
| CM-244     | 150.5208 | 28-FEB-2010 | 5534.428   | 5884.452 | 11211.00 | 0.3283702 | 1.6708910E-02 | 56.10339   |

Instrument : CHAMBER 107  
 Detector : 67578  
 Standard ID : AESS-043  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:19  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:58:23  
 Average Efficiency : 0.3085136  
 Average Efficiency Error : 8.5112611E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 197.7708 | 28-FEB-2010 | 2988.547   | 3298.638 | 14405.00 | 0.3076421 | 1.3234209E-02 | 50.64014   |
| NP-237     | 168.7422 | 28-FEB-2010 | 4435.772   | 4904.146 | 12514.00 | 0.3089727 | 1.5693650E-02 | 62.76998   |
| CM-244     | 156.3252 | 28-FEB-2010 | 5532.554   | 5882.324 | 10968.00 | 0.3092847 | 1.5743818E-02 | 52.78785   |

Instrument : CHAMBER 108  
 Detector : 78778  
 Standard ID : AESS-044  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:19  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 12:00:02  
 Average Efficiency : 0.3507076  
 Average Efficiency Error : 9.6569844E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 194.4510 | 28-FEB-2010 | 2988.136   | 3297.898 | 16033.00 | 0.3482739 | 1.4953526E-02 | 49.59322   |
| NP-237     | 166.6248 | 28-FEB-2010 | 4433.563   | 4901.441 | 14165.00 | 0.3542025 | 1.7958457E-02 | 66.29896   |
| CM-244     | 155.8290 | 28-FEB-2010 | 5533.812   | 5885.772 | 12398.00 | 0.3507225 | 1.7816888E-02 | 52.33121   |

Instrument : CHAMBER 109  
 Detector : 79463  
 Standard ID : AESS-045  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:19  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 12:00:23  
 Average Efficiency : 0.3572300  
 Average Efficiency Error : 9.8411189E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 186.9936 | 28-FEB-2010 | 2990.332   | 3301.320 | 15964.00 | 0.3605992 | 1.5483866E-02 | 43.37672   |
| NP-237     | 160.8066 | 28-FEB-2010 | 4437.566   | 4903.059 | 13542.00 | 0.3508754 | 1.7801007E-02 | 56.95218   |
| CM-244     | 145.8384 | 28-FEB-2010 | 5534.376   | 5883.521 | 11884.00 | 0.3592313 | 1.8261438E-02 | 45.65917   |

Instrument : CHAMBER 110  
 Detector : 67602  
 Standard ID : AESS-046  
 Standard Reference Date : 8-JAN-2007 09:29:00  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:19  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 12:01:03  
 Average Efficiency : 0.3231843  
 Average Efficiency Error : 8.9130215E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 197.6531 | 28-FEB-2010 | 2987.980   | 3298.573 | 14814.00 | 0.3198501 | 1.3754530E-02 | 53.58074   |
| NP-237     | 164.3834 | 28-FEB-2010 | 4433.010   | 4901.606 | 12984.00 | 0.3290606 | 1.6704626E-02 | 68.74621   |
| CM-244     | 159.4253 | 28-FEB-2010 | 5534.957   | 5883.028 | 11170.00 | 0.3222606 | 1.6399227E-02 | 53.66474   |

Instrument : CHAMBER 111  
 Detector : 79462  
 Standard ID : AESS-047  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:19  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 12:01:21  
 Average Efficiency : 0.3397023  
 Average Efficiency Error : 9.3582701E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 197.4804 | 28-FEB-2010 | 2988.711   | 3298.714 | 15668.00 | 0.3351243 | 1.4394601E-02 | 47.62338   |
| NP-237     | 168.3948 | 28-FEB-2010 | 4436.440   | 4905.458 | 13711.00 | 0.3392103 | 1.7206213E-02 | 64.03130   |
| CM-244     | 154.6032 | 28-FEB-2010 | 5535.080   | 5885.693 | 12172.00 | 0.3470925 | 1.7637538E-02 | 47.05465   |

Instrument : CHAMBER 112  
 Detector : 78261  
 Standard ID : AESS-048  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:19  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 12:02:06  
 Average Efficiency : 0.3161603  
 Average Efficiency Error : 8.7240264E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 191.8350 | 28-FEB-2010 | 2988.059   | 3299.440 | 14279.00 | 0.3143869 | 1.3526597E-02 | 45.81523   |
| NP-237     | 161.5530 | 28-FEB-2010 | 4434.653   | 4903.902 | 12390.00 | 0.3195488 | 1.6233314E-02 | 58.56979   |
| CM-244     | 151.1856 | 28-FEB-2010 | 5532.350   | 5884.826 | 10815.00 | 0.3153441 | 1.6056247E-02 | 49.68813   |

Instrument : CHAMBER 113  
 Detector : 45-111B4  
 Standard ID : AESS-001  
 Standard Reference Date : 20-FEB-2008 09:54:53  
 Calibration Analysis Date/Time : 17-AUG-2009 09:40:49  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 14:57:05  
 Average Efficiency : 0.2505672  
 Average Efficiency Error : 6.9084223E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 208.6698 | 28-FEB-2010 | 2990.867   | 3300.361 | 15169.00 | 0.2456670 | 1.0558164E-02 | 69.86203   |
| NP-237     | 171.0024 | 28-FEB-2010 | 4434.565   | 4901.409 | 13130.00 | 0.2559362 | 1.2990281E-02 | 75.93420   |
| CM-244     | 158.1060 | 28-FEB-2010 | 5532.822   | 5886.571 | 11319.00 | 0.2525721 | 1.2849954E-02 | 69.15296   |

Instrument : CHAMBER 114  
 Detector : 78258  
 Standard ID : AESS-007  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 17-AUG-2009 09:40:56  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 14:57:42  
 Average Efficiency : 0.2566939  
 Average Efficiency Error : 7.0618941E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 206.7342 | 28-FEB-2010 | 2992.066   | 3300.343 | 15529.00 | 0.2538896 | 1.0907058E-02 | 46.46336   |
| NP-237     | 205.0260 | 28-FEB-2010 | 4433.866   | 4902.961 | 15975.00 | 0.2597136 | 1.3147265E-02 | 59.75802   |
| CM-244     | 199.6806 | 28-FEB-2010 | 5535.155   | 5886.142 | 14576.00 | 0.2577351 | 1.3062422E-02 | 48.49145   |

Instrument : CHAMBER 115  
 Detector : 45-132FF4  
 Standard ID : AESS-002  
 Standard Reference Date : 19-FEB-2008 11:05:22  
 Calibration Analysis Date/Time : 17-AUG-2009 09:41:02  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 14:57:55  
 Average Efficiency : 0.2653268  
 Average Efficiency Error : 7.2980789E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 200.1144 | 28-FEB-2010 | 2989.683   | 3299.666 | 15797.00 | 0.2667769 | 1.1457291E-02 | 62.01321   |
| NP-237     | 200.4990 | 28-FEB-2010 | 4433.623   | 4904.729 | 15897.00 | 0.2642607 | 1.3378277E-02 | 65.74837   |
| CM-244     | 196.5558 | 28-FEB-2010 | 5534.066   | 5886.268 | 14729.00 | 0.2644131 | 1.3399067E-02 | 62.30648   |

Instrument : CHAMBER 116  
 Detector : 45-132FF2  
 Standard ID : AESS-008  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 17-AUG-2009 09:41:08  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 14:58:06  
 Average Efficiency : 0.2617015  
 Average Efficiency Error : 7.1968301E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 206.0418 | 28-FEB-2010 | 2991.930   | 3301.615 | 15931.00 | 0.2613424 | 1.1222276E-02 | 57.22266   |
| NP-237     | 209.2716 | 28-FEB-2010 | 4433.958   | 4904.160 | 16458.00 | 0.2621330 | 1.3264989E-02 | 65.63932   |
| CM-244     | 199.6488 | 28-FEB-2010 | 5532.087   | 5883.400 | 14804.00 | 0.2617715 | 1.3264321E-02 | 58.02108   |

Instrument : CHAMBER 117  
 Detector : 33450  
 Standard ID : AESS-003  
 Standard Reference Date : 15-FEB-2008 13:12:27  
 Calibration Analysis Date/Time : 17-AUG-2009 09:41:13  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 14:58:17  
 Average Efficiency : 0.2525579  
 Average Efficiency Error : 6.9512939E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 202.9740 | 28-FEB-2010 | 2989.306   | 3298.199 | 15015.00 | 0.2500224 | 1.0747343E-02 | 65.18716   |
| NP-237     | 203.2080 | 28-FEB-2010 | 4433.520   | 4903.152 | 15609.00 | 0.2560285 | 1.2964435E-02 | 69.72454   |
| CM-244     | 197.2236 | 28-FEB-2010 | 5530.582   | 5887.083 | 14123.00 | 0.2527719 | 1.2816428E-02 | 63.59301   |

Instrument : CHAMBER 118  
 Detector : 75544  
 Standard ID : AESS-009  
 Standard Reference Date : 19-FEB-2008 11:05:22  
 Calibration Analysis Date/Time : 17-AUG-2009 09:41:17  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 14:58:27  
 Average Efficiency : 0.2576301  
 Average Efficiency Error : 7.0881532E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 203.3736 | 28-FEB-2010 | 2988.856   | 3302.528 | 15454.00 | 0.2568017 | 1.1033086E-02 | 48.57111   |
| NP-237     | 204.0192 | 28-FEB-2010 | 4432.711   | 4902.773 | 15795.00 | 0.2580543 | 1.3065088E-02 | 53.80557   |
| CM-244     | 197.2128 | 28-FEB-2010 | 5531.177   | 5883.080 | 14443.00 | 0.2583711 | 1.3096387E-02 | 48.23898   |

Instrument : CHAMBER 119  
 Detector : 74429  
 Standard ID : AESS-004  
 Standard Reference Date : 14-FEB-2008 09:35:18  
 Calibration Analysis Date/Time : 15-JUL-2009 08:38:16  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 2-FEB-2009 15:15:38  
 Average Efficiency : 0.2936279  
 Average Efficiency Error : 1.2630888E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts        | EFF.          | EFF Err       | Resolution    |
|------------|----------|-------------|------------|----------|---------------|---------------|---------------|---------------|
| GD-148     | 206.1222 | 28-FEB-2010 | 2992.004   | 3299.253 | 9998.000      | 0.2936279     | 1.2630888E-02 | 0.0000000E+00 |
| NP-237     | 204.2586 | 28-FEB-2010 | 4432.548   | 4906.013 | 0.0000000E+00 | 0.0000000E+00 | 0.0000000E+00 | 0.0000000E+00 |
| CM-244     | 198.8100 | 28-FEB-2010 | 5530.584   | 5883.165 | 0.0000000E+00 | 0.0000000E+00 | 0.0000000E+00 | 0.0000000E+00 |

Instrument : CHAMBER 120  
 Detector : 74430  
 Standard ID : AESS-010  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 15-JUL-2009 08:38:20  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 16-JUL-2009 09:29:36  
 Average Efficiency : 0.2329810  
 Average Efficiency Error : 6.4206291E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 202.0008 | 28-FEB-2010 | 2990.522   | 3298.404 | 13848.00 | 0.2315074 | 9.9664843E-03 | 47.05631   |
| NP-237     | 202.9926 | 28-FEB-2010 | 4435.328   | 4903.588 | 14182.00 | 0.2328624 | 1.1806204E-02 | 59.86080   |
| CM-244     | 196.2330 | 28-FEB-2010 | 5534.528   | 5884.756 | 13118.00 | 0.2352170 | 1.1938849E-02 | 50.37906   |

Instrument : CHAMBER 121  
 Detector : 75545  
 Standard ID : AESS-005  
 Standard Reference Date : 14-FEB-2008 09:35:18  
 Calibration Analysis Date/Time : 17-AUG-2009 09:41:25  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 14:58:37  
 Average Efficiency : 0.2477992  
 Average Efficiency Error : 6.8184505E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 210.7452 | 28-FEB-2010 | 2991.483   | 3299.036 | 15409.00 | 0.2471195 | 1.0617682E-02 | 50.47642   |
| NP-237     | 209.5938 | 28-FEB-2010 | 4436.007   | 4904.843 | 15591.00 | 0.2479274 | 1.2554423E-02 | 56.89366   |
| CM-244     | 202.7478 | 28-FEB-2010 | 5531.746   | 5882.876 | 14277.00 | 0.2486278 | 1.2604386E-02 | 50.04906   |

Instrument : CHAMBER 122  
 Detector : 75546  
 Standard ID : AESS-011  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 17-AUG-2009 09:41:30  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 14:58:49  
 Average Efficiency : 0.2511526  
 Average Efficiency Error : 6.9076614E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 212.8284 | 28-FEB-2010 | 2989.140   | 3302.149 | 15817.00 | 0.2511983 | 1.0788003E-02 | 55.71524   |
| NP-237     | 214.4868 | 28-FEB-2010 | 4434.728   | 4903.501 | 16008.00 | 0.2487148 | 1.2590243E-02 | 57.96050   |
| CM-244     | 208.4184 | 28-FEB-2010 | 5535.323   | 5886.133 | 14974.00 | 0.2536270 | 1.2849721E-02 | 53.77795   |

Instrument : CHAMBER 123  
 Detector : 45-142V3  
 Standard ID : AESS-006  
 Standard Reference Date : 14-FEB-2008 09:35:18  
 Calibration Analysis Date/Time : 17-AUG-2009 09:41:34  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 14:58:58  
 Average Efficiency : 0.2594329  
 Average Efficiency Error : 7.1380134E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 203.6952 | 28-FEB-2010 | 2989.820   | 3298.601 | 15515.00 | 0.2574363 | 1.1059616E-02 | 71.81727   |
| NP-237     | 204.7038 | 28-FEB-2010 | 4437.478   | 4905.941 | 15738.00 | 0.2562436 | 1.2974020E-02 | 72.62444   |
| CM-244     | 195.0060 | 28-FEB-2010 | 5531.339   | 5886.453 | 14683.00 | 0.2658339 | 1.3471606E-02 | 67.85081   |

Instrument : CHAMBER 124  
 Detector : 45-142V2  
 Standard ID : AESS-012  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 17-AUG-2009 09:41:39  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 14:59:08  
 Average Efficiency : 0.2622745  
 Average Efficiency Error : 7.2123613E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 206.2200 | 28-FEB-2010 | 2989.806   | 3300.376 | 16169.00 | 0.2650077 | 1.1376831E-02 | 65.10977   |
| NP-237     | 205.8930 | 28-FEB-2010 | 4436.352   | 4902.974 | 16128.00 | 0.2610630 | 1.3214089E-02 | 71.08579   |
| CM-244     | 203.1954 | 28-FEB-2010 | 5533.246   | 5885.946 | 14953.00 | 0.2598179 | 1.3163561E-02 | 70.97868   |

Instrument : CHAMBER 125  
 Detector : 75547  
 Standard ID : AESS-013  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 17-AUG-2009 09:41:44  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 14:59:18  
 Average Efficiency : 0.2577128  
 Average Efficiency Error : 7.0888288E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 203.6544 | 28-FEB-2010 | 2987.619   | 3299.275 | 15570.00 | 0.2584035 | 1.1100472E-02 | 45.32409   |
| NP-237     | 210.2526 | 28-FEB-2010 | 4433.269   | 4906.266 | 16194.00 | 0.2567104 | 1.2993116E-02 | 55.37461   |
| CM-244     | 201.9108 | 28-FEB-2010 | 5531.959   | 5882.482 | 14741.00 | 0.2577693 | 1.3062201E-02 | 51.62124   |

Instrument : CHAMBER 126  
 Detector : 75548  
 Standard ID : AESS-019  
 Standard Reference Date : 19-FEB-2008 11:05:22  
 Calibration Analysis Date/Time : 17-AUG-2009 09:41:49  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 14:59:32  
 Average Efficiency : 0.2528252  
 Average Efficiency Error : 6.9586127E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 204.6468 | 28-FEB-2010 | 2988.372   | 3298.946 | 15025.00 | 0.2481292 | 1.0665805E-02 | 51.29427   |
| NP-237     | 202.9140 | 28-FEB-2010 | 4437.297   | 4901.551 | 15728.00 | 0.2582902 | 1.3077814E-02 | 59.55880   |
| CM-244     | 199.3140 | 28-FEB-2010 | 5532.806   | 5882.587 | 14367.00 | 0.2543760 | 1.2894685E-02 | 53.51087   |

Instrument : CHAMBER 127  
 Detector : 78770  
 Standard ID : AESS-014  
 Standard Reference Date : 19-FEB-2008 11:05:22  
 Calibration Analysis Date/Time : 17-AUG-2009 09:41:53  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 14:59:46  
 Average Efficiency : 0.2467646  
 Average Efficiency Error : 6.7887292E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 214.7088 | 28-FEB-2010 | 2989.622   | 3297.830 | 15608.00 | 0.2456636 | 1.0552737E-02 | 45.17228   |
| NP-237     | 211.7160 | 28-FEB-2010 | 4435.622   | 4904.092 | 15815.00 | 0.2489925 | 1.2606090E-02 | 55.68476   |
| CM-244     | 207.3882 | 28-FEB-2010 | 5535.184   | 5885.434 | 14463.00 | 0.2461215 | 1.2475103E-02 | 51.99955   |



Instrument : CHAMBER 128  
 Detector : 75549  
 Standard ID : AESS-020  
 Standard Reference Date : 14-FEB-2008 21:55:55  
 Calibration Analysis Date/Time : 17-AUG-2009 09:41:59  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 15:00:39  
 Average Efficiency : 0.2557978  
 Average Efficiency Error : 7.0393290E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 205.5870 | 28-FEB-2010 | 2989.482   | 3299.177 | 15312.00 | 0.2510756 | 1.0789989E-02 | 50.23243   |
| NP-237     | 203.4984 | 28-FEB-2010 | 4436.028   | 4905.664 | 15805.00 | 0.2584755 | 1.3086889E-02 | 59.26414   |
| CM-244     | 197.1096 | 28-FEB-2010 | 5532.549   | 5883.141 | 14531.00 | 0.2601309 | 1.3184624E-02 | 52.60558   |

Instrument : CHAMBER 129  
 Detector : 76227  
 Standard ID : AESS-015  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 17-AUG-2009 09:42:03  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 15:00:50  
 Average Efficiency : 0.2636167  
 Average Efficiency Error : 7.2512124E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 204.0270 | 28-FEB-2010 | 2992.146   | 3298.635 | 15855.00 | 0.2626581 | 1.1279699E-02 | 51.01081   |
| NP-237     | 200.6460 | 28-FEB-2010 | 4432.563   | 4905.761 | 16101.00 | 0.2674463 | 1.3537456E-02 | 55.64974   |
| CM-244     | 195.9270 | 28-FEB-2010 | 5531.918   | 5882.796 | 14498.00 | 0.2612732 | 1.3242676E-02 | 51.23387   |

Instrument : CHAMBER 130  
 Detector : 76228  
 Standard ID : AESS-021  
 Standard Reference Date : 19-FEB-2008 15:31:52  
 Calibration Analysis Date/Time : 17-AUG-2009 09:42:09  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 15:01:00  
 Average Efficiency : 0.2500172  
 Average Efficiency Error : 6.8798582E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 208.3608 | 28-FEB-2010 | 2989.230   | 3297.665 | 15254.00 | 0.2474099 | 1.0632024E-02 | 49.47410   |
| NP-237     | 210.1548 | 28-FEB-2010 | 4434.582   | 4901.937 | 15716.00 | 0.2492386 | 1.2619579E-02 | 59.00264   |
| CM-244     | 200.7390 | 28-FEB-2010 | 5530.859   | 5884.881 | 14487.00 | 0.2546751 | 1.2908396E-02 | 49.18253   |

Instrument : CHAMBER 131  
 Detector : 33448  
 Standard ID : AESS-016  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 17-AUG-2009 09:42:13  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 15:01:10  
 Average Efficiency : 0.2486686  
 Average Efficiency Error : 6.8503493E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 204.0534 | 28-FEB-2010 | 2988.455   | 3301.428 | 14427.00 | 0.2389750 | 1.0279993E-02 | 88.46142   |
| NP-237     | 199.3962 | 28-FEB-2010 | 4434.994   | 4904.668 | 15550.00 | 0.2599315 | 1.3162703E-02 | 91.50983   |
| CM-244     | 198.6402 | 28-FEB-2010 | 5532.826   | 5884.723 | 14238.00 | 0.2530668 | 1.2829903E-02 | 81.92683   |

Instrument : CHAMBER 132  
 Detector : 67579  
 Standard ID : AESS-022  
 Standard Reference Date : 14-FEB-2008 21:55:55  
 Calibration Analysis Date/Time : 17-AUG-2009 09:42:18  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 15:01:19  
 Average Efficiency : 0.2503150  
 Average Efficiency Error : 6.8899435E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 209.6724 | 28-FEB-2010 | 2989.906   | 3301.298 | 15059.00 | 0.2427482 | 1.0434108E-02 | 48.23922   |
| NP-237     | 206.8830 | 28-FEB-2010 | 4432.560   | 4903.500 | 15980.00 | 0.2574485 | 1.3032571E-02 | 59.84295   |
| CM-244     | 203.0208 | 28-FEB-2010 | 5531.586   | 5882.587 | 14657.00 | 0.2549047 | 1.2918007E-02 | 51.83584   |

Instrument : CHAMBER 133  
 Detector : 76229  
 Standard ID : AESS-017  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 17-AUG-2009 09:42:22  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 15:01:29  
 Average Efficiency : 0.2444916  
 Average Efficiency Error : 6.7288522E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 210.0798 | 28-FEB-2010 | 2992.199   | 3301.674 | 15088.00 | 0.2427499 | 1.0433814E-02 | 51.73604   |
| NP-237     | 208.5846 | 28-FEB-2010 | 4436.849   | 4905.652 | 15341.00 | 0.2451461 | 1.2416095E-02 | 59.86903   |
| CM-244     | 205.5828 | 28-FEB-2010 | 5530.602   | 5882.872 | 14343.00 | 0.2463241 | 1.2486813E-02 | 55.80942   |

Instrument : CHAMBER 134  
 Detector : 76230  
 Standard ID : AESS-023  
 Standard Reference Date : 14-FEB-2008 21:55:55  
 Calibration Analysis Date/Time : 17-AUG-2009 09:42:27  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 15:01:38  
 Average Efficiency : 0.2444722  
 Average Efficiency Error : 6.7306994E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 207.4764 | 28-FEB-2010 | 2989.055   | 3302.112 | 14731.00 | 0.2399838 | 1.0319396E-02 | 45.58716   |
| NP-237     | 207.4998 | 28-FEB-2010 | 4432.969   | 4905.408 | 15414.00 | 0.2475136 | 1.2535379E-02 | 52.40787   |
| CM-244     | 199.8804 | 28-FEB-2010 | 5534.460   | 5883.375 | 14046.00 | 0.2480791 | 1.2579419E-02 | 47.39998   |

Instrument : CHAMBER 135  
 Detector : 64270  
 Standard ID : AESS-018  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 17-AUG-2009 09:42:32  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 15:01:50  
 Average Efficiency : 0.2546879  
 Average Efficiency Error : 7.0084208E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 202.1856 | 28-FEB-2010 | 2987.813   | 3300.105 | 15110.00 | 0.2525907 | 1.0856513E-02 | 49.36219   |
| NP-237     | 208.8990 | 28-FEB-2010 | 4435.123   | 4902.752 | 15878.00 | 0.2533506 | 1.2826114E-02 | 62.03614   |
| CM-244     | 198.1458 | 28-FEB-2010 | 5532.979   | 5882.877 | 14546.00 | 0.2591602 | 1.3135060E-02 | 51.79539   |

Instrument : CHAMBER 136  
 Detector : 68549  
 Standard ID : AESS-024  
 Standard Reference Date : 14-FEB-2008 21:55:55  
 Calibration Analysis Date/Time : 17-AUG-2009 09:42:37  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 15:02:00  
 Average Efficiency : 0.2475998  
 Average Efficiency Error : 6.8165381E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 203.5218 | 28-FEB-2010 | 2991.796   | 3301.682 | 14741.00 | 0.2447980 | 1.0526305E-02 | 60.65231   |
| NP-237     | 205.6662 | 28-FEB-2010 | 4435.713   | 4901.780 | 15573.00 | 0.2523313 | 1.2777670E-02 | 84.66249   |
| CM-244     | 198.3060 | 28-FEB-2010 | 5531.520   | 5884.028 | 13875.00 | 0.2470199 | 1.2527825E-02 | 70.83999   |

Instrument : CHAMBER 137  
 Detector : 64288  
 Standard ID : AESS-025  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 17-JUL-2009 09:12:39  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 15:14:28  
 Average Efficiency : 0.2552736  
 Average Efficiency Error : 7.0390888E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 195.5670 | 28-FEB-2010 | 2988.787   | 3300.077 | 14923.00 | 0.2576903 | 1.1078098E-02 | 64.97631   |
| NP-237     | 167.9916 | 28-FEB-2010 | 4437.030   | 4902.424 | 12892.00 | 0.2557709 | 1.2985486E-02 | 75.26385   |
| CM-244     | 157.2432 | 28-FEB-2010 | 5534.153   | 5885.897 | 11242.00 | 0.2515642 | 1.2800128E-02 | 68.23719   |

Instrument : CHAMBER 138  
 Detector : 65877  
 Standard ID : AESS-031  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 17-AUG-2009 10:05:25  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 15:10:23  
 Average Efficiency : 0.2550827  
 Average Efficiency Error : 7.0365570E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 193.6650 | 28-FEB-2010 | 2990.457   | 3300.623 | 14458.00 | 0.2522955 | 1.0852579E-02 | 60.07153   |
| NP-237     | 162.9186 | 28-FEB-2010 | 4436.833   | 4904.301 | 12578.00 | 0.2572678 | 1.3066470E-02 | 64.63396   |
| CM-244     | 153.1968 | 28-FEB-2010 | 5531.035   | 5885.034 | 11155.00 | 0.2569406 | 1.3075489E-02 | 58.61239   |

Instrument : CHAMBER 139  
 Detector : 76231  
 Standard ID : AESS-026  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 17-AUG-2009 10:05:40  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 15:10:36  
 Average Efficiency : 0.2493770  
 Average Efficiency Error : 7.3113223E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 199.5072 | 28-FEB-2010 | 2988.624   | 3300.322 | 14789.00 | 0.2505293 | 1.2695529E-02 | 52.23651   |
| NP-237     | 168.0294 | 28-FEB-2010 | 4436.965   | 4901.673 | 12535.00 | 0.2486135 | 1.2627549E-02 | 58.33430   |
| CM-244     | 160.5822 | 28-FEB-2010 | 5531.099   | 5884.173 | 11327.00 | 0.2489982 | 1.2667944E-02 | 53.91700   |

Instrument : CHAMBER 140  
 Detector : 78771  
 Standard ID : AESS-032  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 17-AUG-2009 10:05:55  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 15:10:53  
 Average Efficiency : 0.2545226  
 Average Efficiency Error : 7.0204390E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 195.2364 | 28-FEB-2010 | 2992.243   | 3300.208 | 14492.00 | 0.2508534 | 1.0790074E-02 | 46.38138   |
| NP-237     | 165.9822 | 28-FEB-2010 | 4435.227   | 4906.111 | 12782.00 | 0.2566222 | 1.3030458E-02 | 51.74347   |
| CM-244     | 153.7938 | 28-FEB-2010 | 5531.085   | 5884.403 | 11234.00 | 0.2578183 | 1.3118429E-02 | 44.44519   |

Instrument : CHAMBER 141  
 Detector : 76232  
 Standard ID : AESS-027  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 17-AUG-2009 10:06:09  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 15:11:05  
 Average Efficiency : 0.2584702  
 Average Efficiency Error : 7.5807418E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 193.4238 | 28-FEB-2010 | 2989.414   | 3297.748 | 14427.00 | 0.2520987 | 1.2779256E-02 | 53.56795   |
| NP-237     | 161.6154 | 28-FEB-2010 | 4437.262   | 4901.753 | 12660.00 | 0.2610831 | 1.3258832E-02 | 57.80217   |
| CM-244     | 148.1754 | 28-FEB-2010 | 5534.971   | 5886.637 | 11030.00 | 0.2627913 | 1.3375781E-02 | 54.14219   |

Instrument : CHAMBER 142  
 Detector : 64261  
 Standard ID : AESS-033  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 17-AUG-2009 10:06:21  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 15:11:22  
 Average Efficiency : 0.2600435  
 Average Efficiency Error : 7.1729934E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 192.4158 | 28-FEB-2010 | 2988.269   | 3301.948 | 14656.00 | 0.2574165 | 1.1070056E-02 | 54.03382   |
| NP-237     | 161.7816 | 28-FEB-2010 | 4433.864   | 4905.404 | 12714.00 | 0.2618904 | 1.3299029E-02 | 57.43495   |
| CM-244     | 147.2670 | 28-FEB-2010 | 5531.110   | 5884.773 | 10935.00 | 0.2619993 | 1.3337597E-02 | 54.46835   |

Instrument : CHAMBER 143  
 Detector : 65882  
 Standard ID : AESS-028  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 17-AUG-2009 10:06:30  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 15:11:35  
 Average Efficiency : 0.2441945  
 Average Efficiency Error : 7.1629179E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 199.6542 | 28-FEB-2010 | 2987.868   | 3300.973 | 14504.00 | 0.2454895 | 1.2443409E-02 | 48.86588   |
| NP-237     | 168.1992 | 28-FEB-2010 | 4435.203   | 4905.234 | 12409.00 | 0.2458239 | 1.2487897E-02 | 54.42411   |
| CM-244     | 156.7614 | 28-FEB-2010 | 5533.941   | 5886.181 | 10719.00 | 0.2413527 | 1.2290902E-02 | 48.55591   |

Instrument : CHAMBER 144  
 Detector : 75551  
 Standard ID : AESS-034  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 17-AUG-2009 10:06:42  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 15:11:48  
 Average Efficiency : 0.2468767  
 Average Efficiency Error : 6.8111387E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 200.5488 | 28-FEB-2010 | 2992.050   | 3299.833 | 14487.00 | 0.2441242 | 1.0500696E-02 | 46.56598   |
| NP-237     | 167.2962 | 28-FEB-2010 | 4433.005   | 4902.603 | 12463.00 | 0.2482506 | 1.2610275E-02 | 54.14901   |
| CM-244     | 154.4388 | 28-FEB-2010 | 5530.735   | 5882.656 | 10920.00 | 0.2495103 | 1.2702089E-02 | 51.83741   |

Instrument : CHAMBER 145  
 Detector : 72526  
 Standard ID : AESS-029  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 17-AUG-2009 10:06:50  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 15:12:06  
 Average Efficiency : 0.2516074  
 Average Efficiency Error : 7.3767379E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 201.5742 | 28-FEB-2010 | 2991.923   | 3299.882 | 14896.00 | 0.2497595 | 1.2655314E-02 | 52.44717   |
| NP-237     | 169.7700 | 28-FEB-2010 | 4434.984   | 4905.949 | 12721.00 | 0.2497460 | 1.2682147E-02 | 64.14503   |
| CM-244     | 154.8234 | 28-FEB-2010 | 5531.069   | 5884.490 | 11206.00 | 0.2555142 | 1.3001818E-02 | 51.97158   |

Instrument : CHAMBER 146  
 Detector : 72527  
 Standard ID : AESS-035  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 17-AUG-2009 10:06:56  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 15:12:19  
 Average Efficiency : 0.2487766  
 Average Efficiency Error : 6.8616522E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 198.6666 | 28-FEB-2010 | 2989.460   | 3301.164 | 14683.00 | 0.2497765 | 1.0741138E-02 | 52.75697   |
| NP-237     | 168.2934 | 28-FEB-2010 | 4435.288   | 4903.095 | 12451.00 | 0.2466013 | 1.2526580E-02 | 54.23803   |
| CM-244     | 158.8128 | 28-FEB-2010 | 5534.042   | 5884.573 | 11233.00 | 0.2496148 | 1.2701104E-02 | 51.22379   |

Instrument : CHAMBER 147  
 Detector : 75550  
 Standard ID : AESS-030  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 17-AUG-2009 10:07:03  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 15:12:37  
 Average Efficiency : 0.2470976  
 Average Efficiency Error : 7.2475495E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 198.9792 | 28-FEB-2010 | 2990.910   | 3299.539 | 14303.00 | 0.2429080 | 1.2314880E-02 | 46.94440   |
| NP-237     | 166.3758 | 28-FEB-2010 | 4433.251   | 4901.935 | 12590.00 | 0.2521924 | 1.2808450E-02 | 53.36894   |
| CM-244     | 157.1856 | 28-FEB-2010 | 5533.139   | 5883.368 | 10980.00 | 0.2465573 | 1.2550585E-02 | 53.24918   |

Instrument : CHAMBER 148  
 Detector : 74429  
 Standard ID : AESS-036  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 17-AUG-2009 10:07:10  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 15:12:57  
 Average Efficiency : 0.2480969  
 Average Efficiency Error : 6.8435837E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 201.3204 | 28-FEB-2010 | 2990.725   | 3298.446 | 14645.00 | 0.2458259 | 1.0571792E-02 | 53.02917   |
| NP-237     | 167.4312 | 28-FEB-2010 | 4436.496   | 4905.977 | 12647.00 | 0.2517435 | 1.2784752E-02 | 56.62496   |
| CM-244     | 156.4188 | 28-FEB-2010 | 5533.919   | 5885.716 | 10983.00 | 0.2477803 | 1.2612724E-02 | 51.14078   |

Instrument : CHAMBER 149  
 Detector : 33449  
 Standard ID : AESS-037  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 17-AUG-2009 09:46:49  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 15:02:09  
 Average Efficiency : 0.2465136  
 Average Efficiency Error : 6.8024271E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 197.7372 | 28-FEB-2010 | 2991.734   | 3299.272 | 14178.00 | 0.2423231 | 1.0427443E-02 | 68.70028   |
| NP-237     | 167.1294 | 28-FEB-2010 | 4437.371   | 4901.944 | 12533.00 | 0.2499420 | 1.2695006E-02 | 68.91545   |
| CM-244     | 154.7664 | 28-FEB-2010 | 5530.548   | 5882.851 | 10933.00 | 0.2492944 | 1.2690787E-02 | 65.41205   |

Instrument : CHAMBER 150  
 Detector : 75552  
 Standard ID : AESS-043  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 17-AUG-2009 09:47:06  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 15:02:19  
 Average Efficiency : 0.2486527  
 Average Efficiency Error : 6.8590841E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 197.7708 | 28-FEB-2010 | 2992.316   | 3300.643 | 14670.00 | 0.2506822 | 1.0780259E-02 | 53.31720   |
| NP-237     | 168.7422 | 28-FEB-2010 | 4435.415   | 4905.497 | 12565.00 | 0.2481675 | 1.2604410E-02 | 58.05605   |
| CM-244     | 156.3252 | 28-FEB-2010 | 5534.121   | 5886.240 | 10915.00 | 0.2463857 | 1.2543092E-02 | 53.10606   |

Instrument : CHAMBER 151  
 Detector : 75556  
 Standard ID : AESS-038  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 17-AUG-2009 09:47:22  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 15:02:29  
 Average Efficiency : 0.2450182  
 Average Efficiency Error : 6.7593171E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 200.1408 | 28-FEB-2010 | 2990.659   | 3302.040 | 14473.00 | 0.2443945 | 1.0512492E-02 | 52.21863   |
| NP-237     | 170.0886 | 28-FEB-2010 | 4434.623   | 4901.634 | 12448.00 | 0.2439277 | 1.2390838E-02 | 56.98894   |
| CM-244     | 157.7460 | 28-FEB-2010 | 5531.364   | 5886.469 | 11043.00 | 0.2470334 | 1.2573502E-02 | 57.42078   |



Instrument : CHAMBER 152  
 Detector : 76222  
 Standard ID : AESS-044  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 17-AUG-2009 09:47:27  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 15:02:41  
 Average Efficiency : 0.2490164  
 Average Efficiency Error : 6.8703890E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 194.4510 | 28-FEB-2010 | 2991.044   | 3297.777 | 14243.00 | 0.2475301 | 1.0650607E-02 | 47.08284   |
| NP-237     | 166.6248 | 28-FEB-2010 | 4437.300   | 4905.285 | 12419.00 | 0.2484124 | 1.2619114E-02 | 60.94747   |
| CM-244     | 155.8290 | 28-FEB-2010 | 5531.209   | 5887.199 | 11119.00 | 0.2517907 | 1.2814093E-02 | 54.11842   |

Instrument : CHAMBER 153  
 Detector : 76223  
 Standard ID : AESS-039  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 17-AUG-2009 09:47:33  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 15:02:59  
 Average Efficiency : 0.2519075  
 Average Efficiency Error : 6.9520962E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 192.2418 | 28-FEB-2010 | 2989.175   | 3301.127 | 14308.00 | 0.2515197 | 1.0821341E-02 | 47.18059   |
| NP-237     | 159.1506 | 28-FEB-2010 | 4437.148   | 4906.174 | 12220.00 | 0.2558792 | 1.3001786E-02 | 54.79121   |
| CM-244     | 151.7142 | 28-FEB-2010 | 5533.838   | 5885.640 | 10690.00 | 0.2486704 | 1.2664073E-02 | 49.37799   |

Instrument : CHAMBER 154  
 Detector : 76224  
 Standard ID : AESS-045  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 17-AUG-2009 09:47:38  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 15:03:12  
 Average Efficiency : 0.2559401  
 Average Efficiency Error : 7.0637148E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 186.9936 | 28-FEB-2010 | 2991.160   | 3298.663 | 14169.00 | 0.2560697 | 1.1019127E-02 | 49.27927   |
| NP-237     | 160.8066 | 28-FEB-2010 | 4435.792   | 4904.845 | 12224.00 | 0.2533519 | 1.2873255E-02 | 55.70718   |
| CM-244     | 145.8384 | 28-FEB-2010 | 5532.170   | 5883.602 | 10681.00 | 0.2584613 | 1.3162896E-02 | 52.40295   |

Instrument : CHAMBER 155  
 Detector : 75553  
 Standard ID : AESS-040  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 17-AUG-2009 09:47:43  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 15:03:49  
 Average Efficiency : 0.2604031  
 Average Efficiency Error : 7.1793078E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 194.4828 | 28-FEB-2010 | 2990.137   | 3299.574 | 15144.00 | 0.2631285 | 1.1309024E-02 | 51.70325   |
| NP-237     | 166.8174 | 28-FEB-2010 | 4433.383   | 4905.252 | 13025.00 | 0.2602106 | 1.3208893E-02 | 58.26657   |
| CM-244     | 155.0100 | 28-FEB-2010 | 5530.995   | 5884.485 | 11287.00 | 0.2569496 | 1.3073267E-02 | 54.09868   |

Instrument : CHAMBER 156  
 Detector : 75554  
 Standard ID : AESS-046  
 Standard Reference Date : 19-FEB-2008 19:35:48  
 Calibration Analysis Date/Time : 17-AUG-2009 09:47:48  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 15:03:58  
 Average Efficiency : 0.2478251  
 Average Efficiency Error : 6.8396293E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 194.7474 | 28-FEB-2010 | 2991.410   | 3301.423 | 14146.00 | 0.2454547 | 1.0562697E-02 | 50.29560   |
| NP-237     | 164.6658 | 28-FEB-2010 | 4436.034   | 4902.390 | 12227.00 | 0.2474083 | 1.2571326E-02 | 54.83716   |
| CM-244     | 151.3824 | 28-FEB-2010 | 5532.563   | 5885.336 | 10800.00 | 0.2517493 | 1.2818515E-02 | 50.76693   |

Instrument : CHAMBER 157  
 Detector : 75555  
 Standard ID : AESS-041  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 17-AUG-2009 09:47:53  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 15:04:07  
 Average Efficiency : 0.2459567  
 Average Efficiency Error : 6.7838337E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 203.9034 | 28-FEB-2010 | 2989.948   | 3299.042 | 14635.00 | 0.2425698 | 1.0431849E-02 | 49.95551   |
| NP-237     | 171.2268 | 28-FEB-2010 | 4436.337   | 4902.073 | 12880.00 | 0.2506870 | 1.2727586E-02 | 53.18868   |
| CM-244     | 159.5796 | 28-FEB-2010 | 5531.733   | 5884.378 | 11136.00 | 0.2462586 | 1.2532219E-02 | 53.03581   |

Instrument : CHAMBER 158  
 Detector : 33451  
 Standard ID : AESS-047  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 17-AUG-2009 09:47:59  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 15:04:18  
 Average Efficiency : 0.2470825  
 Average Efficiency Error : 6.8179565E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 197.4804 | 28-FEB-2010 | 2990.074   | 3301.013 | 14195.00 | 0.2429217 | 1.0452971E-02 | 65.65772   |
| NP-237     | 168.3948 | 28-FEB-2010 | 4435.907   | 4905.421 | 12486.00 | 0.2470921 | 1.2551059E-02 | 76.64585   |
| CM-244     | 154.6032 | 28-FEB-2010 | 5535.323   | 5885.904 | 11102.00 | 0.2534059 | 1.2896620E-02 | 68.27572   |

Instrument : CHAMBER 159  
 Detector : 76225  
 Standard ID : AESS-042  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 17-AUG-2009 09:48:04  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 15:04:28  
 Average Efficiency : 0.2536185  
 Average Efficiency Error : 6.9992472E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 188.7090 | 28-FEB-2010 | 2992.022   | 3301.502 | 14176.00 | 0.2538644 | 1.0924136E-02 | 47.45573   |
| NP-237     | 159.6558 | 28-FEB-2010 | 4435.853   | 4902.842 | 12186.00 | 0.2543722 | 1.2925758E-02 | 52.94994   |
| CM-244     | 150.5208 | 28-FEB-2010 | 5534.528   | 5883.086 | 10773.00 | 0.2525320 | 1.2859062E-02 | 52.36504   |

Instrument : CHAMBER 160  
 Detector : 76226  
 Standard ID : AESS-048  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 17-AUG-2009 09:48:09  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 15:04:40  
 Average Efficiency : 0.2450936  
 Average Efficiency Error : 6.7667966E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 191.8350 | 28-FEB-2010 | 2988.982   | 3298.890 | 13916.00 | 0.2451341 | 1.0552234E-02 | 50.78497   |
| NP-237     | 161.5530 | 28-FEB-2010 | 4434.439   | 4901.761 | 11957.00 | 0.2465858 | 1.2534058E-02 | 58.31113   |
| CM-244     | 151.1856 | 28-FEB-2010 | 5533.753   | 5882.414 | 10437.00 | 0.2435748 | 1.2410097E-02 | 52.51821   |

Instrument : CHAMBER 161  
 Detector : 70321  
 Standard ID : AESS-001  
 Standard Reference Date : 20-FEB-2008 09:54:53  
 Calibration Analysis Date/Time : 23-JUL-2009 08:06:57  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 23-JUL-2009 13:58:35  
 Average Efficiency : 0.3724494  
 Average Efficiency Error : 1.0217360E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 208.6698 | 28-FEB-2010 | 2989.000   | 3299.306 | 22090.00 | 0.3575253 | 1.5279296E-02 | 62.61223   |
| NP-237     | 171.0024 | 28-FEB-2010 | 4436.547   | 4904.892 | 19670.00 | 0.3833612 | 1.9362049E-02 | 79.92251   |
| CM-244     | 158.1060 | 28-FEB-2010 | 5532.420   | 5884.522 | 17328.00 | 0.3856982 | 1.9506300E-02 | 61.01914   |

Instrument : CHAMBER 162  
 Detector : 70323  
 Standard ID : AESS-007  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 3-AUG-2009 15:03:36  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 4-AUG-2009 07:05:59  
 Average Efficiency : 0.3711236  
 Average Efficiency Error : 1.0165478E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 206.7342 | 28-FEB-2010 | 2988.824   | 3300.295 | 22155.00 | 0.3620965 | 1.5474160E-02 | 57.26881   |
| NP-237     | 205.0260 | 28-FEB-2010 | 4433.927   | 4901.686 | 23319.00 | 0.3791083 | 1.9117314E-02 | 71.55396   |
| CM-244     | 199.6806 | 28-FEB-2010 | 5532.705   | 5883.340 | 21344.00 | 0.3768574 | 1.9018669E-02 | 56.37528   |

Instrument : CHAMBER 163  
 Detector : 70324  
 Standard ID : AESS-002  
 Standard Reference Date : 19-FEB-2008 11:05:22  
 Calibration Analysis Date/Time : 23-JUL-2009 08:07:06  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 23-JUL-2009 13:58:54  
 Average Efficiency : 0.3824499  
 Average Efficiency Error : 1.0474509E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 200.1144 | 28-FEB-2010 | 2988.922   | 3300.358 | 22181.00 | 0.3743604 | 1.5997946E-02 | 60.90985   |
| NP-237     | 200.4990 | 28-FEB-2010 | 4435.910   | 4905.359 | 23404.00 | 0.3890015 | 1.9615676E-02 | 79.84089   |
| CM-244     | 196.5558 | 28-FEB-2010 | 5534.127   | 5886.809 | 21671.00 | 0.3880399 | 1.9580306E-02 | 54.00466   |

Instrument : CHAMBER 164  
 Detector : 70325  
 Standard ID : AESS-008  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 23-JUL-2009 08:07:11  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 23-JUL-2009 13:59:02  
 Average Efficiency : 0.3871453  
 Average Efficiency Error : 1.0598736E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 206.0418 | 28-FEB-2010 | 2991.018   | 3297.699 | 23119.00 | 0.3790087 | 1.6188504E-02 | 60.82843   |
| NP-237     | 209.2716 | 28-FEB-2010 | 4434.306   | 4904.250 | 24656.00 | 0.3926844 | 1.9792885E-02 | 74.00230   |
| CM-244     | 199.6488 | 28-FEB-2010 | 5533.729   | 5886.834 | 22328.00 | 0.3938190 | 1.9866610E-02 | 56.32586   |

Instrument : CHAMBER 165  
 Detector : 72544  
 Standard ID : AESS-003  
 Standard Reference Date : 15-FEB-2008 13:12:27  
 Calibration Analysis Date/Time : 23-JUL-2009 08:07:15  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 23-JUL-2009 13:59:11  
 Average Efficiency : 0.3820039  
 Average Efficiency Error : 1.0462373E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 202.9740 | 28-FEB-2010 | 2989.844   | 3302.139 | 22390.00 | 0.3726058 | 1.5921146E-02 | 65.20252   |
| NP-237     | 203.2080 | 28-FEB-2010 | 4434.670   | 4904.543 | 24014.00 | 0.3938612 | 1.9856445E-02 | 91.19821   |
| CM-244     | 197.2236 | 28-FEB-2010 | 5533.515   | 5886.135 | 21543.00 | 0.3846419 | 1.9409848E-02 | 65.46077   |

Instrument : CHAMBER 166  
 Detector : 74545  
 Standard ID : AESS-009  
 Standard Reference Date : 19-FEB-2008 11:05:22  
 Calibration Analysis Date/Time : 23-JUL-2009 08:07:19  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 23-JUL-2009 13:59:23  
 Average Efficiency : 0.3925092  
 Average Efficiency Error : 1.0746423E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 203.3736 | 28-FEB-2010 | 2989.919   | 3301.734 | 23062.00 | 0.3829970 | 1.6359299E-02 | 52.59587   |
| NP-237     | 204.0192 | 28-FEB-2010 | 4433.352   | 4903.208 | 24416.00 | 0.3988877 | 2.0107118E-02 | 75.96468   |
| CM-244     | 197.2128 | 28-FEB-2010 | 5532.473   | 5885.411 | 22446.00 | 0.4005800 | 2.0206742E-02 | 58.40631   |

Instrument : CHAMBER 167  
 Detector : 72546  
 Standard ID : AESS-004  
 Standard Reference Date : 14-FEB-2008 09:35:18  
 Calibration Analysis Date/Time : 23-JUL-2009 08:07:23  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 23-JUL-2009 13:59:32  
 Average Efficiency : 0.3888160  
 Average Efficiency Error : 1.0646137E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 206.1222 | 28-FEB-2010 | 2991.456   | 3297.909 | 23075.00 | 0.3781414 | 1.6151825E-02 | 58.07474   |
| NP-237     | 204.2586 | 28-FEB-2010 | 4433.461   | 4902.876 | 24396.00 | 0.3980886 | 2.0066978E-02 | 77.66827   |
| CM-244     | 198.8100 | 28-FEB-2010 | 5531.568   | 5884.192 | 22354.00 | 0.3959535 | 1.9974077E-02 | 59.99561   |

Instrument : CHAMBER 168  
 Detector : 72547  
 Standard ID : AESS-010  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 23-JUL-2009 08:07:28  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 23-JUL-2009 13:59:40  
 Average Efficiency : 0.3899174  
 Average Efficiency Error : 1.0677175E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 202.0008 | 28-FEB-2010 | 2990.191   | 3302.241 | 22715.00 | 0.3798450 | 1.6227633E-02 | 58.81176   |
| NP-237     | 202.9926 | 28-FEB-2010 | 4434.272   | 4904.107 | 24151.00 | 0.3965338 | 1.9990249E-02 | 77.71660   |
| CM-244     | 196.2330 | 28-FEB-2010 | 5533.178   | 5885.925 | 22217.00 | 0.3986928 | 2.0113347E-02 | 60.84048   |

Instrument : CHAMBER 169  
 Detector : 72548  
 Standard ID : AESS-005  
 Standard Reference Date : 14-FEB-2008 09:35:18  
 Calibration Analysis Date/Time : 3-AUG-2009 15:03:40  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 4-AUG-2009 07:06:12  
 Average Efficiency : 0.3776897  
 Average Efficiency Error : 1.0342728E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 210.7452 | 28-FEB-2010 | 2989.637   | 3301.388 | 22865.00 | 0.3665610 | 1.5658973E-02 | 55.40712   |
| NP-237     | 209.5938 | 28-FEB-2010 | 4432.422   | 4901.883 | 24233.00 | 0.3852773 | 1.9422315E-02 | 82.01970   |
| CM-244     | 202.7478 | 28-FEB-2010 | 5530.486   | 5882.987 | 22275.00 | 0.3873385 | 1.9540109E-02 | 60.16400   |

Instrument : CHAMBER 170  
 Detector : 72549  
 Standard ID : AESS-011  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 23-JUL-2009 08:07:36  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 23-JUL-2009 13:59:58  
 Average Efficiency : 0.3678014  
 Average Efficiency Error : 1.0071305E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 212.8284 | 28-FEB-2010 | 2991.026   | 3302.433 | 22648.00 | 0.3594523 | 1.5356976E-02 | 58.76050   |
| NP-237     | 214.4868 | 28-FEB-2010 | 4434.863   | 4906.064 | 24165.00 | 0.3755153 | 1.8930556E-02 | 77.34428   |
| CM-244     | 208.4184 | 28-FEB-2010 | 5532.657   | 5887.477 | 22059.00 | 0.3727079 | 1.8803651E-02 | 57.81808   |

Instrument : CHAMBER 171  
 Detector : 78260  
 Standard ID : AESS-006  
 Standard Reference Date : 14-FEB-2008 09:35:18  
 Calibration Analysis Date/Time : 23-JUL-2009 08:07:41  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 23-JUL-2009 14:00:07  
 Average Efficiency : 0.3837917  
 Average Efficiency Error : 1.0510301E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 203.6952 | 28-FEB-2010 | 2989.883   | 3301.923 | 22631.00 | 0.3752889 | 1.6033715E-02 | 57.49370   |
| NP-237     | 204.7038 | 28-FEB-2010 | 4434.363   | 4904.564 | 23668.00 | 0.3853487 | 1.9429620E-02 | 72.93391   |
| CM-244     | 195.0060 | 28-FEB-2010 | 5534.294   | 5887.494 | 21890.00 | 0.3953083 | 1.9945232E-02 | 55.35253   |

Instrument : CHAMBER 172  
 Detector : 78772  
 Standard ID : AESS-012  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 23-JUL-2009 08:07:46  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 23-JUL-2009 14:00:15  
 Average Efficiency : 0.3822835  
 Average Efficiency Error : 1.0466998E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 206.2200 | 28-FEB-2010 | 2990.947   | 3302.414 | 22849.00 | 0.3742635 | 1.5988056E-02 | 52.36660   |
| NP-237     | 205.8930 | 28-FEB-2010 | 4433.288   | 4903.064 | 24169.00 | 0.3912586 | 1.9724179E-02 | 72.41768   |
| CM-244     | 203.1954 | 28-FEB-2010 | 5532.422   | 5885.508 | 22239.00 | 0.3854235 | 1.9443754E-02 | 56.46907   |

Instrument : CHAMBER 173  
 Detector : 74431  
 Standard ID : AESS-013  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 22-JUL-2009 08:09:49  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 22-JUL-2009 14:12:56  
 Average Efficiency : 0.2623188  
 Average Efficiency Error : 7.2139227E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 203.6544 | 28-FEB-2010 | 2991.296   | 3300.266 | 16061.00 | 0.2663769 | 1.1436811E-02 | 50.38961   |
| NP-237     | 210.2526 | 28-FEB-2010 | 4436.390   | 4906.583 | 16403.00 | 0.2600285 | 1.3159030E-02 | 60.88579   |
| CM-244     | 201.9108 | 28-FEB-2010 | 5534.964   | 5886.757 | 14870.00 | 0.2592480 | 1.3135729E-02 | 54.15428   |

Instrument : CHAMBER 174  
 Detector : 74432  
 Standard ID : AESS-019  
 Standard Reference Date : 19-FEB-2008 11:05:22  
 Calibration Analysis Date/Time : 22-JUL-2009 08:09:54  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 22-JUL-2009 14:13:10  
 Average Efficiency : 0.2553943  
 Average Efficiency Error : 7.0305546E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 204.6468 | 28-FEB-2010 | 2990.955   | 3301.951 | 14943.00 | 0.2465975 | 1.0600956E-02 | 50.10695   |
| NP-237     | 202.9140 | 28-FEB-2010 | 4436.112   | 4905.743 | 16012.00 | 0.2629998 | 1.3313278E-02 | 60.55487   |
| CM-244     | 199.3140 | 28-FEB-2010 | 5531.741   | 5886.720 | 14821.00 | 0.2616092 | 1.3255978E-02 | 55.35811   |

Instrument : CHAMBER 175  
 Detector : 74433  
 Standard ID : AESS-014  
 Standard Reference Date : 19-FEB-2008 11:05:22  
 Calibration Analysis Date/Time : 22-JUL-2009 08:09:59  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 22-JUL-2009 14:13:33  
 Average Efficiency : 0.2539235  
 Average Efficiency Error : 6.9827326E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 214.7088 | 28-FEB-2010 | 2987.808   | 3301.771 | 16022.00 | 0.2520186 | 1.0820774E-02 | 50.17014   |
| NP-237     | 211.7160 | 28-FEB-2010 | 4437.598   | 4902.379 | 16148.00 | 0.2542258 | 1.2867783E-02 | 58.39753   |
| CM-244     | 207.3882 | 28-FEB-2010 | 5530.438   | 5887.378 | 15110.00 | 0.2563593 | 1.2986641E-02 | 52.37697   |



Instrument : CHAMBER 176  
 Detector : 74434  
 Standard ID : AESS-020  
 Standard Reference Date : 14-FEB-2008 21:55:55  
 Calibration Analysis Date/Time : 22-JUL-2009 08:10:03  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 22-JUL-2009 14:13:51  
 Average Efficiency : 0.2596514  
 Average Efficiency Error : 7.1437038E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 205.5870 | 28-FEB-2010 | 2988.124   | 3298.749 | 15474.00 | 0.2542223 | 1.0921958E-02 | 48.05445   |
| NP-237     | 203.4984 | 28-FEB-2010 | 4433.658   | 4904.539 | 16076.00 | 0.2633027 | 1.3327949E-02 | 56.64418   |
| CM-244     | 197.1096 | 28-FEB-2010 | 5533.031   | 5884.495 | 14789.00 | 0.2641215 | 1.3383611E-02 | 51.45706   |

Instrument : CHAMBER 177  
 Detector : 74435  
 Standard ID : AESS-015  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 22-JUL-2009 08:10:07  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 22-JUL-2009 14:14:02  
 Average Efficiency : 0.2685861  
 Average Efficiency Error : 7.3855612E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 204.0270 | 28-FEB-2010 | 2991.035   | 3300.055 | 16129.00 | 0.2670162 | 1.1463443E-02 | 46.17820   |
| NP-237     | 200.6460 | 28-FEB-2010 | 4436.061   | 4906.072 | 16230.00 | 0.2696093 | 1.3645601E-02 | 58.26474   |
| CM-244     | 195.9270 | 28-FEB-2010 | 5534.094   | 5885.629 | 15017.00 | 0.2697915 | 1.3668223E-02 | 52.64664   |

Instrument : CHAMBER 178  
 Detector : 74436  
 Standard ID : AESS-021  
 Standard Reference Date : 19-FEB-2008 15:31:52  
 Calibration Analysis Date/Time : 22-JUL-2009 08:10:12  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 22-JUL-2009 14:14:14  
 Average Efficiency : 0.2563734  
 Average Efficiency Error : 7.0544411E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 208.3608 | 28-FEB-2010 | 2992.331   | 3301.630 | 15324.00 | 0.2483911 | 1.0673227E-02 | 46.26046   |
| NP-237     | 210.1548 | 28-FEB-2010 | 4433.348   | 4903.642 | 16496.00 | 0.2615961 | 1.3237508E-02 | 57.60064   |
| CM-244     | 200.7390 | 28-FEB-2010 | 5531.998   | 5883.700 | 15038.00 | 0.2635517 | 1.3351870E-02 | 53.76401   |

Instrument : CHAMBER 179  
 Detector : 74437  
 Standard ID : AESS-016  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 22-JUL-2009 08:10:16  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 22-JUL-2009 14:14:24  
 Average Efficiency : 0.2654315  
 Average Efficiency Error : 7.3000593E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 204.0534 | 28-FEB-2010 | 2991.102   | 3300.165 | 15895.00 | 0.2631131 | 1.1298665E-02 | 48.51485   |
| NP-237     | 199.3962 | 28-FEB-2010 | 4436.443   | 4906.617 | 16075.00 | 0.2687030 | 1.3601316E-02 | 57.52364   |
| CM-244     | 198.6402 | 28-FEB-2010 | 5534.901   | 5886.605 | 14985.00 | 0.2655179 | 1.3452120E-02 | 51.10583   |

Instrument : CHAMBER 180  
 Detector : 74438  
 Standard ID : AESS-022  
 Standard Reference Date : 14-FEB-2008 21:55:55  
 Calibration Analysis Date/Time : 22-JUL-2009 08:10:21  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 22-JUL-2009 14:14:36  
 Average Efficiency : 0.2505249  
 Average Efficiency Error : 6.8937857E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 209.6724 | 28-FEB-2010 | 2988.611   | 3299.257 | 15266.00 | 0.2459229 | 1.0567908E-02 | 47.44321   |
| NP-237     | 206.8830 | 28-FEB-2010 | 4433.245   | 4903.299 | 15791.00 | 0.2543839 | 1.2879343E-02 | 51.57590   |
| CM-244     | 203.0208 | 28-FEB-2010 | 5535.594   | 5886.061 | 14621.00 | 0.2534862 | 1.2846692E-02 | 51.76523   |

Instrument : CHAMBER 181  
 Detector : 74439  
 Standard ID : AESS-017  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 22-JUL-2009 08:10:26  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 22-JUL-2009 14:14:47  
 Average Efficiency : 0.2548543  
 Average Efficiency Error : 7.0099598E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 210.0798 | 28-FEB-2010 | 2988.239   | 3301.914 | 15878.00 | 0.2552872 | 1.0962813E-02 | 48.35796   |
| NP-237     | 208.5846 | 28-FEB-2010 | 4437.080   | 4901.757 | 16198.00 | 0.2588415 | 1.3100917E-02 | 57.35833   |
| CM-244     | 205.5828 | 28-FEB-2010 | 5535.131   | 5886.836 | 14634.00 | 0.2505288 | 1.2696699E-02 | 51.18034   |

Instrument : CHAMBER 182  
 Detector : 74440  
 Standard ID : AESS-023  
 Standard Reference Date : 14-FEB-2008 21:55:55  
 Calibration Analysis Date/Time : 22-JUL-2009 08:10:30  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 22-JUL-2009 14:14:57  
 Average Efficiency : 0.2578707  
 Average Efficiency Error : 7.0930445E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 207.4764 | 28-FEB-2010 | 2991.998   | 3301.429 | 15699.00 | 0.2555752 | 1.0977317E-02 | 46.97070   |
| NP-237     | 207.4998 | 28-FEB-2010 | 4432.415   | 4901.861 | 16221.00 | 0.2605498 | 1.3187178E-02 | 56.46945   |
| CM-244     | 199.8804 | 28-FEB-2010 | 5533.907   | 5884.511 | 14682.00 | 0.2584959 | 1.3099929E-02 | 47.10158   |

Instrument : CHAMBER 183  
 Detector : 74441  
 Standard ID : AESS-018  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 22-JUL-2009 08:10:35  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 22-JUL-2009 14:15:07  
 Average Efficiency : 0.2636590  
 Average Efficiency Error : 7.2516296E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 202.1856 | 28-FEB-2010 | 2989.448   | 3298.556 | 16019.00 | 0.2676203 | 1.1490691E-02 | 47.36681   |
| NP-237     | 208.8990 | 28-FEB-2010 | 4434.882   | 4905.025 | 16143.00 | 0.2575647 | 1.3036844E-02 | 61.28753   |
| CM-244     | 198.1458 | 28-FEB-2010 | 5533.221   | 5884.854 | 14903.00 | 0.2647125 | 1.3412292E-02 | 54.17869   |

Instrument : CHAMBER 184  
 Detector : 74442  
 Standard ID : AESS-024  
 Standard Reference Date : 14-FEB-2008 21:55:55  
 Calibration Analysis Date/Time : 22-JUL-2009 08:10:39  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 22-JUL-2009 14:15:18  
 Average Efficiency : 0.2589915  
 Average Efficiency Error : 7.1259094E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 203.5218 | 28-FEB-2010 | 2989.235   | 3300.018 | 15286.00 | 0.2536818 | 1.0901084E-02 | 45.69374   |
| NP-237     | 205.6662 | 28-FEB-2010 | 4434.314   | 4904.409 | 16135.00 | 0.2614885 | 1.3235523E-02 | 58.78146   |
| CM-244     | 198.3060 | 28-FEB-2010 | 5531.386   | 5887.098 | 14902.00 | 0.2644547 | 1.3399277E-02 | 53.47013   |

Instrument : CHAMBER 185  
 Detector : 68615  
 Standard ID : AESS-025  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 22-JUL-2009 08:10:43  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 22-JUL-2009 14:15:30  
 Average Efficiency : 0.2565642  
 Average Efficiency Error : 7.0740697E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 195.5670 | 28-FEB-2010 | 2991.225   | 3297.857 | 15033.00 | 0.2596380 | 1.1160337E-02 | 55.72531   |
| NP-237     | 167.9916 | 28-FEB-2010 | 4436.385   | 4903.692 | 12852.00 | 0.2550071 | 1.2947261E-02 | 59.11316   |
| CM-244     | 157.2432 | 28-FEB-2010 | 5533.756   | 5883.696 | 11351.00 | 0.2539946 | 1.2921941E-02 | 56.16187   |

Instrument : CHAMBER 186  
 Detector : 68616  
 Standard ID : AESS-031  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 22-JUL-2009 08:10:48  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 22-JUL-2009 14:15:43  
 Average Efficiency : 0.2530972  
 Average Efficiency Error : 6.9825449E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 193.6650 | 28-FEB-2010 | 2991.440   | 3298.282 | 14435.00 | 0.2517332 | 1.0828621E-02 | 55.45393   |
| NP-237     | 162.9186 | 28-FEB-2010 | 4433.254   | 4901.541 | 12537.00 | 0.2565026 | 1.3028130E-02 | 59.45676   |
| CM-244     | 153.1968 | 28-FEB-2010 | 5533.251   | 5884.261 | 10964.00 | 0.2517129 | 1.2813604E-02 | 55.46026   |

Instrument : CHAMBER 187  
 Detector : 68620  
 Standard ID : AESS-026  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 22-JUL-2009 08:10:52  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 22-JUL-2009 14:15:58  
 Average Efficiency : 0.2501889  
 Average Efficiency Error : 7.3357723E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 199.5072 | 28-FEB-2010 | 2989.912   | 3299.166 | 15000.00 | 0.2539414 | 1.2865975E-02 | 52.23053   |
| NP-237     | 168.0294 | 28-FEB-2010 | 4432.442   | 4904.149 | 12738.00 | 0.2526287 | 1.2828344E-02 | 58.21870   |
| CM-244     | 160.5822 | 28-FEB-2010 | 5535.067   | 5883.156 | 11152.00 | 0.2443892 | 1.2436978E-02 | 54.57392   |

Instrument : CHAMBER 188  
 Detector : 68621  
 Standard ID : AESS-032  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 22-JUL-2009 08:10:57  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 22-JUL-2009 14:16:10  
 Average Efficiency : 0.2601093  
 Average Efficiency Error : 7.1711414E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 195.2364 | 28-FEB-2010 | 2988.283   | 3302.165 | 15025.00 | 0.2599137 | 1.1172294E-02 | 51.37601   |
| NP-237     | 165.9822 | 28-FEB-2010 | 4433.129   | 4903.527 | 12962.00 | 0.2602972 | 1.3214173E-02 | 62.37115   |
| CM-244     | 153.7938 | 28-FEB-2010 | 5532.390   | 5884.553 | 11377.00 | 0.2601953 | 1.3236898E-02 | 52.05467   |

Instrument : CHAMBER 189  
 Detector : 68622  
 Standard ID : AESS-027  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 22-JUL-2009 08:11:01  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 22-JUL-2009 14:16:25  
 Average Efficiency : 0.2590416  
 Average Efficiency Error : 7.5966278E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 193.4238 | 28-FEB-2010 | 2987.652   | 3299.552 | 14591.00 | 0.2547911 | 1.2913714E-02 | 51.68600   |
| NP-237     | 161.6154 | 28-FEB-2010 | 4434.579   | 4902.841 | 12573.00 | 0.2592825 | 1.3168799E-02 | 58.17202   |
| CM-244     | 148.1754 | 28-FEB-2010 | 5534.475   | 5885.420 | 11096.00 | 0.2633716 | 1.3404469E-02 | 50.36570   |

Instrument : CHAMBER 190  
 Detector : 68623  
 Standard ID : AESS-033  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 22-JUL-2009 08:11:06  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 22-JUL-2009 14:16:38  
 Average Efficiency : 0.2606415  
 Average Efficiency Error : 7.1893386E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 192.4158 | 28-FEB-2010 | 2989.900   | 3302.388 | 14653.00 | 0.2571782 | 1.1059794E-02 | 51.45757   |
| NP-237     | 161.7816 | 28-FEB-2010 | 4434.198   | 4903.145 | 12826.00 | 0.2641300 | 1.3411093E-02 | 58.05247   |
| CM-244     | 147.2670 | 28-FEB-2010 | 5535.637   | 5887.028 | 10980.00 | 0.2622307 | 1.3348678E-02 | 51.95362   |

Instrument : CHAMBER 191  
 Detector : 68624  
 Standard ID : AESS-028  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 22-JUL-2009 08:11:10  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 22-JUL-2009 14:17:15  
 Average Efficiency : 0.2621158  
 Average Efficiency Error : 7.6803956E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 199.6542 | 28-FEB-2010 | 2988.514   | 3302.389 | 15421.00 | 0.2608921 | 1.3213424E-02 | 48.76201   |
| NP-237     | 168.1992 | 28-FEB-2010 | 4435.396   | 4902.283 | 13449.00 | 0.2665235 | 1.3522904E-02 | 61.15327   |
| CM-244     | 156.7614 | 28-FEB-2010 | 5534.230   | 5883.124 | 11542.00 | 0.2591464 | 1.3180151E-02 | 50.76146   |

Instrument : CHAMBER 192  
 Detector : 74430  
 Standard ID : AESS-034  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 22-JUL-2009 08:11:15  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 22-JUL-2009 14:17:47  
 Average Efficiency : 0.2610474  
 Average Efficiency Error : 7.1950918E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 200.5488 | 28-FEB-2010 | 2989.042   | 3298.270 | 15338.00 | 0.2583001 | 1.1098851E-02 | 47.63512   |
| NP-237     | 167.2962 | 28-FEB-2010 | 4436.778   | 4903.324 | 13156.00 | 0.2621002 | 1.3302793E-02 | 56.66595   |
| CM-244     | 154.4388 | 28-FEB-2010 | 5534.357   | 5882.529 | 11589.00 | 0.2639953 | 1.3425920E-02 | 46.57637   |

Instrument : CHAMBER 193  
 Detector : 68627  
 Standard ID : AESS-029  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 22-JUL-2009 08:11:19  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 22-JUL-2009 14:18:09  
 Average Efficiency : 0.2640715  
 Average Efficiency Error : 7.7369036E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 201.5742 | 28-FEB-2010 | 2988.069   | 3299.225 | 15508.00 | 0.2598549 | 1.3159974E-02 | 52.58962   |
| NP-237     | 169.7700 | 28-FEB-2010 | 4433.121   | 4901.609 | 13394.00 | 0.2629541 | 1.3342631E-02 | 58.77226   |
| CM-244     | 154.8234 | 28-FEB-2010 | 5534.158   | 5885.907 | 11872.00 | 0.2698340 | 1.3717437E-02 | 53.66179   |

Instrument : CHAMBER 194  
 Detector : 68635  
 Standard ID : AESS-035  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 22-JUL-2009 08:11:24  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 22-JUL-2009 14:18:45  
 Average Efficiency : 0.2549567  
 Average Efficiency Error : 7.0293345E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 198.6666 | 28-FEB-2010 | 2988.572   | 3300.603 | 15135.00 | 0.2573063 | 1.1058749E-02 | 49.25695   |
| NP-237     | 168.2934 | 28-FEB-2010 | 4436.435   | 4905.175 | 12918.00 | 0.2558570 | 1.2989412E-02 | 62.01285   |
| CM-244     | 158.8128 | 28-FEB-2010 | 5532.274   | 5883.671 | 11329.00 | 0.2509550 | 1.2767645E-02 | 52.44061   |

Instrument : CHAMBER 195  
 Detector : 68636  
 Standard ID : AESS-030  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 22-JUL-2009 08:11:29  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 22-JUL-2009 14:19:31  
 Average Efficiency : 0.2573034  
 Average Efficiency Error : 7.5419121E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 198.9792 | 28-FEB-2010 | 2988.629   | 3301.408 | 14891.00 | 0.2527547 | 1.2807086E-02 | 48.20201   |
| NP-237     | 166.3758 | 28-FEB-2010 | 4433.877   | 4902.925 | 13025.00 | 0.2606431 | 1.3231294E-02 | 57.67042   |
| CM-244     | 157.1856 | 28-FEB-2010 | 5535.397   | 5886.705 | 11566.00 | 0.2588032 | 1.3162592E-02 | 51.27964   |

Instrument : CHAMBER 196  
 Detector : 68637  
 Standard ID : AESS-036  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 22-JUL-2009 08:11:34  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 22-JUL-2009 14:19:51  
 Average Efficiency : 0.2566788  
 Average Efficiency Error : 7.0757568E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 201.3204 | 28-FEB-2010 | 2990.343   | 3302.501 | 15220.00 | 0.2553304 | 1.0972751E-02 | 52.52193   |
| NP-237     | 167.4312 | 28-FEB-2010 | 4433.338   | 4901.979 | 12956.00 | 0.2579251 | 1.3093841E-02 | 56.52662   |
| CM-244     | 156.4188 | 28-FEB-2010 | 5534.144   | 5885.395 | 11442.00 | 0.2573523 | 1.3090876E-02 | 54.16713   |

Instrument : CHAMBER 197  
 Detector : 78894  
 Standard ID : AESS-037  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 23-JUL-2009 07:57:39  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 23-JUL-2009 14:00:24  
 Average Efficiency : 0.2568228  
 Average Efficiency Error : 7.0815496E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 197.7372 | 28-FEB-2010 | 2989.389   | 3297.669 | 14834.00 | 0.2533745 | 1.0893730E-02 | 54.12946   |
| NP-237     | 167.1294 | 28-FEB-2010 | 4433.236   | 4904.076 | 13081.00 | 0.2608898 | 1.3242440E-02 | 59.82949   |
| CM-244     | 154.7664 | 28-FEB-2010 | 5534.086   | 5887.165 | 11341.00 | 0.2578318 | 1.3117233E-02 | 57.39178   |

Instrument : CHAMBER 198  
 Detector : 78895  
 Standard ID : AESS-043  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 23-JUL-2009 07:57:47  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 23-JUL-2009 14:00:36  
 Average Efficiency : 0.2554221  
 Average Efficiency Error : 7.0427968E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 197.7708 | 28-FEB-2010 | 2989.288   | 3302.314 | 14813.00 | 0.2529756 | 1.0876846E-02 | 54.48853   |
| NP-237     | 168.7422 | 28-FEB-2010 | 4436.287   | 4906.224 | 13147.00 | 0.2597000 | 1.3181067E-02 | 56.83169   |
| CM-244     | 156.3252 | 28-FEB-2010 | 5534.818   | 5887.000 | 11318.00 | 0.2547599 | 1.2961345E-02 | 56.23568   |

Instrument : CHAMBER 199  
 Detector : 78896  
 Standard ID : AESS-038  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 23-JUL-2009 07:57:56  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 23-JUL-2009 14:00:47  
 Average Efficiency : 0.2512973  
 Average Efficiency Error : 6.9297734E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 200.1408 | 28-FEB-2010 | 2990.202   | 3299.048 | 14855.00 | 0.2506810 | 1.0777651E-02 | 51.46595   |
| NP-237     | 170.0886 | 28-FEB-2010 | 4435.598   | 4906.357 | 12647.00 | 0.2478395 | 1.2586436E-02 | 58.09747   |
| CM-244     | 157.7460 | 28-FEB-2010 | 5530.513   | 5883.049 | 11473.00 | 0.2558941 | 1.3016121E-02 | 53.79463   |



Instrument : CHAMBER 200  
 Detector : 78900  
 Standard ID : AESS-044  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 23-JUL-2009 07:58:04  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 23-JUL-2009 14:00:57  
 Average Efficiency : 0.2672527  
 Average Efficiency Error : 7.3646023E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 194.4510 | 28-FEB-2010 | 2989.598   | 3302.306 | 15546.00 | 0.2700108 | 1.1599314E-02 | 51.74545   |
| NP-237     | 166.6248 | 28-FEB-2010 | 4436.820   | 4902.466 | 13287.00 | 0.2657169 | 1.3484498E-02 | 57.34525   |
| CM-244     | 155.8290 | 28-FEB-2010 | 5532.933   | 5886.480 | 11743.00 | 0.2650634 | 1.3477416E-02 | 51.61598   |

Instrument : CHAMBER 201  
 Detector : 78902  
 Standard ID : AESS-039  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 23-JUL-2009 07:58:10  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 23-JUL-2009 14:01:05  
 Average Efficiency : 0.2606938  
 Average Efficiency Error : 7.1896687E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 192.2418 | 28-FEB-2010 | 2989.239   | 3302.324 | 14811.00 | 0.2602134 | 1.1188080E-02 | 47.14003   |
| NP-237     | 159.1506 | 28-FEB-2010 | 4432.525   | 4903.539 | 12448.00 | 0.2606924 | 1.3242436E-02 | 55.19216   |
| CM-244     | 151.7142 | 28-FEB-2010 | 5534.042   | 5887.523 | 11271.00 | 0.2613738 | 1.3298883E-02 | 50.86152   |

Instrument : CHAMBER 202  
 Detector : 78903  
 Standard ID : AESS-045  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 23-JUL-2009 07:58:17  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 23-JUL-2009 14:01:14  
 Average Efficiency : 0.2637661  
 Average Efficiency Error : 7.2755860E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 186.9936 | 28-FEB-2010 | 2988.965   | 3301.750 | 14586.00 | 0.2634446 | 1.1330210E-02 | 45.61659   |
| NP-237     | 160.8066 | 28-FEB-2010 | 4435.262   | 4905.190 | 12706.00 | 0.2633806 | 1.3374711E-02 | 55.61831   |
| CM-244     | 145.8384 | 28-FEB-2010 | 5533.929   | 5886.269 | 10972.00 | 0.2646115 | 1.3470060E-02 | 49.12627   |

Instrument : CHAMBER 203  
 Detector : 78905  
 Standard ID : AESS-040  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 23-JUL-2009 07:58:24  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 23-JUL-2009 14:01:22  
 Average Efficiency : 0.2569410  
 Average Efficiency Error : 7.0852954E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 194.4828 | 28-FEB-2010 | 2990.960   | 3299.739 | 14972.00 | 0.2599902 | 1.1176325E-02 | 44.74440   |
| NP-237     | 166.8174 | 28-FEB-2010 | 4435.540   | 4905.766 | 12710.00 | 0.2539164 | 1.2894144E-02 | 57.74120   |
| CM-244     | 155.0100 | 28-FEB-2010 | 5534.337   | 5886.308 | 11275.00 | 0.2558869 | 1.3019669E-02 | 47.66172   |

Instrument : CHAMBER 204  
 Detector : 78907  
 Standard ID : AESS-046  
 Standard Reference Date : 19-FEB-2008 19:35:48  
 Calibration Analysis Date/Time : 23-JUL-2009 07:58:28  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 23-JUL-2009 14:01:31  
 Average Efficiency : 0.2506487  
 Average Efficiency Error : 6.9159763E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 194.7474 | 28-FEB-2010 | 2989.953   | 3297.878 | 14336.00 | 0.2485577 | 1.0693511E-02 | 50.84674   |
| NP-237     | 164.6658 | 28-FEB-2010 | 4437.339   | 4902.439 | 12528.00 | 0.2535195 | 1.2876903E-02 | 55.89592   |
| CM-244     | 151.3824 | 28-FEB-2010 | 5531.727   | 5884.400 | 10796.00 | 0.2508073 | 1.2771029E-02 | 51.62991   |

Instrument : CHAMBER 205  
 Detector : 78908  
 Standard ID : AESS-041  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 23-JUL-2009 07:58:33  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 23-JUL-2009 14:01:40  
 Average Efficiency : 0.2503343  
 Average Efficiency Error : 6.9021145E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 203.9034 | 28-FEB-2010 | 2991.664   | 3299.649 | 14924.00 | 0.2472031 | 1.0627222E-02 | 48.93098   |
| NP-237     | 171.2268 | 28-FEB-2010 | 4434.348   | 4904.923 | 13015.00 | 0.2533501 | 1.2860725E-02 | 61.87793   |
| CM-244     | 159.5796 | 28-FEB-2010 | 5534.662   | 5887.628 | 11424.00 | 0.2518927 | 1.2813480E-02 | 52.59251   |

Instrument : CHAMBER 206  
 Detector : 78909  
 Standard ID : AESS-047  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 23-JUL-2009 07:58:38  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 23-JUL-2009 14:01:49  
 Average Efficiency : 0.2562930  
 Average Efficiency Error : 7.0664333E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 197.4804 | 28-FEB-2010 | 2991.007   | 3298.921 | 15006.00 | 0.2566382 | 1.1031752E-02 | 49.35140   |
| NP-237     | 168.3948 | 28-FEB-2010 | 4432.777   | 4902.746 | 12926.00 | 0.2558552 | 1.2989211E-02 | 55.62066   |
| CM-244     | 154.6032 | 28-FEB-2010 | 5531.452   | 5883.730 | 11261.00 | 0.2562518 | 1.3038474E-02 | 55.87610   |

Instrument : CHAMBER 207  
 Detector : 78910  
 Standard ID : AESS-042  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 23-JUL-2009 07:58:42  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 23-JUL-2009 14:01:57  
 Average Efficiency : 0.2558556  
 Average Efficiency Error : 7.0599136E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 188.7090 | 28-FEB-2010 | 2988.143   | 3301.594 | 14367.00 | 0.2571380 | 1.1062090E-02 | 47.38946   |
| NP-237     | 159.6558 | 28-FEB-2010 | 4437.296   | 4902.779 | 12320.00 | 0.2572077 | 1.3067513E-02 | 57.42012   |
| CM-244     | 150.5208 | 28-FEB-2010 | 5532.449   | 5885.271 | 10817.00 | 0.2528071 | 1.2872322E-02 | 52.11042   |

Instrument : CHAMBER 208  
 Detector : 78911  
 Standard ID : AESS-048  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 23-JUL-2009 07:58:46  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 23-JUL-2009 14:02:06  
 Average Efficiency : 0.2527668  
 Average Efficiency Error : 6.9748992E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 191.8350 | 28-FEB-2010 | 2989.612   | 3298.165 | 14243.00 | 0.2507517 | 1.0789137E-02 | 50.79447   |
| NP-237     | 161.5530 | 28-FEB-2010 | 4434.097   | 4904.804 | 12430.00 | 0.2564567 | 1.3027546E-02 | 58.53157   |
| CM-244     | 151.1856 | 28-FEB-2010 | 5534.389   | 5887.108 | 10827.00 | 0.2520371 | 1.2832657E-02 | 54.35335   |

Instrument : CHAMBER 209  
 Detector : 79188  
 Standard ID : AESS-001  
 Standard Reference Date : 20-FEB-2008 09:54:53  
 Calibration Analysis Date/Time : 27-JUL-2009 11:47:13  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 13:59:46  
 Average Efficiency : 0.3720503  
 Average Efficiency Error : 1.0203380E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 208.6698 | 28-FEB-2010 | 2989.310   | 3300.226 | 22310.00 | 0.3611241 | 1.5431225E-02 | 61.07782   |
| NP-237     | 171.0024 | 28-FEB-2010 | 4435.667   | 4905.853 | 19559.00 | 0.3812561 | 1.9256754E-02 | 78.47396   |
| CM-244     | 158.1060 | 28-FEB-2010 | 5530.947   | 5884.845 | 17057.00 | 0.3798239 | 1.9212671E-02 | 62.16251   |

Instrument : CHAMBER 210  
 Detector : 79189  
 Standard ID : AESS-002  
 Standard Reference Date : 19-FEB-2008 11:05:22  
 Calibration Analysis Date/Time : 27-JUL-2009 11:47:19  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 13:59:55  
 Average Efficiency : 0.3939427  
 Average Efficiency Error : 1.0785731E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 200.1144 | 28-FEB-2010 | 2990.620   | 3297.977 | 22918.00 | 0.3868399 | 1.6524704E-02 | 56.73992   |
| NP-237     | 200.4990 | 28-FEB-2010 | 4435.731   | 4905.552 | 24207.00 | 0.4024462 | 2.0287881E-02 | 74.58759   |
| CM-244     | 196.5558 | 28-FEB-2010 | 5534.352   | 5886.824 | 22110.00 | 0.3960794 | 1.9982373E-02 | 58.11366   |

Instrument : CHAMBER 211  
 Detector : 79190  
 Standard ID : AESS-003  
 Standard Reference Date : 15-FEB-2008 13:12:27  
 Calibration Analysis Date/Time : 27-JUL-2009 11:47:25  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:00:03  
 Average Efficiency : 0.3799735  
 Average Efficiency Error : 1.0408110E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 202.9740 | 28-FEB-2010 | 2988.121   | 3301.259 | 22155.00 | 0.3687188 | 1.5757136E-02 | 56.93997   |
| NP-237     | 203.2080 | 28-FEB-2010 | 4436.737   | 4902.524 | 23738.00 | 0.3893826 | 1.9632483E-02 | 71.62598   |
| CM-244     | 197.2236 | 28-FEB-2010 | 5532.952   | 5886.368 | 21725.00 | 0.3879907 | 1.9577414E-02 | 62.12684   |

Instrument : CHAMBER 212  
 Detector : 79191  
 Standard ID : AESS-004  
 Standard Reference Date : 14-FEB-2008 09:35:18  
 Calibration Analysis Date/Time : 27-JUL-2009 11:47:32  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:00:11  
 Average Efficiency : 0.3809828  
 Average Efficiency Error : 1.0432592E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 206.1222 | 28-FEB-2010 | 2989.135   | 3301.447 | 22739.00 | 0.3726791 | 1.5921319E-02 | 60.42460   |
| NP-237     | 204.2586 | 28-FEB-2010 | 4434.433   | 4904.665 | 23808.00 | 0.3885271 | 1.9588865E-02 | 78.17927   |
| CM-244     | 198.8100 | 28-FEB-2010 | 5534.267   | 5887.313 | 21781.00 | 0.3859496 | 1.9473951E-02 | 58.94521   |

Instrument : CHAMBER 213  
 Detector : 79192  
 Standard ID : AESS-005  
 Standard Reference Date : 14-FEB-2008 09:35:18  
 Calibration Analysis Date/Time : 27-JUL-2009 11:47:39  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:00:20  
 Average Efficiency : 0.3632684  
 Average Efficiency Error : 9.9503463E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 210.7452 | 28-FEB-2010 | 2990.470   | 3298.036 | 22131.00 | 0.3547624 | 1.5160903E-02 | 63.50857   |
| NP-237     | 209.5938 | 28-FEB-2010 | 4436.689   | 4901.687 | 23169.00 | 0.3684698 | 1.8581852E-02 | 80.13203   |
| CM-244     | 202.7478 | 28-FEB-2010 | 5531.037   | 5883.842 | 21347.00 | 0.3709584 | 1.8720919E-02 | 62.77599   |

Instrument : CHAMBER 214  
 Detector : 79193  
 Standard ID : AESS-006  
 Standard Reference Date : 14-FEB-2008 09:35:18  
 Calibration Analysis Date/Time : 27-JUL-2009 11:47:45  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:00:29  
 Average Efficiency : 0.3836091  
 Average Efficiency Error : 1.0504629E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 203.6952 | 28-FEB-2010 | 2990.553   | 3297.788 | 22693.00 | 0.3763517 | 1.6078612E-02 | 56.27348   |
| NP-237     | 204.7038 | 28-FEB-2010 | 4436.227   | 4901.574 | 23647.00 | 0.3850555 | 1.9414932E-02 | 74.54285   |
| CM-244     | 195.0060 | 28-FEB-2010 | 5531.780   | 5885.252 | 21759.00 | 0.3931459 | 1.9837169E-02 | 56.86452   |

Instrument : CHAMBER 215  
 Detector : 79194  
 Standard ID : AESS-007  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 27-JUL-2009 11:47:51  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:00:38  
 Average Efficiency : 0.3803512  
 Average Efficiency Error : 1.0415906E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 206.7342 | 28-FEB-2010 | 2989.364   | 3302.121 | 22674.00 | 0.3705170 | 1.5829490E-02 | 58.59007   |
| NP-237     | 205.0260 | 28-FEB-2010 | 4437.186   | 4903.222 | 23893.00 | 0.3884499 | 1.9584402E-02 | 72.67680   |
| CM-244     | 199.6806 | 28-FEB-2010 | 5534.359   | 5882.968 | 21950.00 | 0.3872738 | 1.9539375E-02 | 61.41080   |

Instrument : CHAMBER 216  
 Detector : 79195  
 Standard ID : AESS-008  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 27-JUL-2009 11:47:57  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:00:46  
 Average Efficiency : 0.3731616  
 Average Efficiency Error : 1.0220583E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 206.0418 | 28-FEB-2010 | 2990.730   | 3302.451 | 22182.00 | 0.3636904 | 1.5542008E-02 | 60.14384   |
| NP-237     | 209.2716 | 28-FEB-2010 | 4434.761   | 4905.361 | 23781.00 | 0.3787806 | 1.9097654E-02 | 75.39853   |
| CM-244     | 199.6488 | 28-FEB-2010 | 5530.680   | 5884.547 | 21648.00 | 0.3820059 | 1.9275997E-02 | 60.78160   |

Instrument : CHAMBER 217  
 Detector : 79410  
 Standard ID : AESS-009  
 Standard Reference Date : 19-FEB-2008 11:05:22  
 Calibration Analysis Date/Time : 27-JUL-2009 11:48:04  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:00:55  
 Average Efficiency : 0.3778184  
 Average Efficiency Error : 1.0346431E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 203.3736 | 28-FEB-2010 | 2988.264   | 3300.395 | 22447.00 | 0.3728177 | 1.5929710E-02 | 59.20551   |
| NP-237     | 204.0192 | 28-FEB-2010 | 4433.666   | 4904.432 | 23270.00 | 0.3801880 | 1.9172091E-02 | 76.02460   |
| CM-244     | 197.2128 | 28-FEB-2010 | 5535.108   | 5883.550 | 21438.00 | 0.3827657 | 1.9316062E-02 | 61.20031   |

Instrument : CHAMBER 218  
 Detector : 79411  
 Standard ID : AESS-010  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 27-JUL-2009 11:48:10  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:01:03  
 Average Efficiency : 0.3940997  
 Average Efficiency Error : 1.0791861E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 202.0008 | 28-FEB-2010 | 2991.480   | 3299.092 | 22843.00 | 0.3820206 | 1.6319500E-02 | 60.57081   |
| NP-237     | 202.9926 | 28-FEB-2010 | 4433.463   | 4904.366 | 24456.00 | 0.4015617 | 2.0241646E-02 | 78.79704   |
| CM-244     | 196.2330 | 28-FEB-2010 | 5534.949   | 5883.207 | 22582.00 | 0.4054522 | 2.0451389E-02 | 60.53443   |

Instrument : CHAMBER 219  
 Detector : 79412  
 Standard ID : AESS-011  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 27-JUL-2009 11:48:16  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:01:48  
 Average Efficiency : 0.3662424  
 Average Efficiency Error : 1.0028155E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 212.8284 | 28-FEB-2010 | 2991.558   | 3298.478 | 22686.00 | 0.3600933 | 1.5384067E-02 | 58.88719   |
| NP-237     | 214.4868 | 28-FEB-2010 | 4436.677   | 4902.329 | 24003.00 | 0.3730206 | 1.8805804E-02 | 79.43044   |
| CM-244     | 208.4184 | 28-FEB-2010 | 5533.300   | 5887.374 | 21804.00 | 0.3685999 | 1.8598294E-02 | 60.23553   |

Instrument : CHAMBER 220  
 Detector : 79413  
 Standard ID : AESS-012  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 27-JUL-2009 11:48:23  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:02:00  
 Average Efficiency : 0.3800345  
 Average Efficiency Error : 1.0404716E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 206.2200 | 28-FEB-2010 | 2990.238   | 3297.635 | 22946.00 | 0.3758968 | 1.6057028E-02 | 61.95944   |
| NP-237     | 205.8930 | 28-FEB-2010 | 4436.067   | 4906.404 | 23867.00 | 0.3863981 | 1.9481128E-02 | 76.81815   |
| CM-244     | 203.1954 | 28-FEB-2010 | 5530.768   | 5883.799 | 21903.00 | 0.3797704 | 1.9161157E-02 | 61.74461   |

Instrument : CHAMBER 221  
 Detector : 79414  
 Standard ID : AESS-013  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 27-JUL-2009 11:48:29  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:02:09  
 Average Efficiency : 0.3757081  
 Average Efficiency Error : 1.0287202E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 203.6544 | 28-FEB-2010 | 2988.031   | 3301.906 | 22489.00 | 0.3730499 | 1.5939282E-02 | 52.97857   |
| NP-237     | 210.2526 | 28-FEB-2010 | 4434.520   | 4906.347 | 23758.00 | 0.3766535 | 1.8990556E-02 | 73.94412   |
| CM-244     | 201.9108 | 28-FEB-2010 | 5532.427   | 5886.301 | 21697.00 | 0.3785694 | 1.9102205E-02 | 60.49401   |

Instrument : CHAMBER 222  
 Detector : 79415  
 Standard ID : AESS-014  
 Standard Reference Date : 19-FEB-2008 11:05:22  
 Calibration Analysis Date/Time : 27-JUL-2009 11:48:37  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:02:19  
 Average Efficiency : 0.3486046  
 Average Efficiency Error : 9.5541952E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 214.7088 | 28-FEB-2010 | 2988.828   | 3299.834 | 21348.00 | 0.3358505 | 1.4359185E-02 | 53.28439   |
| NP-237     | 211.7160 | 28-FEB-2010 | 4436.567   | 4903.132 | 22784.00 | 0.3587198 | 1.8092748E-02 | 75.86924   |
| CM-244     | 207.3882 | 28-FEB-2010 | 5532.999   | 5885.314 | 21129.00 | 0.3587538 | 1.8106727E-02 | 62.25880   |

Instrument : CHAMBER 223  
 Detector : 79416  
 Standard ID : AESS-015  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 27-JUL-2009 11:48:43  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:02:29  
 Average Efficiency : 0.3842350  
 Average Efficiency Error : 1.0522764E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 204.0270 | 28-FEB-2010 | 2988.719   | 3302.203 | 22642.00 | 0.3749019 | 1.6017098E-02 | 52.37010   |
| NP-237     | 200.6460 | 28-FEB-2010 | 4434.717   | 4901.802 | 23720.00 | 0.3940558 | 1.9868227E-02 | 70.08206   |
| CM-244     | 195.9270 | 28-FEB-2010 | 5534.370   | 5883.775 | 21616.00 | 0.3886585 | 1.9611971E-02 | 55.34917   |



Instrument : CHAMBER 224  
 Detector : 79417  
 Standard ID : AESS-016  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 27-JUL-2009 11:48:51  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:02:37  
 Average Efficiency : 0.3844876  
 Average Efficiency Error : 1.0532029E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 204.0534 | 28-FEB-2010 | 2991.902   | 3302.451 | 22483.00 | 0.3722161 | 1.5903715E-02 | 55.77303   |
| NP-237     | 199.3962 | 28-FEB-2010 | 4433.496   | 4905.621 | 23986.00 | 0.4009725 | 2.0215105E-02 | 74.29817   |
| CM-244     | 198.6402 | 28-FEB-2010 | 5531.081   | 5884.107 | 21855.00 | 0.3876156 | 1.9557375E-02 | 62.08027   |

Instrument : CHAMBER 225  
 Detector : 79418  
 Standard ID : AESS-017  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 27-JUL-2009 11:48:57  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:02:46  
 Average Efficiency : 0.3784786  
 Average Efficiency Error : 1.0361850E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 210.0798 | 28-FEB-2010 | 2989.698   | 3301.928 | 23097.00 | 0.3714026 | 1.5863828E-02 | 56.57831   |
| NP-237     | 208.5846 | 28-FEB-2010 | 4436.047   | 4902.115 | 24170.00 | 0.3862496 | 1.9471634E-02 | 72.01178   |
| CM-244     | 205.5828 | 28-FEB-2010 | 5533.662   | 5882.674 | 22249.00 | 0.3812986 | 1.9235564E-02 | 61.39241   |

Instrument : CHAMBER 226  
 Detector : 79419  
 Standard ID : AESS-018  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 27-JUL-2009 11:49:04  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:02:55  
 Average Efficiency : 0.3808596  
 Average Efficiency Error : 1.0428368E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 202.1856 | 28-FEB-2010 | 2990.229   | 3299.048 | 22549.00 | 0.3767624 | 1.6097387E-02 | 54.38462   |
| NP-237     | 208.8990 | 28-FEB-2010 | 4436.278   | 4902.399 | 23852.00 | 0.3805940 | 1.9188609E-02 | 81.14477   |
| CM-244     | 198.1458 | 28-FEB-2010 | 5532.943   | 5886.259 | 21774.00 | 0.3871692 | 1.9535474E-02 | 57.36676   |

Instrument : CHAMBER 227  
 Detector : 79420  
 Standard ID : AESS-019  
 Standard Reference Date : 19-FEB-2008 11:05:22  
 Calibration Analysis Date/Time : 27-JUL-2009 11:49:10  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:03:04  
 Average Efficiency : 0.3843335  
 Average Efficiency Error : 1.0524626E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 204.6468 | 28-FEB-2010 | 2988.495   | 3300.898 | 22690.00 | 0.3745091 | 1.5999891E-02 | 56.91222   |
| NP-237     | 202.9140 | 28-FEB-2010 | 4435.132   | 4906.286 | 23781.00 | 0.3906433 | 1.9695761E-02 | 72.78109   |
| CM-244     | 199.3140 | 28-FEB-2010 | 5532.133   | 5886.196 | 22245.00 | 0.3930259 | 1.9827209E-02 | 61.27127   |

Instrument : CHAMBER 228  
 Detector : 79421  
 Standard ID : AESS-020  
 Standard Reference Date : 14-FEB-2008 21:55:55  
 Calibration Analysis Date/Time : 27-JUL-2009 11:49:16  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:03:13  
 Average Efficiency : 0.3819269  
 Average Efficiency Error : 1.0460673E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 205.5870 | 28-FEB-2010 | 2990.613   | 3298.829 | 22551.00 | 0.3705553 | 1.5832171E-02 | 51.70354   |
| NP-237     | 203.4984 | 28-FEB-2010 | 4434.639   | 4905.792 | 23625.00 | 0.3869812 | 1.9512173E-02 | 70.48917   |
| CM-244     | 197.1096 | 28-FEB-2010 | 5531.072   | 5884.538 | 22079.00 | 0.3946491 | 1.9910410E-02 | 54.39862   |

Instrument : CHAMBER 229  
 Detector : 79422  
 Standard ID : AESS-021  
 Standard Reference Date : 19-FEB-2008 15:31:52  
 Calibration Analysis Date/Time : 27-JUL-2009 11:49:22  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:03:22  
 Average Efficiency : 0.3798401  
 Average Efficiency Error : 1.0399979E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 208.3608 | 28-FEB-2010 | 2990.805   | 3298.464 | 23010.00 | 0.3730097 | 1.5933167E-02 | 54.32673   |
| NP-237     | 210.1548 | 28-FEB-2010 | 4434.226   | 4906.242 | 23918.00 | 0.3793714 | 1.9126525E-02 | 69.91097   |
| CM-244     | 200.7390 | 28-FEB-2010 | 5533.427   | 5882.943 | 22277.00 | 0.3907950 | 1.9714409E-02 | 60.50524   |

Instrument : CHAMBER 230  
 Detector : 79423  
 Standard ID : AESS-022  
 Standard Reference Date : 14-FEB-2008 21:55:55  
 Calibration Analysis Date/Time : 27-JUL-2009 11:49:29  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:03:31  
 Average Efficiency : 0.3762562  
 Average Efficiency Error : 1.0304146E-02  
 Confidence : 95.00000

| Cal. Isteps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|-------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148      | 209.6724 | 28-FEB-2010 | 2989.308   | 3297.622 | 22698.00 | 0.3656987 | 1.5623449E-02 | 50.65837   |
| NP-237      | 206.8830 | 28-FEB-2010 | 4433.975   | 4905.433 | 24027.00 | 0.3871273 | 1.9516820E-02 | 69.68443   |
| CM-244      | 203.0208 | 28-FEB-2010 | 5531.188   | 5884.956 | 21996.00 | 0.3817128 | 1.9258413E-02 | 56.82364   |

Instrument : CHAMBER 231  
 Detector : 79424  
 Standard ID : AESS-023  
 Standard Reference Date : 14-FEB-2008 21:55:55  
 Calibration Analysis Date/Time : 27-JUL-2009 11:49:35  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:03:40  
 Average Efficiency : 0.3847702  
 Average Efficiency Error : 1.0534914E-02  
 Confidence : 95.00000

| Cal. Isteps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|-------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148      | 207.4764 | 28-FEB-2010 | 2990.586   | 3298.189 | 23057.00 | 0.3754197 | 1.6035730E-02 | 56.58625   |
| NP-237      | 207.4998 | 28-FEB-2010 | 4432.432   | 4903.240 | 24264.00 | 0.3897645 | 1.9648222E-02 | 77.05042   |
| CM-244      | 199.8804 | 28-FEB-2010 | 5533.660   | 5887.186 | 22354.00 | 0.3940257 | 1.9876782E-02 | 61.75343   |

Instrument : CHAMBER 232  
 Detector : 79425  
 Standard ID : AESS-024  
 Standard Reference Date : 14-FEB-2008 21:55:55  
 Calibration Analysis Date/Time : 27-JUL-2009 11:49:42  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:03:48  
 Average Efficiency : 0.3748871  
 Average Efficiency Error : 1.0271599E-02  
 Confidence : 95.00000

| Cal. Isteps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|-------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148      | 203.5218 | 28-FEB-2010 | 2989.229   | 3299.258 | 21761.00 | 0.3612023 | 1.5439365E-02 | 56.38522   |
| NP-237      | 205.6662 | 28-FEB-2010 | 4433.403   | 4904.597 | 23806.00 | 0.3858308 | 1.9452941E-02 | 74.06577   |
| CM-244      | 198.3060 | 28-FEB-2010 | 5534.062   | 5886.338 | 21708.00 | 0.3856767 | 1.9460704E-02 | 58.09093   |

Instrument : CHAMBER 233  
 Detector : 79426  
 Standard ID : AESS-025  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 27-JUL-2009 11:49:48  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:03:57  
 Average Efficiency : 0.3793921  
 Average Efficiency Error : 1.0403312E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 195.5670 | 28-FEB-2010 | 2989.053   | 3300.219 | 21850.00 | 0.3774274 | 1.6132066E-02 | 56.42078   |
| NP-237     | 167.9916 | 28-FEB-2010 | 4437.148   | 4902.933 | 19321.00 | 0.3833666 | 1.9365741E-02 | 74.45728   |
| CM-244     | 157.2432 | 28-FEB-2010 | 5534.654   | 5884.028 | 16885.00 | 0.3782761 | 1.9136583E-02 | 61.18657   |

Instrument : CHAMBER 234  
 Detector : 79427  
 Standard ID : AESS-026  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 27-JUL-2009 11:49:54  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:04:08  
 Average Efficiency : 0.3700874  
 Average Efficiency Error : 1.0797138E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 199.5072 | 28-FEB-2010 | 2990.497   | 3297.542 | 21594.00 | 0.3656335 | 1.8451264E-02 | 61.40455   |
| NP-237     | 168.0294 | 28-FEB-2010 | 4434.922   | 4904.935 | 19043.00 | 0.3777652 | 1.9085610E-02 | 76.29016   |
| CM-244     | 160.5822 | 28-FEB-2010 | 5534.289   | 5887.217 | 16745.00 | 0.3673259 | 1.8584441E-02 | 59.63282   |

Instrument : CHAMBER 235  
 Detector : 79428  
 Standard ID : AESS-027  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 27-JUL-2009 11:50:01  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:04:17  
 Average Efficiency : 0.3932829  
 Average Efficiency Error : 1.1475780E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 193.4238 | 28-FEB-2010 | 2988.334   | 3300.717 | 21681.00 | 0.3786630 | 1.9108076E-02 | 53.32552   |
| NP-237     | 161.6154 | 28-FEB-2010 | 4435.003   | 4906.236 | 19404.00 | 0.4001970 | 2.0215055E-02 | 77.72460   |
| CM-244     | 148.1754 | 28-FEB-2010 | 5532.236   | 5886.409 | 16945.00 | 0.4028875 | 2.0380763E-02 | 59.12006   |

Instrument : CHAMBER 236  
 Detector : 79429  
 Standard ID : AESS-028  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 27-JUL-2009 11:50:07  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:04:27  
 Average Efficiency : 0.3837650  
 Average Efficiency Error : 1.1193846E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 199.6542 | 28-FEB-2010 | 2987.761   | 3298.777 | 22073.00 | 0.3734792 | 1.8843459E-02 | 56.09225   |
| NP-237     | 168.1992 | 28-FEB-2010 | 4435.283   | 4906.214 | 19676.00 | 0.3898810 | 1.9691262E-02 | 74.38795   |
| CM-244     | 156.7614 | 28-FEB-2010 | 5532.557   | 5887.291 | 17304.00 | 0.3888687 | 1.9666921E-02 | 61.23972   |

Instrument : CHAMBER 237  
 Detector : 79430  
 Standard ID : AESS-029  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 27-JUL-2009 11:50:14  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:04:36  
 Average Efficiency : 0.3796787  
 Average Efficiency Error : 1.1077547E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 201.5742 | 28-FEB-2010 | 2990.197   | 3297.861 | 21831.00 | 0.3658611 | 1.8460920E-02 | 57.27552   |
| NP-237     | 169.7700 | 28-FEB-2010 | 4432.935   | 4904.354 | 19680.00 | 0.3864051 | 1.9515611E-02 | 75.85569   |
| CM-244     | 154.8234 | 28-FEB-2010 | 5530.478   | 5884.662 | 17077.00 | 0.3885164 | 1.9652124E-02 | 63.51448   |

Instrument : CHAMBER 238  
 Detector : 79431  
 Standard ID : AESS-030  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 27-JUL-2009 11:50:20  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:04:46  
 Average Efficiency : 0.3810317  
 Average Efficiency Error : 1.1114767E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 198.9792 | 28-FEB-2010 | 2987.703   | 3299.637 | 22045.00 | 0.3742708 | 1.8883610E-02 | 56.22876   |
| NP-237     | 166.3758 | 28-FEB-2010 | 4437.459   | 4902.787 | 19439.00 | 0.3894599 | 1.9672327E-02 | 69.82738   |
| CM-244     | 157.1856 | 28-FEB-2010 | 5533.171   | 5886.843 | 16955.00 | 0.3799904 | 1.9222379E-02 | 58.92646   |

Instrument : CHAMBER 239  
 Detector : 79432  
 Standard ID : AESS-031  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 27-JUL-2009 11:50:26  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:04:55  
 Average Efficiency : 0.3927835  
 Average Efficiency Error : 1.0770131E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 193.6650 | 28-FEB-2010 | 2990.694   | 3302.472 | 22065.00 | 0.3848595 | 1.6447702E-02 | 55.29106   |
| NP-237     | 162.9186 | 28-FEB-2010 | 4436.142   | 4902.540 | 19439.00 | 0.3976750 | 2.0087343E-02 | 70.90855   |
| CM-244     | 153.1968 | 28-FEB-2010 | 5534.989   | 5884.715 | 17391.00 | 0.3998017 | 2.0218691E-02 | 58.92552   |

Instrument : CHAMBER 240  
 Detector : 79433  
 Standard ID : AESS-032  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 27-JUL-2009 11:50:32  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:05:04  
 Average Efficiency : 0.3772089  
 Average Efficiency Error : 1.0348574E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 195.2364 | 28-FEB-2010 | 2990.448   | 3302.009 | 21172.00 | 0.3663063 | 1.5662992E-02 | 53.41883   |
| NP-237     | 165.9822 | 28-FEB-2010 | 4434.377   | 4905.282 | 19119.00 | 0.3839507 | 1.9397326E-02 | 73.43593   |
| CM-244     | 153.7938 | 28-FEB-2010 | 5531.249   | 5885.600 | 16917.00 | 0.3873951 | 1.9597435E-02 | 58.29160   |

Instrument : CHAMBER 241  
 Detector : 79434  
 Standard ID : AESS-033  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 27-JUL-2009 11:50:38  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:05:13  
 Average Efficiency : 0.3940109  
 Average Efficiency Error : 1.0806140E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 192.4158 | 28-FEB-2010 | 2990.069   | 3301.257 | 21921.00 | 0.3848144 | 1.6447132E-02 | 59.39081   |
| NP-237     | 161.7816 | 28-FEB-2010 | 4433.036   | 4904.033 | 19316.00 | 0.3979853 | 2.0104248E-02 | 71.72956   |
| CM-244     | 147.2670 | 28-FEB-2010 | 5530.409   | 5885.133 | 16898.00 | 0.4041099 | 2.0443266E-02 | 59.86270   |

Instrument : CHAMBER 242  
 Detector : 79435  
 Standard ID : AESS-034  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 27-JUL-2009 11:50:45  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:05:21  
 Average Efficiency : 0.3872019  
 Average Efficiency Error : 1.0618003E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 200.5488 | 28-FEB-2010 | 2987.986   | 3300.537 | 22304.00 | 0.3756698 | 1.6052835E-02 | 60.14239   |
| NP-237     | 167.2962 | 28-FEB-2010 | 4434.402   | 4905.006 | 19728.00 | 0.3930755 | 1.9852022E-02 | 81.49045   |
| CM-244     | 154.4388 | 28-FEB-2010 | 5535.112   | 5883.069 | 17513.00 | 0.3993755 | 2.0195547E-02 | 60.38340   |

Instrument : CHAMBER 243  
 Detector : 79436  
 Standard ID : AESS-035  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 27-JUL-2009 11:50:51  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:05:30  
 Average Efficiency : 0.3689618  
 Average Efficiency Error : 1.0121634E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 198.6666 | 28-FEB-2010 | 2988.831   | 3301.144 | 21270.00 | 0.3616530 | 1.5463094E-02 | 51.17657   |
| NP-237     | 168.2934 | 28-FEB-2010 | 4435.437   | 4901.520 | 19256.00 | 0.3813798 | 1.9266052E-02 | 75.58389   |
| CM-244     | 158.8128 | 28-FEB-2010 | 5533.039   | 5887.402 | 16593.00 | 0.3679604 | 1.8618485E-02 | 58.44908   |

Instrument : CHAMBER 244  
 Detector : 79437  
 Standard ID : AESS-036  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 27-JUL-2009 11:50:57  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:05:39  
 Average Efficiency : 0.3687662  
 Average Efficiency Error : 1.0117218E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 201.3204 | 28-FEB-2010 | 2990.561   | 3301.814 | 21334.00 | 0.3579595 | 1.5304583E-02 | 62.36397   |
| NP-237     | 167.4312 | 28-FEB-2010 | 4433.746   | 4904.768 | 18977.00 | 0.3778012 | 1.9088112E-02 | 75.63606   |
| CM-244     | 156.4188 | 28-FEB-2010 | 5531.146   | 5885.854 | 16722.00 | 0.3765100 | 1.9049343E-02 | 61.05648   |

Instrument : CHAMBER 245  
 Detector : 79438  
 Standard ID : AESS-037  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 27-JUL-2009 11:51:02  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:05:48  
 Average Efficiency : 0.3877061  
 Average Efficiency Error : 1.0631136E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 197.7372 | 28-FEB-2010 | 2990.519   | 3298.200 | 22136.00 | 0.3781450 | 1.6160103E-02 | 62.31918   |
| NP-237     | 167.1294 | 28-FEB-2010 | 4434.025   | 4906.060 | 19910.00 | 0.3970917 | 2.0053044E-02 | 78.86944   |
| CM-244     | 154.7664 | 28-FEB-2010 | 5533.264   | 5882.788 | 17268.00 | 0.3929479 | 1.9873664E-02 | 61.71907   |

Instrument : CHAMBER 246  
 Detector : 78912  
 Standard ID : AESS-038  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 27-JUL-2009 11:51:08  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:05:57  
 Average Efficiency : 0.3708842  
 Average Efficiency Error : 1.0172031E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 200.1408 | 28-FEB-2010 | 2989.883   | 3302.161 | 21584.00 | 0.3642771 | 1.5572389E-02 | 64.71516   |
| NP-237     | 170.0886 | 28-FEB-2010 | 4436.171   | 4902.069 | 19259.00 | 0.3774192 | 1.9065937E-02 | 76.67652   |
| CM-244     | 157.7460 | 28-FEB-2010 | 5533.279   | 5887.441 | 16761.00 | 0.3742064 | 1.8932275E-02 | 58.21912   |

Instrument : CHAMBER 247  
 Detector : 79440  
 Standard ID : AESS-039  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 27-JUL-2009 11:51:13  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:06:06  
 Average Efficiency : 0.3957888  
 Average Efficiency Error : 1.0855773E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 192.2418 | 28-FEB-2010 | 2989.314   | 3301.154 | 21842.00 | 0.3837782 | 1.6403578E-02 | 54.27637   |
| NP-237     | 159.1506 | 28-FEB-2010 | 4435.427   | 4902.237 | 19566.00 | 0.4097880 | 2.0697797E-02 | 74.12901   |
| CM-244     | 151.7142 | 28-FEB-2010 | 5535.390   | 5885.574 | 17262.00 | 0.4007001 | 2.0265834E-02 | 60.50509   |



Instrument : CHAMBER 248  
 Detector : 79441  
 Standard ID : AESS-040  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 27-JUL-2009 11:51:19  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:06:15  
 Average Efficiency : 0.3937030  
 Average Efficiency Error : 1.0792862E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 194.4828 | 28-FEB-2010 | 2989.045   | 3301.474 | 22331.00 | 0.3878492 | 1.6573036E-02 | 60.09726   |
| NP-237     | 166.8174 | 28-FEB-2010 | 4436.389   | 4902.813 | 19896.00 | 0.3975548 | 2.0076567E-02 | 79.69174   |
| CM-244     | 155.0100 | 28-FEB-2010 | 5534.872   | 5884.178 | 17540.00 | 0.3984762 | 2.0149769E-02 | 58.60526   |

Instrument : CHAMBER 249  
 Detector : 79442  
 Standard ID : AESS-041  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 27-JUL-2009 11:51:24  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:10:21  
 Average Efficiency : 0.3675877  
 Average Efficiency Error : 1.0082438E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 203.9034 | 28-FEB-2010 | 2991.808   | 3298.538 | 21645.00 | 0.3585607 | 1.5327478E-02 | 53.17529   |
| NP-237     | 171.2268 | 28-FEB-2010 | 4433.459   | 4906.270 | 19414.00 | 0.3779393 | 1.9090647E-02 | 76.86456   |
| CM-244     | 159.5796 | 28-FEB-2010 | 5535.492   | 5886.613 | 16816.00 | 0.3711205 | 1.8775435E-02 | 56.57472   |

Instrument : CHAMBER 250  
 Detector : 79443  
 Standard ID : AESS-042  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 27-JUL-2009 11:51:30  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:07:02  
 Average Efficiency : 0.3960947  
 Average Efficiency Error : 1.0862177E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 188.7090 | 28-FEB-2010 | 2988.616   | 3300.155 | 21788.00 | 0.3900070 | 1.6670316E-02 | 52.60693   |
| NP-237     | 159.6558 | 28-FEB-2010 | 4432.911   | 4904.182 | 19368.00 | 0.4043324 | 2.0424359E-02 | 73.85986   |
| CM-244     | 150.5208 | 28-FEB-2010 | 5530.811   | 5885.622 | 16966.00 | 0.3969653 | 2.0080892E-02 | 59.65899   |

Instrument : CHAMBER 251  
 Detector : 79444  
 Standard ID : AESS-043  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 27-JUL-2009 11:51:36  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:07:11  
 Average Efficiency : 0.3862193  
 Average Efficiency Error : 1.0589682E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 197.7708 | 28-FEB-2010 | 2990.845   | 3297.824 | 22101.00 | 0.3774794 | 1.6131971E-02 | 54.21589   |
| NP-237     | 168.7422 | 28-FEB-2010 | 4433.069   | 4905.749 | 19931.00 | 0.3937052 | 1.9881824E-02 | 74.21349   |
| CM-244     | 156.3252 | 28-FEB-2010 | 5534.571   | 5885.360 | 17400.00 | 0.3919745 | 1.9822748E-02 | 57.06868   |

Instrument : CHAMBER 252  
 Detector : 79445  
 Standard ID : AESS-044  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 27-JUL-2009 11:51:43  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:07:24  
 Average Efficiency : 0.3698718  
 Average Efficiency Error : 1.0146284E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 194.4510 | 28-FEB-2010 | 2990.916   | 3302.142 | 21075.00 | 0.3660958 | 1.5654918E-02 | 61.30944   |
| NP-237     | 166.6248 | 28-FEB-2010 | 4434.879   | 4906.631 | 18642.00 | 0.3729277 | 1.8845377E-02 | 80.38726   |
| CM-244     | 155.8290 | 28-FEB-2010 | 5534.322   | 5884.528 | 16473.00 | 0.3722862 | 1.8838966E-02 | 60.16105   |

Instrument : CHAMBER 253  
 Detector : 79446  
 Standard ID : AESS-045  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 27-JUL-2009 11:51:49  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:07:35  
 Average Efficiency : 0.4175173  
 Average Efficiency Error : 1.1444525E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 186.9936 | 28-FEB-2010 | 2987.796   | 3301.166 | 22755.00 | 0.4110381 | 1.7559895E-02 | 55.81194   |
| NP-237     | 160.8066 | 28-FEB-2010 | 4435.182   | 4903.720 | 20118.00 | 0.4169668 | 2.1054644E-02 | 75.83978   |
| CM-244     | 145.8384 | 28-FEB-2010 | 5533.610   | 5884.813 | 17722.00 | 0.4279359 | 2.1636952E-02 | 56.91713   |

Instrument : CHAMBER 254  
 Detector : 79447  
 Standard ID : AESS-046  
 Standard Reference Date : 19-FEB-2008 19:35:48  
 Calibration Analysis Date/Time : 27-JUL-2009 11:51:54  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:07:52  
 Average Efficiency : 0.4058467  
 Average Efficiency Error : 1.1127573E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 194.7474 | 28-FEB-2010 | 2991.474   | 3298.982 | 22591.00 | 0.3918256 | 1.6740572E-02 | 58.61956   |
| NP-237     | 164.6658 | 28-FEB-2010 | 4434.396   | 4906.361 | 20593.00 | 0.4168403 | 2.1043487E-02 | 82.24182   |
| CM-244     | 151.3824 | 28-FEB-2010 | 5533.560   | 5883.122 | 17929.00 | 0.4170516 | 2.1083934E-02 | 61.14439   |

Instrument : CHAMBER 255  
 Detector : 79448  
 Standard ID : AESS-047  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 27-JUL-2009 11:52:00  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:08:10  
 Average Efficiency : 0.3643631  
 Average Efficiency Error : 9.9972216E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 197.4804 | 28-FEB-2010 | 2992.107   | 3299.169 | 20953.00 | 0.3583827 | 1.5326263E-02 | 55.06876   |
| NP-237     | 168.3948 | 28-FEB-2010 | 4434.844   | 4902.471 | 18382.00 | 0.3638436 | 1.8389078E-02 | 74.38364   |
| CM-244     | 154.6032 | 28-FEB-2010 | 5531.565   | 5882.529 | 16422.00 | 0.3740352 | 1.8928226E-02 | 58.14114   |

Instrument : CHAMBER 256  
 Detector : 79449  
 Standard ID : AESS-048  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 27-JUL-2009 11:52:06  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:08:26  
 Average Efficiency : 0.3831320  
 Average Efficiency Error : 1.0509511E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 191.8350 | 28-FEB-2010 | 2989.102   | 3301.350 | 21361.00 | 0.3761188 | 1.6080733E-02 | 55.66320   |
| NP-237     | 161.5530 | 28-FEB-2010 | 4435.732   | 4901.991 | 18891.00 | 0.3897299 | 1.9691780E-02 | 78.88689   |
| CM-244     | 151.1856 | 28-FEB-2010 | 5533.871   | 5883.102 | 16615.00 | 0.3870071 | 1.9581940E-02 | 56.91294   |

## Subsection 1: Energy Calibration

The Energy Calibration energy=Cal\_Zero+(e1\*C)+(e2\*C^2)

where : Cal\_Zero = Energy Calibration Zero  
e1 = Energy Calibration Slope  
e2 = Energy Calibration Quadratic  
C = Channel

Instrument : CHAMBER 001  
Detector : 78788  
Calibration Date/Time : 4-SEP-2009 12:35:32  
Calibration Source Id : AESS-001

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.226      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.853      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.021      |

Energy/Channel Equation : see above  
Energy Calibration Zero : 2535.497  
Energy Calibration Slope : 5.123575  
Energy Calibration Quadratic : 3.5177087E-04  
Energy Calibration Range : 8151.000

Instrument : CHAMBER 002  
Detector : 78266  
Calibration Date/Time : 4-SEP-2009 12:35:41  
Calibration Source Id : AESS-002

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3181.913      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.018      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5794.179      |

Energy/Channel Equation : see above  
Energy Calibration Zero : 2471.037  
Energy Calibration Slope : 5.125078  
Energy Calibration Quadratic : 3.3477767E-04  
Energy Calibration Range : 8070.000

Instrument : CHAMBER 003  
Detector : 67617  
Calibration Date/Time : 4-SEP-2009 12:35:49  
Calibration Source Id : AESS-003

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3182.431      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4767.487      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5793.671      |

Energy/Channel Equation : see above  
Energy Calibration Zero : 2603.599  
Energy Calibration Slope : 5.520661  
Energy Calibration Quadratic : 3.8628373E-04  
Energy Calibration Range : 8662.000

Instrument : CHAMBER 004  
 Detector : 64279  
 Calibration Date/Time : 4-SEP-2009 12:35:56  
 Calibration Source Id : AESS-004

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3182.248      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.163      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5794.666      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2539.883  
 Energy Calibration Slope : 5.106114  
 Energy Calibration Quadratic : 3.6220285E-04  
 Energy Calibration Range : 8148.000

Instrument : CHAMBER 005  
 Detector : 67612  
 Calibration Date/Time : 4-SEP-2009 12:36:04  
 Calibration Source Id : AESS-005

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3182.596      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.626      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5794.885      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2389.695  
 Energy Calibration Slope : 5.003819  
 Energy Calibration Quadratic : 3.1809139E-04  
 Energy Calibration Range : 7847.000

Instrument : CHAMBER 006  
 Detector : 67613  
 Calibration Date/Time : 4-SEP-2009 12:36:12  
 Calibration Source Id : AESS-006

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.970      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.230      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2372.089  
 Energy Calibration Slope : 4.968963  
 Energy Calibration Quadratic : 2.9746475E-04  
 Energy Calibration Range : 7772.000

Instrument : CHAMBER 007  
 Detector : 67607  
 Calibration Date/Time : 4-SEP-2009 12:36:20  
 Calibration Source Id : AESS-007  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3194.223  
 NP-237 4341 2/28/10 4768.800 4774.131  
 CM-244 4320A 2/28/10 5795.020 5795.286  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2411.533  
 Energy Calibration Slope : 5.136289  
 Energy Calibration Quadratic : 3.6015504E-04  
 Energy Calibration Range : 8049.000

Instrument : CHAMBER 008  
 Detector : 78788  
 Calibration Date/Time : 4-SEP-2009 12:36:40  
 Calibration Source Id : AESS-008  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.947  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2374.892  
 Energy Calibration Slope : 4.958869  
 Energy Calibration Quadratic : 3.2790817E-04  
 Energy Calibration Range : 7797.000

Instrument : CHAMBER 009  
 Detector : 72528  
 Calibration Date/Time : 4-SEP-2009 12:36:51  
 Calibration Source Id : AESS-009  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.331  
 NP-237 4341 2/28/10 4768.800 4768.908  
 CM-244 4320A 2/28/10 5795.020 5795.229  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2369.859  
 Energy Calibration Slope : 4.969983  
 Energy Calibration Quadratic : 3.0930861E-04  
 Energy Calibration Range : 7783.000

Instrument : CHAMBER 010  
 Detector : 72529  
 Calibration Date/Time : 4-SEP-2009 12:37:00  
 Calibration Source Id : AESS-010

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3182.738      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.800      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.020      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2375.295  
 Energy Calibration Slope : 4.946028  
 Energy Calibration Quadratic : 2.9286626E-04  
 Energy Calibration Range : 7747.000

Instrument : CHAMBER 011  
 Detector : 72531  
 Calibration Date/Time : 4-SEP-2009 12:37:27  
 Calibration Source Id : AESS-011

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.800      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.151      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2351.281  
 Energy Calibration Slope : 4.995483  
 Energy Calibration Quadratic : 3.1063837E-04  
 Energy Calibration Range : 7792.000

Instrument : CHAMBER 012  
 Detector : 67594  
 Calibration Date/Time : 4-SEP-2009 12:37:37  
 Calibration Source Id : AESS-012

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.665      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5794.701      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2380.536  
 Energy Calibration Slope : 4.954679  
 Energy Calibration Quadratic : 2.8732172E-04  
 Energy Calibration Range : 7755.000

Instrument : CHAMBER 013  
 Detector : 78790  
 Calibration Date/Time : 4-SEP-2009 12:37:47  
 Calibration Source Id : AESS-013

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.702      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4769.527      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.398      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2358.963  
 Energy Calibration Slope : 4.909760  
 Energy Calibration Quadratic : 2.9884593E-04  
 Energy Calibration Range : 7700.000

Instrument : CHAMBER 014  
 Detector : 67616  
 Calibration Date/Time : 4-SEP-2009 12:37:57  
 Calibration Source Id : AESS-014

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3182.690      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.619      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5794.719      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2351.225  
 Energy Calibration Slope : 4.953602  
 Energy Calibration Quadratic : 3.2283107E-04  
 Energy Calibration Range : 7762.000

Instrument : CHAMBER 015  
 Detector : 61581  
 Calibration Date/Time : 4-SEP-2009 12:38:32  
 Calibration Source Id : AESS-015

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.566      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4769.887      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.771      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2340.391  
 Energy Calibration Slope : 4.902360  
 Energy Calibration Quadratic : 2.9459049E-04  
 Energy Calibration Range : 7669.000



Instrument : CHAMBER 016  
 Detector : 78774  
 Calibration Date/Time : 4-SEP-2009 12:39:14  
 Calibration Source Id : AESS-016

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.862      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.021      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2352.881  
 Energy Calibration Slope : 4.887459  
 Energy Calibration Quadratic : 3.1538753E-04  
 Energy Calibration Range : 7688.000

Instrument : CHAMBER 017  
 Detector : 78791  
 Calibration Date/Time : 4-SEP-2009 12:39:56  
 Calibration Source Id : AESS-017

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.864      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.021      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2360.881  
 Energy Calibration Slope : 4.992493  
 Energy Calibration Quadratic : 2.7980251E-04  
 Energy Calibration Range : 7767.000

Instrument : CHAMBER 018  
 Detector : 78782  
 Calibration Date/Time : 4-SEP-2009 12:40:11  
 Calibration Source Id : AESS-018

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.801      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5794.892      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2354.269  
 Energy Calibration Slope : 4.957198  
 Energy Calibration Quadratic : 3.2317592E-04  
 Energy Calibration Range : 7769.000

Instrument : CHAMBER 019  
 Detector : 78786  
 Calibration Date/Time : 4-SEP-2009 12:40:24  
 Calibration Source Id : AESS-019  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.321  
 CM-244 4320A 2/28/10 5795.020 5795.021  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2346.765  
 Energy Calibration Slope : 5.052913  
 Energy Calibration Quadratic : 2.4091676E-04  
 Energy Calibration Range : 7774.000

Instrument : CHAMBER 020  
 Detector : 78787  
 Calibration Date/Time : 4-SEP-2009 12:40:33  
 Calibration Source Id : AESS-020  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.527  
 NP-237 4341 2/28/10 4768.800 4768.799  
 CM-244 4320A 2/28/10 5795.020 5795.021  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2338.013  
 Energy Calibration Slope : 4.982131  
 Energy Calibration Quadratic : 2.9908412E-04  
 Energy Calibration Range : 7753.000

Instrument : CHAMBER 021  
 Detector : 67047  
 Calibration Date/Time : 4-SEP-2009 12:40:41  
 Calibration Source Id : AESS-021  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.801  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2273.506  
 Energy Calibration Slope : 4.978734  
 Energy Calibration Quadratic : 2.7200553E-04  
 Energy Calibration Range : 7657.000

Instrument : CHAMBER 022  
 Detector : 72530  
 Calibration Date/Time : 4-SEP-2009 12:40:50  
 Calibration Source Id : AESS-022

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.361      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4769.133      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.021      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2375.240  
 Energy Calibration Slope : 4.980961  
 Energy Calibration Quadratic : 2.7447013E-04  
 Energy Calibration Range : 7764.000

Instrument : CHAMBER 023  
 Detector : 78264  
 Calibration Date/Time : 4-SEP-2009 12:40:59  
 Calibration Source Id : AESS-023

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.015      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.800      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5794.708      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2381.774  
 Energy Calibration Slope : 5.002218  
 Energy Calibration Quadratic : 2.9209474E-04  
 Energy Calibration Range : 7810.000

Instrument : CHAMBER 024  
 Detector : 76542  
 Calibration Date/Time : 4-SEP-2009 12:41:10  
 Calibration Source Id : AESS-024

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.800      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.020      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2348.764  
 Energy Calibration Slope : 4.960187  
 Energy Calibration Quadratic : 2.8149344E-04  
 Energy Calibration Range : 7723.000

Instrument : CHAMBER 025  
 Detector : 45-149AA5  
 Calibration Date/Time : 5-SEP-2009 13:36:12  
 Calibration Source Id : AESS-025  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.301  
 NP-237 4341 2/28/10 4768.800 4769.169  
 CM-244 4320A 2/28/10 5795.020 5795.134  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2313.345  
 Energy Calibration Slope : 4.853284  
 Energy Calibration Quadratic : 3.0770546E-04  
 Energy Calibration Range : 7606.000

Instrument : CHAMBER 026  
 Detector : 78204  
 Calibration Date/Time : 5-SEP-2009 13:36:22  
 Calibration Source Id : AESS-026  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.929  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2358.057  
 Energy Calibration Slope : 4.920322  
 Energy Calibration Quadratic : 3.5937896E-04  
 Energy Calibration Range : 7773.000

Instrument : CHAMBER 027  
 Detector : 42484  
 Calibration Date/Time : 5-SEP-2009 13:36:31  
 Calibration Source Id : AESS-027  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.819  
 CM-244 4320A 2/28/10 5795.020 5795.021  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2363.651  
 Energy Calibration Slope : 4.963936  
 Energy Calibration Quadratic : 3.2873321E-04  
 Energy Calibration Range : 7791.000

Instrument : CHAMBER 028  
 Detector : 78792  
 Calibration Date/Time : 5-SEP-2009 13:36:41  
 Calibration Source Id : AESS-028

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.801      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.019      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2311.599  
 Energy Calibration Slope : 4.936965  
 Energy Calibration Quadratic : 3.4681335E-04  
 Energy Calibration Range : 7731.000

Instrument : CHAMBER 029  
 Detector : 33454  
 Calibration Date/Time : 5-SEP-2009 13:36:49  
 Calibration Source Id : AESS-029

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3182.046      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.273      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5794.838      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2346.906  
 Energy Calibration Slope : 4.889407  
 Energy Calibration Quadratic : 2.9813289E-04  
 Energy Calibration Range : 7666.000

Instrument : CHAMBER 030  
 Detector : 33447  
 Calibration Date/Time : 5-SEP-2009 13:36:58  
 Calibration Source Id : AESS-030

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.799      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.021      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2376.621  
 Energy Calibration Slope : 4.959564  
 Energy Calibration Quadratic : 3.0966211E-04  
 Energy Calibration Range : 7780.000

Instrument : CHAMBER 031  
 Detector : 67042  
 Calibration Date/Time : 5-SEP-2009 13:37:09  
 Calibration Source Id : AESS-031

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.344      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4769.750      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.848      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2358.347  
 Energy Calibration Slope : 4.922678  
 Energy Calibration Quadratic : 3.3807335E-04  
 Energy Calibration Range : 7754.000

Instrument : CHAMBER 032  
 Detector : 67041  
 Calibration Date/Time : 5-SEP-2009 13:37:21  
 Calibration Source Id : AESS-032

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3082.708      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4596.952      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5590.557      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2480.957  
 Energy Calibration Slope : 5.431309  
 Energy Calibration Quadratic :  
 Energy Calibration Range : 8043.000

Instrument : CHAMBER 033  
 Detector : 78785  
 Calibration Date/Time : 5-SEP-2009 13:37:30  
 Calibration Source Id : AESS-033

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.293      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.798      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.021      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2371.628  
 Energy Calibration Slope : 4.957000  
 Energy Calibration Quadratic : 3.2105893E-04  
 Energy Calibration Range : 7784.000

Instrument : CHAMBER 034  
 Detector : 61586  
 Calibration Date/Time : 5-SEP-2009 13:37:40  
 Calibration Source Id : AESS-034

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3048.128      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4505.317      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5654.358      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2505.085  
 Energy Calibration Slope : 5.306273  
 Energy Calibration Quadratic :  
 Energy Calibration Range : 7939.000

Instrument : CHAMBER 035  
 Detector : 78202  
 Calibration Date/Time : 5-SEP-2009 13:37:51  
 Calibration Source Id : AESS-035

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.195      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.800      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.020      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2331.502  
 Energy Calibration Slope : 4.956956  
 Energy Calibration Quadratic : 3.3284936E-04  
 Energy Calibration Range : 7756.000

Instrument : CHAMBER 036  
 Detector : 78203  
 Calibration Date/Time : 5-SEP-2009 13:38:00  
 Calibration Source Id : AESS-036

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.261      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.800      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.112      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2349.949  
 Energy Calibration Slope : 4.931112  
 Energy Calibration Quadratic : 3.3396695E-04  
 Energy Calibration Range : 7750.000

Instrument : CHAMBER 037  
 Detector : 45-149BB5  
 Calibration Date/Time : 5-SEP-2009 13:38:11  
 Calibration Source Id : AESS-037

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4769.328      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.274      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2377.698  
 Energy Calibration Slope : 4.936130  
 Energy Calibration Quadratic : 2.6397177E-04  
 Energy Calibration Range : 7709.000

Instrument : CHAMBER 038  
 Detector : 72532  
 Calibration Date/Time : 5-SEP-2009 13:38:20  
 Calibration Source Id : AESS-038

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.800      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.173      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2373.418  
 Energy Calibration Slope : 4.945736  
 Energy Calibration Quadratic : 3.1779311E-04  
 Energy Calibration Range : 7771.000

Instrument : CHAMBER 039  
 Detector : 45-149BB2  
 Calibration Date/Time : 5-SEP-2009 13:38:28  
 Calibration Source Id : AESS-039

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.413      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.800      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.021      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2383.597  
 Energy Calibration Slope : 4.901721  
 Energy Calibration Quadratic : 3.2673960E-04  
 Energy Calibration Range : 7746.000



Instrument : CHAMBER 040  
 Detector : 78773  
 Calibration Date/Time : 5-SEP-2009 13:38:36  
 Calibration Source Id : AESS-040

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.203      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.877      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.021      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2349.601  
 Energy Calibration Slope : 4.890684  
 Energy Calibration Quadratic : 3.3607692E-04  
 Energy Calibration Range : 7710.000

Instrument : CHAMBER 041  
 Detector : 78205  
 Calibration Date/Time : 5-SEP-2009 13:38:44  
 Calibration Source Id : AESS-041

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.316      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.914      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.124      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2359.603  
 Energy Calibration Slope : 4.927306  
 Energy Calibration Quadratic : 3.6796945E-04  
 Energy Calibration Range : 7791.000

Instrument : CHAMBER 042  
 Detector : 78793  
 Calibration Date/Time : 5-SEP-2009 13:38:52  
 Calibration Source Id : AESS-042

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.945      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.068      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2375.562  
 Energy Calibration Slope : 4.905127  
 Energy Calibration Quadratic : 3.3096116E-04  
 Energy Calibration Range : 7745.000

Instrument : CHAMBER 043  
 Detector : 76543  
 Calibration Date/Time : 5-SEP-2009 13:38:59  
 Calibration Source Id : AESS-043

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.008      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.799      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.285      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2370.828  
 Energy Calibration Slope : 4.912446  
 Energy Calibration Quadratic : 3.4794814E-04  
 Energy Calibration Range : 7766.000

Instrument : CHAMBER 044  
 Detector : 79459  
 Calibration Date/Time : 5-SEP-2009 13:39:07  
 Calibration Source Id : AESS-044

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.899      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.019      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2357.678  
 Energy Calibration Slope : 4.935909  
 Energy Calibration Quadratic : 3.3428424E-04  
 Energy Calibration Range : 7763.000

Instrument : CHAMBER 045  
 Detector : 78783  
 Calibration Date/Time : 5-SEP-2009 13:39:15  
 Calibration Source Id : AESS-045

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.800      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.020      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2362.021  
 Energy Calibration Slope : 4.936533  
 Energy Calibration Quadratic : 3.2874785E-04  
 Energy Calibration Range : 7762.000

Instrument : CHAMBER 046  
 Detector : 76544  
 Calibration Date/Time : 5-SEP-2009 13:39:23  
 Calibration Source Id : AESS-046

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.265      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.973      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.020      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2361.969  
 Energy Calibration Slope : 4.880176  
 Energy Calibration Quadratic : 3.5064379E-04  
 Energy Calibration Range : 7727.000

Instrument : CHAMBER 047  
 Detector : 46-089B1  
 Calibration Date/Time : 5-SEP-2009 13:39:31  
 Calibration Source Id : AESS-047

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.348      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.802      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.019      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2352.118  
 Energy Calibration Slope : 4.961685  
 Energy Calibration Quadratic : 3.1629670E-04  
 Energy Calibration Range : 7765.000

Instrument : CHAMBER 048  
 Detector : 42483  
 Calibration Date/Time : 5-SEP-2009 13:39:40  
 Calibration Source Id : AESS-048

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.138      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.944      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.069      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2374.542  
 Energy Calibration Slope : 4.945658  
 Energy Calibration Quadratic : 2.9861915E-04  
 Energy Calibration Range : 7752.000

Instrument : CHAMBER 065  
 Detector : 68551  
 Calibration Date/Time : 11-AUG-2009 11:32:36  
 Calibration Source Id : AESS-001

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.849      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4769.466      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.163      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2372.264  
 Energy Calibration Slope : 4.908353  
 Energy Calibration Quadratic : 3.3354512E-04  
 Energy Calibration Range : 7748.000

Instrument : CHAMBER 066  
 Detector : 46-089C1  
 Calibration Date/Time : 11-AUG-2009 11:33:22  
 Calibration Source Id : AESS-002

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.390      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4769.085      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.154      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2366.405  
 Energy Calibration Slope : 4.987269  
 Energy Calibration Quadratic : 2.6785664E-04  
 Energy Calibration Range : 7754.000

Instrument : CHAMBER 067  
 Detector : 46-089B4  
 Calibration Date/Time : 11-AUG-2009 11:33:34  
 Calibration Source Id : AESS-003

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.001      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.295      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5794.813      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2395.106  
 Energy Calibration Slope : 4.966452  
 Energy Calibration Quadratic : 2.8820083E-04  
 Energy Calibration Range : 7783.000

Instrument : CHAMBER 068  
 Detector : 78794  
 Calibration Date/Time : 11-AUG-2009 11:38:02  
 Calibration Source Id : AESS-004

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.980      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.141      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2363.999  
 Energy Calibration Slope : 4.959627  
 Energy Calibration Quadratic : 3.2675461E-04  
 Energy Calibration Range : 7785.000

Instrument : CHAMBER 069  
 Detector : 78795  
 Calibration Date/Time : 11-AUG-2009 11:38:36  
 Calibration Source Id : AESS-005

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.715      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.021      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2374.161  
 Energy Calibration Slope : 4.934980  
 Energy Calibration Quadratic : 3.3370449E-04  
 Energy Calibration Range : 7777.000

Instrument : CHAMBER 070  
 Detector : 46-089B2  
 Calibration Date/Time : 11-AUG-2009 11:38:49  
 Calibration Source Id : AESS-006

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.376      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.799      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.021      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2384.967  
 Energy Calibration Slope : 4.940035  
 Energy Calibration Quadratic : 3.0117441E-04  
 Energy Calibration Range : 7759.000

Instrument : CHAMBER 071  
 Detector : 64259  
 Calibration Date/Time : 11-AUG-2009 11:39:05  
 Calibration Source Id : AESS-007

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.799      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.020      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2380.222  
 Energy Calibration Slope : 4.972534  
 Energy Calibration Quadratic : 3.0923611E-04  
 Energy Calibration Range : 7796.000

Instrument : CHAMBER 072  
 Detector : 45-149AA3  
 Calibration Date/Time : 11-AUG-2009 11:41:05  
 Calibration Source Id : AESS-008

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.799      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5794.779      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2367.289  
 Energy Calibration Slope : 4.936321  
 Energy Calibration Quadratic : 3.1663457E-04  
 Energy Calibration Range : 7754.000

Instrument : CHAMBER 073  
 Detector : 78775  
 Calibration Date/Time : 11-AUG-2009 11:41:19  
 Calibration Source Id : AESS-009

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.800      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.020      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2340.294  
 Energy Calibration Slope : 4.933617  
 Energy Calibration Quadratic : 3.0803526E-04  
 Energy Calibration Range : 7715.000

Instrument : CHAMBER 074  
 Detector : 78266  
 Calibration Date/Time : 11-AUG-2009 11:41:50  
 Calibration Source Id : AESS-010

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.800      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.020      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2357.238  
 Energy Calibration Slope : 4.957754  
 Energy Calibration Quadratic : 3.2763465E-04  
 Energy Calibration Range : 7778.000

Instrument : CHAMBER 075  
 Detector : 68550  
 Calibration Date/Time : 11-AUG-2009 11:42:08  
 Calibration Source Id : AESS-011

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.795      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4769.246      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.020      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2357.909  
 Energy Calibration Slope : 4.956091  
 Energy Calibration Quadratic : 3.1667759E-04  
 Energy Calibration Range : 7765.000

Instrument : CHAMBER 076  
 Detector : 78779  
 Calibration Date/Time : 11-AUG-2009 11:42:40  
 Calibration Source Id : AESS-012

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.799      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.193      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2353.146  
 Energy Calibration Slope : 4.949463  
 Energy Calibration Quadratic : 3.2361425E-04  
 Energy Calibration Range : 7761.000

Instrument : CHAMBER 077  
 Detector : 67576  
 Calibration Date/Time : 11-AUG-2009 11:42:53  
 Calibration Source Id : AESS-013

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.800      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5794.739      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2362.830  
 Energy Calibration Slope : 4.939044  
 Energy Calibration Quadratic : 3.0275399E-04  
 Energy Calibration Range : 7738.000

Instrument : CHAMBER 078  
 Detector : 67577  
 Calibration Date/Time : 11-AUG-2009 11:43:47  
 Calibration Source Id : AESS-014

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3181.433      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4767.846      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5793.522      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2407.798  
 Energy Calibration Slope : 4.964797  
 Energy Calibration Quadratic : 3.3742035E-04  
 Energy Calibration Range : 7846.000

Instrument : CHAMBER 079  
 Detector : 67598  
 Calibration Date/Time : 11-AUG-2009 11:44:09  
 Calibration Source Id : AESS-015

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.694      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.021      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2369.132  
 Energy Calibration Slope : 4.920986  
 Energy Calibration Quadratic : 3.1385853E-04  
 Energy Calibration Range : 7737.000



Instrument : CHAMBER 080  
 Detector : 78197  
 Calibration Date/Time : 12-AUG-2009 06:47:19  
 Calibration Source Id : AESS-016

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.250      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4769.057      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.270      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2352.236  
 Energy Calibration Slope : 4.998828  
 Energy Calibration Quadratic : 2.8291933E-04  
 Energy Calibration Range : 7768.000

Instrument : CHAMBER 081  
 Detector : 72533  
 Calibration Date/Time : 11-AUG-2009 11:46:32  
 Calibration Source Id : AESS-017

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3204.930      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4703.826      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5726.761      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2219.847  
 Energy Calibration Slope : 9.458302  
 Energy Calibration Quadratic : -5.2725184E-03  
 Energy Calibration Range : 6377.000

Instrument : CHAMBER 082  
 Detector : 64263  
 Calibration Date/Time : 11-AUG-2009 11:47:05  
 Calibration Source Id : AESS-018

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3182.619      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4767.967      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5794.591      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2389.567  
 Energy Calibration Slope : 4.987039  
 Energy Calibration Quadratic : 3.1898782E-04  
 Energy Calibration Range : 7831.000

Instrument : CHAMBER 083  
 Detector : 64278  
 Calibration Date/Time : 11-AUG-2009 11:47:29  
 Calibration Source Id : AESS-019  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.777  
 NP-237 4341 2/28/10 4768.800 4768.800  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2373.204  
 Energy Calibration Slope : 5.041853  
 Energy Calibration Quadratic : 2.3808437E-04  
 Energy Calibration Range : 7786.000

Instrument : CHAMBER 084  
 Detector : 78265  
 Calibration Date/Time : 11-AUG-2009 11:47:52  
 Calibration Source Id : AESS-020  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.799  
 CM-244 4320A 2/28/10 5795.020 5794.867  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2362.363  
 Energy Calibration Slope : 5.016379  
 Energy Calibration Quadratic : 2.7867779E-04  
 Energy Calibration Range : 7791.000

Instrument : CHAMBER 085  
 Detector : 78776  
 Calibration Date/Time : 11-AUG-2009 11:48:19  
 Calibration Source Id : AESS-021  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.802  
 CM-244 4320A 2/28/10 5795.020 5795.019  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2368.057  
 Energy Calibration Slope : 4.984862  
 Energy Calibration Quadratic : 2.9382212E-04  
 Energy Calibration Range : 7781.000

Instrument : CHAMBER 086  
 Detector : 78198  
 Calibration Date/Time : 11-AUG-2009 11:48:41  
 Calibration Source Id : AESS-022

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3182.458      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.482      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5794.558      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2358.351  
 Energy Calibration Slope : 5.023737  
 Energy Calibration Quadratic : 2.3622859E-04  
 Energy Calibration Range : 7750.000

Instrument : CHAMBER 087  
 Detector : 78199  
 Calibration Date/Time : 11-AUG-2009 11:49:08  
 Calibration Source Id : AESS-023

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3182.717      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.539      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5794.745      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2342.553  
 Energy Calibration Slope : 4.976685  
 Energy Calibration Quadratic : 2.4361881E-04  
 Energy Calibration Range : 7694.000

Instrument : CHAMBER 088  
 Detector : 33452  
 Calibration Date/Time : 11-AUG-2009 11:50:14  
 Calibration Source Id : AESS-024

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.801      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.020      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2348.450  
 Energy Calibration Slope : 4.985291  
 Energy Calibration Quadratic : 2.0228673E-04  
 Energy Calibration Range : 7666.000

Instrument : CHAMBER 089  
 Detector : 78262  
 Calibration Date/Time : 11-AUG-2009 11:50:54  
 Calibration Source Id : AESS-025

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3182.822      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.800      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.020      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2360.236  
 Energy Calibration Slope : 4.993787  
 Energy Calibration Quadratic : 3.1235311E-04  
 Energy Calibration Range : 7801.000

Instrument : CHAMBER 090  
 Detector : 78263  
 Calibration Date/Time : 11-AUG-2009 11:51:07  
 Calibration Source Id : AESS-026

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.689      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5794.864      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2367.944  
 Energy Calibration Slope : 4.912088  
 Energy Calibration Quadratic : 3.3423179E-04  
 Energy Calibration Range : 7748.000

Instrument : CHAMBER 091  
 Detector : 78259  
 Calibration Date/Time : 11-AUG-2009 11:51:19  
 Calibration Source Id : AESS-027

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3182.501      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.562      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5794.908      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2373.294  
 Energy Calibration Slope : 4.962712  
 Energy Calibration Quadratic : 3.3628431E-04  
 Energy Calibration Range : 7808.000

Instrument : CHAMBER 092  
 Detector : 79457  
 Calibration Date/Time : 11-AUG-2009 11:52:08  
 Calibration Source Id : AESS-028

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3182.999      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4769.086      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.236      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2353.207  
 Energy Calibration Slope : 4.920592  
 Energy Calibration Quadratic : 3.2561756E-04  
 Energy Calibration Range : 7733.000

Instrument : CHAMBER 093  
 Detector : 33206  
 Calibration Date/Time : 11-AUG-2009 11:52:22  
 Calibration Source Id : AESS-029

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3182.729      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.662      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5794.973      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2374.507  
 Energy Calibration Slope : 4.905449  
 Energy Calibration Quadratic : 3.4070064E-04  
 Energy Calibration Range : 7755.000

Instrument : CHAMBER 094  
 Detector : 78267  
 Calibration Date/Time : 11-AUG-2009 11:52:36  
 Calibration Source Id : AESS-030

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3182.615      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.657      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5794.828      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2364.661  
 Energy Calibration Slope : 4.944430  
 Energy Calibration Quadratic : 3.0602465E-04  
 Energy Calibration Range : 7749.000

Instrument : CHAMBER 095  
 Detector : 64279  
 Calibration Date/Time : 11-AUG-2009 11:53:20  
 Calibration Source Id : AESS-031

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.800      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5794.924      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2360.997  
 Energy Calibration Slope : 4.923662  
 Energy Calibration Quadratic : 3.3134571E-04  
 Energy Calibration Range : 7750.000

Instrument : CHAMBER 096  
 Detector : 67605  
 Calibration Date/Time : 11-AUG-2009 11:53:35  
 Calibration Source Id : AESS-032

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3182.861      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.801      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5794.970      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2352.669  
 Energy Calibration Slope : 4.930194  
 Energy Calibration Quadratic : 3.4499675E-04  
 Energy Calibration Range : 7763.000

Instrument : CHAMBER 097  
 Detector : 67599  
 Calibration Date/Time : 11-AUG-2009 11:54:04  
 Calibration Source Id : AESS-033

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3182.385      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.497      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5794.575      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2366.630  
 Energy Calibration Slope : 4.955770  
 Energy Calibration Quadratic : 3.2342706E-04  
 Energy Calibration Range : 7780.000

Instrument : CHAMBER 098  
 Detector : 68644  
 Calibration Date/Time : 11-AUG-2009 11:54:57  
 Calibration Source Id : AESS-034

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.677      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.020      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2384.988  
 Energy Calibration Slope : 4.980790  
 Energy Calibration Quadratic : 3.1301824E-04  
 Energy Calibration Range : 7814.000

Instrument : CHAMBER 099  
 Detector : 70317  
 Calibration Date/Time : 11-AUG-2009 11:55:11  
 Calibration Source Id : AESS-035

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3182.657      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.798      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5794.872      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2370.271  
 Energy Calibration Slope : 4.896307  
 Energy Calibration Quadratic : 3.5264078E-04  
 Energy Calibration Range : 7754.000

Instrument : CHAMBER 100  
 Detector : 79456  
 Calibration Date/Time : 11-AUG-2009 11:55:23  
 Calibration Source Id : AESS-046

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.007      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.931      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.248      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2353.091  
 Energy Calibration Slope : 4.889555  
 Energy Calibration Quadratic : 3.4731548E-04  
 Energy Calibration Range : 7724.000

Instrument : CHAMBER 101  
 Detector : 64253  
 Calibration Date/Time : 11-AUG-2009 11:55:41  
 Calibration Source Id : AESS-037

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3182.482      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.628      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.004      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2413.378  
 Energy Calibration Slope : 4.941072  
 Energy Calibration Quadratic : 3.1744229E-04  
 Energy Calibration Range : 7806.000

Instrument : CHAMBER 102  
 Detector : 72525  
 Calibration Date/Time : 11-AUG-2009 11:55:55  
 Calibration Source Id : AESS-038

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3182.620      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.759      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.021      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2365.023  
 Energy Calibration Slope : 4.877947  
 Energy Calibration Quadratic : 3.3410732E-04  
 Energy Calibration Range : 7710.000

Instrument : CHAMBER 103  
 Detector : 79461  
 Calibration Date/Time : 11-AUG-2009 11:56:06  
 Calibration Source Id : AESS-039

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.724      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.020      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2388.602  
 Energy Calibration Slope : 4.925415  
 Energy Calibration Quadratic : 3.3399722E-04  
 Energy Calibration Range : 7782.000



Instrument : CHAMBER 104  
 Detector : 72524  
 Calibration Date/Time : 11-AUG-2009 11:56:56  
 Calibration Source Id : AESS-040  
 Cal. Isotopes    Source Id    Expiration Date    Standard Energy    Actual Energy  
   GD-148        6445-278      2/28/10            3183.000        3182.731  
   NP-237        4341          2/28/10            4768.800        4768.746  
   CM-244        4320A        2/28/10            5795.020        5794.950  
  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2361.164  
 Energy Calibration Slope : 4.875978  
 Energy Calibration Quadratic : 3.5914616E-04  
 Energy Calibration Range : 7731.000

Instrument : CHAMBER 105  
 Detector : 78777  
 Calibration Date/Time : 11-AUG-2009 11:57:20  
 Calibration Source Id : AESS-041  
 Cal. Isotopes    Source Id    Expiration Date    Standard Energy    Actual Energy  
   GD-148        6445-278      2/28/10            3183.000        3183.000  
   NP-237        4341          2/28/10            4768.800        4768.800  
   CM-244        4320A        2/28/10            5795.020        5795.021  
  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2374.957  
 Energy Calibration Slope : 4.877512  
 Energy Calibration Quadratic : 3.5687728E-04  
 Energy Calibration Range : 7744.000

Instrument : CHAMBER 106  
 Detector : 64274  
 Calibration Date/Time : 11-AUG-2009 11:57:33  
 Calibration Source Id : AESS-042  
 Cal. Isotopes    Source Id    Expiration Date    Standard Energy    Actual Energy  
   GD-148        6445-278      2/28/10            3183.000        3183.000  
   NP-237        4341          2/28/10            4768.800        4768.799  
   CM-244        4320A        2/28/10            5795.020        5795.021  
  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2386.397  
 Energy Calibration Slope : 4.925849  
 Energy Calibration Quadratic : 3.5619634E-04  
 Energy Calibration Range : 7804.000

Instrument : CHAMBER 107  
 Detector : 67578  
 Calibration Date/Time : 11-AUG-2009 11:58:23  
 Calibration Source Id : AESS-043

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3182.757      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.431      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5794.760      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2365.165  
 Energy Calibration Slope : 4.989622  
 Energy Calibration Quadratic : 3.0367926E-04  
 Energy Calibration Range : 7793.000

Instrument : CHAMBER 108  
 Detector : 78778  
 Calibration Date/Time : 11-AUG-2009 12:00:02  
 Calibration Source Id : AESS-044

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.799      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.085      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2361.750  
 Energy Calibration Slope : 4.889173  
 Energy Calibration Quadratic : 3.3859405E-04  
 Energy Calibration Range : 7723.000

Instrument : CHAMBER 109  
 Detector : 79463  
 Calibration Date/Time : 11-AUG-2009 12:00:23  
 Calibration Source Id : AESS-045

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.801      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.011      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2361.956  
 Energy Calibration Slope : 4.902098  
 Energy Calibration Quadratic : 3.6021773E-04  
 Energy Calibration Range : 7759.000

Instrument : CHAMBER 110  
 Detector : 67602  
 Calibration Date/Time : 11-AUG-2009 12:01:03  
 Calibration Source Id : AESS-046  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3180.240  
 NP-237 4341 2/28/10 4768.800 4767.627  
 CM-244 4320A 2/28/10 5795.020 5792.351  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2450.737  
 Energy Calibration Slope : 5.078455  
 Energy Calibration Quadratic : 3.6329794E-04  
 Energy Calibration Range : 8032.000

Instrument : CHAMBER 111  
 Detector : 79462  
 Calibration Date/Time : 11-AUG-2009 12:01:21  
 Calibration Source Id : AESS-047  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3182.689  
 NP-237 4341 2/28/10 4768.800 4768.620  
 CM-244 4320A 2/28/10 5795.020 5794.913  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2360.863  
 Energy Calibration Slope : 4.982990  
 Energy Calibration Quadratic : 3.1839884E-04  
 Energy Calibration Range : 7797.000

Instrument : CHAMBER 112  
 Detector : 78261  
 Calibration Date/Time : 11-AUG-2009 12:02:06  
 Calibration Source Id : AESS-048  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.798  
 CM-244 4320A 2/28/10 5795.020 5795.021  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2372.713  
 Energy Calibration Slope : 4.922604  
 Energy Calibration Quadratic : 3.2149741E-04  
 Energy Calibration Range : 7751.000

Instrument : CHAMBER 113  
 Detector : 45-111B4  
 Calibration Date/Time : 17-AUG-2009 14:57:05  
 Calibration Source Id : AESS-001

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.693      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.021      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2388.351  
 Energy Calibration Slope : 4.986037  
 Energy Calibration Quadratic : 2.9112995E-04  
 Energy Calibration Range : 7799.000

Instrument : CHAMBER 114  
 Detector : 78258  
 Calibration Date/Time : 17-AUG-2009 14:57:42  
 Calibration Source Id : AESS-007

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3182.738      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.375      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5794.878      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2341.717  
 Energy Calibration Slope : 4.967946  
 Energy Calibration Quadratic : 2.6719994E-04  
 Energy Calibration Range : 7709.000

Instrument : CHAMBER 115  
 Detector : 45-132FF4  
 Calibration Date/Time : 17-AUG-2009 14:57:55  
 Calibration Source Id : AESS-002

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.996      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.124      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2360.484  
 Energy Calibration Slope : 5.001271  
 Energy Calibration Quadratic : 2.5857674E-04  
 Energy Calibration Range : 7753.000

Instrument : CHAMBER 116  
 Detector : 45-132FF2  
 Calibration Date/Time : 17-AUG-2009 14:58:06  
 Calibration Source Id : AESS-008  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.296  
 NP-237 4341 2/28/10 4768.800 4768.799  
 CM-244 4320A 2/28/10 5795.020 5795.021  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2358.140  
 Energy Calibration Slope : 4.998592  
 Energy Calibration Quadratic : 2.4986797E-04  
 Energy Calibration Range : 7739.000

Instrument : CHAMBER 117  
 Detector : 33450  
 Calibration Date/Time : 17-AUG-2009 14:58:17  
 Calibration Source Id : AESS-003  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3182.212  
 NP-237 4341 2/28/10 4768.800 4768.136  
 CM-244 4320A 2/28/10 5795.020 5794.829  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2377.331  
 Energy Calibration Slope : 4.984442  
 Energy Calibration Quadratic : 2.6023277E-04  
 Energy Calibration Range : 7754.000

Instrument : CHAMBER 118  
 Detector : 75544  
 Calibration Date/Time : 17-AUG-2009 14:58:27  
 Calibration Source Id : AESS-009  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3182.453  
 NP-237 4341 2/28/10 4768.800 4768.624  
 CM-244 4320A 2/28/10 5795.020 5794.893  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2343.030  
 Energy Calibration Slope : 4.970738  
 Energy Calibration Quadratic : 2.7650801E-04  
 Energy Calibration Range : 7723.000

Instrument : CHAMBER 119  
 Detector : 74429  
 Calibration Date/Time : 2-FEB-2009 15:15:38  
 Calibration Source Id : AESS-004

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3001.688      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4669.281      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5706.875      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2437.949  
 Energy Calibration Slope : 5.036866  
 Energy Calibration Quadratic :  
 Energy Calibration Range : 7596.000

Instrument : CHAMBER 120  
 Detector : 74430  
 Calibration Date/Time : 18-AUG-2009 13:38:55  
 Calibration Source Id : AESS-010

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3182.734      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.799      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5794.984      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2316.127  
 Energy Calibration Slope : 4.939470  
 Energy Calibration Quadratic : 2.8824760E-04  
 Energy Calibration Range : 7676.000

Instrument : CHAMBER 121  
 Detector : 75545  
 Calibration Date/Time : 17-AUG-2009 14:58:37  
 Calibration Source Id : AESS-005

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3182.992      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.800      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5794.910      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2338.077  
 Energy Calibration Slope : 4.950966  
 Energy Calibration Quadratic : 2.8139201E-04  
 Energy Calibration Range : 7703.000

Instrument : CHAMBER 122  
 Detector : 75546  
 Calibration Date/Time : 17-AUG-2009 14:58:49  
 Calibration Source Id : AESS-011

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3182.767      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.557      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.021      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2334.596  
 Energy Calibration Slope : 4.961221  
 Energy Calibration Quadratic : 2.6947071E-04  
 Energy Calibration Range : 7697.000

Instrument : CHAMBER 123  
 Detector : 45-142V3  
 Calibration Date/Time : 17-AUG-2009 14:58:58  
 Calibration Source Id : AESS-006

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3182.626      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.419      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5794.913      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2377.630  
 Energy Calibration Slope : 4.988592  
 Energy Calibration Quadratic : 2.4062325E-04  
 Energy Calibration Range : 7738.000

Instrument : CHAMBER 124  
 Detector : 45-142V2  
 Calibration Date/Time : 17-AUG-2009 14:59:08  
 Calibration Source Id : AESS-012

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3182.737      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.348      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5794.822      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2389.445  
 Energy Calibration Slope : 5.014465  
 Energy Calibration Quadratic : 2.5700411E-04  
 Energy Calibration Range : 7794.000

Instrument : CHAMBER 125  
 Detector : 75547  
 Calibration Date/Time : 17-AUG-2009 14:59:18  
 Calibration Source Id : AESS-013  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3182.519  
 NP-237 4341 2/28/10 4768.800 4768.590  
 CM-244 4320A 2/28/10 5795.020 5794.968  
  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2346.234  
 Energy Calibration Slope : 4.935012  
 Energy Calibration Quadratic : 2.8653492E-04  
 Energy Calibration Range : 7700.000

Instrument : CHAMBER 126  
 Detector : 75548  
 Calibration Date/Time : 17-AUG-2009 14:59:32  
 Calibration Source Id : AESS-019  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3182.586  
 NP-237 4341 2/28/10 4768.800 4768.494  
 CM-244 4320A 2/28/10 5795.020 5794.836  
  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2351.831  
 Energy Calibration Slope : 5.025319  
 Energy Calibration Quadratic : 2.1107355E-04  
 Energy Calibration Range : 7719.000

Instrument : CHAMBER 127  
 Detector : 78770  
 Calibration Date/Time : 17-AUG-2009 14:59:46  
 Calibration Source Id : AESS-014  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3182.831  
 NP-237 4341 2/28/10 4768.800 4768.741  
 CM-244 4320A 2/28/10 5795.020 5794.894  
  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2339.154  
 Energy Calibration Slope : 4.970251  
 Energy Calibration Quadratic : 2.5652250E-04  
 Energy Calibration Range : 7698.000



Instrument : CHAMBER 128  
 Detector : 75549  
 Calibration Date/Time : 17-AUG-2009 15:00:39  
 Calibration Source Id : AESS-020

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3182.531      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.610      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5794.838      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2330.388  
 Energy Calibration Slope : 5.000057  
 Energy Calibration Quadratic : 2.3812153E-04  
 Energy Calibration Range : 7700.000

Instrument : CHAMBER 129  
 Detector : 76227  
 Calibration Date/Time : 17-AUG-2009 15:00:50  
 Calibration Source Id : AESS-015

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3182.843      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.717      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5794.874      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2351.215  
 Energy Calibration Slope : 4.930460  
 Energy Calibration Quadratic : 2.9455224E-04  
 Energy Calibration Range : 7709.000

Instrument : CHAMBER 130  
 Detector : 76228  
 Calibration Date/Time : 17-AUG-2009 15:01:00  
 Calibration Source Id : AESS-021

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3182.985      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.658      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5794.729      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2337.606  
 Energy Calibration Slope : 4.982665  
 Energy Calibration Quadratic : 2.2944069E-04  
 Energy Calibration Range : 7680.000

Instrument : CHAMBER 131  
 Detector : 33448  
 Calibration Date/Time : 17-AUG-2009 15:01:10  
 Calibration Source Id : AESS-016  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3178.948  
 NP-237 4341 2/28/10 4768.800 4766.564  
 CM-244 4320A 2/28/10 5795.020 5793.610  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2408.823  
 Energy Calibration Slope : 4.963500  
 Energy Calibration Quadratic : 2.8727154E-04  
 Energy Calibration Range : 7793.000

Instrument : CHAMBER 132  
 Detector : 67579  
 Calibration Date/Time : 17-AUG-2009 15:01:19  
 Calibration Source Id : AESS-022  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.495  
 CM-244 4320A 2/28/10 5795.020 5794.895  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2326.639  
 Energy Calibration Slope : 5.034670  
 Energy Calibration Quadratic : 2.1709618E-04  
 Energy Calibration Range : 7710.000

Instrument : CHAMBER 133  
 Detector : 76229  
 Calibration Date/Time : 17-AUG-2009 15:01:29  
 Calibration Source Id : AESS-017  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3182.802  
 NP-237 4341 2/28/10 4768.800 4768.798  
 CM-244 4320A 2/28/10 5795.020 5794.855  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2310.723  
 Energy Calibration Slope : 4.901457  
 Energy Calibration Quadratic : 2.6648620E-04  
 Energy Calibration Range : 7609.000

Instrument : CHAMBER 134  
 Detector : 76230  
 Calibration Date/Time : 17-AUG-2009 15:01:38  
 Calibration Source Id : AESS-023

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3182.670      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.734      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.020      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2328.671  
 Energy Calibration Slope : 4.971330  
 Energy Calibration Quadratic : 2.3919715E-04  
 Energy Calibration Range : 7670.000

Instrument : CHAMBER 135  
 Detector : 64270  
 Calibration Date/Time : 17-AUG-2009 15:01:50  
 Calibration Source Id : AESS-018

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.220      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.800      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.020      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2334.713  
 Energy Calibration Slope : 4.950563  
 Energy Calibration Quadratic : 2.6665861E-04  
 Energy Calibration Range : 7684.000

Instrument : CHAMBER 136  
 Detector : 68549  
 Calibration Date/Time : 17-AUG-2009 15:02:00  
 Calibration Source Id : AESS-024

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.547      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4769.648      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.176      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2352.961  
 Energy Calibration Slope : 4.996480  
 Energy Calibration Quadratic : 2.6544984E-04  
 Energy Calibration Range : 7748.000

Instrument : CHAMBER 137  
 Detector : 64288  
 Calibration Date/Time : 18-AUG-2009 09:58:00  
 Calibration Source Id : AESS-025

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.426      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5794.897      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2376.854  
 Energy Calibration Slope : 5.032813  
 Energy Calibration Quadratic : 2.8756596E-04  
 Energy Calibration Range : 7832.000

Instrument : CHAMBER 138  
 Detector : 65877  
 Calibration Date/Time : 17-AUG-2009 15:10:23  
 Calibration Source Id : AESS-031

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.778      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5794.902      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2376.472  
 Energy Calibration Slope : 4.997972  
 Energy Calibration Quadratic : 2.8433124E-04  
 Energy Calibration Range : 7793.000

Instrument : CHAMBER 139  
 Detector : 76231  
 Calibration Date/Time : 17-AUG-2009 15:10:36  
 Calibration Source Id : AESS-026

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3182.807      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.778      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.020      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2353.050  
 Energy Calibration Slope : 4.923675  
 Energy Calibration Quadratic : 3.2614564E-04  
 Energy Calibration Range : 7737.000

Instrument : CHAMBER 140  
 Detector : 78771  
 Calibration Date/Time : 17-AUG-2009 15:10:53  
 Calibration Source Id : AESS-032

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.800      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5794.950      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2343.606  
 Energy Calibration Slope : 4.949296  
 Energy Calibration Quadratic : 3.0935110E-04  
 Energy Calibration Range : 7736.000

Instrument : CHAMBER 141  
 Detector : 76232  
 Calibration Date/Time : 17-AUG-2009 15:11:05  
 Calibration Source Id : AESS-027

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3182.704      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.701      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.020      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2354.080  
 Energy Calibration Slope : 4.967496  
 Energy Calibration Quadratic : 2.7667297E-04  
 Energy Calibration Range : 7731.000

Instrument : CHAMBER 142  
 Detector : 64261  
 Calibration Date/Time : 17-AUG-2009 15:11:22  
 Calibration Source Id : AESS-033

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.800      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5794.996      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2377.858  
 Energy Calibration Slope : 4.966272  
 Energy Calibration Quadratic : 3.0408424E-04  
 Energy Calibration Range : 7782.000

Instrument : CHAMBER 143  
 Detector : 65882  
 Calibration Date/Time : 17-AUG-2009 15:11:35  
 Calibration Source Id : AESS-028

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3182.838      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.801      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.020      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2353.476  
 Energy Calibration Slope : 4.958334  
 Energy Calibration Quadratic : 2.9036327E-04  
 Energy Calibration Range : 7735.000

Instrument : CHAMBER 144  
 Detector : 75551  
 Calibration Date/Time : 17-AUG-2009 15:11:48  
 Calibration Source Id : AESS-034

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.149      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.801      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.020      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2348.280  
 Energy Calibration Slope : 4.953019  
 Energy Calibration Quadratic : 2.9027942E-04  
 Energy Calibration Range : 7725.000

Instrument : CHAMBER 145  
 Detector : 72526  
 Calibration Date/Time : 17-AUG-2009 15:12:06  
 Calibration Source Id : AESS-029

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.799      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5794.950      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2358.188  
 Energy Calibration Slope : 4.950538  
 Energy Calibration Quadratic : 3.1101296E-04  
 Energy Calibration Range : 7754.000

Instrument : CHAMBER 146  
 Detector : 72527  
 Calibration Date/Time : 17-AUG-2009 15:12:19  
 Calibration Source Id : AESS-035

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3182.841      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.589      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.021      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2352.896  
 Energy Calibration Slope : 4.936564  
 Energy Calibration Quadratic : 2.8588294E-04  
 Energy Calibration Range : 7708.000

Instrument : CHAMBER 147  
 Detector : 75550  
 Calibration Date/Time : 17-AUG-2009 15:12:37  
 Calibration Source Id : AESS-030

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3182.991      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.681      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5794.852      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2344.357  
 Energy Calibration Slope : 4.979820  
 Energy Calibration Quadratic : 2.4974984E-04  
 Energy Calibration Range : 7706.000

Instrument : CHAMBER 148  
 Detector : 74429  
 Calibration Date/Time : 17-AUG-2009 15:12:57  
 Calibration Source Id : AESS-036

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3182.790      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.746      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5794.901      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2347.048  
 Energy Calibration Slope : 4.952481  
 Energy Calibration Quadratic : 2.8881739E-04  
 Energy Calibration Range : 7721.000

Instrument : CHAMBER 149  
 Detector : 33449  
 Calibration Date/Time : 17-AUG-2009 15:02:09  
 Calibration Source Id : AESS-037

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3182.635      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.444      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5794.948      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2393.262  
 Energy Calibration Slope : 4.951241  
 Energy Calibration Quadratic : 3.0021602E-04  
 Energy Calibration Range : 7778.000

Instrument : CHAMBER 150  
 Detector : 75552  
 Calibration Date/Time : 17-AUG-2009 15:02:19  
 Calibration Source Id : AESS-043

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.799      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.021      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2357.177  
 Energy Calibration Slope : 4.964990  
 Energy Calibration Quadratic : 2.8429780E-04  
 Energy Calibration Range : 7739.000

Instrument : CHAMBER 151  
 Detector : 75556  
 Calibration Date/Time : 17-AUG-2009 15:02:29  
 Calibration Source Id : AESS-038

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.755      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5794.925      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2344.746  
 Energy Calibration Slope : 4.932197  
 Energy Calibration Quadratic : 2.7974858E-04  
 Energy Calibration Range : 7689.000



Instrument : CHAMBER 152  
 Detector : 76222  
 Calibration Date/Time : 17-AUG-2009 15:02:41  
 Calibration Source Id : AESS-044  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3182.811  
 NP-237 4341 2/28/10 4768.800 4768.798  
 CM-244 4320A 2/28/10 5795.020 5794.877  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2344.480  
 Energy Calibration Slope : 4.936235  
 Energy Calibration Quadratic : 2.8715734E-04  
 Energy Calibration Range : 7700.000

Instrument : CHAMBER 153  
 Detector : 76223  
 Calibration Date/Time : 17-AUG-2009 15:02:59  
 Calibration Source Id : AESS-039  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3182.810  
 NP-237 4341 2/28/10 4768.800 4768.800  
 CM-244 4320A 2/28/10 5795.020 5794.996  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2337.684  
 Energy Calibration Slope : 4.933674  
 Energy Calibration Quadratic : 3.0187287E-04  
 Energy Calibration Range : 7706.000

Instrument : CHAMBER 154  
 Detector : 76224  
 Calibration Date/Time : 17-AUG-2009 15:03:12  
 Calibration Source Id : AESS-045  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.801  
 CM-244 4320A 2/28/10 5795.020 5795.019  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2342.948  
 Energy Calibration Slope : 4.948957  
 Energy Calibration Quadratic : 2.8683257E-04  
 Energy Calibration Range : 7711.000

Instrument : CHAMBER 155  
 Detector : 75553  
 Calibration Date/Time : 17-AUG-2009 15:03:49  
 Calibration Source Id : AESS-040  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3182.770  
 NP-237 4341 2/28/10 4768.800 4768.662  
 CM-244 4320A 2/28/10 5795.020 5794.902  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2367.728  
 Energy Calibration Slope : 4.983710  
 Energy Calibration Quadratic : 2.8808211E-04  
 Energy Calibration Range : 7773.000

Instrument : CHAMBER 156  
 Detector : 75554  
 Calibration Date/Time : 17-AUG-2009 15:03:58  
 Calibration Source Id : AESS-046  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3182.851  
 NP-237 4341 2/28/10 4768.800 4768.705  
 CM-244 4320A 2/28/10 5795.020 5794.899  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2362.355  
 Energy Calibration Slope : 4.999010  
 Energy Calibration Quadratic : 2.6741659E-04  
 Energy Calibration Range : 7762.000

Instrument : CHAMBER 157  
 Detector : 75555  
 Calibration Date/Time : 17-AUG-2009 15:04:07  
 Calibration Source Id : AESS-041  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3182.868  
 NP-237 4341 2/28/10 4768.800 4768.768  
 CM-244 4320A 2/28/10 5795.020 5794.925  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2358.092  
 Energy Calibration Slope : 4.979420  
 Energy Calibration Quadratic : 2.8018607E-04  
 Energy Calibration Range : 7751.000

Instrument : CHAMBER 158  
 Detector : 33451  
 Calibration Date/Time : 17-AUG-2009 15:04:18  
 Calibration Source Id : AESS-047

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3182.449      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.432      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5794.938      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2389.976  
 Energy Calibration Slope : 5.006801  
 Energy Calibration Quadratic : 3.0287215E-04  
 Energy Calibration Range : 7835.000

Instrument : CHAMBER 159  
 Detector : 76225  
 Calibration Date/Time : 17-AUG-2009 15:04:28  
 Calibration Source Id : AESS-042

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.800      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.021      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2354.720  
 Energy Calibration Slope : 4.980748  
 Energy Calibration Quadratic : 2.9428111E-04  
 Energy Calibration Range : 7764.000

Instrument : CHAMBER 160  
 Detector : 76226  
 Calibration Date/Time : 17-AUG-2009 15:04:40  
 Calibration Source Id : AESS-048

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.799      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.021      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2355.649  
 Energy Calibration Slope : 4.990073  
 Energy Calibration Quadratic : 2.8874222E-04  
 Energy Calibration Range : 7768.000

Instrument : CHAMBER 161  
 Detector : 70321  
 Calibration Date/Time : 24-AUG-2009 14:06:47  
 Calibration Source Id : AESS-001  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.800  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2374.961  
 Energy Calibration Slope : 4.910189  
 Energy Calibration Quadratic : 3.2356248E-04  
 Energy Calibration Range : 7742.000

Instrument : CHAMBER 162  
 Detector : 70323  
 Calibration Date/Time : 24-AUG-2009 14:06:56  
 Calibration Source Id : AESS-007  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.799  
 CM-244 4320A 2/28/10 5795.020 5795.021  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2369.767  
 Energy Calibration Slope : 4.933752  
 Energy Calibration Quadratic : 2.9582490E-04  
 Energy Calibration Range : 7732.000

Instrument : CHAMBER 163  
 Detector : 70324  
 Calibration Date/Time : 24-AUG-2009 14:07:06  
 Calibration Source Id : AESS-002  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.801  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2380.833  
 Energy Calibration Slope : 4.951450  
 Energy Calibration Quadratic : 2.9602056E-04  
 Energy Calibration Range : 7762.000

Instrument : CHAMBER 164  
 Detector : 70325  
 Calibration Date/Time : 24-AUG-2009 14:07:20  
 Calibration Source Id : AESS-008  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.801  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2382.319  
 Energy Calibration Slope : 4.937610  
 Energy Calibration Quadratic : 3.1754762E-04  
 Energy Calibration Range : 7771.000

Instrument : CHAMBER 165  
 Detector : 72544  
 Calibration Date/Time : 24-AUG-2009 14:07:34  
 Calibration Source Id : AESS-003  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.801  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2383.801  
 Energy Calibration Slope : 4.978922  
 Energy Calibration Quadratic : 2.7212233E-04  
 Energy Calibration Range : 7768.000

Instrument : CHAMBER 166  
 Detector : 74545  
 Calibration Date/Time : 24-AUG-2009 14:07:42  
 Calibration Source Id : AESS-009  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.800  
 CM-244 4320A 2/28/10 5795.020 5795.021  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2376.102  
 Energy Calibration Slope : 4.917744  
 Energy Calibration Quadratic : 3.4292034E-04  
 Energy Calibration Range : 7771.000

Instrument : CHAMBER 167  
 Detector : 72546  
 Calibration Date/Time : 24-AUG-2009 14:07:51  
 Calibration Source Id : AESS-004

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.800      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.020      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2378.657  
 Energy Calibration Slope : 4.932514  
 Energy Calibration Quadratic : 3.1670861E-04  
 Energy Calibration Range : 7762.000

Instrument : CHAMBER 168  
 Detector : 72547  
 Calibration Date/Time : 24-AUG-2009 14:07:59  
 Calibration Source Id : AESS-010

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.799      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.021      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2383.249  
 Energy Calibration Slope : 4.927288  
 Energy Calibration Quadratic : 3.2642024E-04  
 Energy Calibration Range : 7771.000

Instrument : CHAMBER 169  
 Detector : 72548  
 Calibration Date/Time : 24-AUG-2009 14:08:11  
 Calibration Source Id : AESS-005

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.799      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.021      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2381.642  
 Energy Calibration Slope : 4.923596  
 Energy Calibration Quadratic : 3.2521432E-04  
 Energy Calibration Range : 7764.000

Instrument : CHAMBER 170  
 Detector : 72549  
 Calibration Date/Time : 24-AUG-2009 14:08:20  
 Calibration Source Id : AESS-011

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.492      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.021      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2382.004  
 Energy Calibration Slope : 4.926051  
 Energy Calibration Quadratic : 3.3877406E-04  
 Energy Calibration Range : 7782.000

Instrument : CHAMBER 171  
 Detector : 78260  
 Calibration Date/Time : 24-AUG-2009 14:08:29  
 Calibration Source Id : AESS-006

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4769.426      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.289      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2366.691  
 Energy Calibration Slope : 4.935659  
 Energy Calibration Quadratic : 3.0618926E-04  
 Energy Calibration Range : 7742.000

Instrument : CHAMBER 172  
 Detector : 78772  
 Calibration Date/Time : 24-AUG-2009 14:08:40  
 Calibration Source Id : AESS-012

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.798      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.021      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2367.995  
 Energy Calibration Slope : 4.907234  
 Energy Calibration Quadratic : 3.5045875E-04  
 Energy Calibration Range : 7760.000

Instrument : CHAMBER 173  
 Detector : 74431  
 Calibration Date/Time : 24-AUG-2009 14:08:49  
 Calibration Source Id : AESS-013  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.801  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2364.808  
 Energy Calibration Slope : 4.998088  
 Energy Calibration Quadratic : 2.5220143E-04  
 Energy Calibration Range : 7747.000

Instrument : CHAMBER 174  
 Detector : 74432  
 Calibration Date/Time : 24-AUG-2009 14:08:58  
 Calibration Source Id : AESS-019  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.801  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2359.695  
 Energy Calibration Slope : 5.048626  
 Energy Calibration Quadratic : 1.8959134E-04  
 Energy Calibration Range : 7728.000

Instrument : CHAMBER 175  
 Detector : 74433  
 Calibration Date/Time : 24-AUG-2009 14:09:06  
 Calibration Source Id : AESS-014  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.801  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2365.396  
 Energy Calibration Slope : 4.978646  
 Energy Calibration Quadratic : 2.7462494E-04  
 Energy Calibration Range : 7751.000



Instrument : CHAMBER 176  
 Detector : 74434  
 Calibration Date/Time : 24-AUG-2009 14:09:15  
 Calibration Source Id : AESS-020

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.800      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.020      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2362.332  
 Energy Calibration Slope : 5.014320  
 Energy Calibration Quadratic : 2.4356594E-04  
 Energy Calibration Range : 7752.000

Instrument : CHAMBER 177  
 Detector : 74435  
 Calibration Date/Time : 24-AUG-2009 14:09:24  
 Calibration Source Id : AESS-015

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.800      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.020      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2364.740  
 Energy Calibration Slope : 4.964604  
 Energy Calibration Quadratic : 2.9061688E-04  
 Energy Calibration Range : 7753.000

Instrument : CHAMBER 178  
 Detector : 74436  
 Calibration Date/Time : 24-AUG-2009 14:09:35  
 Calibration Source Id : AESS-021

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.799      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.020      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2358.420  
 Energy Calibration Slope : 4.990875  
 Energy Calibration Quadratic : 2.6006214E-04  
 Energy Calibration Range : 7742.000

Instrument : CHAMBER 179  
 Detector : 74437  
 Calibration Date/Time : 24-AUG-2009 14:09:44  
 Calibration Source Id : AESS-016  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.800  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2360.365  
 Energy Calibration Slope : 4.967896  
 Energy Calibration Quadratic : 2.8685154E-04  
 Energy Calibration Range : 7748.000

Instrument : CHAMBER 180  
 Detector : 74438  
 Calibration Date/Time : 24-AUG-2009 14:09:54  
 Calibration Source Id : AESS-022  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.800  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2358.338  
 Energy Calibration Slope : 5.025792  
 Energy Calibration Quadratic : 2.1654682E-04  
 Energy Calibration Range : 7732.000

Instrument : CHAMBER 181  
 Detector : 74439  
 Calibration Date/Time : 24-AUG-2009 14:10:03  
 Calibration Source Id : AESS-017  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.697  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2362.787  
 Energy Calibration Slope : 4.972206  
 Energy Calibration Quadratic : 2.7814286E-04  
 Energy Calibration Range : 7746.000

Instrument : CHAMBER 182  
 Detector : 74440  
 Calibration Date/Time : 24-AUG-2009 14:10:14  
 Calibration Source Id : AESS-023

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.799      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.021      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2353.051  
 Energy Calibration Slope : 4.986979  
 Energy Calibration Quadratic : 2.5764259E-04  
 Energy Calibration Range : 7730.000

Instrument : CHAMBER 183  
 Detector : 74441  
 Calibration Date/Time : 24-AUG-2009 14:10:29  
 Calibration Source Id : AESS-018

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.799      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.021      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2362.208  
 Energy Calibration Slope : 4.980685  
 Energy Calibration Quadratic : 2.7016739E-04  
 Energy Calibration Range : 7746.000

Instrument : CHAMBER 184  
 Detector : 74442  
 Calibration Date/Time : 24-AUG-2009 14:10:41  
 Calibration Source Id : AESS-024

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.799      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.021      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2359.055  
 Energy Calibration Slope : 5.010284  
 Energy Calibration Quadratic : 2.3703104E-04  
 Energy Calibration Range : 7738.000

Instrument : CHAMBER 185  
 Detector : 68615  
 Calibration Date/Time : 24-AUG-2009 14:10:54  
 Calibration Source Id : AESS-025  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.699  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2361.733  
 Energy Calibration Slope : 4.933492  
 Energy Calibration Quadratic : 2.8617174E-04  
 Energy Calibration Range : 7714.000

Instrument : CHAMBER 186  
 Detector : 68616  
 Calibration Date/Time : 24-AUG-2009 14:11:06  
 Calibration Source Id : AESS-031  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.800  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2365.753  
 Energy Calibration Slope : 4.935731  
 Energy Calibration Quadratic : 2.9755512E-04  
 Energy Calibration Range : 7732.000

Instrument : CHAMBER 187  
 Detector : 68620  
 Calibration Date/Time : 24-AUG-2009 14:11:16  
 Calibration Source Id : AESS-026  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.801  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2376.047  
 Energy Calibration Slope : 4.966012  
 Energy Calibration Quadratic : 3.0612116E-04  
 Energy Calibration Range : 7782.000

Instrument : CHAMBER 188  
 Detector : 68621  
 Calibration Date/Time : 24-AUG-2009 14:11:25  
 Calibration Source Id : AESS-032

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.799      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.021      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2368.519  
 Energy Calibration Slope : 4.967674  
 Energy Calibration Quadratic : 2.9094989E-04  
 Energy Calibration Range : 7761.000

Instrument : CHAMBER 189  
 Detector : 68622  
 Calibration Date/Time : 24-AUG-2009 14:11:34  
 Calibration Source Id : AESS-027

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.800      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.020      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2363.805  
 Energy Calibration Slope : 4.932057  
 Energy Calibration Quadratic : 3.0281782E-04  
 Energy Calibration Range : 7732.000

Instrument : CHAMBER 190  
 Detector : 68623  
 Calibration Date/Time : 24-AUG-2009 14:11:43  
 Calibration Source Id : AESS-033

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.799      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.021      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2358.846  
 Energy Calibration Slope : 4.945598  
 Energy Calibration Quadratic : 2.9230170E-04  
 Energy Calibration Range : 7730.000

Instrument : CHAMBER 191  
 Detector : 68624  
 Calibration Date/Time : 24-AUG-2009 14:11:54  
 Calibration Source Id : AESS-028

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.800      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.020      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2370.757  
 Energy Calibration Slope : 4.964250  
 Energy Calibration Quadratic : 3.1056980E-04  
 Energy Calibration Range : 7780.000

Instrument : CHAMBER 192  
 Detector : 74430  
 Calibration Date/Time : 24-AUG-2009 14:12:04  
 Calibration Source Id : AESS-034

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.800      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.021      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2365.552  
 Energy Calibration Slope : 4.984001  
 Energy Calibration Quadratic : 2.9122332E-04  
 Energy Calibration Range : 7775.000

Instrument : CHAMBER 193  
 Detector : 68627  
 Calibration Date/Time : 24-AUG-2009 14:12:15  
 Calibration Source Id : AESS-029

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.799      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.021      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2364.432  
 Energy Calibration Slope : 4.926356  
 Energy Calibration Quadratic : 3.1079396E-04  
 Energy Calibration Range : 7735.000

Instrument : CHAMBER 194  
 Detector : 68635  
 Calibration Date/Time : 24-AUG-2009 14:12:24  
 Calibration Source Id : AESS-035

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.801      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.020      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2361.972  
 Energy Calibration Slope : 4.949121  
 Energy Calibration Quadratic : 2.8917161E-04  
 Energy Calibration Range : 7733.000

Instrument : CHAMBER 195  
 Detector : 68636  
 Calibration Date/Time : 24-AUG-2009 14:12:38  
 Calibration Source Id : AESS-030

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.802      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.020      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2361.575  
 Energy Calibration Slope : 4.972611  
 Energy Calibration Quadratic : 2.6226370E-04  
 Energy Calibration Range : 7729.000

Instrument : CHAMBER 196  
 Detector : 68637  
 Calibration Date/Time : 24-AUG-2009 14:12:49  
 Calibration Source Id : AESS-036

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.799      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.021      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2364.691  
 Energy Calibration Slope : 4.926461  
 Energy Calibration Quadratic : 3.1398068E-04  
 Energy Calibration Range : 7739.000

Instrument : CHAMBER 197  
 Detector : 78894  
 Calibration Date/Time : 24-AUG-2009 14:12:58  
 Calibration Source Id : AESS-037

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.801      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.020      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2371.940  
 Energy Calibration Slope : 4.962372  
 Energy Calibration Quadratic : 3.0214558E-04  
 Energy Calibration Range : 7770.000

Instrument : CHAMBER 198  
 Detector : 78895  
 Calibration Date/Time : 24-AUG-2009 14:13:11  
 Calibration Source Id : AESS-043

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.801      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.020      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2366.058  
 Energy Calibration Slope : 4.966545  
 Energy Calibration Quadratic : 2.8346200E-04  
 Energy Calibration Range : 7749.000

Instrument : CHAMBER 199  
 Detector : 78896  
 Calibration Date/Time : 24-AUG-2009 14:13:20  
 Calibration Source Id : AESS-038

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.800      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.020      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2368.399  
 Energy Calibration Slope : 4.967513  
 Energy Calibration Quadratic : 2.9532972E-04  
 Energy Calibration Range : 7765.000



Instrument : CHAMBER 200  
 Detector : 78900  
 Calibration Date/Time : 24-AUG-2009 14:13:29  
 Calibration Source Id : AESS-044

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.801      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.020      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2366.221  
 Energy Calibration Slope : 4.968300  
 Energy Calibration Quadratic : 2.9352392E-04  
 Energy Calibration Range : 7762.000

Instrument : CHAMBER 201  
 Detector : 78902  
 Calibration Date/Time : 24-AUG-2009 14:13:38  
 Calibration Source Id : AESS-039

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.801      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.020      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2362.156  
 Energy Calibration Slope : 4.974658  
 Energy Calibration Quadratic : 2.9066936E-04  
 Energy Calibration Range : 7761.000

Instrument : CHAMBER 202  
 Detector : 78903  
 Calibration Date/Time : 24-AUG-2009 14:13:47  
 Calibration Source Id : AESS-045

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.800      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.020      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2356.033  
 Energy Calibration Slope : 4.956886  
 Energy Calibration Quadratic : 2.9409473E-04  
 Energy Calibration Range : 7740.000

Instrument : CHAMBER 203  
 Detector : 78905  
 Calibration Date/Time : 24-AUG-2009 14:16:33  
 Calibration Source Id : AESS-040

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.800      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.020      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2364.159  
 Energy Calibration Slope : 4.957525  
 Energy Calibration Quadratic : 3.0185276E-04  
 Energy Calibration Range : 7757.000

Instrument : CHAMBER 204  
 Detector : 78907  
 Calibration Date/Time : 24-AUG-2009 14:14:37  
 Calibration Source Id : AESS-046

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.799      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.021      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2361.336  
 Energy Calibration Slope : 4.953297  
 Energy Calibration Quadratic : 3.0559121E-04  
 Energy Calibration Range : 7754.000

Instrument : CHAMBER 205  
 Detector : 78908  
 Calibration Date/Time : 24-AUG-2009 14:14:46  
 Calibration Source Id : AESS-041

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.800      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.020      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2366.916  
 Energy Calibration Slope : 4.956555  
 Energy Calibration Quadratic : 3.0603251E-04  
 Energy Calibration Range : 7763.000

Instrument : CHAMBER 206  
 Detector : 78909  
 Calibration Date/Time : 24-AUG-2009 14:14:55  
 Calibration Source Id : AESS-047  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.800  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2362.312  
 Energy Calibration Slope : 4.958225  
 Energy Calibration Quadratic : 2.9557038E-04  
 Energy Calibration Range : 7749.000

Instrument : CHAMBER 207  
 Detector : 78910  
 Calibration Date/Time : 24-AUG-2009 14:15:04  
 Calibration Source Id : AESS-042  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.801  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2365.581  
 Energy Calibration Slope : 4.980759  
 Energy Calibration Quadratic : 2.8388310E-04  
 Energy Calibration Range : 7764.000

Instrument : CHAMBER 208  
 Detector : 78911  
 Calibration Date/Time : 24-AUG-2009 14:15:14  
 Calibration Source Id : AESS-048  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.800  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2364.472  
 Energy Calibration Slope : 4.972521  
 Energy Calibration Quadratic : 2.9282621E-04  
 Energy Calibration Range : 7763.000

Instrument : CHAMBER 209  
 Detector : 79188  
 Calibration Date/Time : 28-AUG-2009 13:24:07  
 Calibration Source Id : AESS-001

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.335      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5794.881      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2390.838  
 Energy Calibration Slope : 4.927811  
 Energy Calibration Quadratic : 3.3034658E-04  
 Energy Calibration Range : 7783.000

Instrument : CHAMBER 210  
 Detector : 79189  
 Calibration Date/Time : 28-AUG-2009 13:25:35  
 Calibration Source Id : AESS-002

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3182.411      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.113      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5794.645      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2383.667  
 Energy Calibration Slope : 4.959684  
 Energy Calibration Quadratic : 2.9263049E-04  
 Energy Calibration Range : 7769.000

Instrument : CHAMBER 211  
 Detector : 79190  
 Calibration Date/Time : 28-AUG-2009 13:25:47  
 Calibration Source Id : AESS-003

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3182.995      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.326      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5794.748      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2392.783  
 Energy Calibration Slope : 4.948876  
 Energy Calibration Quadratic : 3.2176418E-04  
 Energy Calibration Range : 7798.000

Instrument : CHAMBER 212  
 Detector : 79191  
 Calibration Date/Time : 28-AUG-2009 13:26:50  
 Calibration Source Id : AESS-004

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3182.995      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.536      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5794.696      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2390.425  
 Energy Calibration Slope : 4.930474  
 Energy Calibration Quadratic : 3.3508314E-04  
 Energy Calibration Range : 7791.000

Instrument : CHAMBER 213  
 Detector : 79192  
 Calibration Date/Time : 28-AUG-2009 13:27:02  
 Calibration Source Id : AESS-005

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.585      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.020      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2391.388  
 Energy Calibration Slope : 4.965888  
 Energy Calibration Quadratic : 2.9186261E-04  
 Energy Calibration Range : 7782.000

Instrument : CHAMBER 214  
 Detector : 79193  
 Calibration Date/Time : 28-AUG-2009 13:27:13  
 Calibration Source Id : AESS-006

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3182.617      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.269      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5794.897      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2388.729  
 Energy Calibration Slope : 4.939622  
 Energy Calibration Quadratic : 3.2170661E-04  
 Energy Calibration Range : 7784.000

Instrument : CHAMBER 215  
 Detector : 79194  
 Calibration Date/Time : 28-AUG-2009 13:27:24  
 Calibration Source Id : AESS-007

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.687      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5794.826      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2394.311  
 Energy Calibration Slope : 4.937372  
 Energy Calibration Quadratic : 3.3629968E-04  
 Energy Calibration Range : 7803.000

Instrument : CHAMBER 216  
 Detector : 79195  
 Calibration Date/Time : 28-AUG-2009 13:27:35  
 Calibration Source Id : AESS-008

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3182.995      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.219      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.021      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2390.139  
 Energy Calibration Slope : 4.935822  
 Energy Calibration Quadratic : 3.2837162E-04  
 Energy Calibration Range : 7789.000

Instrument : CHAMBER 217  
 Detector : 79410  
 Calibration Date/Time : 28-AUG-2009 13:27:45  
 Calibration Source Id : AESS-009

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3182.999      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.801      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5794.882      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2392.370  
 Energy Calibration Slope : 4.932100  
 Energy Calibration Quadratic : 3.3393077E-04  
 Energy Calibration Range : 7793.000

Instrument : CHAMBER 218  
 Detector : 79411  
 Calibration Date/Time : 28-AUG-2009 13:27:55  
 Calibration Source Id : AESS-010  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3182.358  
 NP-237 4341 2/28/10 4768.800 4768.423  
 CM-244 4320A 2/28/10 5795.020 5794.546  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2390.502  
 Energy Calibration Slope : 4.945263  
 Energy Calibration Quadratic : 3.2289582E-04  
 Energy Calibration Range : 7793.000

Instrument : CHAMBER 219  
 Detector : 79412  
 Calibration Date/Time : 28-AUG-2009 13:28:06  
 Calibration Source Id : AESS-011  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.507  
 CM-244 4320A 2/28/10 5795.020 5794.730  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2388.417  
 Energy Calibration Slope : 4.951864  
 Energy Calibration Quadratic : 3.1518008E-04  
 Energy Calibration Range : 7790.000

Instrument : CHAMBER 220  
 Detector : 79413  
 Calibration Date/Time : 28-AUG-2009 13:28:15  
 Calibration Source Id : AESS-012  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.604  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2384.931  
 Energy Calibration Slope : 4.925590  
 Energy Calibration Quadratic : 3.4113281E-04  
 Energy Calibration Range : 7786.000

Instrument : CHAMBER 221  
 Detector : 79414  
 Calibration Date/Time : 28-AUG-2009 13:28:26  
 Calibration Source Id : AESS-013

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3182.994      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.508      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.021      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2389.873  
 Energy Calibration Slope : 4.963081  
 Energy Calibration Quadratic : 3.1328213E-04  
 Energy Calibration Range : 7801.000

Instrument : CHAMBER 222  
 Detector : 79415  
 Calibration Date/Time : 28-AUG-2009 13:28:40  
 Calibration Source Id : AESS-014

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.242      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.020      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2383.161  
 Energy Calibration Slope : 5.032124  
 Energy Calibration Quadratic : 2.3446424E-04  
 Energy Calibration Range : 7782.000

Instrument : CHAMBER 223  
 Detector : 79416  
 Calibration Date/Time : 28-AUG-2009 13:28:50  
 Calibration Source Id : AESS-015

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.591      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5794.816      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2389.471  
 Energy Calibration Slope : 4.966544  
 Energy Calibration Quadratic : 3.1951332E-04  
 Energy Calibration Range : 7810.000



Instrument : CHAMBER 224  
 Detector : 79417  
 Calibration Date/Time : 28-AUG-2009 13:29:01  
 Calibration Source Id : AESS-016  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3182.496  
 NP-237 4341 2/28/10 4768.800 4768.799  
 CM-244 4320A 2/28/10 5795.020 5795.021  
  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2391.014  
 Energy Calibration Slope : 4.986970  
 Energy Calibration Quadratic : 2.9468181E-04  
 Energy Calibration Range : 7807.000

Instrument : CHAMBER 225  
 Detector : 79418  
 Calibration Date/Time : 28-AUG-2009 13:29:13  
 Calibration Source Id : AESS-017  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3182.995  
 NP-237 4341 2/28/10 4768.800 4768.482  
 CM-244 4320A 2/28/10 5795.020 5794.771  
  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2392.520  
 Energy Calibration Slope : 4.953336  
 Energy Calibration Quadratic : 3.1543931E-04  
 Energy Calibration Range : 7795.000

Instrument : CHAMBER 226  
 Detector : 79419  
 Calibration Date/Time : 28-AUG-2009 13:29:24  
 Calibration Source Id : AESS-018  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.533  
 CM-244 4320A 2/28/10 5795.020 5794.638  
  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2385.990  
 Energy Calibration Slope : 4.969761  
 Energy Calibration Quadratic : 3.0473244E-04  
 Energy Calibration Range : 7795.000

Instrument : CHAMBER 227  
 Detector : 79420  
 Calibration Date/Time : 28-AUG-2009 13:29:35  
 Calibration Source Id : AESS-019  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3182.989  
 NP-237 4341 2/28/10 4768.800 4768.396  
 CM-244 4320A 2/28/10 5795.020 5795.019  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2390.018  
 Energy Calibration Slope : 4.958102  
 Energy Calibration Quadratic : 3.1095589E-04  
 Energy Calibration Range : 7793.000

Instrument : CHAMBER 228  
 Detector : 79421  
 Calibration Date/Time : 28-AUG-2009 13:30:03  
 Calibration Source Id : AESS-020  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.001  
 NP-237 4341 2/28/10 4768.800 4768.080  
 CM-244 4320A 2/28/10 5795.020 5794.730  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2384.553  
 Energy Calibration Slope : 4.991631  
 Energy Calibration Quadratic : 2.7237524E-04  
 Energy Calibration Range : 7782.000

Instrument : CHAMBER 229  
 Detector : 79422  
 Calibration Date/Time : 28-AUG-2009 13:30:14  
 Calibration Source Id : AESS-021  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3182.535  
 NP-237 4341 2/28/10 4768.800 4768.314  
 CM-244 4320A 2/28/10 5795.020 5794.771  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2391.623  
 Energy Calibration Slope : 4.946116  
 Energy Calibration Quadratic : 3.3402635E-04  
 Energy Calibration Range : 7807.000

Instrument : CHAMBER 230  
 Detector : 79423  
 Calibration Date/Time : 28-AUG-2009 13:31:10  
 Calibration Source Id : AESS-022

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.295      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5794.755      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2386.924  
 Energy Calibration Slope : 4.965939  
 Energy Calibration Quadratic : 3.0765639E-04  
 Energy Calibration Range : 7795.000

Instrument : CHAMBER 231  
 Detector : 79424  
 Calibration Date/Time : 28-AUG-2009 13:31:59  
 Calibration Source Id : AESS-023

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3182.555      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.511      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5794.833      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2389.970  
 Energy Calibration Slope : 4.957988  
 Energy Calibration Quadratic : 3.0450191E-04  
 Energy Calibration Range : 7786.000

Instrument : CHAMBER 232  
 Detector : 79425  
 Calibration Date/Time : 28-AUG-2009 13:32:18  
 Calibration Source Id : AESS-024

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.305      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5794.704      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2386.107  
 Energy Calibration Slope : 5.009925  
 Energy Calibration Quadratic : 2.5456178E-04  
 Energy Calibration Range : 7783.000

Instrument : CHAMBER 233  
 Detector : 79426  
 Calibration Date/Time : 28-AUG-2009 13:32:35  
 Calibration Source Id : AESS-025

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.576      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5794.737      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2384.864  
 Energy Calibration Slope : 4.921108  
 Energy Calibration Quadratic : 3.4491287E-04  
 Energy Calibration Range : 7786.000

Instrument : CHAMBER 234  
 Detector : 79427  
 Calibration Date/Time : 28-AUG-2009 13:32:51  
 Calibration Source Id : AESS-026

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3182.551      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.513      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5794.778      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2381.948  
 Energy Calibration Slope : 4.930495  
 Energy Calibration Quadratic : 3.2252993E-04  
 Energy Calibration Range : 7769.000

Instrument : CHAMBER 235  
 Detector : 79428  
 Calibration Date/Time : 28-AUG-2009 13:33:07  
 Calibration Source Id : AESS-027

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.799      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.021      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2389.848  
 Energy Calibration Slope : 4.916008  
 Energy Calibration Quadratic : 3.6057594E-04  
 Energy Calibration Range : 7802.000

Instrument : CHAMBER 236  
 Detector : 79429  
 Calibration Date/Time : 28-AUG-2009 13:33:24  
 Calibration Source Id : AESS-028

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.403      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.021      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2389.679  
 Energy Calibration Slope : 4.915041  
 Energy Calibration Quadratic : 3.5203501E-04  
 Energy Calibration Range : 7792.000

Instrument : CHAMBER 237  
 Detector : 79430  
 Calibration Date/Time : 28-AUG-2009 13:33:41  
 Calibration Source Id : AESS-029

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.800      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.020      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2386.371  
 Energy Calibration Slope : 4.953910  
 Energy Calibration Quadratic : 3.1539882E-04  
 Energy Calibration Range : 7790.000

Instrument : CHAMBER 238  
 Detector : 79431  
 Calibration Date/Time : 28-AUG-2009 13:33:59  
 Calibration Source Id : AESS-030

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.662      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.015      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2382.061  
 Energy Calibration Slope : 4.932787  
 Energy Calibration Quadratic : 3.2764973E-04  
 Energy Calibration Range : 7777.000

Instrument : CHAMBER 239  
 Detector : 79432  
 Calibration Date/Time : 28-AUG-2009 13:34:23  
 Calibration Source Id : AESS-031

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.800      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.020      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2390.464  
 Energy Calibration Slope : 4.922751  
 Energy Calibration Quadratic : 3.5207078E-04  
 Energy Calibration Range : 7801.000

Instrument : CHAMBER 240  
 Detector : 79433  
 Calibration Date/Time : 28-AUG-2009 13:34:40  
 Calibration Source Id : AESS-032

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3182.994      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.676      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.020      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2384.323  
 Energy Calibration Slope : 4.929180  
 Energy Calibration Quadratic : 3.3816224E-04  
 Energy Calibration Range : 7786.000

Instrument : CHAMBER 241  
 Detector : 79434  
 Calibration Date/Time : 28-AUG-2009 13:34:57  
 Calibration Source Id : AESS-033

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.801      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.020      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2388.207  
 Energy Calibration Slope : 4.903821  
 Energy Calibration Quadratic : 3.6748822E-04  
 Energy Calibration Range : 7795.000

Instrument : CHAMBER 242  
 Detector : 79435  
 Calibration Date/Time : 28-AUG-2009 13:35:16  
 Calibration Source Id : AESS-034

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.542      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5794.775      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2390.032  
 Energy Calibration Slope : 4.921538  
 Energy Calibration Quadratic : 3.5085063E-04  
 Energy Calibration Range : 7798.000

Instrument : CHAMBER 243  
 Detector : 79436  
 Calibration Date/Time : 28-AUG-2009 13:35:39  
 Calibration Source Id : AESS-035

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3182.988      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.486      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5794.752      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2386.548  
 Energy Calibration Slope : 4.951634  
 Energy Calibration Quadratic : 3.2005890E-04  
 Energy Calibration Range : 7793.000

Instrument : CHAMBER 244  
 Detector : 79437  
 Calibration Date/Time : 28-AUG-2009 13:36:07  
 Calibration Source Id : AESS-036

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3182.497      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.339      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5794.813      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2390.547  
 Energy Calibration Slope : 4.935142  
 Energy Calibration Quadratic : 3.3349055E-04  
 Energy Calibration Range : 7794.000

Instrument : CHAMBER 245  
 Detector : 79438  
 Calibration Date/Time : 28-AUG-2009 13:36:53  
 Calibration Source Id : AESS-037  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3182.392  
 NP-237 4341 2/28/10 4768.800 4768.244  
 CM-244 4320A 2/28/10 5795.020 5794.789  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2393.397  
 Energy Calibration Slope : 4.967153  
 Energy Calibration Quadratic : 3.0749093E-04  
 Energy Calibration Range : 7802.000

Instrument : CHAMBER 246  
 Detector : 78912  
 Calibration Date/Time : 28-AUG-2009 13:37:05  
 Calibration Source Id : AESS-038  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3182.994  
 NP-237 4341 2/28/10 4768.800 4768.559  
 CM-244 4320A 2/28/10 5795.020 5794.661  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2393.972  
 Energy Calibration Slope : 4.938848  
 Energy Calibration Quadratic : 3.3234741E-04  
 Energy Calibration Range : 7800.000

Instrument : CHAMBER 247  
 Detector : 79440  
 Calibration Date/Time : 28-AUG-2009 13:37:16  
 Calibration Source Id : AESS-039  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.001  
 NP-237 4341 2/28/10 4768.800 4768.340  
 CM-244 4320A 2/28/10 5795.020 5794.822  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2392.511  
 Energy Calibration Slope : 4.947969  
 Energy Calibration Quadratic : 3.3144341E-04  
 Energy Calibration Range : 7807.000



Instrument : CHAMBER 248  
 Detector : 79441  
 Calibration Date/Time : 28-AUG-2009 13:37:28  
 Calibration Source Id : AESS-040

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.801      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5794.763      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2387.425  
 Energy Calibration Slope : 4.938920  
 Energy Calibration Quadratic : 3.3573247E-04  
 Energy Calibration Range : 7797.000

Instrument : CHAMBER 249  
 Detector : 79442  
 Calibration Date/Time : 28-AUG-2009 13:37:39  
 Calibration Source Id : AESS-041

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.655      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5794.817      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2387.492  
 Energy Calibration Slope : 4.950956  
 Energy Calibration Quadratic : 3.3470633E-04  
 Energy Calibration Range : 7808.000

Instrument : CHAMBER 250  
 Detector : 79443  
 Calibration Date/Time : 28-AUG-2009 13:37:51  
 Calibration Source Id : AESS-042

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.800      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.020      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2382.437  
 Energy Calibration Slope : 4.924478  
 Energy Calibration Quadratic : 3.4610991E-04  
 Energy Calibration Range : 7788.000

Instrument : CHAMBER 251  
 Detector : 79444  
 Calibration Date/Time : 28-AUG-2009 13:38:01  
 Calibration Source Id : AESS-043

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.630      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5794.883      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2390.000  
 Energy Calibration Slope : 4.933837  
 Energy Calibration Quadratic : 3.5430092E-04  
 Energy Calibration Range : 7814.000

Instrument : CHAMBER 252  
 Detector : 79445  
 Calibration Date/Time : 28-AUG-2009 13:38:11  
 Calibration Source Id : AESS-044

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.618      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5794.764      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2389.483  
 Energy Calibration Slope : 4.925191  
 Energy Calibration Quadratic : 3.5263240E-04  
 Energy Calibration Range : 7803.000

Instrument : CHAMBER 253  
 Detector : 79446  
 Calibration Date/Time : 28-AUG-2009 13:38:20  
 Calibration Source Id : AESS-045

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3183.000      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.801      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5794.899      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2397.089  
 Energy Calibration Slope : 4.939593  
 Energy Calibration Quadratic : 3.6825475E-04  
 Energy Calibration Range : 7841.000

Instrument : CHAMBER 254  
 Detector : 79447  
 Calibration Date/Time : 28-AUG-2009 13:38:31  
 Calibration Source Id : AESS-046

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3182.420      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.432      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5794.736      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2392.513  
 Energy Calibration Slope : 4.939602  
 Energy Calibration Quadratic : 3.3955529E-04  
 Energy Calibration Range : 7807.000

Instrument : CHAMBER 255  
 Detector : 79448  
 Calibration Date/Time : 28-AUG-2009 13:38:42  
 Calibration Source Id : AESS-047

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3182.573      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.801      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5795.019      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2389.962  
 Energy Calibration Slope : 4.937794  
 Energy Calibration Quadratic : 3.5419688E-04  
 Energy Calibration Range : 7818.000

Instrument : CHAMBER 256  
 Detector : 79449  
 Calibration Date/Time : 28-AUG-2009 13:38:54  
 Calibration Source Id : AESS-048

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148        | 6445-278  | 2/28/10         | 3183.000        | 3182.994      |
| NP-237        | 4341      | 2/28/10         | 4768.800        | 4768.603      |
| CM-244        | 4320A     | 2/28/10         | 5795.020        | 5794.763      |

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2390.038  
 Energy Calibration Slope : 4.925209  
 Energy Calibration Quadratic : 3.5748276E-04  
 Energy Calibration Range : 7808.000

## Subsection 2: Background Calibration

Instrument : CHAMBER 001  
 Detector : 78788  
 Background Analysis Date/Time : 30-AUG-2009 16:15:10  
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2989.095     | 3301.491   | 2.000000              | 0.4800001            | 70.71068 | 95.00000   |
| NP-237        | 4436.328     | 4901.460   | 12.00000              | 2.880001             | 28.86751 | 95.00000   |
| CM-244        | 5531.570     | 5886.270   | 6.000000              | 1.440000             | 40.82483 | 95.00000   |

Instrument : CHAMBER 002  
 Detector : 78266  
 Background Analysis Date/Time : 30-AUG-2009 16:15:10  
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error      | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|--------------|------------|
| GD-148        | 2992.085     | 3299.620   | 1.000000              | 0.2400001            | 100.0000     | 95.00000   |
| NP-237        | 4434.644     | 4904.846   | 7.000000              | 1.680000             | 37.79645     | 95.00000   |
| CM-244        | 5534.154     | 5882.659   | 0.000000E+00          | 0.000000E+00         | 0.000000E+00 | 95.00000   |

Instrument : CHAMBER 003  
 Detector : 67617  
 Background Analysis Date/Time : 30-AUG-2009 16:15:10  
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2991.938     | 3299.717   | 3.000000              | 0.7200001            | 57.73503 | 95.00000   |
| NP-237        | 4432.844     | 4902.827   | 10.00000              | 2.400001             | 31.62278 | 95.00000   |
| CM-244        | 5531.440     | 5887.803   | 4.000000              | 0.9600002            | 50.00000 | 95.00000   |

Instrument : CHAMBER 004  
 Detector : 64279  
 Background Analysis Date/Time : 30-AUG-2009 16:15:10  
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error      | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|--------------|------------|
| GD-148        | 2992.026     | 3298.308   | 0.000000E+00          | 0.000000E+00         | 0.000000E+00 | 95.00000   |
| NP-237        | 4435.760     | 4905.548   | 7.000000              | 1.680000             | 37.79645     | 95.00000   |
| CM-244        | 5534.947     | 5883.809   | 2.000000              | 0.4800001            | 70.71068     | 95.00000   |

Instrument : CHAMBER 005  
 Detector : 67612  
 Background Analysis Date/Time : 30-AUG-2009 16:15:10  
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2989.654     | 3300.689   | 4.000000              | 0.9600002            | 50.00000 | 95.00000   |
| NP-237        | 4436.859     | 4901.997   | 5.000000              | 1.200000             | 44.72136 | 95.00000   |
| CM-244        | 5533.435     | 5885.045   | 2.000000              | 0.4800001            | 70.71068 | 95.00000   |

Instrument : CHAMBER 006  
 Detector : 67613  
 Background Analysis Date/Time : 30-AUG-2009 16:15:10  
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2987.771     | 3301.528   | 3.000000              | 0.7200001            | 57.73503 | 95.00000   |
| NP-237        | 4433.310     | 4904.612   | 10.00000              | 2.400001             | 31.62278 | 95.00000   |
| CM-244        | 5535.175     | 5883.158   | 9.000000              | 2.160001             | 33.33334 | 95.00000   |

Instrument : CHAMBER 007  
 Detector : 67607  
 Background Analysis Date/Time : 30-AUG-2009 16:15:11  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2991.315     | 3300.370   | 2.000000              | 0.4799997            | 70.71068 | 95.00000   |
| NP-237        | 4436.975     | 4905.147   | 7.000000              | 1.679999             | 37.79645 | 95.00000   |
| CM-244        | 5533.959     | 5885.477   | 23.00000              | 5.519996             | 20.85144 | 95.00000   |

Instrument : CHAMBER 008  
 Detector : 78788  
 Background Analysis Date/Time : 30-AUG-2009 16:15:11  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2989.794     | 3298.426   | 2.000000              | 0.4799997            | 70.71068 | 95.00000   |
| NP-237        | 4437.020     | 4904.595   | 6.000000              | 1.439999             | 40.82483 | 95.00000   |
| CM-244        | 5532.536     | 5882.336   | 4.000000              | 0.9599993            | 50.00000 | 95.00000   |

Instrument : CHAMBER 009  
 Detector : 72528  
 Background Analysis Date/Time : 30-AUG-2009 16:15:11  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2990.892     | 3299.892   | 4.000000              | 0.9599993            | 50.00000 | 95.00000   |
| NP-237        | 4433.436     | 4905.789   | 10.00000              | 2.399998             | 31.62278 | 95.00000   |
| CM-244        | 5532.687     | 5887.081   | 9.000000              | 2.159998             | 33.33334 | 95.00000   |

Instrument : CHAMBER 010  
 Detector : 72529  
 Background Analysis Date/Time : 30-AUG-2009 16:15:11  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2988.087     | 3300.334   | 3.000000              | 0.7199995            | 57.73503 | 95.00000   |
| NP-237        | 4436.842     | 4905.812   | 6.000000              | 1.439999             | 40.82483 | 95.00000   |
| CM-244        | 5533.178     | 5884.706   | 6.000000              | 1.439999             | 40.82483 | 95.00000   |

Instrument : CHAMBER 011  
 Detector : 72531  
 Background Analysis Date/Time : 30-AUG-2009 16:15:11  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2990.718     | 3301.411   | 3.000000              | 0.7199995            | 57.73503 | 95.00000   |
| NP-237        | 4435.900     | 4905.463   | 15.00000              | 3.599998             | 25.81989 | 95.00000   |
| CM-244        | 5535.617     | 5886.431   | 10.00000              | 2.399998             | 31.62278 | 95.00000   |

Instrument : CHAMBER 012  
 Detector : 67594  
 Background Analysis Date/Time : 30-AUG-2009 16:15:11  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2989.283     | 3301.924   | 2.000000              | 0.4799997            | 70.71068 | 95.00000   |
| NP-237        | 4434.309     | 4903.502   | 10.00000              | 2.399998             | 31.62278 | 95.00000   |
| CM-244        | 5531.028     | 5882.575   | 10.00000              | 2.399998             | 31.62278 | 95.00000   |

Instrument : CHAMBER 013  
 Detector : 78790  
 Background Analysis Date/Time : 30-AUG-2009 16:15:12  
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error      | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|--------------|------------|
| GD-148        | 2992.309     | 3297.583   | 0.000000E+00          | 0.000000E+00         | 0.000000E+00 | 95.00000   |
| NP-237        | 4432.512     | 4904.184   | 11.00000              | 2.640001             | 30.15113     | 95.00000   |
| CM-244        | 5533.734     | 5883.657   | 4.000000              | 0.9600002            | 50.00000     | 95.00000   |

Instrument : CHAMBER 014  
 Detector : 67616  
 Background Analysis Date/Time : 30-AUG-2009 16:15:12  
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2990.575     | 3298.988   | 3.000000              | 0.7200001            | 57.73503 | 95.00000   |
| NP-237        | 4436.470     | 4903.458   | 8.000000              | 1.920000             | 35.35534 | 95.00000   |
| CM-244        | 5530.496     | 5885.133   | 26.00000              | 6.240001             | 19.61161 | 95.00000   |

Instrument : CHAMBER 015  
 Detector : 61581  
 Background Analysis Date/Time : 30-AUG-2009 16:15:12  
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2987.656     | 3297.520   | 3.000000              | 0.7200001            | 57.73503 | 95.00000   |
| NP-237        | 4435.901     | 4901.612   | 9.000000              | 2.160001             | 33.33334 | 95.00000   |
| CM-244        | 5535.255     | 5884.514   | 26.00000              | 6.240001             | 19.61161 | 95.00000   |

Instrument : CHAMBER 016  
 Detector : 78774  
 Background Analysis Date/Time : 30-AUG-2009 16:15:12  
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2988.611     | 3297.891   | 1.000000              | 0.2400001            | 100.0000 | 95.00000   |
| NP-237        | 4435.494     | 4901.479   | 2.000000              | 0.4800001            | 70.71068 | 95.00000   |
| CM-244        | 5530.741     | 5886.030   | 3.000000              | 0.7200001            | 57.73503 | 95.00000   |

Instrument : CHAMBER 017  
 Detector : 78791  
 Background Analysis Date/Time : 30-AUG-2009 16:15:12  
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error      | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|--------------|------------|
| GD-148        | 2989.315     | 3299.165   | 0.000000E+00          | 0.000000E+00         | 0.000000E+00 | 95.00000   |
| NP-237        | 4433.955     | 4905.994   | 7.000000              | 1.680000             | 37.79645     | 95.00000   |
| CM-244        | 5531.756     | 5885.157   | 1.000000              | 0.2400001            | 100.0000     | 95.00000   |

Instrument : CHAMBER 018  
 Detector : 78782  
 Background Analysis Date/Time : 30-AUG-2009 16:15:12  
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2989.045     | 3297.645   | 5.000000              | 1.200000             | 44.72136 | 95.00000   |
| NP-237        | 4435.824     | 4903.103   | 6.000000              | 1.440000             | 40.82483 | 95.00000   |
| CM-244        | 5530.534     | 5885.395   | 5.000000              | 1.200000             | 44.72136 | 95.00000   |

Instrument : CHAMBER 019  
 Detector : 78786  
 Background Analysis Date/Time : 30-AUG-2009 16:15:13  
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2992.371     | 3300.084   | 2.000000              | 0.4800001            | 70.71068 | 95.00000   |
| NP-237        | 4432.711     | 4901.697   | 6.000000              | 1.440000             | 40.82483 | 95.00000   |
| CM-244        | 5534.730     | 5883.386   | 3.000000              | 0.7200001            | 57.73503 | 95.00000   |

Instrument : CHAMBER 020  
 Detector : 78787  
 Background Analysis Date/Time : 30-AUG-2009 16:15:13  
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2990.745     | 3300.511   | 3.000000              | 0.7200001            | 57.73503 | 95.00000   |
| NP-237        | 4436.191     | 4903.850   | 11.00000              | 2.640001             | 30.15113 | 95.00000   |
| CM-244        | 5531.198     | 5885.719   | 4.000000              | 0.9600002            | 50.00000 | 95.00000   |



Instrument : CHAMBER 021  
 Detector : 67047  
 Background Analysis Date/Time : 30-AUG-2009 16:15:13  
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2991.027     | 3300.488   | 2.000000              | 0.4800001            | 70.71068 | 95.00000   |
| NP-237        | 4433.390     | 4904.438   | 6.000000              | 1.440000             | 40.82483 | 95.00000   |
| CM-244        | 5534.035     | 5886.544   | 16.00000              | 3.840001             | 25.00000 | 95.00000   |

Instrument : CHAMBER 022  
 Detector : 72530  
 Background Analysis Date/Time : 30-AUG-2009 16:15:13  
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2992.050     | 3301.029   | 39.00000              | 9.360003             | 16.01282 | 95.00000   |
| NP-237        | 4437.549     | 4902.815   | 18.00000              | 4.320001             | 23.57022 | 95.00000   |
| CM-244        | 5531.706     | 5883.854   | 12.00000              | 2.880001             | 28.86751 | 95.00000   |

Instrument : CHAMBER 023  
 Detector : 78264  
 Background Analysis Date/Time : 30-AUG-2009 16:15:13  
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2991.319     | 3301.853   | 1.000000              | 0.2400001            | 100.0000 | 95.00000   |
| NP-237        | 4434.632     | 4902.993   | 6.000000              | 1.440000             | 40.82483 | 95.00000   |
| CM-244        | 5531.100     | 5885.960   | 8.000000              | 1.920000             | 35.35534 | 95.00000   |

Instrument : CHAMBER 024  
 Detector : 76542  
 Background Analysis Date/Time : 30-AUG-2009 16:15:13  
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2988.280     | 3301.361   | 1.000000              | 0.2400001            | 100.0000 | 95.00000   |
| NP-237        | 4434.951     | 4904.473   | 14.00000              | 3.360001             | 26.72612 | 95.00000   |
| CM-244        | 5532.286     | 5883.922   | 5.000000              | 1.200000             | 44.72136 | 95.00000   |

Instrument : CHAMBER 025  
 Detector : 45-149AA5  
 Background Analysis Date/Time : 30-AUG-2009 16:15:14  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error      | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|--------------|------------|
| GD-148        | 2988.958     | 3301.287   | 0.000000E+00          | 0.000000E+00         | 0.000000E+00 | 95.00000   |
| NP-237        | 4436.686     | 4904.740   | 7.000000              | 1.680000             | 37.79645     | 95.00000   |
| CM-244        | 5534.991     | 5882.562   | 76.00000              | 18.24000             | 11.47079     | 95.00000   |

Instrument : CHAMBER 026  
 Detector : 78204  
 Background Analysis Date/Time : 30-AUG-2009 16:15:14  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2988.735     | 3300.836   | 2.000000              | 0.4800001            | 70.71068 | 95.00000   |
| NP-237        | 4435.801     | 4902.784   | 4.000000              | 0.9600002            | 50.00000 | 95.00000   |
| CM-244        | 5530.708     | 5886.284   | 60.00000              | 14.40000             | 12.90994 | 95.00000   |

Instrument : CHAMBER 027  
 Detector : 42484  
 Background Analysis Date/Time : 30-AUG-2009 16:15:14  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2989.280     | 3298.316   | 9.000000              | 2.160000             | 33.33334 | 95.00000   |
| NP-237        | 4433.196     | 4906.637   | 9.000000              | 2.160000             | 33.33334 | 95.00000   |
| CM-244        | 5535.439     | 5885.723   | 61.00000              | 14.64000             | 12.80369 | 95.00000   |

Instrument : CHAMBER 028  
 Detector : 78792  
 Background Analysis Date/Time : 30-AUG-2009 16:15:14  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2989.441     | 3297.640   | 2.000000              | 0.4800001            | 70.71068 | 95.00000   |
| NP-237        | 4435.847     | 4903.788   | 13.00000              | 3.120001             | 27.73501 | 95.00000   |
| CM-244        | 5532.676     | 5883.223   | 65.00000              | 15.60000             | 12.40347 | 95.00000   |

Instrument : CHAMBER 029  
 Detector : 33454  
 Background Analysis Date/Time : 30-AUG-2009 16:15:14  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2987.567     | 3301.667   | 2.000000              | 0.4800001            | 70.71068 | 95.00000   |
| NP-237        | 4432.493     | 4902.470   | 13.000000             | 3.120001             | 27.73501 | 95.00000   |
| CM-244        | 5535.032     | 5883.746   | 87.000000             | 20.88000             | 10.72113 | 95.00000   |

Instrument : CHAMBER 030  
 Detector : 33447  
 Background Analysis Date/Time : 30-AUG-2009 16:15:14  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2991.332     | 3299.665   | 1.000000              | 0.2400000            | 100.0000 | 95.00000   |
| NP-237        | 4436.037     | 4902.215   | 13.000000             | 3.120001             | 27.73501 | 95.00000   |
| CM-244        | 5533.195     | 5886.933   | 97.000000             | 23.28000             | 10.15346 | 95.00000   |

Instrument : CHAMBER 031  
 Detector : 67042  
 Background Analysis Date/Time : 30-AUG-2009 16:15:14  
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2988.980     | 3300.809   | 8.000000              | 1.919999             | 35.35534 | 95.00000   |
| NP-237        | 4433.475     | 4904.204   | 10.000000             | 2.399998             | 31.62278 | 95.00000   |
| CM-244        | 5535.021     | 5883.627   | 87.000000             | 20.87999             | 10.72113 | 95.00000   |

Instrument : CHAMBER 032  
 Detector : 67041  
 Background Analysis Date/Time : 30-AUG-2009 16:15:14  
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2991.500     | 3301.085   | 2.000000              | 0.4799997            | 70.71068 | 95.00000   |
| NP-237        | 4436.228     | 4903.321   | 14.000000             | 3.359998             | 26.72612 | 95.00000   |
| CM-244        | 5533.353     | 5886.388   | 25.000000             | 5.999996             | 20.00000 | 95.00000   |

Instrument : CHAMBER 033  
 Detector : 78785  
 Background Analysis Date/Time : 30-AUG-2009 16:15:14  
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2991.232     | 3299.661   | 3.000000              | 0.7199996            | 57.73503 | 95.00000   |
| NP-237        | 4437.092     | 4904.010   | 7.000000              | 1.679999             | 37.79645 | 95.00000   |
| CM-244        | 5530.913     | 5885.453   | 49.00000              | 11.75999             | 14.28572 | 95.00000   |

Instrument : CHAMBER 034  
 Detector : 61586  
 Background Analysis Date/Time : 30-AUG-2009 16:15:14  
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2987.956     | 3301.026   | 2.000000              | 0.4799997            | 70.71068 | 95.00000   |
| NP-237        | 4436.568     | 4903.521   | 30.00000              | 7.199996             | 18.25742 | 95.00000   |
| CM-244        | 5534.967     | 5885.181   | 31.00000              | 7.439995             | 17.96053 | 95.00000   |

Instrument : CHAMBER 035  
 Detector : 78202  
 Background Analysis Date/Time : 30-AUG-2009 16:15:14  
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2991.620     | 3300.593   | 2.000000              | 0.4799997            | 70.71068 | 95.00000   |
| NP-237        | 4435.499     | 4903.774   | 16.00000              | 3.839998             | 25.00000 | 95.00000   |
| CM-244        | 5532.763     | 5883.199   | 70.00000              | 16.79999             | 11.95229 | 95.00000   |

Instrument : CHAMBER 036  
 Detector : 78203  
 Background Analysis Date/Time : 30-AUG-2009 16:15:14  
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2991.620     | 3298.917   | 2.000000              | 0.4799997            | 70.71068 | 95.00000   |
| NP-237        | 4433.050     | 4904.263   | 7.000000              | 1.679999             | 37.79645 | 95.00000   |
| CM-244        | 5535.616     | 5884.466   | 51.00000              | 12.23999             | 14.00280 | 95.00000   |

Instrument : CHAMBER 037  
 Detector : 45-149BB5  
 Background Analysis Date/Time : 30-AUG-2009 16:15:15  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2988.836     | 3299.917   | 5.000000              | 1.199999             | 44.72136 | 95.00000   |
| NP-237        | 4435.582     | 4906.557   | 19.00000              | 4.559997             | 22.94157 | 95.00000   |
| CM-244        | 5534.307     | 5882.810   | 72.00000              | 17.27999             | 11.78511 | 95.00000   |

Instrument : CHAMBER 038  
 Detector : 72532  
 Background Analysis Date/Time : 30-AUG-2009 16:15:15  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2991.576     | 3299.256   | 2.000000              | 0.4799997            | 70.71068 | 95.00000   |
| NP-237        | 4433.771     | 4904.686   | 10.00000              | 2.399998             | 31.62278 | 95.00000   |
| CM-244        | 5535.244     | 5883.467   | 79.00000              | 18.95999             | 11.25088 | 95.00000   |

Instrument : CHAMBER 039  
 Detector : 45-149BB2  
 Background Analysis Date/Time : 30-AUG-2009 16:15:15  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2991.453     | 3301.599   | 1.000000              | 0.2399998            | 100.0000 | 95.00000   |
| NP-237        | 4432.722     | 4905.688   | 12.00000              | 2.879998             | 28.86751 | 95.00000   |
| CM-244        | 5532.346     | 5883.894   | 84.00000              | 20.15999             | 10.91089 | 95.00000   |

Instrument : CHAMBER 040  
 Detector : 78773  
 Background Analysis Date/Time : 30-AUG-2009 16:15:15  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2991.070     | 3301.002   | 6.000000              | 1.439999             | 40.82483 | 95.00000   |
| NP-237        | 4437.116     | 4905.104   | 4.000000              | 0.9599993            | 50.00000 | 95.00000   |
| CM-244        | 5532.249     | 5884.180   | 66.00000              | 15.83999             | 12.30915 | 95.00000   |

Instrument : CHAMBER 041  
 Detector : 78205  
 Background Analysis Date/Time : 30-AUG-2009 16:15:15  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error      | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|--------------|------------|
| GD-148        | 2991.305     | 3298.942   | 0.000000E+00          | 0.000000E+00         | 0.000000E+00 | 95.00000   |
| NP-237        | 4436.425     | 4904.659   | 10.00000              | 2.399998             | 31.62278     | 95.00000   |
| CM-244        | 5534.452     | 5885.748   | 82.00000              | 19.67999             | 11.04315     | 95.00000   |

Instrument : CHAMBER 042  
 Detector : 78793  
 Background Analysis Date/Time : 30-AUG-2009 16:15:15  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error      | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|--------------|------------|
| GD-148        | 2988.887     | 3299.366   | 0.000000E+00          | 0.000000E+00         | 0.000000E+00 | 95.00000   |
| NP-237        | 4437.123     | 4905.630   | 11.00000              | 2.639998             | 30.15113     | 95.00000   |
| CM-244        | 5533.333     | 5885.512   | 81.00000              | 19.43999             | 11.11111     | 95.00000   |

Instrument : CHAMBER 043  
 Detector : 76543  
 Background Analysis Date/Time : 30-AUG-2009 16:15:16  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2990.321     | 3301.623   | 1.000000              | 0.2400000            | 100.0000 | 95.00000   |
| NP-237        | 4433.027     | 4903.519   | 5.000000              | 1.200000             | 44.72136 | 95.00000   |
| CM-244        | 5534.268     | 5882.956   | 61.00000              | 14.64000             | 12.80369 | 95.00000   |

Instrument : CHAMBER 044  
 Detector : 79459  
 Background Analysis Date/Time : 30-AUG-2009 16:15:16  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2989.930     | 3302.506   | 5.000000              | 1.200000             | 44.72136 | 95.00000   |
| NP-237        | 4437.594     | 4903.934   | 14.00000              | 3.360001             | 26.72612 | 95.00000   |
| CM-244        | 5530.392     | 5884.844   | 80.00000              | 19.20000             | 11.18034 | 95.00000   |

Instrument : CHAMBER 045  
 Detector : 78783  
 Background Analysis Date/Time : 30-AUG-2009 16:15:16  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2989.243     | 3301.709   | 2.000000              | 0.4800001            | 70.71068 | 95.00000   |
| NP-237        | 4436.057     | 4901.945   | 5.000000              | 1.200000             | 44.72136 | 95.00000   |
| CM-244        | 5533.013     | 5887.031   | 74.00000              | 17.76000             | 11.62476 | 95.00000   |

Instrument : CHAMBER 046  
 Detector : 76544  
 Background Analysis Date/Time : 30-AUG-2009 16:15:16  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2992.377     | 3301.861   | 2.000000              | 0.4800001            | 70.71068 | 95.00000   |
| NP-237        | 4437.291     | 4905.414   | 7.000000              | 1.680000             | 37.79645 | 95.00000   |
| CM-244        | 5533.098     | 5885.505   | 74.00000              | 17.76000             | 11.62476 | 95.00000   |

Instrument : CHAMBER 047  
 Detector : 46-089B1  
 Background Analysis Date/Time : 30-AUG-2009 16:15:16  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2992.396     | 3301.175   | 5.000000              | 1.200000             | 44.72136 | 95.00000   |
| NP-237        | 4434.358     | 4901.480   | 17.00000              | 4.080001             | 24.25356 | 95.00000   |
| CM-244        | 5533.889     | 5883.104   | 83.00000              | 19.92000             | 10.97643 | 95.00000   |

Instrument : CHAMBER 048  
 Detector : 42483  
 Background Analysis Date/Time : 30-AUG-2009 16:15:16  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2992.395     | 3299.708   | 1.000000              | 0.2400000            | 100.0000 | 95.00000   |
| NP-237        | 4436.890     | 4906.295   | 16.00000              | 3.840001             | 25.00000 | 95.00000   |
| CM-244        | 5534.380     | 5886.375   | 85.00000              | 20.40000             | 10.84652 | 95.00000   |

Instrument : CHAMBER 065  
 Detector : 68551  
 Background Analysis Date/Time : 9-AUG-2009 15:42:44  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2991.020     | 3301.790   | 4.000000              | 0.9599993            | 50.00000 | 95.00000   |
| NP-237        | 4435.576     | 4904.585   | 11.00000              | 2.639998             | 30.15113 | 95.00000   |
| CM-244        | 5533.015     | 5885.628   | 14.00000              | 3.359998             | 26.72612 | 95.00000   |

Instrument : CHAMBER 066  
 Detector : 46-089C1  
 Background Analysis Date/Time : 9-AUG-2009 15:42:44  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2988.945     | 3298.217   | 3.000000              | 0.7199995            | 57.73503 | 95.00000   |
| NP-237        | 4435.388     | 4905.987   | 4.000000              | 0.9599993            | 50.00000 | 95.00000   |
| CM-244        | 5534.885     | 5886.957   | 15.00000              | 3.599998             | 25.81989 | 95.00000   |

Instrument : CHAMBER 067  
 Detector : 46-089B4  
 Background Analysis Date/Time : 9-AUG-2009 15:42:44  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2990.195     | 3298.405   | 1.000000              | 0.2399998            | 100.0000 | 95.00000   |
| NP-237        | 4432.996     | 4903.114   | 5.000000              | 1.199999             | 44.72136 | 95.00000   |
| CM-244        | 5531.881     | 5884.128   | 12.00000              | 2.879998             | 28.86751 | 95.00000   |

Instrument : CHAMBER 068  
 Detector : 78794  
 Background Analysis Date/Time : 9-AUG-2009 15:42:44  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2989.058     | 3297.794   | 2.000000              | 0.4799997            | 70.71068 | 95.00000   |
| NP-237        | 4436.694     | 4904.361   | 3.000000              | 0.7199995            | 57.73503 | 95.00000   |
| CM-244        | 5532.395     | 5887.637   | 15.00000              | 3.599998             | 25.81989 | 95.00000   |



Instrument : CHAMBER 069  
 Detector : 78795  
 Background Analysis Date/Time : 9-AUG-2009 15:42:44  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error      | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|--------------|------------|
| GD-148        | 2991.230     | 3298.554   | 0.000000E+00          | 0.000000E+00         | 0.000000E+00 | 95.00000   |
| NP-237        | 4432.770     | 4904.008   | 12.00000              | 2.879998             | 28.86751     | 95.00000   |
| CM-244        | 5535.390     | 5884.253   | 11.00000              | 2.639998             | 30.15113     | 95.00000   |

Instrument : CHAMBER 070  
 Detector : 46-089B2  
 Background Analysis Date/Time : 9-AUG-2009 15:42:44  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2992.134     | 3299.079   | 4.000000              | 0.9599993            | 50.00000 | 95.00000   |
| NP-237        | 4435.081     | 4904.079   | 12.00000              | 2.879998             | 28.86751 | 95.00000   |
| CM-244        | 5531.689     | 5883.454   | 10.00000              | 2.399998             | 31.62278 | 95.00000   |

Instrument : CHAMBER 071  
 Detector : 64259  
 Background Analysis Date/Time : 9-AUG-2009 15:42:45  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2991.474     | 3300.552   | 4.000000              | 0.9599993            | 50.00000 | 95.00000   |
| NP-237        | 4434.375     | 4901.563   | 12.00000              | 2.879998             | 28.86751 | 95.00000   |
| CM-244        | 5533.885     | 5882.968   | 9.000000              | 2.159998             | 33.33334 | 95.00000   |

Instrument : CHAMBER 072  
 Detector : 45-149AA3  
 Background Analysis Date/Time : 9-AUG-2009 15:42:45  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2989.276     | 3301.453   | 1.000000              | 0.2399998            | 100.0000 | 95.00000   |
| NP-237        | 4434.016     | 4904.104   | 11.00000              | 2.639998             | 30.15113 | 95.00000   |
| CM-244        | 5533.538     | 5886.502   | 15.00000              | 3.599998             | 25.81989 | 95.00000   |

Instrument : CHAMBER 073  
 Detector : 78775  
 Background Analysis Date/Time : 9-AUG-2009 15:42:45  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2991.884     | 3298.904   | 2.000000              | 0.4799997            | 70.71068 | 95.00000   |
| NP-237        | 4435.607     | 4905.083   | 10.00000              | 2.399998             | 31.62278 | 95.00000   |
| CM-244        | 5533.495     | 5885.787   | 1.000000              | 0.2399998            | 100.0000 | 95.00000   |

Instrument : CHAMBER 074  
 Detector : 78266  
 Background Analysis Date/Time : 9-AUG-2009 15:42:45  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2992.157     | 3300.875   | 6.000000              | 1.439999             | 40.82483 | 95.00000   |
| NP-237        | 4434.541     | 4902.170   | 10.00000              | 2.399998             | 31.62278 | 95.00000   |
| CM-244        | 5535.537     | 5885.413   | 5.000000              | 1.199999             | 44.72136 | 95.00000   |

Instrument : CHAMBER 075  
 Detector : 68550  
 Background Analysis Date/Time : 9-AUG-2009 15:42:45  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2992.440     | 3300.846   | 3.000000              | 0.7199995            | 57.73503 | 95.00000   |
| NP-237        | 4432.709     | 4904.580   | 14.00000              | 3.359998             | 26.72612 | 95.00000   |
| CM-244        | 5531.026     | 5885.258   | 12.00000              | 2.879998             | 28.86751 | 95.00000   |

Instrument : CHAMBER 076  
 Detector : 78779  
 Background Analysis Date/Time : 9-AUG-2009 15:42:45  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error      | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|--------------|------------|
| GD-148        | 2991.979     | 3300.154   | 1.000000              | 0.2399998            | 100.0000     | 95.00000   |
| NP-237        | 4436.825     | 4903.508   | 11.00000              | 2.639998             | 30.15113     | 95.00000   |
| CM-244        | 5535.510     | 5884.591   | 0.000000E+00          | 0.000000E+00         | 0.000000E+00 | 95.00000   |

Instrument : CHAMBER 077  
 Detector : 67576  
 Background Analysis Date/Time : 9-AUG-2009 15:42:46  
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2989.957     | 3302.071   | 2.000000              | 0.4800001            | 70.71068 | 95.00000   |
| NP-237        | 4433.544     | 4902.799   | 6.000000              | 1.440000             | 40.82483 | 95.00000   |
| CM-244        | 5530.788     | 5882.782   | 17.00000              | 4.080001             | 24.25356 | 95.00000   |

Instrument : CHAMBER 078  
 Detector : 67577  
 Background Analysis Date/Time : 9-AUG-2009 15:42:46  
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2988.255     | 3302.223   | 3.000000              | 0.7200001            | 57.73503 | 95.00000   |
| NP-237        | 4437.236     | 4905.680   | 5.000000              | 1.200000             | 44.72136 | 95.00000   |
| CM-244        | 5535.005     | 5885.680   | 6.000000              | 1.440000             | 40.82483 | 95.00000   |

Instrument : CHAMBER 079  
 Detector : 67598  
 Background Analysis Date/Time : 9-AUG-2009 15:42:46  
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error       | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|---------------|------------|
| GD-148        | 2989.159     | 3300.331   | 0.0000000E+00         | 0.0000000E+00        | 0.0000000E+00 | 95.00000   |
| NP-237        | 4434.317     | 4902.854   | 5.000000              | 1.200000             | 44.72136      | 95.00000   |
| CM-244        | 5535.480     | 5887.277   | 7.000000              | 1.680000             | 37.79645      | 95.00000   |

Instrument : CHAMBER 080  
 Detector : 78197  
 Background Analysis Date/Time : 9-AUG-2009 15:42:46  
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2991.650     | 3302.015   | 2.000000              | 0.4799997            | 70.71068 | 95.00000   |
| NP-237        | 4433.624     | 4906.537   | 7.000000              | 1.679999             | 37.79645 | 95.00000   |
| CM-244        | 5533.522     | 5887.645   | 5.000000              | 1.199999             | 44.72136 | 95.00000   |

Instrument : CHAMBER 081  
 Detector : 72533  
 Background Analysis Date/Time : 9-AUG-2009 15:42:46  
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error      | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|--------------|------------|
| GD-148        | 2994.266     | 3303.451   | 0.000000E+00          | 0.000000E+00         | 0.000000E+00 | 95.00000   |
| NP-237        | 4435.242     | 4901.625   | 6.000000              | 1.440000             | 40.82483     | 95.00000   |
| CM-244        | 5531.807     | 5884.164   | 15.00000              | 3.600001             | 25.81989     | 95.00000   |

Instrument : CHAMBER 082  
 Detector : 64263  
 Background Analysis Date/Time : 9-AUG-2009 15:42:46  
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2987.542     | 3297.569   | 2.000000              | 0.4800001            | 70.71068 | 95.00000   |
| NP-237        | 4435.421     | 4904.506   | 14.00000              | 3.360001             | 26.72612 | 95.00000   |
| CM-244        | 5534.230     | 5884.907   | 8.000000              | 1.920000             | 35.35534 | 95.00000   |

Instrument : CHAMBER 083  
 Detector : 64278  
 Background Analysis Date/Time : 9-AUG-2009 15:42:47  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2991.854     | 3298.707   | 3.000000              | 0.7199995            | 57.73503 | 95.00000   |
| NP-237        | 4433.271     | 4906.151   | 10.00000              | 2.399998             | 31.62278 | 95.00000   |
| CM-244        | 5531.993     | 5884.932   | 8.000000              | 1.919999             | 35.35534 | 95.00000   |

Instrument : CHAMBER 084  
 Detector : 78265  
 Background Analysis Date/Time : 9-AUG-2009 15:42:47  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error      | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|--------------|------------|
| GD-148        | 2988.678     | 3299.931   | 1.000000              | 0.2399998            | 100.0000     | 95.00000   |
| NP-237        | 4434.465     | 4903.170   | 11.00000              | 2.639998             | 30.15113     | 95.00000   |
| CM-244        | 5531.407     | 5886.178   | 0.000000E+00          | 0.000000E+00         | 0.000000E+00 | 95.00000   |

Instrument : CHAMBER 085  
 Detector : 78776  
 Background Analysis Date/Time : 9-AUG-2009 15:42:47  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2990.698     | 3300.313   | 4.000000              | 0.9599993            | 50.00000 | 95.00000   |
| NP-237        | 4435.121     | 4902.282   | 7.000000              | 1.679999             | 37.79645 | 95.00000   |
| CM-244        | 5534.187     | 5882.859   | 5.000000              | 1.199999             | 44.72136 | 95.00000   |

Instrument : CHAMBER 086  
 Detector : 78198  
 Background Analysis Date/Time : 9-AUG-2009 15:42:47  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2990.009     | 3300.939   | 1.000000              | 0.2399998            | 100.0000 | 95.00000   |
| NP-237        | 4436.927     | 4902.983   | 9.000000              | 2.159998             | 33.33334 | 95.00000   |
| CM-244        | 5531.983     | 5883.724   | 1.000000              | 0.2399998            | 100.0000 | 95.00000   |

Instrument : CHAMBER 087  
 Detector : 78199  
 Background Analysis Date/Time : 9-AUG-2009 15:42:47  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2988.599     | 3301.987   | 2.000000              | 0.4799997            | 70.71068 | 95.00000   |
| NP-237        | 4434.300     | 4902.242   | 9.000000              | 2.159998             | 33.33334 | 95.00000   |
| CM-244        | 5532.304     | 5887.140   | 2.000000              | 0.4799997            | 70.71068 | 95.00000   |

Instrument : CHAMBER 088  
 Detector : 33452  
 Background Analysis Date/Time : 9-AUG-2009 15:42:47  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2989.881     | 3297.896   | 3.000000              | 0.7199995            | 57.73503 | 95.00000   |
| NP-237        | 4436.727     | 4902.043   | 10.00000              | 2.399998             | 31.62278 | 95.00000   |
| CM-244        | 5532.799     | 5884.609   | 11.00000              | 2.639998             | 30.15113 | 95.00000   |

Instrument : CHAMBER 089  
 Detector : 78262  
 Background Analysis Date/Time : 9-AUG-2009 15:42:48  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error       | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|---------------|------------|
| GD-148        | 2989.340     | 3299.886   | 3.000000              | 0.7200001            | 57.73503      | 95.00000   |
| NP-237        | 4433.954     | 4903.393   | 6.000000              | 1.440000             | 40.82483      | 95.00000   |
| CM-244        | 5533.423     | 5884.190   | 0.0000000E+00         | 0.0000000E+00        | 0.0000000E+00 | 95.00000   |

Instrument : CHAMBER 090  
 Detector : 78263  
 Background Analysis Date/Time : 9-AUG-2009 15:42:48  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2992.174     | 3298.193   | 2.000000              | 0.4800001            | 70.71068 | 95.00000   |
| NP-237        | 4432.899     | 4902.301   | 9.000000              | 2.160000             | 33.33334 | 95.00000   |
| CM-244        | 5531.267     | 5884.186   | 1.000000              | 0.2400000            | 100.0000 | 95.00000   |

Instrument : CHAMBER 091  
 Detector : 78259  
 Background Analysis Date/Time : 9-AUG-2009 15:42:48  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2988.796     | 3297.819   | 3.000000              | 0.7200001            | 57.73503 | 95.00000   |
| NP-237        | 4433.118     | 4901.645   | 4.000000              | 0.9600002            | 50.00000 | 95.00000   |
| CM-244        | 5531.054     | 5887.180   | 2.000000              | 0.4800001            | 70.71068 | 95.00000   |

Instrument : CHAMBER 092  
 Detector : 79457  
 Background Analysis Date/Time : 9-AUG-2009 15:42:48  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2988.378     | 3299.875   | 108.0000              | 25.92000             | 9.622504 | 95.00000   |
| NP-237        | 4435.762     | 4905.401   | 82.00000              | 19.68000             | 11.04315 | 95.00000   |
| CM-244        | 5534.466     | 5887.335   | 8.000000              | 1.920000             | 35.35534 | 95.00000   |

Instrument : CHAMBER 093  
 Detector : 33206  
 Background Analysis Date/Time : 9-AUG-2009 15:42:48  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2988.021     | 3298.707   | 5.000000              | 1.200000             | 44.72136 | 95.00000   |
| NP-237        | 4432.645     | 4901.916   | 6.000000              | 1.440000             | 40.82483 | 95.00000   |
| CM-244        | 5530.870     | 5883.862   | 2.000000              | 0.4800001            | 70.71068 | 95.00000   |

Instrument : CHAMBER 094  
 Detector : 78267  
 Background Analysis Date/Time : 9-AUG-2009 15:42:48  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2987.496     | 3299.970   | 8.000000              | 1.920000             | 35.35534 | 95.00000   |
| NP-237        | 4432.930     | 4902.883   | 1.000000              | 0.2400000            | 100.0000 | 95.00000   |
| CM-244        | 5531.875     | 5884.464   | 4.000000              | 0.9600002            | 50.00000 | 95.00000   |

Instrument : CHAMBER 095  
 Detector : 64279  
 Background Analysis Date/Time : 9-AUG-2009 17:08:35  
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2991.646     | 3298.356   | 3.000000              | 0.7199996            | 57.73503 | 95.00000   |
| NP-237        | 4435.397     | 4905.664   | 11.00000              | 2.639998             | 30.15113 | 95.00000   |
| CM-244        | 5530.369     | 5883.804   | 23.00000              | 5.519997             | 20.85144 | 95.00000   |

Instrument : CHAMBER 096  
 Detector : 67605  
 Background Analysis Date/Time : 9-AUG-2009 17:08:35  
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2989.386     | 3301.860   | 1.000000              | 0.2399998            | 100.0000 | 95.00000   |
| NP-237        | 4437.256     | 4904.015   | 24.00000              | 5.759996             | 20.41241 | 95.00000   |
| CM-244        | 5531.292     | 5886.331   | 5.000000              | 1.199999             | 44.72136 | 95.00000   |

Instrument : CHAMBER 097  
 Detector : 67599  
 Background Analysis Date/Time : 9-AUG-2009 17:08:35  
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2991.155     | 3299.592   | 5.000000              | 1.199999             | 44.72136 | 95.00000   |
| NP-237        | 4437.204     | 4904.260   | 9.000000              | 2.159999             | 33.33334 | 95.00000   |
| CM-244        | 5531.403     | 5886.106   | 16.00000              | 3.839998             | 25.00000 | 95.00000   |

Instrument : CHAMBER 098  
 Detector : 68644  
 Background Analysis Date/Time : 9-AUG-2009 17:08:35  
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2992.247     | 3301.860   | 4.000000              | 0.9599994            | 50.00000 | 95.00000   |
| NP-237        | 4432.619     | 4906.019   | 9.000000              | 2.159999             | 33.33334 | 95.00000   |
| CM-244        | 5534.382     | 5884.237   | 3.000000              | 0.7199996            | 57.73503 | 95.00000   |

Instrument : CHAMBER 099  
 Detector : 70317  
 Background Analysis Date/Time : 9-AUG-2009 17:08:35  
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2987.820     | 3298.212   | 1.000000              | 0.2399998            | 100.0000 | 95.00000   |
| NP-237        | 4437.036     | 4906.585   | 8.000000              | 1.919999             | 35.35534 | 95.00000   |
| CM-244        | 5530.871     | 5884.331   | 1.000000              | 0.2399998            | 100.0000 | 95.00000   |

Instrument : CHAMBER 100  
 Detector : 79456  
 Background Analysis Date/Time : 9-AUG-2009 17:08:35  
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2989.623     | 3299.666   | 6.000000              | 1.439999             | 40.82483 | 95.00000   |
| NP-237        | 4436.895     | 4905.650   | 17.00000              | 4.079998             | 24.25356 | 95.00000   |
| CM-244        | 5534.086     | 5886.872   | 12.00000              | 2.879998             | 28.86751 | 95.00000   |



Instrument : CHAMBER 101  
 Detector : 64253  
 Background Analysis Date/Time : 9-AUG-2009 15:42:49  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error      | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|--------------|------------|
| GD-148        | 2990.814     | 3297.893   | 8.000000              | 1.919999             | 35.35534     | 95.00000   |
| NP-237        | 4435.403     | 4905.470   | 5.000000              | 1.199999             | 44.72136     | 95.00000   |
| CM-244        | 5534.897     | 5882.499   | 0.000000E+00          | 0.000000E+00         | 0.000000E+00 | 95.00000   |

Instrument : CHAMBER 102  
 Detector : 72525  
 Background Analysis Date/Time : 9-AUG-2009 15:42:49  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2989.911     | 3298.890   | 2.000000              | 0.4799997            | 70.71068 | 95.00000   |
| NP-237        | 4436.604     | 4903.163   | 6.000000              | 1.439999             | 40.82483 | 95.00000   |
| CM-244        | 5533.661     | 5884.537   | 1.000000              | 0.2399998            | 100.0000 | 95.00000   |

Instrument : CHAMBER 103  
 Detector : 79461  
 Background Analysis Date/Time : 9-AUG-2009 15:42:49  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error      | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|--------------|------------|
| GD-148        | 2989.467     | 3301.138   | 2.000000              | 0.4799997            | 70.71068     | 95.00000   |
| NP-237        | 4432.983     | 4903.264   | 8.000000              | 1.919999             | 35.35534     | 95.00000   |
| CM-244        | 5533.387     | 5886.945   | 0.000000E+00          | 0.000000E+00         | 0.000000E+00 | 95.00000   |

Instrument : CHAMBER 104  
 Detector : 72524  
 Background Analysis Date/Time : 9-AUG-2009 15:42:49  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2991.174     | 3300.565   | 4.000000              | 0.9599993            | 50.00000 | 95.00000   |
| NP-237        | 4436.202     | 4904.648   | 8.000000              | 1.919999             | 35.35534 | 95.00000   |
| CM-244        | 5532.970     | 5885.836   | 3.000000              | 0.7199995            | 57.73503 | 95.00000   |

Instrument : CHAMBER 105  
 Detector : 78777  
 Background Analysis Date/Time : 9-AUG-2009 15:42:49  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2990.222     | 3299.531   | 4.000000              | 0.9599993            | 50.00000 | 95.00000   |
| NP-237        | 4434.728     | 4902.932   | 3.000000              | 0.7199995            | 57.73503 | 95.00000   |
| CM-244        | 5530.878     | 5883.508   | 1.000000              | 0.2399998            | 100.0000 | 95.00000   |

Instrument : CHAMBER 106  
 Detector : 64274  
 Background Analysis Date/Time : 9-AUG-2009 15:42:49  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2987.640     | 3299.757   | 6.000000              | 1.439999             | 40.82483 | 95.00000   |
| NP-237        | 4434.577     | 4901.415   | 11.00000              | 2.639998             | 30.15113 | 95.00000   |
| CM-244        | 5534.428     | 5884.452   | 4.000000              | 0.9599993            | 50.00000 | 95.00000   |

Instrument : CHAMBER 107  
 Detector : 67578  
 Background Analysis Date/Time : 9-AUG-2009 15:42:50  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2988.547     | 3298.638   | 3.000000              | 0.7199995            | 57.73503 | 95.00000   |
| NP-237        | 4435.772     | 4904.146   | 5.000000              | 1.199999             | 44.72136 | 95.00000   |
| CM-244        | 5532.554     | 5882.324   | 8.000000              | 1.919999             | 35.35534 | 95.00000   |

Instrument : CHAMBER 108  
 Detector : 78778  
 Background Analysis Date/Time : 9-AUG-2009 15:42:50  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error      | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|--------------|------------|
| GD-148        | 2988.136     | 3297.898   | 0.000000E+00          | 0.000000E+00         | 0.000000E+00 | 95.00000   |
| NP-237        | 4433.563     | 4901.441   | 2.000000              | 0.4799997            | 70.71068     | 95.00000   |
| CM-244        | 5533.812     | 5885.772   | 9.000000              | 2.159998             | 33.33334     | 95.00000   |

Instrument : CHAMBER 109  
 Detector : 79463  
 Background Analysis Date/Time : 9-AUG-2009 15:42:50  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2990.332     | 3301.320   | 1.000000              | 0.2399998            | 100.0000 | 95.00000   |
| NP-237        | 4437.566     | 4903.059   | 2.000000              | 0.4799997            | 70.71068 | 95.00000   |
| CM-244        | 5534.376     | 5883.521   | 6.000000              | 1.439999             | 40.82483 | 95.00000   |

Instrument : CHAMBER 110  
 Detector : 67602  
 Background Analysis Date/Time : 9-AUG-2009 15:42:50  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2987.980     | 3298.573   | 1.000000              | 0.2399998            | 100.0000 | 95.00000   |
| NP-237        | 4433.010     | 4901.606   | 8.000000              | 1.919999             | 35.35534 | 95.00000   |
| CM-244        | 5534.957     | 5883.028   | 14.00000              | 3.359998             | 26.72612 | 95.00000   |

Instrument : CHAMBER 111  
 Detector : 79462  
 Background Analysis Date/Time : 9-AUG-2009 15:42:50  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error      | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|--------------|------------|
| GD-148        | 2988.711     | 3298.714   | 0.000000E+00          | 0.000000E+00         | 0.000000E+00 | 95.00000   |
| NP-237        | 4436.440     | 4905.458   | 8.000000              | 1.919999             | 35.35534     | 95.00000   |
| CM-244        | 5535.080     | 5885.693   | 4.000000              | 0.9599993            | 50.00000     | 95.00000   |

Instrument : CHAMBER 112  
 Detector : 78261  
 Background Analysis Date/Time : 9-AUG-2009 15:42:50  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2988.059     | 3299.440   | 3.000000              | 0.7199995            | 57.73503 | 95.00000   |
| NP-237        | 4434.653     | 4903.902   | 1.000000              | 0.2399998            | 100.0000 | 95.00000   |
| CM-244        | 5532.350     | 5884.826   | 7.000000              | 1.679999             | 37.79645 | 95.00000   |

Instrument : CHAMBER 113  
 Detector : 45-111B4  
 Background Analysis Date/Time : 16-AUG-2009 16:34:44  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error       | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|---------------|------------|
| GD-148        | 2990.867     | 3300.361   | 1.000000              | 0.3000000            | 100.0000      | 95.00000   |
| NP-237        | 4434.565     | 4901.409   | 0.0000000E+00         | 0.0000000E+00        | 0.0000000E+00 | 95.00000   |
| CM-244        | 5532.822     | 5886.571   | 10.00000              | 3.000000             | 31.62278      | 95.00000   |

Instrument : CHAMBER 114  
 Detector : 78258  
 Background Analysis Date/Time : 16-AUG-2009 16:34:50  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2992.066     | 3300.343   | 1.000000              | 0.3000000            | 100.0000 | 95.00000   |
| NP-237        | 4433.866     | 4902.961   | 2.000000              | 0.6000000            | 70.71068 | 95.00000   |
| CM-244        | 5535.155     | 5886.142   | 4.000000              | 1.200000             | 50.00000 | 95.00000   |

Instrument : CHAMBER 115  
 Detector : 45-132FF4  
 Background Analysis Date/Time : 16-AUG-2009 16:34:55  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2989.683     | 3299.666   | 2.000000              | 0.6000000            | 70.71068 | 95.00000   |
| NP-237        | 4433.623     | 4904.729   | 6.000000              | 1.800000             | 40.82483 | 95.00000   |
| CM-244        | 5534.066     | 5886.268   | 10.00000              | 3.000000             | 31.62278 | 95.00000   |

Instrument : CHAMBER 116  
 Detector : 45-132FF2  
 Background Analysis Date/Time : 16-AUG-2009 16:34:59  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error       | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|---------------|------------|
| GD-148        | 2991.930     | 3301.615   | 0.0000000E+00         | 0.0000000E+00        | 0.0000000E+00 | 95.00000   |
| NP-237        | 4433.958     | 4904.160   | 3.000000              | 0.9000000            | 57.73503      | 95.00000   |
| CM-244        | 5532.087     | 5883.400   | 11.00000              | 3.300000             | 30.15113      | 95.00000   |

Instrument : CHAMBER 117  
 Detector : 33450  
 Background Analysis Date/Time : 16-AUG-2009 16:35:03  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2989.306     | 3298.199   | 2.000000              | 0.6000000            | 70.71068 | 95.00000   |
| NP-237        | 4433.520     | 4903.152   | 3.000000              | 0.9000000            | 57.73503 | 95.00000   |
| CM-244        | 5530.582     | 5887.083   | 11.00000              | 3.300000             | 30.15113 | 95.00000   |

Instrument : CHAMBER 118  
 Detector : 75544  
 Background Analysis Date/Time : 16-AUG-2009 16:35:08  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2988.856     | 3302.528   | 2.000000              | 0.6000000            | 70.71068 | 95.00000   |
| NP-237        | 4432.711     | 4902.773   | 2.000000              | 0.6000000            | 70.71068 | 95.00000   |
| CM-244        | 5531.177     | 5883.080   | 18.00000              | 5.400000             | 23.57022 | 95.00000   |

Instrument : CHAMBER 119  
 Detector : 74429  
 Background Analysis Date/Time : 16-AUG-2009 16:35:12  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error       | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|---------------|------------|
| GD-148        | 2992.004     | 3299.253   | 3.000000              | 0.9000000            | 57.73503      | 95.00000   |
| NP-237        | 4432.548     | 4906.013   | 0.0000000E+00         | 0.0000000E+00        | 0.0000000E+00 | 95.00000   |
| CM-244        | 5530.584     | 5883.165   | 0.0000000E+00         | 0.0000000E+00        | 0.0000000E+00 | 95.00000   |

Instrument : CHAMBER 120  
 Detector : 74430  
 Background Analysis Date/Time : 16-AUG-2009 16:35:17  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error       | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|---------------|------------|
| GD-148        | 2988.209     | 3300.389   | 1.000000              | 0.3000000            | 100.0000      | 95.00000   |
| NP-237        | 4436.370     | 4904.997   | 0.0000000E+00         | 0.0000000E+00        | 0.0000000E+00 | 95.00000   |
| CM-244        | 5531.794     | 5882.950   | 1.000000              | 0.3000000            | 100.0000      | 95.00000   |

Instrument : CHAMBER 121  
 Detector : 75545  
 Background Analysis Date/Time : 16-AUG-2009 16:35:22  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2991.483     | 3299.036   | 4.000000              | 1.200000             | 50.00000 | 95.00000   |
| NP-237        | 4436.007     | 4904.843   | 6.000000              | 1.800000             | 40.82483 | 95.00000   |
| CM-244        | 5531.746     | 5882.876   | 5.000000              | 1.500000             | 44.72136 | 95.00000   |

Instrument : CHAMBER 122  
 Detector : 75546  
 Background Analysis Date/Time : 16-AUG-2009 16:35:26  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error      | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|--------------|------------|
| GD-148        | 2989.140     | 3302.149   | 0.000000E+00          | 0.000000E+00         | 0.000000E+00 | 95.00000   |
| NP-237        | 4434.728     | 4903.501   | 14.00000              | 4.200000             | 26.72612     | 95.00000   |
| CM-244        | 5535.323     | 5886.133   | 13.00000              | 3.900000             | 27.73501     | 95.00000   |

Instrument : CHAMBER 123  
 Detector : 45-142V3  
 Background Analysis Date/Time : 16-AUG-2009 16:35:30  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2989.820     | 3298.601   | 3.000000              | 0.9000000            | 57.73503 | 95.00000   |
| NP-237        | 4437.478     | 4905.941   | 6.000000              | 1.800000             | 40.82483 | 95.00000   |
| CM-244        | 5531.339     | 5886.453   | 8.000000              | 2.400000             | 35.35534 | 95.00000   |

Instrument : CHAMBER 124  
 Detector : 45-142V2  
 Background Analysis Date/Time : 16-AUG-2009 16:35:35  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2989.806     | 3300.376   | 2.000000              | 0.6000000            | 70.71068 | 95.00000   |
| NP-237        | 4436.352     | 4902.974   | 9.000000              | 2.700000             | 33.33334 | 95.00000   |
| CM-244        | 5533.246     | 5885.946   | 6.000000              | 1.800000             | 40.82483 | 95.00000   |

Instrument : CHAMBER 125  
 Detector : 75547  
 Background Analysis Date/Time : 16-AUG-2009 16:35:39  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2987.619     | 3299.275   | 2.000000              | 0.6000000            | 70.71068 | 95.00000   |
| NP-237        | 4433.269     | 4906.266   | 6.000000              | 1.800000             | 40.82483 | 95.00000   |
| CM-244        | 5531.959     | 5882.482   | 4.000000              | 1.200000             | 50.00000 | 95.00000   |

Instrument : CHAMBER 126  
 Detector : 75548  
 Background Analysis Date/Time : 16-AUG-2009 16:35:44  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error       | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|---------------|------------|
| GD-148        | 2988.372     | 3298.946   | 0.0000000E+00         | 0.0000000E+00        | 0.0000000E+00 | 95.00000   |
| NP-237        | 4437.297     | 4901.551   | 15.00000              | 4.500000             | 25.81989      | 95.00000   |
| CM-244        | 5532.806     | 5882.587   | 4.000000              | 1.200000             | 50.00000      | 95.00000   |

Instrument : CHAMBER 127  
 Detector : 78770  
 Background Analysis Date/Time : 16-AUG-2009 16:35:48  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2989.622     | 3297.830   | 3.000000              | 0.9000000            | 57.73503 | 95.00000   |
| NP-237        | 4435.622     | 4904.092   | 1.000000              | 0.3000000            | 100.0000 | 95.00000   |
| CM-244        | 5535.184     | 5885.434   | 1.000000              | 0.3000000            | 100.0000 | 95.00000   |

Instrument : CHAMBER 128  
 Detector : 75549  
 Background Analysis Date/Time : 16-AUG-2009 16:35:52  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2989.482     | 3299.177   | 135.0000              | 40.50000             | 8.606629 | 95.00000   |
| NP-237        | 4436.028     | 4905.664   | 84.00000              | 25.20000             | 10.91089 | 95.00000   |
| CM-244        | 5532.549     | 5883.141   | 32.00000              | 9.600000             | 17.67767 | 95.00000   |

Instrument : CHAMBER 129  
 Detector : 76227  
 Background Analysis Date/Time : 16-AUG-2009 16:35:57  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2992.146     | 3298.635   | 1.000000              | 0.3000000            | 100.0000 | 95.00000   |
| NP-237        | 4432.563     | 4905.761   | 8.000000              | 2.400000             | 35.35534 | 95.00000   |
| CM-244        | 5531.918     | 5882.796   | 2.000000              | 0.6000000            | 70.71068 | 95.00000   |

Instrument : CHAMBER 130  
 Detector : 76228  
 Background Analysis Date/Time : 16-AUG-2009 16:36:01  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2989.230     | 3297.665   | 2.000000              | 0.6000000            | 70.71068 | 95.00000   |
| NP-237        | 4434.582     | 4901.937   | 8.000000              | 2.400000             | 35.35534 | 95.00000   |
| CM-244        | 5530.859     | 5884.881   | 4.000000              | 1.200000             | 50.00000 | 95.00000   |

Instrument : CHAMBER 131  
 Detector : 33448  
 Background Analysis Date/Time : 16-AUG-2009 16:36:05  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error       | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|---------------|------------|
| GD-148        | 2988.455     | 3301.428   | 0.0000000E+00         | 0.0000000E+00        | 0.0000000E+00 | 95.00000   |
| NP-237        | 4434.994     | 4904.668   | 4.000000              | 1.200000             | 50.00000      | 95.00000   |
| CM-244        | 5532.826     | 5884.723   | 6.000000              | 1.800000             | 40.82483      | 95.00000   |

Instrument : CHAMBER 132  
 Detector : 67579  
 Background Analysis Date/Time : 16-AUG-2009 16:36:09  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2989.906     | 3301.298   | 2.000000              | 0.6000000            | 70.71068 | 95.00000   |
| NP-237        | 4432.560     | 4903.500   | 5.000000              | 1.500000             | 44.72136 | 95.00000   |
| CM-244        | 5531.586     | 5882.587   | 2.000000              | 0.6000000            | 70.71068 | 95.00000   |



Instrument : CHAMBER 133  
 Detector : 76229  
 Background Analysis Date/Time : 16-AUG-2009 16:36:14  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2992.199     | 3301.674   | 1.000000              | 0.3000000            | 100.0000 | 95.00000   |
| NP-237        | 4436.849     | 4905.652   | 3.000000              | 0.9000000            | 57.73503 | 95.00000   |
| CM-244        | 5530.602     | 5882.872   | 5.000000              | 1.500000             | 44.72136 | 95.00000   |

Instrument : CHAMBER 134  
 Detector : 76230  
 Background Analysis Date/Time : 16-AUG-2009 16:36:19  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error       | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|---------------|------------|
| GD-148        | 2989.055     | 3302.112   | 0.0000000E+00         | 0.0000000E+00        | 0.0000000E+00 | 95.00000   |
| NP-237        | 4432.969     | 4905.408   | 21.00000              | 6.300000             | 21.82179      | 95.00000   |
| CM-244        | 5534.460     | 5883.375   | 9.000000              | 2.700000             | 33.33334      | 95.00000   |

Instrument : CHAMBER 135  
 Detector : 64270  
 Background Analysis Date/Time : 16-AUG-2009 16:36:23  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2987.813     | 3300.105   | 2.000000              | 0.6000000            | 70.71068 | 95.00000   |
| NP-237        | 4435.123     | 4902.752   | 2.000000              | 0.6000000            | 70.71068 | 95.00000   |
| CM-244        | 5532.979     | 5882.877   | 10.00000              | 3.000000             | 31.62278 | 95.00000   |

Instrument : CHAMBER 136  
 Detector : 68549  
 Background Analysis Date/Time : 16-AUG-2009 16:36:27  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2991.796     | 3301.682   | 3.000000              | 0.9000000            | 57.73503 | 95.00000   |
| NP-237        | 4435.713     | 4901.780   | 14.00000              | 4.200000             | 26.72612 | 95.00000   |
| CM-244        | 5531.520     | 5884.028   | 5.000000              | 1.500000             | 44.72136 | 95.00000   |

Instrument : CHAMBER 137  
 Detector : 64288  
 Background Analysis Date/Time : 16-AUG-2009 16:36:31  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2990.035     | 3302.352   | 4.000000              | 1.200000             | 50.00000 | 95.00000   |
| NP-237        | 4435.990     | 4901.349   | 6.000000              | 1.800000             | 40.82483 | 95.00000   |
| CM-244        | 5532.344     | 5883.346   | 7.000000              | 2.100000             | 37.79645 | 95.00000   |

Instrument : CHAMBER 138  
 Detector : 65877  
 Background Analysis Date/Time : 16-AUG-2009 16:36:35  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2990.457     | 3300.623   | 3.000000              | 0.9000000            | 57.73503 | 95.00000   |
| NP-237        | 4436.833     | 4904.301   | 13.00000              | 3.900000             | 27.73501 | 95.00000   |
| CM-244        | 5531.035     | 5885.034   | 10.00000              | 3.000000             | 31.62278 | 95.00000   |

Instrument : CHAMBER 139  
 Detector : 76231  
 Background Analysis Date/Time : 16-AUG-2009 16:36:40  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2988.624     | 3300.322   | 4.000000              | 1.200000             | 50.00000 | 95.00000   |
| NP-237        | 4436.965     | 4901.673   | 8.000000              | 2.400000             | 35.35534 | 95.00000   |
| CM-244        | 5531.099     | 5884.173   | 8.000000              | 2.400000             | 35.35534 | 95.00000   |

Instrument : CHAMBER 140  
 Detector : 78771  
 Background Analysis Date/Time : 16-AUG-2009 16:36:43  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2992.243     | 3300.208   | 3.000000              | 0.9000000            | 57.73503 | 95.00000   |
| NP-237        | 4435.227     | 4906.111   | 12.00000              | 3.600000             | 28.86751 | 95.00000   |
| CM-244        | 5531.085     | 5884.403   | 1.000000              | 0.3000000            | 100.0000 | 95.00000   |

Instrument : CHAMBER 141  
 Detector : 76232  
 Background Analysis Date/Time : 16-AUG-2009 16:36:48  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2989.414     | 3297.748   | 1.000000              | 0.3000000            | 100.0000 | 95.00000   |
| NP-237        | 4437.262     | 4901.753   | 5.000000              | 1.500000             | 44.72136 | 95.00000   |
| CM-244        | 5534.971     | 5886.637   | 5.000000              | 1.500000             | 44.72136 | 95.00000   |

Instrument : CHAMBER 142  
 Detector : 64261  
 Background Analysis Date/Time : 16-AUG-2009 16:36:52  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2988.269     | 3301.948   | 2.000000              | 0.6000000            | 70.71068 | 95.00000   |
| NP-237        | 4433.864     | 4905.404   | 11.00000              | 3.300000             | 30.15113 | 95.00000   |
| CM-244        | 5531.110     | 5884.773   | 12.00000              | 3.600000             | 28.86751 | 95.00000   |

Instrument : CHAMBER 143  
 Detector : 65882  
 Background Analysis Date/Time : 16-AUG-2009 16:36:56  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2987.868     | 3300.973   | 10.00000              | 3.000000             | 31.62278 | 95.00000   |
| NP-237        | 4435.203     | 4905.234   | 16.00000              | 4.800000             | 25.00000 | 95.00000   |
| CM-244        | 5533.941     | 5886.181   | 11.00000              | 3.300000             | 30.15113 | 95.00000   |

Instrument : CHAMBER 144  
 Detector : 75551  
 Background Analysis Date/Time : 16-AUG-2009 16:37:00  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2992.050     | 3299.833   | 2.000000              | 0.6000000            | 70.71068 | 95.00000   |
| NP-237        | 4433.005     | 4902.603   | 12.00000              | 3.600000             | 28.86751 | 95.00000   |
| CM-244        | 5530.735     | 5882.656   | 9.000000              | 2.700000             | 33.33334 | 95.00000   |

Instrument : CHAMBER 145  
 Detector : 72526  
 Background Analysis Date/Time : 16-AUG-2009 16:37:03  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2991.923     | 3299.882   | 3.000000              | 0.9000000            | 57.73503 | 95.00000   |
| NP-237        | 4434.984     | 4905.949   | 4.000000              | 1.200000             | 50.00000 | 95.00000   |
| CM-244        | 5531.069     | 5884.490   | 6.000000              | 1.800000             | 40.82483 | 95.00000   |

Instrument : CHAMBER 146  
 Detector : 72527  
 Background Analysis Date/Time : 16-AUG-2009 16:37:08  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2989.460     | 3301.164   | 2.000000              | 0.6000000            | 70.71068 | 95.00000   |
| NP-237        | 4435.288     | 4903.095   | 2.000000              | 0.6000000            | 70.71068 | 95.00000   |
| CM-244        | 5534.042     | 5884.573   | 6.000000              | 1.800000             | 40.82483 | 95.00000   |

Instrument : CHAMBER 147  
 Detector : 75550  
 Background Analysis Date/Time : 16-AUG-2009 16:37:11  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2990.910     | 3299.539   | 10.00000              | 3.000000             | 31.62278 | 95.00000   |
| NP-237        | 4433.251     | 4901.935   | 8.000000              | 2.400000             | 35.35534 | 95.00000   |
| CM-244        | 5533.139     | 5883.368   | 12.00000              | 3.600000             | 28.86751 | 95.00000   |

Instrument : CHAMBER 148  
 Detector : 74429  
 Background Analysis Date/Time : 16-AUG-2009 16:37:16  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2990.725     | 3298.446   | 6.000000              | 1.800000             | 40.82483 | 95.00000   |
| NP-237        | 4436.496     | 4905.977   | 7.000000              | 2.100000             | 37.79645 | 95.00000   |
| CM-244        | 5533.919     | 5885.716   | 8.000000              | 2.400000             | 35.35534 | 95.00000   |

Instrument : CHAMBER 149  
 Detector : 33449  
 Background Analysis Date/Time : 16-AUG-2009 16:37:20  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error      | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|--------------|------------|
| GD-148        | 2991.734     | 3299.272   | 0.000000E+00          | 0.000000E+00         | 0.000000E+00 | 95.00000   |
| NP-237        | 4437.371     | 4901.944   | 4.000000              | 1.200000             | 50.00000     | 95.00000   |
| CM-244        | 5530.548     | 5882.851   | 6.000000              | 1.800000             | 40.82483     | 95.00000   |

Instrument : CHAMBER 150  
 Detector : 75552  
 Background Analysis Date/Time : 16-AUG-2009 16:37:24  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2992.316     | 3300.643   | 2.000000              | 0.6000000            | 70.71068 | 95.00000   |
| NP-237        | 4435.415     | 4905.497   | 7.000000              | 2.100000             | 37.79645 | 95.00000   |
| CM-244        | 5534.121     | 5886.240   | 7.000000              | 2.100000             | 37.79645 | 95.00000   |

Instrument : CHAMBER 151  
 Detector : 75556  
 Background Analysis Date/Time : 16-AUG-2009 16:37:28  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2990.659     | 3302.040   | 1.000000              | 0.3000000            | 100.0000 | 95.00000   |
| NP-237        | 4434.623     | 4901.634   | 4.000000              | 1.200000             | 50.00000 | 95.00000   |
| CM-244        | 5531.364     | 5886.469   | 8.000000              | 2.400000             | 35.35534 | 95.00000   |

Instrument : CHAMBER 152  
 Detector : 76222  
 Background Analysis Date/Time : 16-AUG-2009 16:37:32  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2991.044     | 3297.777   | 4.000000              | 1.200000             | 50.00000 | 95.00000   |
| NP-237        | 4437.300     | 4905.285   | 5.000000              | 1.500000             | 44.72136 | 95.00000   |
| CM-244        | 5531.209     | 5887.199   | 7.000000              | 2.100000             | 37.79645 | 95.00000   |

Instrument : CHAMBER 153  
 Detector : 76223  
 Background Analysis Date/Time : 16-AUG-2009 16:37:35  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2989.175     | 3301.127   | 4.000000              | 1.200000             | 50.00000 | 95.00000   |
| NP-237        | 4437.148     | 4906.174   | 10.00000              | 3.000000             | 31.62278 | 95.00000   |
| CM-244        | 5533.838     | 5885.640   | 4.000000              | 1.200000             | 50.00000 | 95.00000   |

Instrument : CHAMBER 154  
 Detector : 76224  
 Background Analysis Date/Time : 16-AUG-2009 16:37:40  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2991.160     | 3298.663   | 3.000000              | 0.9000000            | 57.73503 | 95.00000   |
| NP-237        | 4435.792     | 4904.845   | 6.000000              | 1.800000             | 40.82483 | 95.00000   |
| CM-244        | 5532.170     | 5883.602   | 4.000000              | 1.200000             | 50.00000 | 95.00000   |

Instrument : CHAMBER 155  
 Detector : 75553  
 Background Analysis Date/Time : 16-AUG-2009 16:37:44  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2990.137     | 3299.574   | 8.000000              | 2.400000             | 35.35534 | 95.00000   |
| NP-237        | 4433.383     | 4905.252   | 9.000000              | 2.700000             | 33.33334 | 95.00000   |
| CM-244        | 5530.995     | 5884.485   | 8.000000              | 2.400000             | 35.35534 | 95.00000   |

Instrument : CHAMBER 156  
 Detector : 75554  
 Background Analysis Date/Time : 16-AUG-2009 16:37:48  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2991.410     | 3301.423   | 6.000000              | 1.800000             | 40.82483 | 95.00000   |
| NP-237        | 4436.034     | 4902.390   | 17.00000              | 5.100000             | 24.25356 | 95.00000   |
| CM-244        | 5532.563     | 5885.336   | 4.000000              | 1.200000             | 50.00000 | 95.00000   |

Instrument : CHAMBER 157  
 Detector : 75555  
 Background Analysis Date/Time : 16-AUG-2009 16:37:52  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2989.948     | 3299.042   | 1.000000              | 0.3000000            | 100.0000 | 95.00000   |
| NP-237        | 4436.337     | 4902.073   | 9.000000              | 2.700000             | 33.33334 | 95.00000   |
| CM-244        | 5531.733     | 5884.378   | 7.000000              | 2.100000             | 37.79645 | 95.00000   |

Instrument : CHAMBER 158  
 Detector : 33451  
 Background Analysis Date/Time : 16-AUG-2009 16:37:56  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2990.074     | 3301.013   | 2.000000              | 0.6000000            | 70.71068 | 95.00000   |
| NP-237        | 4435.907     | 4905.421   | 10.00000              | 3.000000             | 31.62278 | 95.00000   |
| CM-244        | 5535.323     | 5885.904   | 6.000000              | 1.800000             | 40.82483 | 95.00000   |

Instrument : CHAMBER 159  
 Detector : 76225  
 Background Analysis Date/Time : 16-AUG-2009 16:38:00  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2992.022     | 3301.502   | 4.000000              | 1.200000             | 50.00000 | 95.00000   |
| NP-237        | 4435.853     | 4902.842   | 7.000000              | 2.100000             | 37.79645 | 95.00000   |
| CM-244        | 5534.528     | 5883.086   | 12.00000              | 3.600000             | 28.86751 | 95.00000   |

Instrument : CHAMBER 160  
 Detector : 76226  
 Background Analysis Date/Time : 16-AUG-2009 16:38:03  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2988.982     | 3298.890   | 6.000000              | 1.800000             | 40.82483 | 95.00000   |
| NP-237        | 4434.439     | 4901.761   | 20.00000              | 6.000000             | 22.36068 | 95.00000   |
| CM-244        | 5533.753     | 5882.414   | 11.00000              | 3.300000             | 30.15113 | 95.00000   |

Instrument : CHAMBER 161  
 Detector : 70321  
 Background Analysis Date/Time : 23-AUG-2009 11:54:11  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error      | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|--------------|------------|
| GD-148        | 2988.799     | 3299.450   | 0.000000E+00          | 0.000000E+00         | 0.000000E+00 | 95.00000   |
| NP-237        | 4437.354     | 4905.712   | 6.000000              | 1.800000             | 40.82483     | 95.00000   |
| CM-244        | 5533.034     | 5884.911   | 14.00000              | 4.200000             | 26.72612     | 95.00000   |

Instrument : CHAMBER 162  
 Detector : 70323  
 Background Analysis Date/Time : 23-AUG-2009 11:54:16  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error      | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|--------------|------------|
| GD-148        | 2991.108     | 3297.679   | 0.000000E+00          | 0.000000E+00         | 0.000000E+00 | 95.00000   |
| NP-237        | 4437.157     | 4905.370   | 5.000000              | 1.500000             | 44.72136     | 95.00000   |
| CM-244        | 5531.808     | 5882.856   | 5.000000              | 1.500000             | 44.72136     | 95.00000   |

Instrument : CHAMBER 163  
 Detector : 70324  
 Background Analysis Date/Time : 23-AUG-2009 11:54:21  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error      | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|--------------|------------|
| GD-148        | 2989.316     | 3301.922   | 0.000000E+00          | 0.000000E+00         | 0.000000E+00 | 95.00000   |
| NP-237        | 4434.725     | 4904.333   | 12.00000              | 3.600000             | 28.86751     | 95.00000   |
| CM-244        | 5532.622     | 5884.699   | 13.00000              | 3.900000             | 27.73501     | 95.00000   |

Instrument : CHAMBER 164  
 Detector : 70325  
 Background Analysis Date/Time : 23-AUG-2009 11:54:26  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2989.433     | 3301.590   | 2.000000              | 0.6000000            | 70.71068 | 95.00000   |
| NP-237        | 4434.137     | 4904.243   | 9.000000              | 2.700000             | 33.33334 | 95.00000   |
| CM-244        | 5533.726     | 5886.727   | 6.000000              | 1.800000             | 40.82483 | 95.00000   |



Instrument : CHAMBER 165  
 Detector : 72544  
 Background Analysis Date/Time : 23-AUG-2009 11:54:31  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error      | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|--------------|------------|
| GD-148        | 2990.235     | 3298.979   | 0.000000E+00          | 0.000000E+00         | 0.000000E+00 | 95.00000   |
| NP-237        | 4434.502     | 4904.549   | 7.000000              | 2.100000             | 37.79645     | 95.00000   |
| CM-244        | 5532.823     | 5884.601   | 7.000000              | 2.100000             | 37.79645     | 95.00000   |

Instrument : CHAMBER 166  
 Detector : 74545  
 Background Analysis Date/Time : 23-AUG-2009 11:54:35  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error      | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|--------------|------------|
| GD-148        | 2991.175     | 3297.621   | 0.000000E+00          | 0.000000E+00         | 0.000000E+00 | 95.00000   |
| NP-237        | 4434.428     | 4904.926   | 5.000000              | 1.500000             | 44.72136     | 95.00000   |
| CM-244        | 5535.556     | 5884.119   | 12.000000             | 3.600000             | 28.86751     | 95.00000   |

Instrument : CHAMBER 167  
 Detector : 72546  
 Background Analysis Date/Time : 23-AUG-2009 11:54:40  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2990.148     | 3302.011   | 2.000000              | 0.6000000            | 70.71068 | 95.00000   |
| NP-237        | 4433.463     | 4903.100   | 12.000000             | 3.600000             | 28.86751 | 95.00000   |
| CM-244        | 5531.940     | 5884.576   | 10.000000             | 3.000000             | 31.62278 | 95.00000   |

Instrument : CHAMBER 168  
 Detector : 72547  
 Background Analysis Date/Time : 23-AUG-2009 11:54:44  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2989.237     | 3300.921   | 1.000000              | 0.3000000            | 100.0000 | 95.00000   |
| NP-237        | 4437.534     | 4902.237   | 16.000000             | 4.800000             | 25.00000 | 95.00000   |
| CM-244        | 5531.663     | 5884.741   | 9.000000              | 2.700000             | 33.33334 | 95.00000   |

Instrument : CHAMBER 169  
 Detector : 72548  
 Background Analysis Date/Time : 23-AUG-2009 11:54:49  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2992.165     | 3298.594   | 1.000000              | 0.3000000            | 100.0000 | 95.00000   |
| NP-237        | 4434.229     | 4903.754   | 13.00000              | 3.900000             | 27.73501 | 95.00000   |
| CM-244        | 5532.658     | 5885.433   | 3.000000              | 0.9000000            | 57.73503 | 95.00000   |

Instrument : CHAMBER 170  
 Detector : 72549  
 Background Analysis Date/Time : 23-AUG-2009 11:54:54  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error       | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|---------------|------------|
| GD-148        | 2988.025     | 3299.867   | 0.0000000E+00         | 0.0000000E+00        | 0.0000000E+00 | 95.00000   |
| NP-237        | 4432.622     | 4903.408   | 16.00000              | 4.800000             | 25.00000      | 95.00000   |
| CM-244        | 5534.316     | 5882.981   | 5.000000              | 1.500000             | 44.72136      | 95.00000   |

Instrument : CHAMBER 171  
 Detector : 78260  
 Background Analysis Date/Time : 23-AUG-2009 11:54:58  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2988.433     | 3300.366   | 1.000000              | 0.3000000            | 100.0000 | 95.00000   |
| NP-237        | 4436.595     | 4905.826   | 9.000000              | 2.700000             | 33.33334 | 95.00000   |
| CM-244        | 5533.870     | 5885.935   | 10.00000              | 3.000000             | 31.62278 | 95.00000   |

Instrument : CHAMBER 172  
 Detector : 78772  
 Background Analysis Date/Time : 23-AUG-2009 11:55:03  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2991.870     | 3297.903   | 3.000000              | 0.9000000            | 57.73503 | 95.00000   |
| NP-237        | 4433.678     | 4903.969   | 9.000000              | 2.700000             | 33.33334 | 95.00000   |
| CM-244        | 5534.514     | 5883.121   | 7.000000              | 2.100000             | 37.79645 | 95.00000   |

Instrument : CHAMBER 173  
 Detector : 74431  
 Background Analysis Date/Time : 23-AUG-2009 11:55:07  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error      | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|--------------|------------|
| GD-148        | 2988.449     | 3298.086   | 0.000000E+00          | 0.000000E+00         | 0.000000E+00 | 95.00000   |
| NP-237        | 4435.604     | 4905.905   | 2.000000              | 0.6000000            | 70.71068     | 95.00000   |
| CM-244        | 5534.021     | 5885.467   | 33.00000              | 9.900001             | 17.40777     | 95.00000   |

Instrument : CHAMBER 174  
 Detector : 74432  
 Background Analysis Date/Time : 23-AUG-2009 11:55:12  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2988.639     | 3300.179   | 2.000000              | 0.6000000            | 70.71068 | 95.00000   |
| NP-237        | 4435.486     | 4905.219   | 9.000000              | 2.700000             | 33.33334 | 95.00000   |
| CM-244        | 5531.026     | 5885.734   | 20.00000              | 6.000000             | 22.36068 | 95.00000   |

Instrument : CHAMBER 175  
 Detector : 74433  
 Background Analysis Date/Time : 23-AUG-2009 11:55:16  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2992.018     | 3300.926   | 1.000000              | 0.3000000            | 100.0000 | 95.00000   |
| NP-237        | 4437.197     | 4902.367   | 8.000000              | 2.400000             | 35.35534 | 95.00000   |
| CM-244        | 5531.134     | 5883.215   | 22.00000              | 6.600000             | 21.32007 | 95.00000   |

Instrument : CHAMBER 176  
 Detector : 74434  
 Background Analysis Date/Time : 23-AUG-2009 11:55:21  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2987.853     | 3298.318   | 1.000000              | 0.3000000            | 100.0000 | 95.00000   |
| NP-237        | 4433.083     | 4904.101   | 7.000000              | 2.100000             | 37.79645 | 95.00000   |
| CM-244        | 5532.948     | 5884.695   | 23.00000              | 6.900000             | 20.85144 | 95.00000   |

Instrument : CHAMBER 177  
 Detector : 74435  
 Background Analysis Date/Time : 23-AUG-2009 11:55:26  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2989.857     | 3298.211   | 3.000000              | 0.9000000            | 57.73503 | 95.00000   |
| NP-237        | 4433.475     | 4903.934   | 1.000000              | 0.3000000            | 100.0000 | 95.00000   |
| CM-244        | 5533.213     | 5885.773   | 29.00000              | 8.700001             | 18.56953 | 95.00000   |

Instrument : CHAMBER 178  
 Detector : 74436  
 Background Analysis Date/Time : 23-AUG-2009 11:55:31  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error       | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|---------------|------------|
| GD-148        | 2991.399     | 3300.807   | 0.0000000E+00         | 0.0000000E+00        | 0.0000000E+00 | 95.00000   |
| NP-237        | 4432.785     | 4903.123   | 10.00000              | 3.000000             | 31.62278      | 95.00000   |
| CM-244        | 5531.481     | 5883.158   | 22.00000              | 6.600000             | 21.32007      | 95.00000   |

Instrument : CHAMBER 179  
 Detector : 74437  
 Background Analysis Date/Time : 23-AUG-2009 11:55:36  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2990.874     | 3299.393   | 2.000000              | 0.6000000            | 70.71068 | 95.00000   |
| NP-237        | 4435.018     | 4905.518   | 5.000000              | 1.500000             | 44.72136 | 95.00000   |
| CM-244        | 5534.758     | 5887.251   | 32.00000              | 9.600000             | 17.67767 | 95.00000   |

Instrument : CHAMBER 180  
 Detector : 74438  
 Background Analysis Date/Time : 23-AUG-2009 11:55:40  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2989.946     | 3300.627   | 2.000000              | 0.6000000            | 70.71068 | 95.00000   |
| NP-237        | 4434.505     | 4904.405   | 9.000000              | 2.700000             | 33.33334 | 95.00000   |
| CM-244        | 5531.104     | 5886.649   | 24.00000              | 7.200000             | 20.41241 | 95.00000   |

Instrument : CHAMBER 181  
 Detector : 74439  
 Background Analysis Date/Time : 23-AUG-2009 11:55:45  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error      | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|--------------|------------|
| GD-148        | 2988.658     | 3302.315   | 0.000000E+00          | 0.000000E+00         | 0.000000E+00 | 95.00000   |
| NP-237        | 4432.549     | 4902.677   | 7.000000              | 2.100000             | 37.79645     | 95.00000   |
| CM-244        | 5531.208     | 5883.203   | 33.00000              | 9.900001             | 17.40777     | 95.00000   |

Instrument : CHAMBER 182  
 Detector : 74440  
 Background Analysis Date/Time : 23-AUG-2009 11:55:49  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error      | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|--------------|------------|
| GD-148        | 2990.553     | 3299.709   | 0.000000E+00          | 0.000000E+00         | 0.000000E+00 | 95.00000   |
| NP-237        | 4435.824     | 4905.707   | 3.000000              | 0.9000000            | 57.73503     | 95.00000   |
| CM-244        | 5533.404     | 5884.684   | 13.00000              | 3.900000             | 27.73501     | 95.00000   |

Instrument : CHAMBER 183  
 Detector : 74441  
 Background Analysis Date/Time : 23-AUG-2009 11:55:54  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2989.015     | 3297.962   | 3.000000              | 0.9000000            | 57.73503 | 95.00000   |
| NP-237        | 4434.099     | 4904.342   | 5.000000              | 1.500000             | 44.72136 | 95.00000   |
| CM-244        | 5532.826     | 5884.696   | 34.00000              | 10.20000             | 17.14986 | 95.00000   |

Instrument : CHAMBER 184  
 Detector : 74442  
 Background Analysis Date/Time : 23-AUG-2009 11:55:58  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2989.045     | 3299.169   | 1.000000              | 0.3000000            | 100.0000 | 95.00000   |
| NP-237        | 4437.505     | 4902.470   | 5.000000              | 1.500000             | 44.72136 | 95.00000   |
| CM-244        | 5535.333     | 5886.318   | 24.00000              | 7.200000             | 20.41241 | 95.00000   |

Instrument : CHAMBER 185  
 Detector : 68615  
 Background Analysis Date/Time : 23-AUG-2009 11:56:04  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2987.897     | 3299.344   | 1.000000              | 0.3000000            | 100.0000 | 95.00000   |
| NP-237        | 4432.571     | 4905.243   | 2.000000              | 0.6000000            | 70.71068 | 95.00000   |
| CM-244        | 5530.503     | 5886.106   | 27.00000              | 8.100000             | 19.24501 | 95.00000   |

Instrument : CHAMBER 186  
 Detector : 68616  
 Background Analysis Date/Time : 23-AUG-2009 11:56:08  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error       | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|---------------|------------|
| GD-148        | 2992.379     | 3299.140   | 0.0000000E+00         | 0.0000000E+00        | 0.0000000E+00 | 95.00000   |
| NP-237        | 4434.242     | 4902.774   | 1.000000              | 0.3000000            | 100.0000      | 95.00000   |
| CM-244        | 5534.982     | 5886.349   | 24.00000              | 7.200000             | 20.41241      | 95.00000   |

Instrument : CHAMBER 187  
 Detector : 68620  
 Background Analysis Date/Time : 23-AUG-2009 11:56:12  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2991.498     | 3300.157   | 4.000000              | 1.200000             | 50.00000 | 95.00000   |
| NP-237        | 4437.493     | 4903.961   | 8.000000              | 2.400000             | 35.35534 | 95.00000   |
| CM-244        | 5535.243     | 5883.722   | 19.00000              | 5.700000             | 22.94157 | 95.00000   |

Instrument : CHAMBER 188  
 Detector : 68621  
 Background Analysis Date/Time : 23-AUG-2009 11:56:16  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2988.985     | 3297.497   | 1.000000              | 0.3000000            | 100.0000 | 95.00000   |
| NP-237        | 4433.354     | 4904.064   | 5.000000              | 1.500000             | 44.72136 | 95.00000   |
| CM-244        | 5533.683     | 5886.437   | 31.00000              | 9.300000             | 17.96053 | 95.00000   |

Instrument : CHAMBER 189  
 Detector : 68622  
 Background Analysis Date/Time : 23-AUG-2009 11:56:21  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2990.052     | 3301.735   | 1.000000              | 0.3000000            | 100.0000 | 95.00000   |
| NP-237        | 4436.853     | 4905.539   | 3.000000              | 0.9000000            | 57.73503 | 95.00000   |
| CM-244        | 5532.776     | 5884.354   | 29.00000              | 8.700001             | 18.56953 | 95.00000   |

Instrument : CHAMBER 190  
 Detector : 68623  
 Background Analysis Date/Time : 23-AUG-2009 11:56:25  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2991.652     | 3298.950   | 4.000000              | 1.200000             | 50.00000 | 95.00000   |
| NP-237        | 4435.677     | 4904.720   | 24.00000              | 7.200000             | 20.41241 | 95.00000   |
| CM-244        | 5532.170     | 5883.736   | 36.00000              | 10.80000             | 16.66667 | 95.00000   |

Instrument : CHAMBER 191  
 Detector : 68624  
 Background Analysis Date/Time : 23-AUG-2009 11:56:29  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2991.100     | 3299.772   | 1.000000              | 0.3000000            | 100.0000 | 95.00000   |
| NP-237        | 4437.436     | 4904.158   | 1.000000              | 0.3000000            | 100.0000 | 95.00000   |
| CM-244        | 5530.545     | 5884.668   | 27.00000              | 8.100000             | 19.24501 | 95.00000   |

Instrument : CHAMBER 192  
 Detector : 74430  
 Background Analysis Date/Time : 23-AUG-2009 11:56:33  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2988.046     | 3297.560   | 1.000000              | 0.3000000            | 100.0000 | 95.00000   |
| NP-237        | 4437.061     | 4903.990   | 4.000000              | 1.200000             | 50.00000 | 95.00000   |
| CM-244        | 5535.519     | 5883.955   | 25.00000              | 7.500000             | 20.00000 | 95.00000   |

Instrument : CHAMBER 193  
 Detector : 68627  
 Background Analysis Date/Time : 23-AUG-2009 11:56:37  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2990.087     | 3301.572   | 2.000000              | 0.6000000            | 70.71068 | 95.00000   |
| NP-237        | 4436.483     | 4905.309   | 7.000000              | 2.100000             | 37.79645 | 95.00000   |
| CM-244        | 5532.931     | 5884.819   | 32.00000              | 9.600000             | 17.67767 | 95.00000   |

Instrument : CHAMBER 194  
 Detector : 68635  
 Background Analysis Date/Time : 23-AUG-2009 11:56:41  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2990.152     | 3297.570   | 1.000000              | 0.3000000            | 100.0000 | 95.00000   |
| NP-237        | 4434.536     | 4903.587   | 4.000000              | 1.200000             | 50.00000 | 95.00000   |
| CM-244        | 5530.970     | 5882.461   | 12.00000              | 3.600000             | 28.86751 | 95.00000   |

Instrument : CHAMBER 195  
 Detector : 68636  
 Background Analysis Date/Time : 23-AUG-2009 11:56:45  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error       | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|---------------|------------|
| GD-148        | 2992.288     | 3300.624   | 0.0000000E+00         | 0.0000000E+00        | 0.0000000E+00 | 95.00000   |
| NP-237        | 4434.057     | 4902.978   | 3.000000              | 0.9000000            | 57.73503      | 95.00000   |
| CM-244        | 5534.813     | 5885.542   | 15.00000              | 4.500000             | 25.81989      | 95.00000   |

Instrument : CHAMBER 196  
 Detector : 68637  
 Background Analysis Date/Time : 23-AUG-2009 11:56:50  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2990.410     | 3301.963   | 3.000000              | 0.9000000            | 57.73503 | 95.00000   |
| NP-237        | 4437.321     | 4906.417   | 5.000000              | 1.500000             | 44.72136 | 95.00000   |
| CM-244        | 5534.476     | 5886.645   | 21.00000              | 6.300000             | 21.82179 | 95.00000   |



Instrument : CHAMBER 197  
 Detector : 78894  
 Background Analysis Date/Time : 23-AUG-2009 11:56:54  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error      | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|--------------|------------|
| GD-148        | 2991.920     | 3300.320   | 0.000000E+00          | 0.000000E+00         | 0.000000E+00 | 95.00000   |
| NP-237        | 4436.468     | 4902.348   | 1.000000              | 0.3000000            | 100.0000     | 95.00000   |
| CM-244        | 5532.745     | 5886.065   | 12.00000              | 3.600000             | 28.86751     | 95.00000   |

Instrument : CHAMBER 198  
 Detector : 78895  
 Background Analysis Date/Time : 23-AUG-2009 11:56:58  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2991.305     | 3299.642   | 1.000000              | 0.3000000            | 100.0000 | 95.00000   |
| NP-237        | 4434.397     | 4904.448   | 1.000000              | 0.3000000            | 100.0000 | 95.00000   |
| CM-244        | 5533.011     | 5885.087   | 30.00000              | 9.000000             | 18.25742 | 95.00000   |

Instrument : CHAMBER 199  
 Detector : 78896  
 Background Analysis Date/Time : 23-AUG-2009 11:57:02  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error      | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|--------------|------------|
| GD-148        | 2988.912     | 3297.497   | 0.000000E+00          | 0.000000E+00         | 0.000000E+00 | 95.00000   |
| NP-237        | 4433.891     | 4904.941   | 5.000000              | 1.500000             | 44.72136     | 95.00000   |
| CM-244        | 5535.121     | 5882.869   | 7.000000              | 2.100000             | 37.79645     | 95.00000   |

Instrument : CHAMBER 200  
 Detector : 78900  
 Background Analysis Date/Time : 23-AUG-2009 11:57:06  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2991.845     | 3300.480   | 2.000000              | 0.6000000            | 70.71068 | 95.00000   |
| NP-237        | 4436.941     | 4902.709   | 10.00000              | 3.000000             | 31.62278 | 95.00000   |
| CM-244        | 5532.744     | 5885.759   | 30.00000              | 9.000000             | 18.25742 | 95.00000   |

Instrument : CHAMBER 201  
 Detector : 78902  
 Background Analysis Date/Time : 23-AUG-2009 11:57:10  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2988.531     | 3297.499   | 1.000000              | 0.3000000            | 100.0000 | 95.00000   |
| NP-237        | 4434.991     | 4906.359   | 5.000000              | 1.500000             | 44.72136 | 95.00000   |
| CM-244        | 5531.510     | 5884.700   | 15.00000              | 4.500000             | 25.81989 | 95.00000   |

Instrument : CHAMBER 202  
 Detector : 78903  
 Background Analysis Date/Time : 23-AUG-2009 11:57:14  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error      | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|--------------|------------|
| GD-148        | 2990.301     | 3298.322   | 1.000000              | 0.3000000            | 100.0000     | 95.00000   |
| NP-237        | 4432.596     | 4902.750   | 0.000000E+00          | 0.0000000E+00        | 0.000000E+00 | 95.00000   |
| CM-244        | 5531.710     | 5884.137   | 14.00000              | 4.200000             | 26.72612     | 95.00000   |

Instrument : CHAMBER 203  
 Detector : 78905  
 Background Analysis Date/Time : 23-AUG-2009 11:57:19  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2988.566     | 3301.771   | 4.000000              | 1.200000             | 50.00000 | 95.00000   |
| NP-237        | 4437.077     | 4902.609   | 6.000000              | 1.800000             | 40.82483 | 95.00000   |
| CM-244        | 5532.534     | 5885.590   | 12.00000              | 3.600000             | 28.86751 | 95.00000   |

Instrument : CHAMBER 204  
 Detector : 78907  
 Background Analysis Date/Time : 23-AUG-2009 11:57:23  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2990.303     | 3298.289   | 13.00000              | 3.900000             | 27.73501 | 95.00000   |
| NP-237        | 4433.152     | 4903.866   | 12.00000              | 3.600000             | 28.86751 | 95.00000   |
| CM-244        | 5533.856     | 5886.993   | 34.00000              | 10.20000             | 17.14986 | 95.00000   |

Instrument : CHAMBER 205  
 Detector : 78908  
 Background Analysis Date/Time : 23-AUG-2009 11:57:27  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2991.267     | 3299.423   | 1.000000              | 0.3000000            | 100.0000 | 95.00000   |
| NP-237        | 4434.928     | 4905.917   | 1.000000              | 0.3000000            | 100.0000 | 95.00000   |
| CM-244        | 5530.946     | 5884.256   | 15.00000              | 4.500000             | 25.81989 | 95.00000   |

Instrument : CHAMBER 206  
 Detector : 78909  
 Background Analysis Date/Time : 23-AUG-2009 11:57:31  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error       | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|---------------|------------|
| GD-148        | 2991.740     | 3299.836   | 0.0000000E+00         | 0.0000000E+00        | 0.0000000E+00 | 95.00000   |
| NP-237        | 4434.469     | 4904.811   | 0.0000000E+00         | 0.0000000E+00        | 0.0000000E+00 | 95.00000   |
| CM-244        | 5534.058     | 5886.660   | 13.00000              | 3.900000             | 27.73501      | 95.00000   |

Instrument : CHAMBER 207  
 Detector : 78910  
 Background Analysis Date/Time : 23-AUG-2009 11:57:35  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2987.560     | 3301.824   | 2.000000              | 0.6000000            | 70.71068 | 95.00000   |
| NP-237        | 4434.563     | 4905.877   | 4.000000              | 1.200000             | 50.00000 | 95.00000   |
| CM-244        | 5530.790     | 5883.765   | 14.00000              | 4.200000             | 26.72612 | 95.00000   |

Instrument : CHAMBER 208  
 Detector : 78911  
 Background Analysis Date/Time : 23-AUG-2009 11:57:40  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2990.613     | 3299.492   | 2.000000              | 0.6000000            | 70.71068 | 95.00000   |
| NP-237        | 4436.795     | 4902.883   | 6.000000              | 1.800000             | 40.82483 | 95.00000   |
| CM-244        | 5533.327     | 5886.561   | 13.00000              | 3.900000             | 27.73501 | 95.00000   |

Instrument : CHAMBER 209  
 Detector : 79188  
 Background Analysis Date/Time : 23-AUG-2009 11:57:44  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2991.940     | 3298.642   | 2.000000              | 0.6000000            | 70.71068 | 95.00000   |
| NP-237        | 4435.592     | 4905.793   | 3.000000              | 0.9000000            | 57.73503 | 95.00000   |
| CM-244        | 5530.388     | 5883.749   | 4.000000              | 1.200000             | 50.00000 | 95.00000   |

Instrument : CHAMBER 210  
 Detector : 79189  
 Background Analysis Date/Time : 23-AUG-2009 11:57:48  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error       | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|---------------|------------|
| GD-148        | 2988.073     | 3301.089   | 0.0000000E+00         | 0.0000000E+00        | 0.0000000E+00 | 95.00000   |
| NP-237        | 4435.142     | 4905.164   | 1.000000              | 0.3000000            | 100.0000      | 95.00000   |
| CM-244        | 5533.916     | 5886.208   | 0.0000000E+00         | 0.0000000E+00        | 0.0000000E+00 | 95.00000   |

Instrument : CHAMBER 211  
 Detector : 79190  
 Background Analysis Date/Time : 23-AUG-2009 11:57:52  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error       | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|---------------|------------|
| GD-148        | 2991.282     | 3299.071   | 0.0000000E+00         | 0.0000000E+00        | 0.0000000E+00 | 95.00000   |
| NP-237        | 4434.230     | 4900.253   | 2.000000              | 0.6000000            | 70.71068      | 95.00000   |
| CM-244        | 5531.327     | 5885.262   | 2.000000              | 0.6000000            | 70.71068      | 95.00000   |

Instrument : CHAMBER 212  
 Detector : 79191  
 Background Analysis Date/Time : 23-AUG-2009 11:57:56  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error       | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|---------------|------------|
| GD-148        | 2991.918     | 3298.870   | 0.0000000E+00         | 0.0000000E+00        | 0.0000000E+00 | 95.00000   |
| NP-237        | 4437.027     | 4902.590   | 1.000000              | 0.3000000            | 100.0000      | 95.00000   |
| CM-244        | 5533.378     | 5887.318   | 0.0000000E+00         | 0.0000000E+00        | 0.0000000E+00 | 95.00000   |

Instrument : CHAMBER 213  
 Detector : 79192  
 Background Analysis Date/Time : 23-AUG-2009 11:58:01  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error      | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|--------------|------------|
| GD-148        | 2991.497     | 3299.775   | 0.000000E+00          | 0.000000E+00         | 0.000000E+00 | 95.00000   |
| NP-237        | 4434.841     | 4905.254   | 1.000000              | 0.3000000            | 100.0000     | 95.00000   |
| CM-244        | 5534.504     | 5887.063   | 3.000000              | 0.9000000            | 57.73503     | 95.00000   |

Instrument : CHAMBER 214  
 Detector : 79193  
 Background Analysis Date/Time : 23-AUG-2009 11:58:05  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error      | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|--------------|------------|
| GD-148        | 2991.133     | 3298.396   | 0.000000E+00          | 0.000000E+00         | 0.000000E+00 | 95.00000   |
| NP-237        | 4436.844     | 4902.153   | 4.000000              | 1.200000             | 50.00000     | 95.00000   |
| CM-244        | 5532.271     | 5885.676   | 3.000000              | 0.9000000            | 57.73503     | 95.00000   |

Instrument : CHAMBER 215  
 Detector : 79194  
 Background Analysis Date/Time : 23-AUG-2009 11:58:09  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error      | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|--------------|------------|
| GD-148        | 2991.638     | 3298.993   | 0.000000E+00          | 0.000000E+00         | 0.000000E+00 | 95.00000   |
| NP-237        | 4433.482     | 4904.904   | 1.000000              | 0.3000000            | 100.0000     | 95.00000   |
| CM-244        | 5531.246     | 5885.655   | 3.000000              | 0.9000000            | 57.73503     | 95.00000   |

Instrument : CHAMBER 216  
 Detector : 79195  
 Background Analysis Date/Time : 23-AUG-2009 11:58:13  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error      | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|--------------|------------|
| GD-148        | 2992.181     | 3299.336   | 0.000000E+00          | 0.000000E+00         | 0.000000E+00 | 95.00000   |
| NP-237        | 4432.606     | 4903.311   | 1.000000              | 0.3000000            | 100.0000     | 95.00000   |
| CM-244        | 5533.853     | 5887.574   | 3.000000              | 0.9000000            | 57.73503     | 95.00000   |

Instrument : CHAMBER 217  
 Detector : 79410  
 Background Analysis Date/Time : 23-AUG-2009 11:58:18  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error       | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|---------------|------------|
| GD-148        | 2989.031     | 3301.074   | 1.000000              | 0.3000000            | 100.0000      | 95.00000   |
| NP-237        | 4434.240     | 4905.058   | 0.0000000E+00         | 0.0000000E+00        | 0.0000000E+00 | 95.00000   |
| CM-244        | 5530.547     | 5884.453   | 2.000000              | 0.6000000            | 70.71068      | 95.00000   |

Instrument : CHAMBER 218  
 Detector : 79411  
 Background Analysis Date/Time : 23-AUG-2009 11:58:23  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error       | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|---------------|------------|
| GD-148        | 2988.583     | 3301.235   | 0.0000000E+00         | 0.0000000E+00        | 0.0000000E+00 | 95.00000   |
| NP-237        | 4435.884     | 4901.733   | 9.000000              | 2.700000             | 33.33334      | 95.00000   |
| CM-244        | 5532.602     | 5886.438   | 0.0000000E+00         | 0.0000000E+00        | 0.0000000E+00 | 95.00000   |

Instrument : CHAMBER 219  
 Detector : 79412  
 Background Analysis Date/Time : 23-AUG-2009 11:58:27  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error       | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|---------------|------------|
| GD-148        | 2992.207     | 3300.096   | 1.000000              | 0.3000000            | 100.0000      | 95.00000   |
| NP-237        | 4435.206     | 4906.290   | 4.000000              | 1.200000             | 50.00000      | 95.00000   |
| CM-244        | 5531.669     | 5885.285   | 0.0000000E+00         | 0.0000000E+00        | 0.0000000E+00 | 95.00000   |

Instrument : CHAMBER 220  
 Detector : 79413  
 Background Analysis Date/Time : 23-AUG-2009 11:58:31  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error       | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|---------------|------------|
| GD-148        | 2990.930     | 3297.738   | 0.0000000E+00         | 0.0000000E+00        | 0.0000000E+00 | 95.00000   |
| NP-237        | 4435.749     | 4901.420   | 0.0000000E+00         | 0.0000000E+00        | 0.0000000E+00 | 95.00000   |
| CM-244        | 5532.504     | 5886.683   | 1.000000              | 0.3000000            | 100.0000      | 95.00000   |

Instrument : CHAMBER 221  
 Detector : 79414  
 Background Analysis Date/Time : 23-AUG-2009 11:58:35  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error      | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|--------------|------------|
| GD-148        | 2989.954     | 3298.454   | 0.000000E+00          | 0.000000E+00         | 0.000000E+00 | 95.00000   |
| NP-237        | 4435.659     | 4902.272   | 0.000000E+00          | 0.000000E+00         | 0.000000E+00 | 95.00000   |
| CM-244        | 5533.925     | 5882.692   | 2.000000              | 0.6000000            | 70.71068     | 95.00000   |

Instrument : CHAMBER 222  
 Detector : 79415  
 Background Analysis Date/Time : 23-AUG-2009 11:58:40  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error      | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|--------------|------------|
| GD-148        | 2990.392     | 3301.657   | 0.000000E+00          | 0.000000E+00         | 0.000000E+00 | 95.00000   |
| NP-237        | 4433.525     | 4905.197   | 0.000000E+00          | 0.000000E+00         | 0.000000E+00 | 95.00000   |
| CM-244        | 5534.683     | 5886.672   | 2.000000              | 0.6000000            | 70.71068     | 95.00000   |

Instrument : CHAMBER 223  
 Detector : 79416  
 Background Analysis Date/Time : 23-AUG-2009 11:58:47  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2990.058     | 3298.884   | 2.000000              | 0.6000000            | 70.71068 | 95.00000   |
| NP-237        | 4432.434     | 4905.074   | 2.000000              | 0.6000000            | 70.71068 | 95.00000   |
| CM-244        | 5532.599     | 5887.467   | 3.000000              | 0.9000000            | 57.73503 | 95.00000   |

Instrument : CHAMBER 224  
 Detector : 79417  
 Background Analysis Date/Time : 23-AUG-2009 11:58:53  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error      | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|--------------|------------|
| GD-148        | 2988.636     | 3298.216   | 0.000000E+00          | 0.000000E+00         | 0.000000E+00 | 95.00000   |
| NP-237        | 4432.951     | 4905.382   | 3.000000              | 0.9000000            | 57.73503     | 95.00000   |
| CM-244        | 5532.025     | 5886.099   | 4.000000              | 1.200000             | 50.00000     | 95.00000   |

Instrument : CHAMBER 225  
 Detector : 79418  
 Background Analysis Date/Time : 23-AUG-2009 11:58:59  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error      | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|--------------|------------|
| GD-148        | 2991.462     | 3299.408   | 0.000000E+00          | 0.000000E+00         | 0.000000E+00 | 95.00000   |
| NP-237        | 4434.737     | 4905.917   | 1.000000              | 0.3000000            | 100.0000     | 95.00000   |
| CM-244        | 5531.430     | 5885.124   | 1.000000              | 0.3000000            | 100.0000     | 95.00000   |

Instrument : CHAMBER 226  
 Detector : 79419  
 Background Analysis Date/Time : 23-AUG-2009 11:59:05  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error      | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|--------------|------------|
| GD-148        | 2991.793     | 3300.581   | 1.000000              | 0.3000000            | 100.0000     | 95.00000   |
| NP-237        | 4433.080     | 4904.877   | 2.000000              | 0.6000000            | 70.71068     | 95.00000   |
| CM-244        | 5530.936     | 5884.804   | 0.000000E+00          | 0.000000E+00         | 0.000000E+00 | 95.00000   |

Instrument : CHAMBER 227  
 Detector : 79420  
 Background Analysis Date/Time : 23-AUG-2009 11:59:10  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2989.468     | 3297.622   | 1.000000              | 0.3000000            | 100.0000 | 95.00000   |
| NP-237        | 4433.427     | 4904.675   | 1.000000              | 0.3000000            | 100.0000 | 95.00000   |
| CM-244        | 5535.505     | 5883.794   | 1.000000              | 0.3000000            | 100.0000 | 95.00000   |

Instrument : CHAMBER 228  
 Detector : 79421  
 Background Analysis Date/Time : 23-AUG-2009 11:59:16  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2992.529     | 3302.052   | 1.000000              | 0.3000000            | 100.0000 | 95.00000   |
| NP-237        | 4435.206     | 4906.368   | 1.000000              | 0.3000000            | 100.0000 | 95.00000   |
| CM-244        | 5530.800     | 5883.365   | 1.000000              | 0.3000000            | 100.0000 | 95.00000   |



Instrument : CHAMBER 229  
 Detector : 79422  
 Background Analysis Date/Time : 23-AUG-2009 11:59:21  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2989.967     | 3297.813   | 1.000000              | 0.3000000            | 100.0000 | 95.00000   |
| NP-237        | 4433.942     | 4905.968   | 2.000000              | 0.6000000            | 70.71068 | 95.00000   |
| CM-244        | 5533.045     | 5882.442   | 1.000000              | 0.3000000            | 100.0000 | 95.00000   |

Instrument : CHAMBER 230  
 Detector : 79423  
 Background Analysis Date/Time : 23-AUG-2009 11:59:28  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error       | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|---------------|------------|
| GD-148        | 2992.307     | 3300.916   | 0.0000000E+00         | 0.0000000E+00        | 0.0000000E+00 | 95.00000   |
| NP-237        | 4432.950     | 4904.639   | 2.000000              | 0.6000000            | 70.71068      | 95.00000   |
| CM-244        | 5530.626     | 5884.491   | 0.0000000E+00         | 0.0000000E+00        | 0.0000000E+00 | 95.00000   |

Instrument : CHAMBER 231  
 Detector : 79424  
 Background Analysis Date/Time : 23-AUG-2009 11:59:34  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error       | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|---------------|------------|
| GD-148        | 2989.314     | 3302.411   | 0.0000000E+00         | 0.0000000E+00        | 0.0000000E+00 | 95.00000   |
| NP-237        | 4437.493     | 4903.010   | 4.000000              | 1.200000             | 50.00000      | 95.00000   |
| CM-244        | 5532.978     | 5886.091   | 0.0000000E+00         | 0.0000000E+00        | 0.0000000E+00 | 95.00000   |

Instrument : CHAMBER 232  
 Detector : 79425  
 Background Analysis Date/Time : 23-AUG-2009 11:59:39  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2990.963     | 3301.243   | 2.000000              | 0.6000000            | 70.71068 | 95.00000   |
| NP-237        | 4436.020     | 4902.090   | 4.000000              | 1.200000             | 50.00000 | 95.00000   |
| CM-244        | 5531.563     | 5883.791   | 2.000000              | 0.6000000            | 70.71068 | 95.00000   |

Instrument : CHAMBER 233  
 Detector : 79426  
 Background Analysis Date/Time : 23-AUG-2009 11:59:46  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error      | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|--------------|------------|
| GD-148        | 2990.373     | 3302.025   | 0.000000E+00          | 0.000000E+00         | 0.000000E+00 | 95.00000   |
| NP-237        | 4434.487     | 4905.324   | 2.000000              | 0.6000000            | 70.71068     | 95.00000   |
| CM-244        | 5531.110     | 5885.315   | 3.000000              | 0.9000000            | 57.73503     | 95.00000   |

Instrument : CHAMBER 234  
 Detector : 79427  
 Background Analysis Date/Time : 23-AUG-2009 11:59:51  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2988.269     | 3300.079   | 1.000000              | 0.3000000            | 100.0000 | 95.00000   |
| NP-237        | 4436.893     | 4901.571   | 1.000000              | 0.3000000            | 100.0000 | 95.00000   |
| CM-244        | 5530.864     | 5883.822   | 6.000000              | 1.800000             | 40.82483 | 95.00000   |

Instrument : CHAMBER 235  
 Detector : 79428  
 Background Analysis Date/Time : 23-AUG-2009 11:59:57  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error      | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|--------------|------------|
| GD-148        | 2989.964     | 3301.553   | 0.000000E+00          | 0.000000E+00         | 0.000000E+00 | 95.00000   |
| NP-237        | 4434.767     | 4906.350   | 1.000000              | 0.3000000            | 100.0000     | 95.00000   |
| CM-244        | 5533.497     | 5883.248   | 0.000000E+00          | 0.000000E+00         | 0.000000E+00 | 95.00000   |

Instrument : CHAMBER 236  
 Detector : 79429  
 Background Analysis Date/Time : 23-AUG-2009 12:00:03  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2989.553     | 3300.921   | 3.000000              | 0.9000000            | 57.73503 | 95.00000   |
| NP-237        | 4432.813     | 4903.618   | 11.00000              | 3.300000             | 30.15113 | 95.00000   |
| CM-244        | 5534.883     | 5883.901   | 1.000000              | 0.3000000            | 100.0000 | 95.00000   |

Instrument : CHAMBER 237  
 Detector : 79430  
 Background Analysis Date/Time : 23-AUG-2009 12:00:08  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error      | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|--------------|------------|
| GD-148        | 2990.412     | 3298.430   | 0.000000E+00          | 0.000000E+00         | 0.000000E+00 | 95.00000   |
| NP-237        | 4434.021     | 4905.306   | 1.000000              | 0.3000000            | 100.0000     | 95.00000   |
| CM-244        | 5530.956     | 5884.725   | 0.000000E+00          | 0.000000E+00         | 0.000000E+00 | 95.00000   |

Instrument : CHAMBER 238  
 Detector : 79431  
 Background Analysis Date/Time : 23-AUG-2009 12:00:14  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error      | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|--------------|------------|
| GD-148        | 2988.738     | 3300.787   | 0.000000E+00          | 0.000000E+00         | 0.000000E+00 | 95.00000   |
| NP-237        | 4433.583     | 4904.073   | 4.000000              | 1.200000             | 50.00000     | 95.00000   |
| CM-244        | 5534.315     | 5882.484   | 1.000000              | 0.3000000            | 100.0000     | 95.00000   |

Instrument : CHAMBER 239  
 Detector : 79432  
 Background Analysis Date/Time : 23-AUG-2009 12:00:20  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2991.271     | 3298.066   | 2.000000              | 0.6000000            | 70.71068 | 95.00000   |
| NP-237        | 4436.718     | 4902.950   | 8.000000              | 2.400000             | 35.35534 | 95.00000   |
| CM-244        | 5535.054     | 5884.530   | 1.000000              | 0.3000000            | 100.0000 | 95.00000   |

Instrument : CHAMBER 240  
 Detector : 79433  
 Background Analysis Date/Time : 23-AUG-2009 12:00:26  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2990.716     | 3297.687   | 2.000000              | 0.6000000            | 70.71068 | 95.00000   |
| NP-237        | 4436.108     | 4901.861   | 3.000000              | 0.9000000            | 57.73503 | 95.00000   |
| CM-244        | 5532.981     | 5887.143   | 1.000000              | 0.3000000            | 100.0000 | 95.00000   |

Instrument : CHAMBER 241  
 Detector : 79434  
 Background Analysis Date/Time : 23-AUG-2009 12:00:31  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error      | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|--------------|------------|
| GD-148        | 2991.942     | 3297.913   | 4.000000              | 1.200000             | 50.00000     | 95.00000   |
| NP-237        | 4434.531     | 4905.642   | 0.000000E+00          | 0.000000E+00         | 0.000000E+00 | 95.00000   |
| CM-244        | 5532.339     | 5887.328   | 0.000000E+00          | 0.000000E+00         | 0.000000E+00 | 95.00000   |

Instrument : CHAMBER 242  
 Detector : 79435  
 Background Analysis Date/Time : 23-AUG-2009 12:00:38  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error      | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|--------------|------------|
| GD-148        | 2990.675     | 3302.424   | 0.000000E+00          | 0.000000E+00         | 0.000000E+00 | 95.00000   |
| NP-237        | 4435.599     | 4901.625   | 2.000000              | 0.6000000            | 70.71068     | 95.00000   |
| CM-244        | 5533.423     | 5882.719   | 0.000000E+00          | 0.000000E+00         | 0.000000E+00 | 95.00000   |

Instrument : CHAMBER 243  
 Detector : 79436  
 Background Analysis Date/Time : 23-AUG-2009 12:00:44  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error      | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|--------------|------------|
| GD-148        | 2990.382     | 3298.347   | 0.000000E+00          | 0.000000E+00         | 0.000000E+00 | 95.00000   |
| NP-237        | 4434.037     | 4905.494   | 2.000000              | 0.6000000            | 70.71068     | 95.00000   |
| CM-244        | 5531.482     | 5885.497   | 1.000000              | 0.3000000            | 100.0000     | 95.00000   |

Instrument : CHAMBER 244  
 Detector : 79437  
 Background Analysis Date/Time : 23-AUG-2009 12:00:50  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error      | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|--------------|------------|
| GD-148        | 2987.566     | 3299.789   | 5.000000              | 1.500000             | 44.72136     | 95.00000   |
| NP-237        | 4433.571     | 4904.626   | 2.000000              | 0.6000000            | 70.71068     | 95.00000   |
| CM-244        | 5530.417     | 5884.486   | 0.000000E+00          | 0.000000E+00         | 0.000000E+00 | 95.00000   |

Instrument : CHAMBER 245  
 Detector : 79438  
 Background Analysis Date/Time : 23-AUG-2009 12:00:56  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error      | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|--------------|------------|
| GD-148        | 2988.843     | 3302.525   | 0.000000E+00          | 0.000000E+00         | 0.000000E+00 | 95.00000   |
| NP-237        | 4434.670     | 4906.399   | 2.000000              | 0.6000000            | 70.71068     | 95.00000   |
| CM-244        | 5532.436     | 5886.326   | 1.000000              | 0.3000000            | 100.0000     | 95.00000   |

Instrument : CHAMBER 246  
 Detector : 78912  
 Background Analysis Date/Time : 23-AUG-2009 12:01:02  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error      | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|--------------|------------|
| GD-148        | 2991.420     | 3298.792   | 1.000000              | 0.3000000            | 100.0000     | 95.00000   |
| NP-237        | 4433.098     | 4904.335   | 4.000000              | 1.200000             | 50.00000     | 95.00000   |
| CM-244        | 5530.336     | 5884.508   | 0.000000E+00          | 0.000000E+00         | 0.000000E+00 | 95.00000   |

Instrument : CHAMBER 247  
 Detector : 79440  
 Background Analysis Date/Time : 23-AUG-2009 12:01:07  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2991.040     | 3298.952   | 5.000000              | 1.500000             | 44.72136 | 95.00000   |
| NP-237        | 4435.157     | 4901.869   | 5.000000              | 1.500000             | 44.72136 | 95.00000   |
| CM-244        | 5534.103     | 5883.404   | 6.000000              | 1.800000             | 40.82483 | 95.00000   |

Instrument : CHAMBER 248  
 Detector : 79441  
 Background Analysis Date/Time : 23-AUG-2009 12:01:13  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2989.950     | 3302.491   | 1.000000              | 0.3000000            | 100.0000 | 95.00000   |
| NP-237        | 4437.546     | 4903.912   | 6.000000              | 1.800000             | 40.82483 | 95.00000   |
| CM-244        | 5530.441     | 5884.950   | 3.000000              | 0.9000000            | 57.73503 | 95.00000   |

Instrument : CHAMBER 249  
 Detector : 79442  
 Background Analysis Date/Time : 23-AUG-2009 12:01:19  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2991.458     | 3299.653   | 2.000000              | 0.6000000            | 70.71068 | 95.00000   |
| NP-237        | 4437.087     | 4904.383   | 6.000000              | 1.800000             | 40.82483 | 95.00000   |
| CM-244        | 5532.120     | 5887.291   | 2.000000              | 0.6000000            | 70.71068 | 95.00000   |

Instrument : CHAMBER 250  
 Detector : 79443  
 Background Analysis Date/Time : 23-AUG-2009 12:01:25  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error       | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|---------------|------------|
| GD-148        | 2988.375     | 3300.259   | 0.0000000E+00         | 0.0000000E+00        | 0.0000000E+00 | 95.00000   |
| NP-237        | 4433.621     | 4904.859   | 3.000000              | 0.9000000            | 57.73503      | 95.00000   |
| CM-244        | 5531.200     | 5885.729   | 1.000000              | 0.3000000            | 100.0000      | 95.00000   |

Instrument : CHAMBER 251  
 Detector : 79444  
 Background Analysis Date/Time : 23-AUG-2009 12:01:31  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error       | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|---------------|------------|
| GD-148        | 2992.181     | 3299.694   | 0.0000000E+00         | 0.0000000E+00        | 0.0000000E+00 | 95.00000   |
| NP-237        | 4435.877     | 4903.211   | 9.000000              | 2.700000             | 33.33334      | 95.00000   |
| CM-244        | 5531.476     | 5887.181   | 0.0000000E+00         | 0.0000000E+00        | 0.0000000E+00 | 95.00000   |

Instrument : CHAMBER 252  
 Detector : 79445  
 Background Analysis Date/Time : 23-AUG-2009 12:01:36  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error       | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|---------------|------------|
| GD-148        | 2990.594     | 3297.549   | 0.0000000E+00         | 0.0000000E+00        | 0.0000000E+00 | 95.00000   |
| NP-237        | 4436.816     | 4903.310   | 2.000000              | 0.6000000            | 70.71068      | 95.00000   |
| CM-244        | 5530.420     | 5885.459   | 0.0000000E+00         | 0.0000000E+00        | 0.0000000E+00 | 95.00000   |

Instrument : CHAMBER 253  
 Detector : 79446  
 Background Analysis Date/Time : 23-AUG-2009 12:01:42  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2990.116     | 3298.147   | 1.000000              | 0.3000000            | 100.0000 | 95.00000   |
| NP-237        | 4437.082     | 4905.908   | 11.00000              | 3.300000             | 30.15113 | 95.00000   |
| CM-244        | 5531.106     | 5882.794   | 1.000000              | 0.3000000            | 100.0000 | 95.00000   |

Instrument : CHAMBER 254  
 Detector : 79447  
 Background Analysis Date/Time : 23-AUG-2009 12:01:48  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error       | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|---------------|------------|
| GD-148        | 2990.155     | 3297.706   | 1.000000              | 0.3000000            | 100.0000      | 95.00000   |
| NP-237        | 4433.107     | 4904.992   | 6.000000              | 1.800000             | 40.82483      | 95.00000   |
| CM-244        | 5532.020     | 5886.853   | 0.0000000E+00         | 0.0000000E+00        | 0.0000000E+00 | 95.00000   |

Instrument : CHAMBER 255  
 Detector : 79448  
 Background Analysis Date/Time : 23-AUG-2009 12:02:23  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2987.598     | 3300.373   | 1.000000              | 0.3000000            | 100.0000 | 95.00000   |
| NP-237        | 4437.418     | 4905.095   | 9.000000              | 2.700000             | 33.33334 | 95.00000   |
| CM-244        | 5533.813     | 5884.354   | 1.000000              | 0.3000000            | 100.0000 | 95.00000   |

Instrument : CHAMBER 256  
 Detector : 79449  
 Background Analysis Date/Time : 23-AUG-2009 12:02:28  
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts<br>in 1000 min | Counts<br>during Cal | % Error  | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148        | 2991.222     | 3298.267   | 1.000000              | 0.3000000            | 100.0000 | 95.00000   |
| NP-237        | 4432.956     | 4905.052   | 3.000000              | 0.9000000            | 57.73503 | 95.00000   |
| CM-244        | 5532.797     | 5882.840   | 2.000000              | 0.6000000            | 70.71068 | 95.00000   |

### Subsection 3: Efficiency Calibration

Instrument : CHAMBER 001  
 Detector : 78788  
 Standard ID : AESS-001  
 Standard Reference Date : 20-FEB-2008 09:54:53  
 Calibration Analysis Date/Time : 4-SEP-2009 07:36:39  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 4-SEP-2009 12:35:32  
 Average Efficiency : 0.3122659  
 Average Efficiency Error : 8.6114258E-03  
 Confidence : 95.00000

| Cal. Isteps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|-------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148      | 208.6698 | 28-FEB-2010 | 2989.095   | 3301.491 | 15006.00 | 0.3039177 | 1.3064248E-02 | 58.79536   |
| NP-237      | 171.0024 | 28-FEB-2010 | 4436.328   | 4901.460 | 12916.00 | 0.3146430 | 1.5974019E-02 | 71.14886   |
| CM-244      | 158.1060 | 28-FEB-2010 | 5531.570   | 5886.270 | 11555.00 | 0.3229480 | 1.6424600E-02 | 57.32594   |

Instrument : CHAMBER 002  
 Detector : 78266  
 Standard ID : AESS-002  
 Standard Reference Date : 19-FEB-2008 11:05:22  
 Calibration Analysis Date/Time : 4-SEP-2009 07:36:39  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 4-SEP-2009 12:35:41  
 Average Efficiency : 0.3090980  
 Average Efficiency Error : 8.5114390E-03  
 Confidence : 95.00000

| Cal. Isteps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|-------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148      | 200.1144 | 28-FEB-2010 | 2992.085   | 3299.620 | 14650.00 | 0.3094049 | 1.3305944E-02 | 45.54427   |
| NP-237      | 200.4990 | 28-FEB-2010 | 4434.644   | 4904.846 | 15015.00 | 0.3119993 | 1.5806440E-02 | 68.48380   |
| CM-244      | 196.5558 | 28-FEB-2010 | 5534.154   | 5882.659 | 13603.00 | 0.3058844 | 1.5517467E-02 | 51.44160   |

Instrument : CHAMBER 003  
 Detector : 67617  
 Standard ID : AESS-003  
 Standard Reference Date : 15-FEB-2008 13:12:27  
 Calibration Analysis Date/Time : 4-SEP-2009 07:36:39  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 4-SEP-2009 12:35:49  
 Average Efficiency : 0.3361934  
 Average Efficiency Error : 9.2456024E-03  
 Confidence : 95.00000

| Cal. Isteps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|-------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148      | 202.9740 | 28-FEB-2010 | 2991.938   | 3299.717 | 15919.00 | 0.3314925 | 1.4234867E-02 | 68.71011   |
| NP-237      | 203.2080 | 28-FEB-2010 | 4432.844   | 4902.827 | 16799.00 | 0.3444051 | 1.7424129E-02 | 74.30300   |
| CM-244      | 197.2236 | 28-FEB-2010 | 5531.440   | 5887.803 | 14947.00 | 0.3350840 | 1.6976947E-02 | 62.51212   |



Instrument : CHAMBER 004  
 Detector : 64279  
 Standard ID : AESS-004  
 Standard Reference Date : 14-FEB-2008 09:35:18  
 Calibration Analysis Date/Time : 4-SEP-2009 07:36:39  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 4-SEP-2009 12:35:56  
 Average Efficiency : 0.3331009  
 Average Efficiency Error : 9.1593768E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 206.1222 | 28-FEB-2010 | 2992.026   | 3298.308 | 16101.00 | 0.3301861 | 1.4176016E-02 | 53.22534   |
| NP-237     | 204.2586 | 28-FEB-2010 | 4435.760   | 4905.548 | 16353.00 | 0.3335505 | 1.6880305E-02 | 62.94835   |
| CM-244     | 198.8100 | 28-FEB-2010 | 5534.947   | 5883.809 | 15145.00 | 0.3368652 | 1.7064264E-02 | 54.23564   |

Instrument : CHAMBER 005  
 Detector : 67612  
 Standard ID : AESS-005  
 Standard Reference Date : 14-FEB-2008 09:35:18  
 Calibration Analysis Date/Time : 4-SEP-2009 07:36:39  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 4-SEP-2009 12:36:04  
 Average Efficiency : 0.2950116  
 Average Efficiency Error : 8.1236903E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 210.7452 | 28-FEB-2010 | 2989.654   | 3300.689 | 14685.00 | 0.2945226 | 1.2665418E-02 | 52.17361   |
| NP-237     | 209.5938 | 28-FEB-2010 | 4436.859   | 4901.997 | 14804.00 | 0.2942757 | 1.4911278E-02 | 59.02256   |
| CM-244     | 202.7478 | 28-FEB-2010 | 5533.435   | 5885.045 | 13592.00 | 0.2964495 | 1.5039029E-02 | 52.51872   |

Instrument : CHAMBER 006  
 Detector : 67613  
 Standard ID : AESS-006  
 Standard Reference Date : 14-FEB-2008 09:35:18  
 Calibration Analysis Date/Time : 4-SEP-2009 07:36:39  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 4-SEP-2009 12:36:12  
 Average Efficiency : 0.3072436  
 Average Efficiency Error : 8.4615378E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 203.6952 | 28-FEB-2010 | 2987.771   | 3301.528 | 14462.00 | 0.3000935 | 1.2908642E-02 | 53.74769   |
| NP-237     | 204.7038 | 28-FEB-2010 | 4433.310   | 4904.612 | 15292.00 | 0.3112141 | 1.5762975E-02 | 64.28081   |
| CM-244     | 195.0060 | 28-FEB-2010 | 5535.175   | 5883.158 | 13852.00 | 0.3140766 | 1.5929047E-02 | 53.04362   |

Instrument : CHAMBER 007  
 Detector : 67607  
 Standard ID : AESS-007  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 4-SEP-2009 07:36:40  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 4-SEP-2009 12:36:20  
 Average Efficiency : 0.2367712  
 Average Efficiency Error : 6.6109751E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 206.7342 | 28-FEB-2010 | 2991.315   | 3300.370 | 13798.00 | 0.2821096 | 1.2145956E-02 | 48.72938   |
| NP-237     | 205.0260 | 28-FEB-2010 | 4436.975   | 4905.147 | 11957.00 | 0.2429639 | 1.2349783E-02 | 65.83331   |
| CM-244     | 199.6806 | 28-FEB-2010 | 5533.959   | 5885.477 | 9051.000 | 0.2003213 | 1.0235304E-02 | 52.23785   |

Instrument : CHAMBER 008  
 Detector : 78788  
 Standard ID : AESS-008  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 4-SEP-2009 07:36:40  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 4-SEP-2009 12:36:40  
 Average Efficiency : 0.3205987  
 Average Efficiency Error : 8.8198772E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 206.0418 | 28-FEB-2010 | 2989.794   | 3298.426 | 15461.00 | 0.3171742 | 1.3626882E-02 | 47.98743   |
| NP-237     | 209.2716 | 28-FEB-2010 | 4437.020   | 4904.595 | 16084.00 | 0.3202048 | 1.6208146E-02 | 61.69046   |
| CM-244     | 199.6488 | 28-FEB-2010 | 5532.536   | 5882.336 | 14721.00 | 0.3260421 | 1.6522150E-02 | 43.41613   |

Instrument : CHAMBER 009  
 Detector : 72528  
 Standard ID : AESS-009  
 Standard Reference Date : 19-FEB-2008 11:05:22  
 Calibration Analysis Date/Time : 4-SEP-2009 07:36:40  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 4-SEP-2009 12:36:51  
 Average Efficiency : 0.3402912  
 Average Efficiency Error : 9.3554687E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 203.3736 | 28-FEB-2010 | 2990.892   | 3299.892 | 16250.00 | 0.3376825 | 1.4495632E-02 | 49.34795   |
| NP-237     | 204.0192 | 28-FEB-2010 | 4433.436   | 4905.789 | 16617.00 | 0.3393191 | 1.7169004E-02 | 62.72510   |
| CM-244     | 197.2128 | 28-FEB-2010 | 5532.687   | 5887.081 | 15400.00 | 0.3450909 | 1.7477276E-02 | 53.13368   |

Instrument : CHAMBER 010  
 Detector : 72529  
 Standard ID : AESS-010  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 4-SEP-2009 07:36:40  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 4-SEP-2009 12:37:00  
 Average Efficiency : 0.3139585  
 Average Efficiency Error : 8.6422609E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 202.0008 | 28-FEB-2010 | 2988.087   | 3300.334 | 14912.00 | 0.3120262 | 1.3414358E-02 | 49.22013   |
| NP-237     | 202.9926 | 28-FEB-2010 | 4436.842   | 4905.812 | 15310.00 | 0.3142270 | 1.5915314E-02 | 60.15851   |
| CM-244     | 196.2330 | 28-FEB-2010 | 5533.178   | 5884.706 | 14044.00 | 0.3164504 | 1.6046330E-02 | 53.33372   |

Instrument : CHAMBER 011  
 Detector : 72531  
 Standard ID : AESS-011  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 4-SEP-2009 07:36:40  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 4-SEP-2009 12:37:27  
 Average Efficiency : 0.2979373  
 Average Efficiency Error : 8.2009137E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 212.8284 | 28-FEB-2010 | 2990.718   | 3301.411 | 14912.00 | 0.2961519 | 1.2731905E-02 | 50.71152   |
| NP-237     | 214.4868 | 28-FEB-2010 | 4435.900   | 4905.463 | 15442.00 | 0.2999101 | 1.5188582E-02 | 60.36610   |
| CM-244     | 208.4184 | 28-FEB-2010 | 5535.617   | 5886.431 | 14071.00 | 0.2985013 | 1.5135813E-02 | 50.96436   |

Instrument : CHAMBER 012  
 Detector : 67594  
 Standard ID : AESS-012  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 4-SEP-2009 07:36:40  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 4-SEP-2009 12:37:37  
 Average Efficiency : 0.2994823  
 Average Efficiency Error : 8.2469489E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 206.2200 | 28-FEB-2010 | 2989.283   | 3301.924 | 14660.00 | 0.3004818 | 1.2922071E-02 | 52.00318   |
| NP-237     | 205.8930 | 28-FEB-2010 | 4434.309   | 4903.502 | 14933.00 | 0.3021517 | 1.5308659E-02 | 64.10130   |
| CM-244     | 203.1954 | 28-FEB-2010 | 5531.028   | 5882.575 | 13584.00 | 0.2955756 | 1.4994888E-02 | 57.14846   |

Instrument : CHAMBER 013  
 Detector : 78790  
 Standard ID : AESS-013  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 4-SEP-2009 07:36:41  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 4-SEP-2009 12:37:47  
 Average Efficiency : 0.3441789  
 Average Efficiency Error : 9.4585977E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 203.6544 | 28-FEB-2010 | 2992.309   | 3297.583 | 16707.00 | 0.3467621 | 1.4878578E-02 | 47.93691   |
| NP-237     | 210.2526 | 28-FEB-2010 | 4432.512   | 4904.184 | 17205.00 | 0.3409068 | 1.7242415E-02 | 63.48001   |
| CM-244     | 201.9108 | 28-FEB-2010 | 5533.734   | 5883.657 | 15707.00 | 0.3439779 | 1.7416557E-02 | 53.05471   |

Instrument : CHAMBER 014  
 Detector : 67616  
 Standard ID : AESS-014  
 Standard Reference Date : 19-FEB-2008 11:05:22  
 Calibration Analysis Date/Time : 4-SEP-2009 07:36:41  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 4-SEP-2009 12:37:57  
 Average Efficiency : 0.3126531  
 Average Efficiency Error : 8.6011579E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 214.7088 | 28-FEB-2010 | 2990.575   | 3298.988 | 15569.00 | 0.3064544 | 1.3164708E-02 | 48.59332   |
| NP-237     | 211.7160 | 28-FEB-2010 | 4436.470   | 4903.458 | 16179.00 | 0.3183725 | 1.6114254E-02 | 68.41453   |
| CM-244     | 207.3882 | 28-FEB-2010 | 5530.496   | 5885.133 | 14842.00 | 0.3161798 | 1.6020818E-02 | 54.78078   |

Instrument : CHAMBER 015  
 Detector : 61581  
 Standard ID : AESS-015  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 4-SEP-2009 07:36:41  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 4-SEP-2009 12:38:32  
 Average Efficiency : 0.3250474  
 Average Efficiency Error : 8.9431657E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 204.0270 | 28-FEB-2010 | 2987.656   | 3297.520 | 15498.00 | 0.3210663 | 1.3793531E-02 | 58.50532   |
| NP-237     | 200.6460 | 28-FEB-2010 | 4435.901   | 4901.612 | 15878.00 | 0.3296820 | 1.6690506E-02 | 70.32646   |
| CM-244     | 195.9270 | 28-FEB-2010 | 5535.255   | 5884.514 | 14460.00 | 0.3262195 | 1.6535265E-02 | 60.28641   |

Instrument : CHAMBER 016  
 Detector : 78774  
 Standard ID : AESS-016  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 4-SEP-2009 07:36:41  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 4-SEP-2009 12:39:14  
 Average Efficiency : 0.3337179  
 Average Efficiency Error : 9.1785332E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 204.0534 | 28-FEB-2010 | 2988.611   | 3297.891 | 15952.00 | 0.3304393 | 1.4189126E-02 | 48.70612   |
| NP-237     | 199.3962 | 28-FEB-2010 | 4435.494   | 4901.479 | 16393.00 | 0.3425452 | 1.7334972E-02 | 61.52191   |
| CM-244     | 198.6402 | 28-FEB-2010 | 5530.741   | 5886.030 | 14827.00 | 0.3300566 | 1.6723992E-02 | 56.19504   |

Instrument : CHAMBER 017  
 Detector : 78791  
 Standard ID : AESS-017  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 4-SEP-2009 07:36:41  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 4-SEP-2009 12:39:56  
 Average Efficiency : 0.2932511  
 Average Efficiency Error : 8.0763726E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 210.0798 | 28-FEB-2010 | 2989.315   | 3299.165 | 14535.00 | 0.2924541 | 1.2578820E-02 | 44.96824   |
| NP-237     | 208.5846 | 28-FEB-2010 | 4433.955   | 4905.994 | 14930.00 | 0.2982117 | 1.5109048E-02 | 56.65096   |
| CM-244     | 205.5828 | 28-FEB-2010 | 5531.756   | 5885.157 | 13466.00 | 0.2896459 | 1.4695838E-02 | 49.42458   |

Instrument : CHAMBER 018  
 Detector : 78782  
 Standard ID : AESS-018  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 4-SEP-2009 07:36:41  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 4-SEP-2009 12:40:11  
 Average Efficiency : 0.3229291  
 Average Efficiency Error : 8.8838805E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 202.1856 | 28-FEB-2010 | 2989.045   | 3297.645 | 15448.00 | 0.3229351 | 1.3874616E-02 | 44.39913   |
| NP-237     | 208.8990 | 28-FEB-2010 | 4435.824   | 4903.103 | 16130.00 | 0.3216979 | 1.6283154E-02 | 64.50001   |
| CM-244     | 198.1458 | 28-FEB-2010 | 5530.534   | 5885.395 | 14527.00 | 0.3241743 | 1.6430404E-02 | 51.39432   |

Instrument : CHAMBER 019  
 Detector : 78786  
 Standard ID : AESS-019  
 Standard Reference Date : 19-FEB-2008 11:05:22  
 Calibration Analysis Date/Time : 4-SEP-2009 07:36:42  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 4-SEP-2009 12:40:24  
 Average Efficiency : 0.2905655  
 Average Efficiency Error : 8.0145085E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 204.6468 | 28-FEB-2010 | 2992.371   | 3300.084 | 13452.00 | 0.2778059 | 1.1966659E-02 | 44.41962   |
| NP-237     | 202.9140 | 28-FEB-2010 | 4432.711   | 4901.697 | 14988.00 | 0.3077365 | 1.5590836E-02 | 62.76942   |
| CM-244     | 199.3140 | 28-FEB-2010 | 5534.730   | 5883.386 | 13290.00 | 0.2946945 | 1.4954864E-02 | 50.33946   |

Instrument : CHAMBER 020  
 Detector : 78787  
 Standard ID : AESS-020  
 Standard Reference Date : 14-FEB-2008 21:55:55  
 Calibration Analysis Date/Time : 4-SEP-2009 07:36:42  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 4-SEP-2009 12:40:33  
 Average Efficiency : 0.3434685  
 Average Efficiency Error : 9.4453506E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 205.5870 | 28-FEB-2010 | 2990.745   | 3300.511 | 16134.00 | 0.3317050 | 1.4240759E-02 | 49.47922   |
| NP-237     | 203.4984 | 28-FEB-2010 | 4436.191   | 4903.850 | 17194.00 | 0.3519965 | 1.7803436E-02 | 60.99994   |
| CM-244     | 197.1096 | 28-FEB-2010 | 5531.198   | 5885.719 | 15755.00 | 0.3534269 | 1.7894309E-02 | 50.27258   |

Instrument : CHAMBER 021  
 Detector : 67047  
 Standard ID : AESS-021  
 Standard Reference Date : 19-FEB-2008 15:31:52  
 Calibration Analysis Date/Time : 4-SEP-2009 07:36:42  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 4-SEP-2009 12:40:41  
 Average Efficiency : 0.3053718  
 Average Efficiency Error : 8.4061036E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 208.3608 | 28-FEB-2010 | 2991.027   | 3300.488 | 14910.00 | 0.3024271 | 1.3001683E-02 | 54.25101   |
| NP-237     | 210.1548 | 28-FEB-2010 | 4433.390   | 4904.438 | 15336.00 | 0.3040332 | 1.5398674E-02 | 66.84158   |
| CM-244     | 200.7390 | 28-FEB-2010 | 5534.035   | 5886.544 | 14134.00 | 0.3111110 | 1.5774274E-02 | 53.45971   |

Instrument : CHAMBER 022  
 Detector : 72530  
 Standard ID : AESS-022  
 Standard Reference Date : 14-FEB-2008 21:55:55  
 Calibration Analysis Date/Time : 4-SEP-2009 07:36:42  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 4-SEP-2009 12:40:50  
 Average Efficiency : 0.3167550  
 Average Efficiency Error : 8.7174345E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 209.6724 | 28-FEB-2010 | 2992.050   | 3301.029 | 15236.00 | 0.3069546 | 1.3191545E-02 | 48.80446   |
| NP-237     | 206.8830 | 28-FEB-2010 | 4437.549   | 4902.815 | 16171.00 | 0.3256005 | 1.6480263E-02 | 64.55595   |
| CM-244     | 203.0208 | 28-FEB-2010 | 5531.706   | 5883.854 | 14838.00 | 0.3231215 | 1.6372502E-02 | 53.46963   |

Instrument : CHAMBER 023  
 Detector : 78264  
 Standard ID : AESS-023  
 Standard Reference Date : 14-FEB-2008 21:55:55  
 Calibration Analysis Date/Time : 4-SEP-2009 07:36:42  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 4-SEP-2009 12:40:59  
 Average Efficiency : 0.3319828  
 Average Efficiency Error : 9.1288136E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 207.4764 | 28-FEB-2010 | 2991.319   | 3301.853 | 16017.00 | 0.3263104 | 1.4010864E-02 | 47.06707   |
| NP-237     | 207.4998 | 28-FEB-2010 | 4434.632   | 4902.993 | 16663.00 | 0.3345701 | 1.6928136E-02 | 62.52299   |
| CM-244     | 199.8804 | 28-FEB-2010 | 5531.100   | 5885.960 | 15271.00 | 0.3377988 | 1.7109787E-02 | 47.13729   |

Instrument : CHAMBER 024  
 Detector : 76542  
 Standard ID : AESS-024  
 Standard Reference Date : 14-FEB-2008 21:55:55  
 Calibration Analysis Date/Time : 4-SEP-2009 07:36:42  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 4-SEP-2009 12:41:10  
 Average Efficiency : 0.3282878  
 Average Efficiency Error : 9.0300748E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 203.5218 | 28-FEB-2010 | 2988.280   | 3301.361 | 15578.00 | 0.3235334 | 1.3898253E-02 | 49.01440   |
| NP-237     | 205.6662 | 28-FEB-2010 | 4434.951   | 4904.473 | 16364.00 | 0.3314564 | 1.6774241E-02 | 73.72572   |
| CM-244     | 198.3060 | 28-FEB-2010 | 5532.286   | 5883.922 | 14893.00 | 0.3320678 | 1.6824935E-02 | 56.15541   |

Instrument : CHAMBER 025  
 Detector : 45-149AA5  
 Standard ID : AESS-025  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 5-SEP-2009 09:03:08  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 5-SEP-2009 13:36:12  
 Average Efficiency : 0.3276502  
 Average Efficiency Error : 9.0310313E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 195.5670 | 28-FEB-2010 | 2988.958   | 3301.287 | 15226.00 | 0.3290954 | 1.4142862E-02 | 57.79382   |
| NP-237     | 167.9916 | 28-FEB-2010 | 4436.686   | 4904.740 | 13253.00 | 0.3286704 | 1.6679743E-02 | 71.75627   |
| CM-244     | 157.2432 | 28-FEB-2010 | 5534.991   | 5882.562 | 11563.00 | 0.3246800 | 1.6513394E-02 | 67.10056   |

Instrument : CHAMBER 026  
 Detector : 78204  
 Standard ID : AESS-026  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 5-SEP-2009 09:03:08  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 5-SEP-2009 13:36:22  
 Average Efficiency : 0.3213052  
 Average Efficiency Error : 9.4170934E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 199.5072 | 28-FEB-2010 | 2988.735   | 3300.836 | 15089.00 | 0.3196830 | 1.6195688E-02 | 50.04417   |
| NP-237     | 168.0294 | 28-FEB-2010 | 4435.801   | 4902.784 | 13239.00 | 0.3282672 | 1.6659509E-02 | 56.07543   |
| CM-244     | 160.5822 | 28-FEB-2010 | 5530.708   | 5886.284 | 11504.00 | 0.3164098 | 1.6093958E-02 | 50.89248   |

Instrument : CHAMBER 027  
 Detector : 42484  
 Standard ID : AESS-027  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 5-SEP-2009 09:03:08  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 5-SEP-2009 13:36:31  
 Average Efficiency : 0.3385510  
 Average Efficiency Error : 9.9218553E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 193.4238 | 28-FEB-2010 | 2989.280   | 3298.316 | 15261.00 | 0.3334595 | 1.6891224E-02 | 44.29322   |
| NP-237     | 161.6154 | 28-FEB-2010 | 4433.196   | 4906.637 | 13292.00 | 0.3426305 | 1.7387481E-02 | 57.33553   |
| CM-244     | 148.1754 | 28-FEB-2010 | 5535.439   | 5885.723 | 11402.00 | 0.3398517 | 1.7288936E-02 | 52.16496   |



Instrument : CHAMBER 028  
 Detector : 78792  
 Standard ID : AESS-028  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 5-SEP-2009 09:03:08  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 5-SEP-2009 13:36:41  
 Average Efficiency : 0.3044925  
 Average Efficiency Error : 8.9324238E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 199.6542 | 28-FEB-2010 | 2989.441   | 3297.640 | 14137.00 | 0.2992923 | 1.5175839E-02 | 43.30858   |
| NP-237     | 168.1992 | 28-FEB-2010 | 4435.847   | 4903.788 | 12490.00 | 0.3093279 | 1.5712239E-02 | 58.21876   |
| CM-244     | 156.7614 | 28-FEB-2010 | 5532.676   | 5883.223 | 10835.00 | 0.3052154 | 1.5540821E-02 | 45.24567   |

Instrument : CHAMBER 029  
 Detector : 33454  
 Standard ID : AESS-029  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 5-SEP-2009 09:03:08  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 5-SEP-2009 13:36:49  
 Average Efficiency : 0.3151154  
 Average Efficiency Error : 9.2400359E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 201.5742 | 28-FEB-2010 | 2987.567   | 3301.667 | 14598.00 | 0.3061087 | 1.5514722E-02 | 59.98596   |
| NP-237     | 169.7700 | 28-FEB-2010 | 4432.493   | 4902.470 | 13008.00 | 0.3191791 | 1.6202597E-02 | 64.76778   |
| CM-244     | 154.8234 | 28-FEB-2010 | 5535.032   | 5883.746 | 11258.00 | 0.3209674 | 1.6332163E-02 | 52.83419   |

Instrument : CHAMBER 030  
 Detector : 33447  
 Standard ID : AESS-030  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 5-SEP-2009 09:03:08  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 5-SEP-2009 13:36:58  
 Average Efficiency : 0.3203139  
 Average Efficiency Error : 9.3901874E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 198.9792 | 28-FEB-2010 | 2991.332   | 3299.665 | 14751.00 | 0.3133562 | 1.5879847E-02 | 54.85928   |
| NP-237     | 166.3758 | 28-FEB-2010 | 4436.037   | 4902.215 | 13026.00 | 0.3261414 | 1.6555686E-02 | 71.82014   |
| CM-244     | 157.1856 | 28-FEB-2010 | 5533.195   | 5886.933 | 11469.00 | 0.3220125 | 1.6380262E-02 | 58.73045   |

Instrument : CHAMBER 031  
 Detector : 67042  
 Standard ID : AESS-031  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 5-SEP-2009 09:03:09  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 5-SEP-2009 13:37:09  
 Average Efficiency : 0.3353133  
 Average Efficiency Error : 9.2432722E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 193.6650 | 28-FEB-2010 | 2988.980   | 3300.809 | 15051.00 | 0.3284457 | 1.4117910E-02 | 62.13078   |
| NP-237     | 162.9186 | 28-FEB-2010 | 4433.475   | 4904.204 | 13378.00 | 0.3420834 | 1.7358093E-02 | 78.83074   |
| CM-244     | 153.1968 | 28-FEB-2010 | 5535.021   | 5883.627 | 11764.00 | 0.3388719 | 1.7230390E-02 | 60.52183   |

Instrument : CHAMBER 032  
 Detector : 67041  
 Standard ID : AESS-032  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 5-SEP-2009 09:03:09  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 5-SEP-2009 13:37:21  
 Average Efficiency : 0.2159665  
 Average Efficiency Error : 6.2416224E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution    |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|---------------|
| GD-148     | 195.2364 | 28-FEB-2010 | 2991.500   | 3301.085 | 12930.00 | 0.2799107 | 1.2067080E-02 | 108.5704      |
| NP-237     | 165.9822 | 28-FEB-2010 | 4436.228   | 4903.321 | 11857.00 | 0.2975635 | 1.5127208E-02 | 150.4912      |
| CM-244     | 153.7938 | 28-FEB-2010 | 5533.353   | 5886.388 | 5601.000 | 0.1608285 | 8.3242906E-03 | 0.0000000E+00 |

Instrument : CHAMBER 033  
 Detector : 78785  
 Standard ID : AESS-033  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 5-SEP-2009 09:03:09  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 5-SEP-2009 13:37:30  
 Average Efficiency : 0.3134830  
 Average Efficiency Error : 8.6526405E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 192.4158 | 28-FEB-2010 | 2991.232   | 3299.661 | 14169.00 | 0.3112248 | 1.3392622E-02 | 46.76679   |
| NP-237     | 161.7816 | 28-FEB-2010 | 4437.092   | 4904.010 | 12161.00 | 0.3131624 | 1.5913626E-02 | 60.14054   |
| CM-244     | 147.2670 | 28-FEB-2010 | 5530.913   | 5885.453 | 10575.00 | 0.3170980 | 1.6152723E-02 | 52.75375   |

Instrument : CHAMBER 034  
 Detector : 61586  
 Standard ID : AESS-034  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 5-SEP-2009 09:03:09  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 5-SEP-2009 13:37:40  
 Average Efficiency : 5.4748973E-05  
 Average Efficiency Error : 8.9538866E-05  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.          | EFF Err        | Resolution    |
|------------|----------|-------------|------------|----------|----------|---------------|----------------|---------------|
| GD-148     | 200.5488 | 28-FEB-2010 | 2987.956   | 3301.026 | 9319.000 | 0.1963924     | 8.5345702E-03  | 80.18852      |
| NP-237     | 167.2962 | 28-FEB-2010 | 4436.568   | 4903.521 | 7134.000 | 0.1774998     | 9.1209533E-03  | 0.0000000E+00 |
| CM-244     | 154.4388 | 28-FEB-2010 | 5534.967   | 5885.181 | 8.000000 | 1.6030130E-05 | 6.59548113E-05 | 5.306273      |

Instrument : CHAMBER 035  
 Detector : 78202  
 Standard ID : AESS-035  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 5-SEP-2009 09:03:09  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 5-SEP-2009 13:37:51  
 Average Efficiency : 0.3050995  
 Average Efficiency Error : 8.4187118E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 198.6666 | 28-FEB-2010 | 2991.620   | 3300.593 | 14168.00 | 0.3014163 | 1.2970550E-02 | 45.14441   |
| NP-237     | 168.2934 | 28-FEB-2010 | 4435.499   | 4903.774 | 12515.00 | 0.3097561 | 1.5733534E-02 | 52.82528   |
| CM-244     | 158.8128 | 28-FEB-2010 | 5532.763   | 5883.199 | 11004.00 | 0.3058464 | 1.5568729E-02 | 51.98632   |

Instrument : CHAMBER 036  
 Detector : 78203  
 Standard ID : AESS-036  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 5-SEP-2009 09:03:09  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 5-SEP-2009 13:38:00  
 Average Efficiency : 0.3236991  
 Average Efficiency Error : 8.9239618E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 201.3204 | 28-FEB-2010 | 2991.620   | 3298.917 | 15082.00 | 0.3166323 | 1.3609574E-02 | 51.84582   |
| NP-237     | 167.4312 | 28-FEB-2010 | 4433.050   | 4904.263 | 13282.00 | 0.3304925 | 1.6771674E-02 | 66.46858   |
| CM-244     | 156.4188 | 28-FEB-2010 | 5535.616   | 5884.466 | 11603.00 | 0.3275855 | 1.6659884E-02 | 53.86180   |

Instrument : CHAMBER 037  
 Detector : 45-149BB5  
 Standard ID : AESS-037  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 5-SEP-2009 09:03:11  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 5-SEP-2009 13:38:11  
 Average Efficiency : 0.3527313  
 Average Efficiency Error : 9.7141266E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 197.7372 | 28-FEB-2010 | 2988.836   | 3299.917 | 16029.00 | 0.3425954 | 1.4709930E-02 | 69.97938   |
| NP-237     | 167.1294 | 28-FEB-2010 | 4435.582   | 4906.557 | 14502.00 | 0.3614331 | 1.8319361E-02 | 87.55756   |
| CM-244     | 154.7664 | 28-FEB-2010 | 5534.307   | 5882.810 | 12611.00 | 0.3597120 | 1.8269511E-02 | 71.60854   |

Instrument : CHAMBER 038  
 Detector : 72532  
 Standard ID : AESS-038  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 5-SEP-2009 09:03:11  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 5-SEP-2009 13:38:20  
 Average Efficiency : 0.3374661  
 Average Efficiency Error : 9.2953844E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 200.1408 | 28-FEB-2010 | 2991.576   | 3299.256 | 15782.00 | 0.3332799 | 1.4313720E-02 | 52.53116   |
| NP-237     | 170.0886 | 28-FEB-2010 | 4433.771   | 4904.686 | 13898.00 | 0.3404015 | 1.7263360E-02 | 67.00319   |
| CM-244     | 157.7460 | 28-FEB-2010 | 5535.244   | 5883.467 | 12174.00 | 0.3406372 | 1.7310385E-02 | 53.71938   |

Instrument : CHAMBER 039  
 Detector : 45-149BB2  
 Standard ID : AESS-039  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 5-SEP-2009 09:03:11  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 5-SEP-2009 13:38:28  
 Average Efficiency : 0.3630306  
 Average Efficiency Error : 9.9983541E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 192.2418 | 28-FEB-2010 | 2991.453   | 3301.599 | 16042.00 | 0.3526957 | 1.5143363E-02 | 60.09052   |
| NP-237     | 159.1506 | 28-FEB-2010 | 4432.722   | 4905.688 | 14315.00 | 0.3747012 | 1.8995127E-02 | 78.06614   |
| CM-244     | 151.7142 | 28-FEB-2010 | 5532.346   | 5883.894 | 12631.00 | 0.3674615 | 1.8662771E-02 | 63.39179   |

Instrument : CHAMBER 040  
 Detector : 78773  
 Standard ID : AESS-040  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 5-SEP-2009 09:03:11  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 5-SEP-2009 13:38:36  
 Average Efficiency : 0.3207370  
 Average Efficiency Error : 8.8450955E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 194.4828 | 28-FEB-2010 | 2991.070   | 3301.002 | 14629.00 | 0.3178972 | 1.3671570E-02 | 46.05933   |
| NP-237     | 166.8174 | 28-FEB-2010 | 4437.116   | 4905.104 | 12857.00 | 0.3211111 | 1.6303439E-02 | 59.80341   |
| CM-244     | 155.0100 | 28-FEB-2010 | 5532.249   | 5884.180 | 11394.00 | 0.3244938 | 1.6507916E-02 | 47.50864   |

Instrument : CHAMBER 041  
 Detector : 78205  
 Standard ID : AESS-041  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 5-SEP-2009 09:03:11  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 5-SEP-2009 13:38:44  
 Average Efficiency : 0.3298833  
 Average Efficiency Error : 9.0887686E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 203.9034 | 28-FEB-2010 | 2991.305   | 3298.942 | 15596.00 | 0.3232844 | 1.3887258E-02 | 46.32725   |
| NP-237     | 171.2268 | 28-FEB-2010 | 4436.425   | 4904.659 | 13704.00 | 0.3334179 | 1.6912539E-02 | 62.94285   |
| CM-244     | 159.5796 | 28-FEB-2010 | 5534.452   | 5885.748 | 12158.00 | 0.3362667 | 1.7088668E-02 | 51.06727   |

Instrument : CHAMBER 042  
 Detector : 78793  
 Standard ID : AESS-042  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 5-SEP-2009 09:03:11  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 5-SEP-2009 13:38:52  
 Average Efficiency : 0.3262490  
 Average Efficiency Error : 8.9996839E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 188.7090 | 28-FEB-2010 | 2988.887   | 3299.366 | 14425.00 | 0.3230868 | 1.3898331E-02 | 45.61874   |
| NP-237     | 159.6558 | 28-FEB-2010 | 4437.123   | 4905.630 | 12564.00 | 0.3278245 | 1.6650224E-02 | 58.62441   |
| CM-244     | 150.5208 | 28-FEB-2010 | 5533.333   | 5885.512 | 11230.00 | 0.3292493 | 1.6754221E-02 | 49.02582   |

Instrument : CHAMBER 043  
 Detector : 76543  
 Standard ID : AESS-043  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 5-SEP-2009 09:03:12  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 5-SEP-2009 13:38:59  
 Average Efficiency : 0.3388386  
 Average Efficiency Error : 9.3338015E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 197.7708 | 28-FEB-2010 | 2990.321   | 3301.623 | 15716.00 | 0.3358650 | 1.4425773E-02 | 53.08127   |
| NP-237     | 168.7422 | 28-FEB-2010 | 4433.027   | 4903.519 | 13744.00 | 0.3393443 | 1.7212395E-02 | 71.29913   |
| CM-244     | 156.3252 | 28-FEB-2010 | 5534.268   | 5882.956 | 12132.00 | 0.3426539 | 1.7413609E-02 | 49.48456   |

Instrument : CHAMBER 044  
 Detector : 79459  
 Standard ID : AESS-044  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 5-SEP-2009 09:03:12  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 5-SEP-2009 13:39:07  
 Average Efficiency : 0.3461110  
 Average Efficiency Error : 9.5328372E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 194.4510 | 28-FEB-2010 | 2989.930   | 3302.506 | 16084.00 | 0.3495771 | 1.5008831E-02 | 49.84488   |
| NP-237     | 166.6248 | 28-FEB-2010 | 4437.594   | 4903.934 | 13869.00 | 0.3467283 | 1.7584775E-02 | 67.30765   |
| CM-244     | 155.8290 | 28-FEB-2010 | 5530.392   | 5884.844 | 12036.00 | 0.3408923 | 1.7326539E-02 | 50.42044   |

Instrument : CHAMBER 045  
 Detector : 78783  
 Standard ID : AESS-045  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 5-SEP-2009 09:03:12  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 5-SEP-2009 13:39:15  
 Average Efficiency : 0.3386171  
 Average Efficiency Error : 9.3369978E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 186.9936 | 28-FEB-2010 | 2989.243   | 3301.709 | 15126.00 | 0.3418811 | 1.4694056E-02 | 41.09813   |
| NP-237     | 160.8066 | 28-FEB-2010 | 4436.057   | 4901.945 | 12808.00 | 0.3318377 | 1.6849035E-02 | 59.62828   |
| CM-244     | 145.8384 | 28-FEB-2010 | 5533.013   | 5887.031 | 11276.00 | 0.3412594 | 1.7364025E-02 | 48.59882   |

Instrument : CHAMBER 046  
 Detector : 76544  
 Standard ID : AESS-046  
 Standard Reference Date : 19-FEB-2008 19:35:48  
 Calibration Analysis Date/Time : 5-SEP-2009 09:03:12  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 5-SEP-2009 13:39:23  
 Average Efficiency : 0.3428833  
 Average Efficiency Error : 9.4477413E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 194.7474 | 28-FEB-2010 | 2992.377   | 3301.861 | 15517.00 | 0.3367483 | 1.4466916E-02 | 50.54656   |
| NP-237     | 164.6658 | 28-FEB-2010 | 4437.291   | 4905.414 | 13709.00 | 0.3468411 | 1.7593319E-02 | 60.02387   |
| CM-244     | 151.3824 | 28-FEB-2010 | 5533.098   | 5885.505 | 11938.00 | 0.3480568 | 1.7692965E-02 | 49.85977   |

Instrument : CHAMBER 047  
 Detector : 46-089B1  
 Standard ID : AESS-047  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 5-SEP-2009 09:03:12  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 5-SEP-2009 13:39:31  
 Average Efficiency : 0.3414553  
 Average Efficiency Error : 9.4057210E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 197.4804 | 28-FEB-2010 | 2992.396   | 3301.175 | 15755.00 | 0.3371730 | 1.4481370E-02 | 53.45372   |
| NP-237     | 168.3948 | 28-FEB-2010 | 4434.358   | 4901.480 | 13876.00 | 0.3432392 | 1.7407728E-02 | 75.59270   |
| CM-244     | 154.6032 | 28-FEB-2010 | 5533.889   | 5883.104 | 12119.00 | 0.3459478 | 1.7581582E-02 | 61.01867   |

Instrument : CHAMBER 048  
 Detector : 42483  
 Standard ID : AESS-048  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 5-SEP-2009 09:03:12  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 5-SEP-2009 13:39:40  
 Average Efficiency : 0.3165880  
 Average Efficiency Error : 8.7361159E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 191.8350 | 28-FEB-2010 | 2992.395   | 3299.708 | 14224.00 | 0.3133849 | 1.3484558E-02 | 54.26610   |
| NP-237     | 161.5530 | 28-FEB-2010 | 4436.890   | 4906.295 | 12281.00 | 0.3166445 | 1.6088169E-02 | 68.16459   |
| CM-244     | 151.1856 | 28-FEB-2010 | 5534.380   | 5886.375 | 11007.00 | 0.3212399 | 1.6352450E-02 | 58.44775   |

Instrument : CHAMBER 065  
 Detector : 68551  
 Standard ID : AESS-001  
 Standard Reference Date : 20-FEB-2008 09:54:53  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:10  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:32:36  
 Average Efficiency : 0.3083470  
 Average Efficiency Error : 8.5085379E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 208.6698 | 28-FEB-2010 | 2991.020   | 3301.790 | 14596.00 | 0.2954247 | 1.2705522E-02 | 58.52770   |
| NP-237     | 171.0024 | 28-FEB-2010 | 4435.576   | 4904.585 | 13191.00 | 0.3213498 | 1.6309390E-02 | 64.23100   |
| CM-244     | 158.1060 | 28-FEB-2010 | 5533.015   | 5885.628 | 11352.00 | 0.3164231 | 1.6097672E-02 | 59.22498   |

Instrument : CHAMBER 066  
 Detector : 46-089C1  
 Standard ID : AESS-002  
 Standard Reference Date : 19-FEB-2008 11:05:22  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:10  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:33:22  
 Average Efficiency : 0.3112474  
 Average Efficiency Error : 8.5695526E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 200.1144 | 28-FEB-2010 | 2988.945   | 3298.217 | 14657.00 | 0.3093549 | 1.3303596E-02 | 55.37485   |
| NP-237     | 200.4990 | 28-FEB-2010 | 4435.388   | 4905.987 | 14981.00 | 0.3113079 | 1.5771858E-02 | 67.81973   |
| CM-244     | 196.5558 | 28-FEB-2010 | 5534.885   | 5886.957 | 13998.00 | 0.3138950 | 1.5917554E-02 | 57.19744   |

Instrument : CHAMBER 067  
 Detector : 46-089B4  
 Standard ID : AESS-003  
 Standard Reference Date : 15-FEB-2008 13:12:27  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:10  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:33:34  
 Average Efficiency : 0.3251616  
 Average Efficiency Error : 8.9453170E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 202.9740 | 28-FEB-2010 | 2990.195   | 3298.405 | 15523.00 | 0.3230599 | 1.3878663E-02 | 73.01379   |
| NP-237     | 203.2080 | 28-FEB-2010 | 4432.996   | 4903.114 | 16006.00 | 0.3281700 | 1.6612297E-02 | 79.50097   |
| CM-244     | 197.2236 | 28-FEB-2010 | 5531.881   | 5884.128 | 14543.00 | 0.3251645 | 1.6480407E-02 | 73.28760   |



Instrument : CHAMBER 068  
 Detector : 78794  
 Standard ID : AESS-004  
 Standard Reference Date : 14-FEB-2008 09:35:18  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:10  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:38:02  
 Average Efficiency : 0.2988316  
 Average Efficiency Error : 8.2298918E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 206.1222 | 28-FEB-2010 | 2989.058   | 3297.794 | 14610.00 | 0.2994183 | 1.2877054E-02 | 47.51308   |
| NP-237     | 204.2586 | 28-FEB-2010 | 4436.694   | 4904.361 | 14617.00 | 0.2981576 | 1.5110506E-02 | 57.11169   |
| CM-244     | 198.8100 | 28-FEB-2010 | 5532.395   | 5887.637 | 13466.00 | 0.2986969 | 1.5155178E-02 | 48.38633   |

Instrument : CHAMBER 069  
 Detector : 78795  
 Standard ID : AESS-005  
 Standard Reference Date : 14-FEB-2008 09:35:18  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:10  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:38:36  
 Average Efficiency : 0.3175282  
 Average Efficiency Error : 8.7343659E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 210.7452 | 28-FEB-2010 | 2991.230   | 3298.554 | 15670.00 | 0.3141076 | 1.3491860E-02 | 49.70101   |
| NP-237     | 209.5938 | 28-FEB-2010 | 4432.770   | 4904.008 | 16141.00 | 0.3208218 | 1.6238715E-02 | 60.15531   |
| CM-244     | 202.7478 | 28-FEB-2010 | 5535.390   | 5884.253 | 14673.00 | 0.3191766 | 1.6174993E-02 | 51.27451   |

Instrument : CHAMBER 070  
 Detector : 46-089B2  
 Standard ID : AESS-006  
 Standard Reference Date : 14-FEB-2008 09:35:18  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:10  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:38:49  
 Average Efficiency : 0.3529845  
 Average Efficiency Error : 9.7008841E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 203.6952 | 28-FEB-2010 | 2992.134   | 3299.079 | 16742.00 | 0.3471912 | 1.4896408E-02 | 63.07681   |
| NP-237     | 204.7038 | 28-FEB-2010 | 4435.081   | 4904.079 | 17300.00 | 0.3520767 | 1.7806258E-02 | 82.77227   |
| CM-244     | 195.0060 | 28-FEB-2010 | 5531.689   | 5883.454 | 16039.00 | 0.3627528 | 1.8362503E-02 | 70.00533   |

Instrument : CHAMBER 071  
 Detector : 64259  
 Standard ID : AESS-007  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:11  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:39:05  
 Average Efficiency : 0.3208804  
 Average Efficiency Error : 8.8285562E-03  
 Confidence : 95.00000

| Cal. Isteps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|-------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148      | 206.7342 | 28-FEB-2010 | 2991.474   | 3300.552 | 15413.00 | 0.3149293 | 1.3531087E-02 | 62.47171   |
| NP-237      | 205.0260 | 28-FEB-2010 | 4434.375   | 4901.563 | 15925.00 | 0.3235798 | 1.6380999E-02 | 71.98354   |
| CM-244      | 199.6806 | 28-FEB-2010 | 5533.885   | 5882.968 | 14807.00 | 0.3270442 | 1.6571697E-02 | 60.00851   |

Instrument : CHAMBER 072  
 Detector : 45-149AA3  
 Standard ID : AESS-008  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:11  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:41:05  
 Average Efficiency : 0.3267370  
 Average Efficiency Error : 8.9871846E-03  
 Confidence : 95.00000

| Cal. Isteps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|-------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148      | 206.0418 | 28-FEB-2010 | 2989.276   | 3301.453 | 15650.00 | 0.3208615 | 1.3782272E-02 | 51.51645   |
| NP-237      | 209.2716 | 28-FEB-2010 | 4434.016   | 4904.104 | 16413.00 | 0.3267362 | 1.6534751E-02 | 70.18485   |
| CM-244      | 199.6488 | 28-FEB-2010 | 5533.538   | 5886.502 | 15197.00 | 0.3356811 | 1.7003637E-02 | 59.25634   |

Instrument : CHAMBER 073  
 Detector : 78775  
 Standard ID : AESS-009  
 Standard Reference Date : 19-FEB-2008 11:05:22  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:11  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:41:19  
 Average Efficiency : 0.3329331  
 Average Efficiency Error : 9.1557140E-03  
 Confidence : 95.00000

| Cal. Isteps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|-------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148      | 203.3736 | 28-FEB-2010 | 2991.884   | 3298.904 | 15903.00 | 0.3302805 | 1.4182931E-02 | 45.72569   |
| NP-237      | 204.0192 | 28-FEB-2010 | 4435.607   | 4905.083 | 16398.00 | 0.3348464 | 1.6945357E-02 | 65.14548   |
| CM-244      | 197.2128 | 28-FEB-2010 | 5533.495   | 5885.787 | 14977.00 | 0.3348103 | 1.6962610E-02 | 52.22756   |

Instrument : CHAMBER 074  
 Detector : 78266  
 Standard ID : AESS-010  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:11  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:41:50  
 Average Efficiency : 0.3171463  
 Average Efficiency Error : 8.7284483E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 202.0008 | 28-FEB-2010 | 2992.157   | 3300.875 | 15091.00 | 0.3155650 | 1.3563500E-02 | 48.84003   |
| NP-237     | 202.9926 | 28-FEB-2010 | 4434.541   | 4902.170 | 15525.00 | 0.3186204 | 1.6135018E-02 | 61.89280   |
| CM-244     | 196.2330 | 28-FEB-2010 | 5535.537   | 5885.413 | 14144.00 | 0.3179084 | 1.6118674E-02 | 53.87412   |

Instrument : CHAMBER 075  
 Detector : 68550  
 Standard ID : AESS-011  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:11  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:42:08  
 Average Efficiency : 0.2994908  
 Average Efficiency Error : 8.2427450E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 212.8284 | 28-FEB-2010 | 2992.440   | 3300.846 | 15058.00 | 0.2988699 | 1.2846401E-02 | 51.75235   |
| NP-237     | 214.4868 | 28-FEB-2010 | 4432.709   | 4904.580 | 15499.00 | 0.3010221 | 1.5244178E-02 | 70.86993   |
| CM-244     | 208.4184 | 28-FEB-2010 | 5531.026   | 5885.258 | 14123.00 | 0.2988416 | 1.5152307E-02 | 52.88081   |

Instrument : CHAMBER 076  
 Detector : 78779  
 Standard ID : AESS-012  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:11  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:42:40  
 Average Efficiency : 0.3028130  
 Average Efficiency Error : 8.3379308E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 206.2200 | 28-FEB-2010 | 2991.979   | 3300.154 | 14630.00 | 0.2996896 | 1.2888389E-02 | 45.27155   |
| NP-237     | 205.8930 | 28-FEB-2010 | 4436.825   | 4903.508 | 15329.00 | 0.3101608 | 1.5709149E-02 | 64.17129   |
| CM-244     | 203.1954 | 28-FEB-2010 | 5535.510   | 5884.591 | 13832.00 | 0.3002685 | 1.5228972E-02 | 51.27063   |

Instrument : CHAMBER 077  
 Detector : 67576  
 Standard ID : AESS-013  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:12  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:42:53  
 Average Efficiency : 0.3266060  
 Average Efficiency Error : 8.9822784E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 203.6544 | 28-FEB-2010 | 2989.957   | 3302.071 | 15788.00 | 0.3274788 | 1.4064389E-02 | 50.84729   |
| NP-237     | 210.2526 | 28-FEB-2010 | 4433.544   | 4902.799 | 16283.00 | 0.3226589 | 1.6329939E-02 | 64.60262   |
| CM-244     | 201.9108 | 28-FEB-2010 | 5530.788   | 5882.782 | 15087.00 | 0.3295008 | 1.6692154E-02 | 50.76959   |

Instrument : CHAMBER 078  
 Detector : 67577  
 Standard ID : AESS-014  
 Standard Reference Date : 19-FEB-2008 11:05:22  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:12  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:43:47  
 Average Efficiency : 0.3266194  
 Average Efficiency Error : 8.9784693E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 214.7088 | 28-FEB-2010 | 2988.255   | 3302.223 | 16485.00 | 0.3242883 | 1.3917238E-02 | 54.47247   |
| NP-237     | 211.7160 | 28-FEB-2010 | 4437.236   | 4905.680 | 16830.00 | 0.3311986 | 1.6755598E-02 | 62.86163   |
| CM-244     | 207.3882 | 28-FEB-2010 | 5535.005   | 5885.680 | 15311.00 | 0.3254575 | 1.6484126E-02 | 54.68671   |

Instrument : CHAMBER 079  
 Detector : 67598  
 Standard ID : AESS-015  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:12  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:44:09  
 Average Efficiency : 0.3272116  
 Average Efficiency Error : 9.0027396E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 204.0270 | 28-FEB-2010 | 2989.159   | 3300.331 | 15511.00 | 0.3211554 | 1.3797027E-02 | 50.97751   |
| NP-237     | 200.6460 | 28-FEB-2010 | 4434.317   | 4902.854 | 16177.00 | 0.3359110 | 1.7001966E-02 | 61.88776   |
| CM-244     | 195.9270 | 28-FEB-2010 | 5535.480   | 5887.277 | 14557.00 | 0.3276861 | 1.6607955E-02 | 52.62397   |

Instrument : CHAMBER 080  
 Detector : 78197  
 Standard ID : AESS-016  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 11-AUG-2009 12:17:29  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 12-AUG-2009 06:47:19  
 Average Efficiency : 0.3321076  
 Average Efficiency Error : 9.1349650E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 204.0534 | 28-FEB-2010 | 2991.650   | 3302.015 | 15752.00 | 0.3260951 | 1.4005513E-02 | 48.00739   |
| NP-237     | 199.3962 | 28-FEB-2010 | 4433.624   | 4906.537 | 16268.00 | 0.3399083 | 1.7203139E-02 | 68.49010   |
| CM-244     | 198.6402 | 28-FEB-2010 | 5533.522   | 5887.645 | 15012.00 | 0.3333320 | 1.6887236E-02 | 53.20805   |

Instrument : CHAMBER 081  
 Detector : 72533  
 Standard ID : AESS-017  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:12  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:46:32  
 Average Efficiency : 6.1864634E-03  
 Average Efficiency Error : 2.9860463E-04  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.          | EFF Err       | Resolution    |
|------------|----------|-------------|------------|----------|----------|---------------|---------------|---------------|
| GD-148     | 210.0798 | 28-FEB-2010 | 2994.266   | 3303.451 | 1475.000 | 2.9659975E-02 | 2.4708204E-03 | 0.0000000E+00 |
| NP-237     | 208.5846 | 28-FEB-2010 | 4435.242   | 4901.625 | 202.0000 | 4.0063704E-03 | 3.4766502E-04 | 575.4393      |
| CM-244     | 205.5828 | 28-FEB-2010 | 5531.807   | 5884.164 | 427.0000 | 9.0843663E-03 | 3.3504453E-04 | 562.1900      |

Instrument : CHAMBER 082  
 Detector : 64263  
 Standard ID : AESS-018  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:12  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:47:05  
 Average Efficiency : 0.3226976  
 Average Efficiency Error : 8.8783512E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 202.1856 | 28-FEB-2010 | 2987.542   | 3297.569 | 15428.00 | 0.3223361 | 1.3849068E-02 | 64.65321   |
| NP-237     | 208.8990 | 28-FEB-2010 | 4435.421   | 4904.506 | 15892.00 | 0.3169125 | 1.6043896E-02 | 93.68992   |
| CM-244     | 198.1458 | 28-FEB-2010 | 5534.230   | 5884.907 | 14803.00 | 0.3294876 | 1.6695555E-02 | 84.86885   |

Instrument : CHAMBER 083  
 Detector : 64278  
 Standard ID : AESS-019  
 Standard Reference Date : 19-FEB-2008 11:05:22  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:14  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:47:29  
 Average Efficiency : 0.3395500  
 Average Efficiency Error : 9.3379803E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 204.6468 | 28-FEB-2010 | 2991.854   | 3298.707 | 15947.00 | 0.3291289 | 1.4132823E-02 | 53.16394   |
| NP-237     | 202.9140 | 28-FEB-2010 | 4433.271   | 4906.151 | 16931.00 | 0.3476149 | 1.7584924E-02 | 67.04104   |
| CM-244     | 199.3140 | 28-FEB-2010 | 5531.993   | 5884.932 | 15718.00 | 0.3476342 | 1.7601561E-02 | 59.50858   |

Instrument : CHAMBER 084  
 Detector : 78265  
 Standard ID : AESS-020  
 Standard Reference Date : 14-FEB-2008 21:55:55  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:14  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:47:52  
 Average Efficiency : 0.3397457  
 Average Efficiency Error : 9.3453201E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 205.5870 | 28-FEB-2010 | 2988.678   | 3299.931 | 15922.00 | 0.3271575 | 1.4048551E-02 | 47.08979   |
| NP-237     | 203.4984 | 28-FEB-2010 | 4434.465   | 4903.170 | 17250.00 | 0.3531433 | 1.7860783E-02 | 67.92932   |
| CM-244     | 197.1096 | 28-FEB-2010 | 5531.407   | 5886.178 | 15482.00 | 0.3464514 | 1.7544933E-02 | 50.18247   |

Instrument : CHAMBER 085  
 Detector : 78776  
 Standard ID : AESS-021  
 Standard Reference Date : 19-FEB-2008 15:31:52  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:14  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:48:19  
 Average Efficiency : 0.3272626  
 Average Efficiency Error : 8.9994660E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 208.3608 | 28-FEB-2010 | 2990.698   | 3300.313 | 15918.00 | 0.3226679 | 1.3855824E-02 | 49.75027   |
| NP-237     | 210.1548 | 28-FEB-2010 | 4435.121   | 4902.282 | 16630.00 | 0.3296844 | 1.6681336E-02 | 59.70044   |
| CM-244     | 200.7390 | 28-FEB-2010 | 5534.187   | 5882.859 | 15098.00 | 0.3315589 | 1.6796166E-02 | 51.87433   |

Instrument : CHAMBER 086  
 Detector : 78198  
 Standard ID : AESS-022  
 Standard Reference Date : 14-FEB-2008 21:55:55  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:14  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:48:41  
 Average Efficiency : 0.3012526  
 Average Efficiency Error : 8.2951793E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 209.6724 | 28-FEB-2010 | 2990.009   | 3300.939 | 14622.00 | 0.2945913 | 1.2669257E-02 | 46.73733   |
| NP-237     | 206.8830 | 28-FEB-2010 | 4436.927   | 4902.983 | 15242.00 | 0.3069340 | 1.5546833E-02 | 58.46733   |
| CM-244     | 203.0208 | 28-FEB-2010 | 5531.983   | 5883.724 | 14065.00 | 0.3055728 | 1.5494397E-02 | 51.66624   |

Instrument : CHAMBER 087  
 Detector : 78199  
 Standard ID : AESS-023  
 Standard Reference Date : 14-FEB-2008 21:55:55  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:14  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:49:08  
 Average Efficiency : 0.3135695  
 Average Efficiency Error : 8.6297104E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 207.4764 | 28-FEB-2010 | 2988.599   | 3301.987 | 15111.00 | 0.3076608 | 1.3223418E-02 | 48.25697   |
| NP-237     | 207.4998 | 28-FEB-2010 | 4434.300   | 4902.242 | 15867.00 | 0.3185670 | 1.6127942E-02 | 61.93990   |
| CM-244     | 199.8804 | 28-FEB-2010 | 5532.304   | 5887.140 | 14381.00 | 0.3173418 | 1.6086275E-02 | 50.20942   |

Instrument : CHAMBER 088  
 Detector : 33452  
 Standard ID : AESS-024  
 Standard Reference Date : 14-FEB-2008 21:55:55  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:14  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:50:14  
 Average Efficiency : 0.3028336  
 Average Efficiency Error : 8.3410190E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 203.5218 | 28-FEB-2010 | 2989.881   | 3297.896 | 14259.00 | 0.2959496 | 1.2733680E-02 | 60.40763   |
| NP-237     | 205.6662 | 28-FEB-2010 | 4436.727   | 4902.043 | 15208.00 | 0.3080562 | 1.5604130E-02 | 68.20498   |
| CM-244     | 198.3060 | 28-FEB-2010 | 5532.799   | 5884.609 | 13848.00 | 0.3079579 | 1.5618804E-02 | 57.90837   |

Instrument : CHAMBER 089  
 Detector : 78262  
 Standard ID : AESS-025  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:15  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:50:54  
 Average Efficiency : 0.2999636  
 Average Efficiency Error : 8.2814181E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 195.5670 | 28-FEB-2010 | 2989.340   | 3299.886 | 14192.00 | 0.3065364 | 1.3190371E-02 | 47.47885   |
| NP-237     | 167.9916 | 28-FEB-2010 | 4433.954   | 4903.393 | 12026.00 | 0.2982433 | 1.5158199E-02 | 61.37537   |
| CM-244     | 157.2432 | 28-FEB-2010 | 5533.423   | 5884.190 | 10453.00 | 0.2932044 | 1.4938097E-02 | 52.58473   |

Instrument : CHAMBER 090  
 Detector : 78263  
 Standard ID : AESS-026  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:15  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:51:07  
 Average Efficiency : 0.3280271  
 Average Efficiency Error : 9.6107582E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 199.5072 | 28-FEB-2010 | 2992.174   | 3298.193 | 15340.00 | 0.3247949 | 1.6451096E-02 | 48.79327   |
| NP-237     | 168.0294 | 28-FEB-2010 | 4432.899   | 4902.301 | 13513.00 | 0.3350319 | 1.6997805E-02 | 59.73701   |
| CM-244     | 160.5822 | 28-FEB-2010 | 5531.267   | 5884.186 | 11821.00 | 0.3246754 | 1.6506171E-02 | 54.24763   |

Instrument : CHAMBER 091  
 Detector : 78259  
 Standard ID : AESS-027  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:15  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:51:19  
 Average Efficiency : 0.3422945  
 Average Efficiency Error : 1.0031743E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 193.4238 | 28-FEB-2010 | 2988.796   | 3297.819 | 15212.00 | 0.3322093 | 1.6828449E-02 | 48.17033   |
| NP-237     | 161.6154 | 28-FEB-2010 | 4433.118   | 4901.645 | 13301.00 | 0.3428935 | 1.7400602E-02 | 71.25236   |
| CM-244     | 148.1754 | 28-FEB-2010 | 5531.054   | 5887.180 | 11864.00 | 0.3531335 | 1.7951898E-02 | 54.03432   |



Instrument : CHAMBER 092  
 Detector : 79457  
 Standard ID : AESS-028  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:15  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:52:08  
 Average Efficiency : 0.3126248  
 Average Efficiency Error : 9.1664707E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 199.6542 | 28-FEB-2010 | 2988.378   | 3299.875 | 14752.00 | 0.3115867 | 1.5790872E-02 | 44.92863   |
| NP-237     | 168.1992 | 28-FEB-2010 | 4435.762   | 4905.401 | 12691.00 | 0.3138909 | 1.5940819E-02 | 59.90319   |
| CM-244     | 156.7614 | 28-FEB-2010 | 5534.466   | 5887.335 | 11106.00 | 0.3124176 | 1.5899830E-02 | 46.96757   |

Instrument : CHAMBER 093  
 Detector : 33206  
 Standard ID : AESS-029  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:15  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:52:22  
 Average Efficiency : 0.3223998  
 Average Efficiency Error : 9.4486484E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 201.5742 | 28-FEB-2010 | 2988.021   | 3298.707 | 15183.00 | 0.3181591 | 1.6117128E-02 | 52.68830   |
| NP-237     | 169.7700 | 28-FEB-2010 | 4432.645   | 4901.916 | 13165.00 | 0.3230736 | 1.6397305E-02 | 66.05635   |
| CM-244     | 154.8234 | 28-FEB-2010 | 5530.870   | 5883.862 | 11451.00 | 0.3262046 | 1.6592693E-02 | 55.78003   |

Instrument : CHAMBER 094  
 Detector : 78267  
 Standard ID : AESS-030  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:15  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:52:36  
 Average Efficiency : 0.3070784  
 Average Efficiency Error : 9.0072202E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 198.9792 | 28-FEB-2010 | 2987.496   | 3299.970 | 14244.00 | 0.3023582 | 1.5329675E-02 | 44.82082   |
| NP-237     | 166.3758 | 28-FEB-2010 | 4432.930   | 4902.883 | 12450.00 | 0.3117883 | 1.5837880E-02 | 57.18416   |
| CM-244     | 157.1856 | 28-FEB-2010 | 5531.875   | 5884.464 | 10956.00 | 0.3073991 | 1.5648084E-02 | 55.69304   |

Instrument : CHAMBER 095  
 Detector : 64279  
 Standard ID : AESS-031  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:16  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:53:20  
 Average Efficiency : 0.3112848  
 Average Efficiency Error : 8.5905641E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 193.6650 | 28-FEB-2010 | 2991.646   | 3298.356 | 14103.00 | 0.3075817 | 1.3236930E-02 | 52.02211   |
| NP-237     | 162.9186 | 28-FEB-2010 | 4435.397   | 4905.664 | 12249.00 | 0.3132029 | 1.5913907E-02 | 59.25825   |
| CM-244     | 153.1968 | 28-FEB-2010 | 5530.369   | 5883.804 | 10942.00 | 0.3147666 | 1.6023749E-02 | 56.52655   |

Instrument : CHAMBER 096  
 Detector : 67605  
 Standard ID : AESS-032  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:16  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:53:35  
 Average Efficiency : 0.3007939  
 Average Efficiency Error : 8.3044088E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 195.2364 | 28-FEB-2010 | 2989.386   | 3301.860 | 13969.00 | 0.3022173 | 1.3008440E-02 | 46.72513   |
| NP-237     | 165.9822 | 28-FEB-2010 | 4437.256   | 4904.015 | 11834.00 | 0.2969258 | 1.5095386E-02 | 61.08714   |
| CM-244     | 153.7938 | 28-FEB-2010 | 5531.292   | 5886.331 | 10564.00 | 0.3028315 | 1.5425657E-02 | 47.63036   |

Instrument : CHAMBER 097  
 Detector : 67599  
 Standard ID : AESS-033  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:16  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:54:04  
 Average Efficiency : 0.3450123  
 Average Efficiency Error : 9.5089795E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 192.4158 | 28-FEB-2010 | 2991.155   | 3299.592 | 15339.00 | 0.3367012 | 1.4467746E-02 | 59.45457   |
| NP-237     | 161.7816 | 28-FEB-2010 | 4437.204   | 4904.260 | 13605.00 | 0.3503401 | 1.7772736E-02 | 79.89651   |
| CM-244     | 147.2670 | 28-FEB-2010 | 5531.403   | 5886.106 | 11772.00 | 0.3523416 | 1.7914115E-02 | 60.43928   |

Instrument : CHAMBER 098  
 Detector : 68644  
 Standard ID : AESS-034  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:16  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:54:57  
 Average Efficiency : 0.3358550  
 Average Efficiency Error : 9.2535829E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 200.5488 | 28-FEB-2010 | 2992.247   | 3301.860 | 15657.00 | 0.3297495 | 1.4163947E-02 | 50.47488   |
| NP-237     | 167.2962 | 28-FEB-2010 | 4432.619   | 4906.019 | 13588.00 | 0.3383684 | 1.7165720E-02 | 63.83917   |
| CM-244     | 154.4388 | 28-FEB-2010 | 5534.382   | 5884.237 | 11997.00 | 0.3424924 | 1.7407812E-02 | 51.17926   |

Instrument : CHAMBER 099  
 Detector : 70317  
 Standard ID : AESS-035  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:16  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:55:11  
 Average Efficiency : 0.3432277  
 Average Efficiency Error : 9.4517590E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 198.6666 | 28-FEB-2010 | 2987.820   | 3298.212 | 15976.00 | 0.3396714 | 1.4585057E-02 | 54.44847   |
| NP-237     | 168.2934 | 28-FEB-2010 | 4437.036   | 4906.585 | 14008.00 | 0.3467679 | 1.7584279E-02 | 71.12630   |
| CM-244     | 158.8128 | 28-FEB-2010 | 5530.871   | 5884.331 | 12421.00 | 0.3448446 | 1.7517686E-02 | 52.96134   |

Instrument : CHAMBER 100  
 Detector : 79456  
 Standard ID : AESS-046  
 Standard Reference Date : 19-FEB-2008 19:35:48  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:16  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:55:23  
 Average Efficiency : 0.3455574  
 Average Efficiency Error : 9.5195137E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 194.7474 | 28-FEB-2010 | 2989.623   | 3299.666 | 15783.00 | 0.3422834 | 1.4700302E-02 | 52.09954   |
| NP-237     | 164.6658 | 28-FEB-2010 | 4436.895   | 4905.650 | 13580.00 | 0.3435225 | 1.7427422E-02 | 69.24625   |
| CM-244     | 151.3824 | 28-FEB-2010 | 5534.086   | 5886.872 | 12110.00 | 0.3525722 | 1.7917577E-02 | 56.51697   |

Instrument : CHAMBER 101  
 Detector : 64253  
 Standard ID : AESS-037  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:17  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:55:41  
 Average Efficiency : 0.3333714  
 Average Efficiency Error : 9.1898674E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 197.7372 | 28-FEB-2010 | 2990.814   | 3297.893 | 15101.00 | 0.3225393 | 1.3863103E-02 | 69.71876   |
| NP-237     | 167.1294 | 28-FEB-2010 | 4435.403   | 4905.470 | 13614.00 | 0.3393782 | 1.7216442E-02 | 75.26087   |
| CM-244     | 154.7664 | 28-FEB-2010 | 5534.897   | 5882.499 | 12090.00 | 0.3444314 | 1.7504154E-02 | 64.32682   |

Instrument : CHAMBER 102  
 Detector : 72525  
 Standard ID : AESS-038  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:17  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:55:55  
 Average Efficiency : 0.3351222  
 Average Efficiency Error : 9.2311725E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 200.1408 | 28-FEB-2010 | 2989.911   | 3298.890 | 15784.00 | 0.3331057 | 1.4306106E-02 | 52.96164   |
| NP-237     | 170.0886 | 28-FEB-2010 | 4436.604   | 4903.163 | 13774.00 | 0.3373874 | 1.7112618E-02 | 67.26456   |
| CM-244     | 157.7460 | 28-FEB-2010 | 5533.661   | 5884.537 | 12012.00 | 0.3357387 | 1.7064173E-02 | 56.82374   |

Instrument : CHAMBER 103  
 Detector : 79461  
 Standard ID : AESS-039  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:17  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:56:06  
 Average Efficiency : 0.3326890  
 Average Efficiency Error : 9.1751814E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 192.2418 | 28-FEB-2010 | 2989.467   | 3301.138 | 14760.00 | 0.3242984 | 1.3944432E-02 | 47.60223   |
| NP-237     | 159.1506 | 28-FEB-2010 | 4432.983   | 4903.264 | 13171.00 | 0.3447756 | 1.7498676E-02 | 57.68694   |
| CM-244     | 151.7142 | 28-FEB-2010 | 5533.387   | 5886.945 | 11484.00 | 0.3337491 | 1.6975598E-02 | 51.22444   |

Instrument : CHAMBER 104  
 Detector : 72524  
 Standard ID : AESS-040  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:17  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:56:56  
 Average Efficiency : 0.3150799  
 Average Efficiency Error : 8.6921128E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 194.4828 | 28-FEB-2010 | 2991.174   | 3300.565 | 14723.00 | 0.3197476 | 1.3749403E-02 | 50.59072   |
| NP-237     | 166.8174 | 28-FEB-2010 | 4436.202   | 4904.648 | 12311.00 | 0.3074494 | 1.5620295E-02 | 55.80039   |
| CM-244     | 155.0100 | 28-FEB-2010 | 5532.970   | 5885.836 | 11138.00 | 0.3167908 | 1.6121507E-02 | 49.72461   |

Instrument : CHAMBER 105  
 Detector : 78777  
 Standard ID : AESS-041  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:17  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:57:20  
 Average Efficiency : 0.3276281  
 Average Efficiency Error : 9.0270750E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 203.9034 | 28-FEB-2010 | 2990.222   | 3299.531 | 15562.00 | 0.3223552 | 1.3847793E-02 | 46.50069   |
| NP-237     | 171.2268 | 28-FEB-2010 | 4434.728   | 4902.932 | 13744.00 | 0.3344322 | 1.6963221E-02 | 65.77631   |
| CM-244     | 159.5796 | 28-FEB-2010 | 5530.878   | 5883.508 | 11897.00 | 0.3287036 | 1.6709210E-02 | 49.01804   |

Instrument : CHAMBER 106  
 Detector : 64274  
 Standard ID : AESS-042  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:17  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:57:33  
 Average Efficiency : 0.3250493  
 Average Efficiency Error : 8.9671388E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 188.7090 | 28-FEB-2010 | 2987.640   | 3299.757 | 14336.00 | 0.3208575 | 1.3803991E-02 | 53.47353   |
| NP-237     | 159.6558 | 28-FEB-2010 | 4434.577   | 4901.415 | 12565.00 | 0.3278506 | 1.6651530E-02 | 72.39591   |
| CM-244     | 150.5208 | 28-FEB-2010 | 5534.428   | 5884.452 | 11211.00 | 0.3283702 | 1.6708910E-02 | 56.10339   |

Instrument : CHAMBER 107  
 Detector : 67578  
 Standard ID : AESS-043  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:19  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:58:23  
 Average Efficiency : 0.3085136  
 Average Efficiency Error : 8.5112611E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 197.7708 | 28-FEB-2010 | 2988.547   | 3298.638 | 14405.00 | 0.3076421 | 1.3234209E-02 | 50.64014   |
| NP-237     | 168.7422 | 28-FEB-2010 | 4435.772   | 4904.146 | 12514.00 | 0.3089727 | 1.5693650E-02 | 62.76998   |
| CM-244     | 156.3252 | 28-FEB-2010 | 5532.554   | 5882.324 | 10968.00 | 0.3092847 | 1.5743818E-02 | 52.78785   |

Instrument : CHAMBER 108  
 Detector : 78778  
 Standard ID : AESS-044  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:19  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 12:00:02  
 Average Efficiency : 0.3507076  
 Average Efficiency Error : 9.6569844E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 194.4510 | 28-FEB-2010 | 2988.136   | 3297.898 | 16033.00 | 0.3482739 | 1.4953526E-02 | 49.59322   |
| NP-237     | 166.6248 | 28-FEB-2010 | 4433.563   | 4901.441 | 14165.00 | 0.3542025 | 1.7958457E-02 | 66.29896   |
| CM-244     | 155.8290 | 28-FEB-2010 | 5533.812   | 5885.772 | 12398.00 | 0.3507225 | 1.7816888E-02 | 52.33121   |

Instrument : CHAMBER 109  
 Detector : 79463  
 Standard ID : AESS-045  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:19  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 12:00:23  
 Average Efficiency : 0.3572300  
 Average Efficiency Error : 9.8411189E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 186.9936 | 28-FEB-2010 | 2990.332   | 3301.320 | 15964.00 | 0.3605992 | 1.5483866E-02 | 43.37672   |
| NP-237     | 160.8066 | 28-FEB-2010 | 4437.566   | 4903.059 | 13542.00 | 0.3508754 | 1.7801007E-02 | 56.95218   |
| CM-244     | 145.8384 | 28-FEB-2010 | 5534.376   | 5883.521 | 11884.00 | 0.3592313 | 1.8261438E-02 | 45.65917   |

Instrument : CHAMBER 110  
 Detector : 67602  
 Standard ID : AESS-046  
 Standard Reference Date : 8-JAN-2007 09:29:00  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:19  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 12:01:03  
 Average Efficiency : 0.3231843  
 Average Efficiency Error : 8.9130215E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 197.6531 | 28-FEB-2010 | 2987.980   | 3298.573 | 14814.00 | 0.3198501 | 1.3754530E-02 | 53.58074   |
| NP-237     | 164.3834 | 28-FEB-2010 | 4433.010   | 4901.606 | 12984.00 | 0.3290606 | 1.6704626E-02 | 68.74621   |
| CM-244     | 159.4253 | 28-FEB-2010 | 5534.957   | 5883.028 | 11170.00 | 0.3222606 | 1.6399227E-02 | 53.66474   |

Instrument : CHAMBER 111  
 Detector : 79462  
 Standard ID : AESS-047  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:19  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 12:01:21  
 Average Efficiency : 0.3397023  
 Average Efficiency Error : 9.3582701E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 197.4804 | 28-FEB-2010 | 2988.711   | 3298.714 | 15668.00 | 0.3351243 | 1.4394601E-02 | 47.62338   |
| NP-237     | 168.3948 | 28-FEB-2010 | 4436.440   | 4905.458 | 13711.00 | 0.3392103 | 1.7206213E-02 | 64.03130   |
| CM-244     | 154.6032 | 28-FEB-2010 | 5535.080   | 5885.693 | 12172.00 | 0.3470925 | 1.7637538E-02 | 47.05465   |

Instrument : CHAMBER 112  
 Detector : 78261  
 Standard ID : AESS-048  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:19  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 12:02:06  
 Average Efficiency : 0.3161603  
 Average Efficiency Error : 8.7240264E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 191.8350 | 28-FEB-2010 | 2988.059   | 3299.440 | 14279.00 | 0.3143869 | 1.3526597E-02 | 45.81523   |
| NP-237     | 161.5530 | 28-FEB-2010 | 4434.653   | 4903.902 | 12390.00 | 0.3195488 | 1.6233314E-02 | 58.56979   |
| CM-244     | 151.1856 | 28-FEB-2010 | 5532.350   | 5884.826 | 10815.00 | 0.3153441 | 1.6056247E-02 | 49.68813   |

Instrument : CHAMBER 113  
 Detector : 45-111B4  
 Standard ID : AESS-001  
 Standard Reference Date : 20-FEB-2008 09:54:53  
 Calibration Analysis Date/Time : 17-AUG-2009 09:40:49  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 14:57:05  
 Average Efficiency : 0.2505672  
 Average Efficiency Error : 6.9084223E-03  
 Confidence : 95.00000

| Cal. Isteps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|-------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148      | 208.6698 | 28-FEB-2010 | 2990.867   | 3300.361 | 15169.00 | 0.2456670 | 1.0558164E-02 | 69.86203   |
| NP-237      | 171.0024 | 28-FEB-2010 | 4434.565   | 4901.409 | 13130.00 | 0.2559362 | 1.2990281E-02 | 75.93420   |
| CM-244      | 158.1060 | 28-FEB-2010 | 5532.822   | 5886.571 | 11319.00 | 0.2525721 | 1.2849954E-02 | 69.15296   |

Instrument : CHAMBER 114  
 Detector : 78258  
 Standard ID : AESS-007  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 17-AUG-2009 09:40:56  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 14:57:42  
 Average Efficiency : 0.2566939  
 Average Efficiency Error : 7.0618941E-03  
 Confidence : 95.00000

| Cal. Isteps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|-------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148      | 206.7342 | 28-FEB-2010 | 2992.066   | 3300.343 | 15529.00 | 0.2538896 | 1.0907058E-02 | 46.46336   |
| NP-237      | 205.0260 | 28-FEB-2010 | 4433.866   | 4902.961 | 15975.00 | 0.2597136 | 1.3147265E-02 | 59.75802   |
| CM-244      | 199.6806 | 28-FEB-2010 | 5535.155   | 5886.142 | 14576.00 | 0.2577351 | 1.3062422E-02 | 48.49145   |

Instrument : CHAMBER 115  
 Detector : 45-132FF4  
 Standard ID : AESS-002  
 Standard Reference Date : 19-FEB-2008 11:05:22  
 Calibration Analysis Date/Time : 17-AUG-2009 09:41:02  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 14:57:55  
 Average Efficiency : 0.2653268  
 Average Efficiency Error : 7.2980789E-03  
 Confidence : 95.00000

| Cal. Isteps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|-------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148      | 200.1144 | 28-FEB-2010 | 2989.683   | 3299.666 | 15797.00 | 0.2667769 | 1.1457291E-02 | 62.01321   |
| NP-237      | 200.4990 | 28-FEB-2010 | 4433.623   | 4904.729 | 15897.00 | 0.2642607 | 1.3378277E-02 | 65.74837   |
| CM-244      | 196.5558 | 28-FEB-2010 | 5534.066   | 5886.268 | 14729.00 | 0.2644131 | 1.3399067E-02 | 62.30648   |



Instrument : CHAMBER 116  
 Detector : 45-132FF2  
 Standard ID : AESS-008  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 17-AUG-2009 09:41:08  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 14:58:06  
 Average Efficiency : 0.2617015  
 Average Efficiency Error : 7.1968301E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 206.0418 | 28-FEB-2010 | 2991.930   | 3301.615 | 15931.00 | 0.2613424 | 1.1222276E-02 | 57.22266   |
| NP-237     | 209.2716 | 28-FEB-2010 | 4433.958   | 4904.160 | 16458.00 | 0.2621330 | 1.3264989E-02 | 65.63932   |
| CM-244     | 199.6488 | 28-FEB-2010 | 5532.087   | 5883.400 | 14804.00 | 0.2617715 | 1.3264321E-02 | 58.02108   |

Instrument : CHAMBER 117  
 Detector : 33450  
 Standard ID : AESS-003  
 Standard Reference Date : 15-FEB-2008 13:12:27  
 Calibration Analysis Date/Time : 17-AUG-2009 09:41:13  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 14:58:17  
 Average Efficiency : 0.2525579  
 Average Efficiency Error : 6.9512939E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 202.9740 | 28-FEB-2010 | 2989.306   | 3298.199 | 15015.00 | 0.2500224 | 1.0747343E-02 | 65.18716   |
| NP-237     | 203.2080 | 28-FEB-2010 | 4433.520   | 4903.152 | 15609.00 | 0.2560285 | 1.2964435E-02 | 69.72454   |
| CM-244     | 197.2236 | 28-FEB-2010 | 5530.582   | 5887.083 | 14123.00 | 0.2527719 | 1.2816428E-02 | 63.59301   |

Instrument : CHAMBER 118  
 Detector : 75544  
 Standard ID : AESS-009  
 Standard Reference Date : 19-FEB-2008 11:05:22  
 Calibration Analysis Date/Time : 17-AUG-2009 09:41:17  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 14:58:27  
 Average Efficiency : 0.2576301  
 Average Efficiency Error : 7.0881532E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 203.3736 | 28-FEB-2010 | 2988.856   | 3302.528 | 15454.00 | 0.2568017 | 1.1033086E-02 | 48.57111   |
| NP-237     | 204.0192 | 28-FEB-2010 | 4432.711   | 4902.773 | 15795.00 | 0.2580543 | 1.3065088E-02 | 53.80557   |
| CM-244     | 197.2128 | 28-FEB-2010 | 5531.177   | 5883.080 | 14443.00 | 0.2583711 | 1.3096387E-02 | 48.23898   |

Instrument : CHAMBER 119  
 Detector : 74429  
 Standard ID : AESS-004  
 Standard Reference Date : 14-FEB-2008 09:35:18  
 Calibration Analysis Date/Time : 18-AUG-2009 08:34:33  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 2-FEB-2009 15:15:38  
 Average Efficiency : 0.2936279  
 Average Efficiency Error : 1.2630888E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts        | EFF.          | EFF Err       | Resolution    |
|------------|----------|-------------|------------|----------|---------------|---------------|---------------|---------------|
| GD-148     | 206.1222 | 28-FEB-2010 | 2992.004   | 3299.253 | 1406.000      | 0.2936279     | 1.2630888E-02 | 0.0000000E+00 |
| NP-237     | 204.2586 | 28-FEB-2010 | 4432.548   | 4906.013 | 0.0000000E+00 | 0.0000000E+00 | 0.0000000E+00 | 0.0000000E+00 |
| CM-244     | 198.8100 | 28-FEB-2010 | 5530.584   | 5883.165 | 0.0000000E+00 | 0.0000000E+00 | 0.0000000E+00 | 0.0000000E+00 |

Instrument : CHAMBER 120  
 Detector : 74430  
 Standard ID : AESS-010  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 18-AUG-2009 08:35:01  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 18-AUG-2009 13:38:55  
 Average Efficiency : 0.2589359  
 Average Efficiency Error : 7.1242545E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 202.0008 | 28-FEB-2010 | 2988.209   | 3300.389 | 15391.00 | 0.2575360 | 1.1065440E-02 | 43.23295   |
| NP-237     | 202.9926 | 28-FEB-2010 | 4436.370   | 4904.997 | 15823.00 | 0.2598289 | 1.3154631E-02 | 56.74783   |
| CM-244     | 196.2330 | 28-FEB-2010 | 5531.794   | 5882.950 | 14449.00 | 0.2600255 | 1.3180019E-02 | 54.60671   |

Instrument : CHAMBER 121  
 Detector : 75545  
 Standard ID : AESS-005  
 Standard Reference Date : 14-FEB-2008 09:35:18  
 Calibration Analysis Date/Time : 17-AUG-2009 09:41:25  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 14:58:37  
 Average Efficiency : 0.2477992  
 Average Efficiency Error : 6.8184505E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 210.7452 | 28-FEB-2010 | 2991.483   | 3299.036 | 15409.00 | 0.2471195 | 1.0617682E-02 | 50.47642   |
| NP-237     | 209.5938 | 28-FEB-2010 | 4436.007   | 4904.843 | 15591.00 | 0.2479274 | 1.2554423E-02 | 56.89366   |
| CM-244     | 202.7478 | 28-FEB-2010 | 5531.746   | 5882.876 | 14277.00 | 0.2486278 | 1.2604386E-02 | 50.04906   |

Instrument : CHAMBER 122  
 Detector : 75546  
 Standard ID : AESS-011  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 17-AUG-2009 09:41:30  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 14:58:49  
 Average Efficiency : 0.2511526  
 Average Efficiency Error : 6.9076614E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 212.8284 | 28-FEB-2010 | 2989.140   | 3302.149 | 15817.00 | 0.2511983 | 1.0788003E-02 | 55.71524   |
| NP-237     | 214.4868 | 28-FEB-2010 | 4434.728   | 4903.501 | 16008.00 | 0.2487148 | 1.2590243E-02 | 57.96050   |
| CM-244     | 208.4184 | 28-FEB-2010 | 5535.323   | 5886.133 | 14974.00 | 0.2536270 | 1.2849721E-02 | 53.77795   |

Instrument : CHAMBER 123  
 Detector : 45-142V3  
 Standard ID : AESS-006  
 Standard Reference Date : 14-FEB-2008 09:35:18  
 Calibration Analysis Date/Time : 17-AUG-2009 09:41:34  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 14:58:58  
 Average Efficiency : 0.2594329  
 Average Efficiency Error : 7.1380134E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 203.6952 | 28-FEB-2010 | 2989.820   | 3298.601 | 15515.00 | 0.2574363 | 1.1059616E-02 | 71.81727   |
| NP-237     | 204.7038 | 28-FEB-2010 | 4437.478   | 4905.941 | 15738.00 | 0.2562436 | 1.2974020E-02 | 72.62444   |
| CM-244     | 195.0060 | 28-FEB-2010 | 5531.339   | 5886.453 | 14683.00 | 0.2658339 | 1.3471606E-02 | 67.85081   |

Instrument : CHAMBER 124  
 Detector : 45-142V2  
 Standard ID : AESS-012  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 17-AUG-2009 09:41:39  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 14:59:08  
 Average Efficiency : 0.2622745  
 Average Efficiency Error : 7.2123613E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 206.2200 | 28-FEB-2010 | 2989.806   | 3300.376 | 16169.00 | 0.2650077 | 1.1376831E-02 | 65.10977   |
| NP-237     | 205.8930 | 28-FEB-2010 | 4436.352   | 4902.974 | 16128.00 | 0.2610630 | 1.3214089E-02 | 71.08579   |
| CM-244     | 203.1954 | 28-FEB-2010 | 5533.246   | 5885.946 | 14953.00 | 0.2598179 | 1.3163561E-02 | 70.97868   |

Instrument : CHAMBER 125  
 Detector : 75547  
 Standard ID : AESS-013  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 17-AUG-2009 09:41:44  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 14:59:18  
 Average Efficiency : 0.2577128  
 Average Efficiency Error : 7.0888288E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 203.6544 | 28-FEB-2010 | 2987.619   | 3299.275 | 15570.00 | 0.2584035 | 1.1100472E-02 | 45.32409   |
| NP-237     | 210.2526 | 28-FEB-2010 | 4433.269   | 4906.266 | 16194.00 | 0.2567104 | 1.2993116E-02 | 55.37461   |
| CM-244     | 201.9108 | 28-FEB-2010 | 5531.959   | 5882.482 | 14741.00 | 0.2577693 | 1.3062201E-02 | 51.62124   |

Instrument : CHAMBER 126  
 Detector : 75548  
 Standard ID : AESS-019  
 Standard Reference Date : 19-FEB-2008 11:05:22  
 Calibration Analysis Date/Time : 17-AUG-2009 09:41:49  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 14:59:32  
 Average Efficiency : 0.2528252  
 Average Efficiency Error : 6.9586127E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 204.6468 | 28-FEB-2010 | 2988.372   | 3298.946 | 15025.00 | 0.2481292 | 1.0665805E-02 | 51.29427   |
| NP-237     | 202.9140 | 28-FEB-2010 | 4437.297   | 4901.551 | 15728.00 | 0.2582902 | 1.3077814E-02 | 59.55880   |
| CM-244     | 199.3140 | 28-FEB-2010 | 5532.806   | 5882.587 | 14367.00 | 0.2543760 | 1.2894685E-02 | 53.51087   |

Instrument : CHAMBER 127  
 Detector : 78770  
 Standard ID : AESS-014  
 Standard Reference Date : 19-FEB-2008 11:05:22  
 Calibration Analysis Date/Time : 17-AUG-2009 09:41:53  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 14:59:46  
 Average Efficiency : 0.2467646  
 Average Efficiency Error : 6.7887292E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 214.7088 | 28-FEB-2010 | 2989.622   | 3297.830 | 15608.00 | 0.2456636 | 1.0552737E-02 | 45.17228   |
| NP-237     | 211.7160 | 28-FEB-2010 | 4435.622   | 4904.092 | 15815.00 | 0.2489925 | 1.2606090E-02 | 55.68476   |
| CM-244     | 207.3882 | 28-FEB-2010 | 5535.184   | 5885.434 | 14463.00 | 0.2461215 | 1.2475103E-02 | 51.99955   |

Instrument : CHAMBER 128  
 Detector : 75549  
 Standard ID : AESS-020  
 Standard Reference Date : 14-FEB-2008 21:55:55  
 Calibration Analysis Date/Time : 17-AUG-2009 09:41:59  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 15:00:39  
 Average Efficiency : 0.2557978  
 Average Efficiency Error : 7.0393290E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 205.5870 | 28-FEB-2010 | 2989.482   | 3299.177 | 15312.00 | 0.2510756 | 1.0789989E-02 | 50.23243   |
| NP-237     | 203.4984 | 28-FEB-2010 | 4436.028   | 4905.664 | 15805.00 | 0.2584755 | 1.3086889E-02 | 59.26414   |
| CM-244     | 197.1096 | 28-FEB-2010 | 5532.549   | 5883.141 | 14531.00 | 0.2601309 | 1.3184624E-02 | 52.60558   |

Instrument : CHAMBER 129  
 Detector : 76227  
 Standard ID : AESS-015  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 17-AUG-2009 09:42:03  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 15:00:50  
 Average Efficiency : 0.2636167  
 Average Efficiency Error : 7.2512124E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 204.0270 | 28-FEB-2010 | 2992.146   | 3298.635 | 15855.00 | 0.2626581 | 1.1279699E-02 | 51.01081   |
| NP-237     | 200.6460 | 28-FEB-2010 | 4432.563   | 4905.761 | 16101.00 | 0.2674463 | 1.3537456E-02 | 55.64974   |
| CM-244     | 195.9270 | 28-FEB-2010 | 5531.918   | 5882.796 | 14498.00 | 0.2612732 | 1.3242676E-02 | 51.23387   |

Instrument : CHAMBER 130  
 Detector : 76228  
 Standard ID : AESS-021  
 Standard Reference Date : 19-FEB-2008 15:31:52  
 Calibration Analysis Date/Time : 17-AUG-2009 09:42:09  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 15:01:00  
 Average Efficiency : 0.2500172  
 Average Efficiency Error : 6.8798582E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 208.3608 | 28-FEB-2010 | 2989.230   | 3297.665 | 15254.00 | 0.2474099 | 1.0632024E-02 | 49.47410   |
| NP-237     | 210.1548 | 28-FEB-2010 | 4434.582   | 4901.937 | 15716.00 | 0.2492386 | 1.2619579E-02 | 59.00264   |
| CM-244     | 200.7390 | 28-FEB-2010 | 5530.859   | 5884.881 | 14487.00 | 0.2546751 | 1.2908396E-02 | 49.18253   |

Instrument : CHAMBER 131  
 Detector : 33448  
 Standard ID : AESS-016  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 17-AUG-2009 09:42:13  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 15:01:10  
 Average Efficiency : 0.2486686  
 Average Efficiency Error : 6.8503493E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 204.0534 | 28-FEB-2010 | 2988.455   | 3301.428 | 14427.00 | 0.2389750 | 1.0279993E-02 | 88.46142   |
| NP-237     | 199.3962 | 28-FEB-2010 | 4434.994   | 4904.668 | 15550.00 | 0.2599315 | 1.3162703E-02 | 91.50983   |
| CM-244     | 198.6402 | 28-FEB-2010 | 5532.826   | 5884.723 | 14238.00 | 0.2530668 | 1.2829903E-02 | 81.92683   |

Instrument : CHAMBER 132  
 Detector : 67579  
 Standard ID : AESS-022  
 Standard Reference Date : 14-FEB-2008 21:55:55  
 Calibration Analysis Date/Time : 17-AUG-2009 09:42:18  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 15:01:19  
 Average Efficiency : 0.2503150  
 Average Efficiency Error : 6.8899435E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 209.6724 | 28-FEB-2010 | 2989.906   | 3301.298 | 15059.00 | 0.2427482 | 1.0434108E-02 | 48.23922   |
| NP-237     | 206.8830 | 28-FEB-2010 | 4432.560   | 4903.500 | 15980.00 | 0.2574485 | 1.3032571E-02 | 59.84295   |
| CM-244     | 203.0208 | 28-FEB-2010 | 5531.586   | 5882.587 | 14657.00 | 0.2549047 | 1.2918007E-02 | 51.83584   |

Instrument : CHAMBER 133  
 Detector : 76229  
 Standard ID : AESS-017  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 17-AUG-2009 09:42:22  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 15:01:29  
 Average Efficiency : 0.2444916  
 Average Efficiency Error : 6.7288522E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 210.0798 | 28-FEB-2010 | 2992.199   | 3301.674 | 15088.00 | 0.2427499 | 1.0433814E-02 | 51.73604   |
| NP-237     | 208.5846 | 28-FEB-2010 | 4436.849   | 4905.652 | 15341.00 | 0.2451461 | 1.2416095E-02 | 59.86903   |
| CM-244     | 205.5828 | 28-FEB-2010 | 5530.602   | 5882.872 | 14343.00 | 0.2463241 | 1.2486813E-02 | 55.80942   |

Instrument : CHAMBER 134  
 Detector : 76230  
 Standard ID : AESS-023  
 Standard Reference Date : 14-FEB-2008 21:55:55  
 Calibration Analysis Date/Time : 17-AUG-2009 09:42:27  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 15:01:38  
 Average Efficiency : 0.2444722  
 Average Efficiency Error : 6.7306994E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 207.4764 | 28-FEB-2010 | 2989.055   | 3302.112 | 14731.00 | 0.2399838 | 1.0319396E-02 | 45.58716   |
| NP-237     | 207.4998 | 28-FEB-2010 | 4432.969   | 4905.408 | 15414.00 | 0.2475136 | 1.2535379E-02 | 52.40787   |
| CM-244     | 199.8804 | 28-FEB-2010 | 5534.460   | 5883.375 | 14046.00 | 0.2480791 | 1.2579419E-02 | 47.39998   |

Instrument : CHAMBER 135  
 Detector : 64270  
 Standard ID : AESS-018  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 17-AUG-2009 09:42:32  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 15:01:50  
 Average Efficiency : 0.2546879  
 Average Efficiency Error : 7.0084208E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 202.1856 | 28-FEB-2010 | 2987.813   | 3300.105 | 15110.00 | 0.2525907 | 1.0856513E-02 | 49.36219   |
| NP-237     | 208.8990 | 28-FEB-2010 | 4435.123   | 4902.752 | 15878.00 | 0.2533506 | 1.2826114E-02 | 62.03614   |
| CM-244     | 198.1458 | 28-FEB-2010 | 5532.979   | 5882.877 | 14546.00 | 0.2591602 | 1.3135060E-02 | 51.79539   |

Instrument : CHAMBER 136  
 Detector : 68549  
 Standard ID : AESS-024  
 Standard Reference Date : 14-FEB-2008 21:55:55  
 Calibration Analysis Date/Time : 17-AUG-2009 09:42:37  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 15:02:00  
 Average Efficiency : 0.2475998  
 Average Efficiency Error : 6.8165381E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 203.5218 | 28-FEB-2010 | 2991.796   | 3301.682 | 14741.00 | 0.2447980 | 1.0526305E-02 | 60.65231   |
| NP-237     | 205.6662 | 28-FEB-2010 | 4435.713   | 4901.780 | 15573.00 | 0.2523313 | 1.2777670E-02 | 84.66249   |
| CM-244     | 198.3060 | 28-FEB-2010 | 5531.520   | 5884.028 | 13875.00 | 0.2470199 | 1.2527825E-02 | 70.83999   |

Instrument : CHAMBER 137  
 Detector : 64288  
 Standard ID : AESS-025  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 17-AUG-2009 15:19:29  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 18-AUG-2009 09:58:00  
 Average Efficiency : 0.2555233  
 Average Efficiency Error : 7.0462842E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 195.5670 | 28-FEB-2010 | 2990.035   | 3302.352 | 15040.00 | 0.2599163 | 1.1172320E-02 | 62.16771   |
| NP-237     | 167.9916 | 28-FEB-2010 | 4435.990   | 4901.349 | 12745.00 | 0.2528539 | 1.2839622E-02 | 74.72440   |
| CM-244     | 157.2432 | 28-FEB-2010 | 5532.344   | 5883.346 | 11242.00 | 0.2523895 | 1.2842122E-02 | 61.62554   |

Instrument : CHAMBER 138  
 Detector : 65877  
 Standard ID : AESS-031  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 17-AUG-2009 10:05:25  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 15:10:23  
 Average Efficiency : 0.2550827  
 Average Efficiency Error : 7.0365570E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 193.6650 | 28-FEB-2010 | 2990.457   | 3300.623 | 14458.00 | 0.2522955 | 1.0852579E-02 | 60.07153   |
| NP-237     | 162.9186 | 28-FEB-2010 | 4436.833   | 4904.301 | 12578.00 | 0.2572678 | 1.3066470E-02 | 64.63396   |
| CM-244     | 153.1968 | 28-FEB-2010 | 5531.035   | 5885.034 | 11155.00 | 0.2569406 | 1.3075489E-02 | 58.61239   |

Instrument : CHAMBER 139  
 Detector : 76231  
 Standard ID : AESS-026  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 17-AUG-2009 10:05:40  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 15:10:36  
 Average Efficiency : 0.2493770  
 Average Efficiency Error : 7.3113223E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 199.5072 | 28-FEB-2010 | 2988.624   | 3300.322 | 14789.00 | 0.2505293 | 1.2695529E-02 | 52.23651   |
| NP-237     | 168.0294 | 28-FEB-2010 | 4436.965   | 4901.673 | 12535.00 | 0.2486135 | 1.2627549E-02 | 58.33430   |
| CM-244     | 160.5822 | 28-FEB-2010 | 5531.099   | 5884.173 | 11327.00 | 0.2489982 | 1.2667944E-02 | 53.91700   |



Instrument : CHAMBER 140  
 Detector : 78771  
 Standard ID : AESS-032  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 17-AUG-2009 10:05:55  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 15:10:53  
 Average Efficiency : 0.2545226  
 Average Efficiency Error : 7.0204390E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 195.2364 | 28-FEB-2010 | 2992.243   | 3300.208 | 14492.00 | 0.2508534 | 1.0790074E-02 | 46.38138   |
| NP-237     | 165.9822 | 28-FEB-2010 | 4435.227   | 4906.111 | 12782.00 | 0.2566222 | 1.3030458E-02 | 51.74347   |
| CM-244     | 153.7938 | 28-FEB-2010 | 5531.085   | 5884.403 | 11234.00 | 0.2578183 | 1.3118429E-02 | 44.44519   |

Instrument : CHAMBER 141  
 Detector : 76232  
 Standard ID : AESS-027  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 17-AUG-2009 10:06:09  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 15:11:05  
 Average Efficiency : 0.2584702  
 Average Efficiency Error : 7.5807418E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 193.4238 | 28-FEB-2010 | 2989.414   | 3297.748 | 14427.00 | 0.2520987 | 1.2779256E-02 | 53.56795   |
| NP-237     | 161.6154 | 28-FEB-2010 | 4437.262   | 4901.753 | 12660.00 | 0.2610831 | 1.3258832E-02 | 57.80217   |
| CM-244     | 148.1754 | 28-FEB-2010 | 5534.971   | 5886.637 | 11030.00 | 0.2627913 | 1.3375781E-02 | 54.14219   |

Instrument : CHAMBER 142  
 Detector : 64261  
 Standard ID : AESS-033  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 17-AUG-2009 10:06:21  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 15:11:22  
 Average Efficiency : 0.2600435  
 Average Efficiency Error : 7.1729934E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 192.4158 | 28-FEB-2010 | 2988.269   | 3301.948 | 14656.00 | 0.2574165 | 1.1070056E-02 | 54.03382   |
| NP-237     | 161.7816 | 28-FEB-2010 | 4433.864   | 4905.404 | 12714.00 | 0.2618904 | 1.3299029E-02 | 57.43495   |
| CM-244     | 147.2670 | 28-FEB-2010 | 5531.110   | 5884.773 | 10935.00 | 0.2619993 | 1.3337597E-02 | 54.46835   |

Instrument : CHAMBER 143  
 Detector : 65882  
 Standard ID : AESS-028  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 17-AUG-2009 10:06:30  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 15:11:35  
 Average Efficiency : 0.2441945  
 Average Efficiency Error : 7.1629179E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 199.6542 | 28-FEB-2010 | 2987.868   | 3300.973 | 14504.00 | 0.2454895 | 1.2443409E-02 | 48.86588   |
| NP-237     | 168.1992 | 28-FEB-2010 | 4435.203   | 4905.234 | 12409.00 | 0.2458239 | 1.2487897E-02 | 54.42411   |
| CM-244     | 156.7614 | 28-FEB-2010 | 5533.941   | 5886.181 | 10719.00 | 0.2413527 | 1.2290902E-02 | 48.55591   |

Instrument : CHAMBER 144  
 Detector : 75551  
 Standard ID : AESS-034  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 17-AUG-2009 10:06:42  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 15:11:48  
 Average Efficiency : 0.2468767  
 Average Efficiency Error : 6.8111387E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 200.5488 | 28-FEB-2010 | 2992.050   | 3299.833 | 14487.00 | 0.2441242 | 1.0500696E-02 | 46.56598   |
| NP-237     | 167.2962 | 28-FEB-2010 | 4433.005   | 4902.603 | 12463.00 | 0.2482506 | 1.2610275E-02 | 54.14901   |
| CM-244     | 154.4388 | 28-FEB-2010 | 5530.735   | 5882.656 | 10920.00 | 0.2495103 | 1.2702089E-02 | 51.83741   |

Instrument : CHAMBER 145  
 Detector : 72526  
 Standard ID : AESS-029  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 17-AUG-2009 10:06:50  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 15:12:06  
 Average Efficiency : 0.2516074  
 Average Efficiency Error : 7.3767379E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 201.5742 | 28-FEB-2010 | 2991.923   | 3299.882 | 14896.00 | 0.2497595 | 1.2655314E-02 | 52.44717   |
| NP-237     | 169.7700 | 28-FEB-2010 | 4434.984   | 4905.949 | 12721.00 | 0.2497460 | 1.2682147E-02 | 64.14503   |
| CM-244     | 154.8234 | 28-FEB-2010 | 5531.069   | 5884.490 | 11206.00 | 0.2555142 | 1.3001818E-02 | 51.97158   |

Instrument : CHAMBER 146  
 Detector : 72527  
 Standard ID : AESS-035  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 17-AUG-2009 10:06:56  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 15:12:19  
 Average Efficiency : 0.2487766  
 Average Efficiency Error : 6.8616522E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 198.6666 | 28-FEB-2010 | 2989.460   | 3301.164 | 14683.00 | 0.2497765 | 1.0741138E-02 | 52.75697   |
| NP-237     | 168.2934 | 28-FEB-2010 | 4435.288   | 4903.095 | 12451.00 | 0.2466013 | 1.2526580E-02 | 54.23803   |
| CM-244     | 158.8128 | 28-FEB-2010 | 5534.042   | 5884.573 | 11233.00 | 0.2496148 | 1.2701104E-02 | 51.22379   |

Instrument : CHAMBER 147  
 Detector : 75550  
 Standard ID : AESS-030  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 17-AUG-2009 10:07:03  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 15:12:37  
 Average Efficiency : 0.2470976  
 Average Efficiency Error : 7.2475495E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 198.9792 | 28-FEB-2010 | 2990.910   | 3299.539 | 14303.00 | 0.2429080 | 1.2314880E-02 | 46.94440   |
| NP-237     | 166.3758 | 28-FEB-2010 | 4433.251   | 4901.935 | 12590.00 | 0.2521924 | 1.2808450E-02 | 53.36894   |
| CM-244     | 157.1856 | 28-FEB-2010 | 5533.139   | 5883.368 | 10980.00 | 0.2465573 | 1.2550585E-02 | 53.24918   |

Instrument : CHAMBER 148  
 Detector : 74429  
 Standard ID : AESS-036  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 17-AUG-2009 10:07:10  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 15:12:57  
 Average Efficiency : 0.2480969  
 Average Efficiency Error : 6.8435837E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 201.3204 | 28-FEB-2010 | 2990.725   | 3298.446 | 14645.00 | 0.2458259 | 1.0571792E-02 | 53.02917   |
| NP-237     | 167.4312 | 28-FEB-2010 | 4436.496   | 4905.977 | 12647.00 | 0.2517435 | 1.2784752E-02 | 56.62496   |
| CM-244     | 156.4188 | 28-FEB-2010 | 5533.919   | 5885.716 | 10983.00 | 0.2477803 | 1.2612724E-02 | 51.14078   |

Instrument : CHAMBER 149  
 Detector : 33449  
 Standard ID : AESS-037  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 17-AUG-2009 09:46:49  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 15:02:09  
 Average Efficiency : 0.2465136  
 Average Efficiency Error : 6.8024271E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 197.7372 | 28-FEB-2010 | 2991.734   | 3299.272 | 14178.00 | 0.2423231 | 1.0427443E-02 | 68.70028   |
| NP-237     | 167.1294 | 28-FEB-2010 | 4437.371   | 4901.944 | 12533.00 | 0.2499420 | 1.2695006E-02 | 68.91545   |
| CM-244     | 154.7664 | 28-FEB-2010 | 5530.548   | 5882.851 | 10933.00 | 0.2492944 | 1.2690787E-02 | 65.41205   |

Instrument : CHAMBER 150  
 Detector : 75552  
 Standard ID : AESS-043  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 17-AUG-2009 09:47:06  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 15:02:19  
 Average Efficiency : 0.2486527  
 Average Efficiency Error : 6.8590841E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 197.7708 | 28-FEB-2010 | 2992.316   | 3300.643 | 14670.00 | 0.2506822 | 1.0780259E-02 | 53.31720   |
| NP-237     | 168.7422 | 28-FEB-2010 | 4435.415   | 4905.497 | 12565.00 | 0.2481675 | 1.2604410E-02 | 58.05605   |
| CM-244     | 156.3252 | 28-FEB-2010 | 5534.121   | 5886.240 | 10915.00 | 0.2463857 | 1.2543092E-02 | 53.10606   |

Instrument : CHAMBER 151  
 Detector : 75556  
 Standard ID : AESS-038  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 17-AUG-2009 09:47:22  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 15:02:29  
 Average Efficiency : 0.2450182  
 Average Efficiency Error : 6.7593171E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 200.1408 | 28-FEB-2010 | 2990.659   | 3302.040 | 14473.00 | 0.2443945 | 1.0512492E-02 | 52.21863   |
| NP-237     | 170.0886 | 28-FEB-2010 | 4434.623   | 4901.634 | 12448.00 | 0.2439277 | 1.2390838E-02 | 56.98894   |
| CM-244     | 157.7460 | 28-FEB-2010 | 5531.364   | 5886.469 | 11043.00 | 0.2470334 | 1.2573502E-02 | 57.42078   |

Instrument : CHAMBER 152  
 Detector : 76222  
 Standard ID : AESS-044  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 17-AUG-2009 09:47:27  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 15:02:41  
 Average Efficiency : 0.2490164  
 Average Efficiency Error : 6.8703890E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 194.4510 | 28-FEB-2010 | 2991.044   | 3297.777 | 14243.00 | 0.2475301 | 1.0650607E-02 | 47.08284   |
| NP-237     | 166.6248 | 28-FEB-2010 | 4437.300   | 4905.285 | 12419.00 | 0.2484124 | 1.2619114E-02 | 60.94747   |
| CM-244     | 155.8290 | 28-FEB-2010 | 5531.209   | 5887.199 | 11119.00 | 0.2517907 | 1.2814093E-02 | 54.11842   |

Instrument : CHAMBER 153  
 Detector : 76223  
 Standard ID : AESS-039  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 17-AUG-2009 09:47:33  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 15:02:59  
 Average Efficiency : 0.2519075  
 Average Efficiency Error : 6.9520962E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 192.2418 | 28-FEB-2010 | 2989.175   | 3301.127 | 14308.00 | 0.2515197 | 1.0821341E-02 | 47.18059   |
| NP-237     | 159.1506 | 28-FEB-2010 | 4437.148   | 4906.174 | 12220.00 | 0.2558792 | 1.3001786E-02 | 54.79121   |
| CM-244     | 151.7142 | 28-FEB-2010 | 5533.838   | 5885.640 | 10690.00 | 0.2486704 | 1.2664073E-02 | 49.37799   |

Instrument : CHAMBER 154  
 Detector : 76224  
 Standard ID : AESS-045  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 17-AUG-2009 09:47:38  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 15:03:12  
 Average Efficiency : 0.2559401  
 Average Efficiency Error : 7.0637148E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 186.9936 | 28-FEB-2010 | 2991.160   | 3298.663 | 14169.00 | 0.2560697 | 1.1019127E-02 | 49.27927   |
| NP-237     | 160.8066 | 28-FEB-2010 | 4435.792   | 4904.845 | 12224.00 | 0.2533519 | 1.2873255E-02 | 55.70718   |
| CM-244     | 145.8384 | 28-FEB-2010 | 5532.170   | 5883.602 | 10681.00 | 0.2584613 | 1.3162896E-02 | 52.40295   |

Instrument : CHAMBER 155  
 Detector : 75553  
 Standard ID : AESS-040  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 17-AUG-2009 09:47:43  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 15:03:49  
 Average Efficiency : 0.2604031  
 Average Efficiency Error : 7.1793078E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 194.4828 | 28-FEB-2010 | 2990.137   | 3299.574 | 15144.00 | 0.2631285 | 1.1309024E-02 | 51.70325   |
| NP-237     | 166.8174 | 28-FEB-2010 | 4433.383   | 4905.252 | 13025.00 | 0.2602106 | 1.3208893E-02 | 58.26657   |
| CM-244     | 155.0100 | 28-FEB-2010 | 5530.995   | 5884.485 | 11287.00 | 0.2569496 | 1.3073267E-02 | 54.09868   |

Instrument : CHAMBER 156  
 Detector : 75554  
 Standard ID : AESS-046  
 Standard Reference Date : 19-FEB-2008 19:35:48  
 Calibration Analysis Date/Time : 17-AUG-2009 09:47:48  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 15:03:58  
 Average Efficiency : 0.2478251  
 Average Efficiency Error : 6.8396293E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 194.7474 | 28-FEB-2010 | 2991.410   | 3301.423 | 14146.00 | 0.2454547 | 1.0562697E-02 | 50.29560   |
| NP-237     | 164.6658 | 28-FEB-2010 | 4436.034   | 4902.390 | 12227.00 | 0.2474083 | 1.2571326E-02 | 54.83716   |
| CM-244     | 151.3824 | 28-FEB-2010 | 5532.563   | 5885.336 | 10800.00 | 0.2517493 | 1.2818515E-02 | 50.76693   |

Instrument : CHAMBER 157  
 Detector : 75555  
 Standard ID : AESS-041  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 17-AUG-2009 09:47:53  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 15:04:07  
 Average Efficiency : 0.2459567  
 Average Efficiency Error : 6.7838337E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 203.9034 | 28-FEB-2010 | 2989.948   | 3299.042 | 14635.00 | 0.2425698 | 1.0431849E-02 | 49.95551   |
| NP-237     | 171.2268 | 28-FEB-2010 | 4436.337   | 4902.073 | 12880.00 | 0.2506870 | 1.2727586E-02 | 53.18868   |
| CM-244     | 159.5796 | 28-FEB-2010 | 5531.733   | 5884.378 | 11136.00 | 0.2462586 | 1.2532219E-02 | 53.03581   |

Instrument : CHAMBER 158  
 Detector : 33451  
 Standard ID : AESS-047  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 17-AUG-2009 09:47:59  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 15:04:18  
 Average Efficiency : 0.2470825  
 Average Efficiency Error : 6.8179565E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 197.4804 | 28-FEB-2010 | 2990.074   | 3301.013 | 14195.00 | 0.2429217 | 1.0452971E-02 | 65.65772   |
| NP-237     | 168.3948 | 28-FEB-2010 | 4435.907   | 4905.421 | 12486.00 | 0.2470921 | 1.2551059E-02 | 76.64585   |
| CM-244     | 154.6032 | 28-FEB-2010 | 5535.323   | 5885.904 | 11102.00 | 0.2534059 | 1.2896620E-02 | 68.27572   |

Instrument : CHAMBER 159  
 Detector : 76225  
 Standard ID : AESS-042  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 17-AUG-2009 09:48:04  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 15:04:28  
 Average Efficiency : 0.2536185  
 Average Efficiency Error : 6.9992472E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 188.7090 | 28-FEB-2010 | 2992.022   | 3301.502 | 14176.00 | 0.2538644 | 1.0924136E-02 | 47.45573   |
| NP-237     | 159.6558 | 28-FEB-2010 | 4435.853   | 4902.842 | 12186.00 | 0.2543722 | 1.2925758E-02 | 52.94994   |
| CM-244     | 150.5208 | 28-FEB-2010 | 5534.528   | 5883.086 | 10773.00 | 0.2525320 | 1.2859062E-02 | 52.36504   |

Instrument : CHAMBER 160  
 Detector : 76226  
 Standard ID : AESS-048  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 17-AUG-2009 09:48:09  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 15:04:40  
 Average Efficiency : 0.2450936  
 Average Efficiency Error : 6.7667966E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 191.8350 | 28-FEB-2010 | 2988.982   | 3298.890 | 13916.00 | 0.2451341 | 1.0552234E-02 | 50.78497   |
| NP-237     | 161.5530 | 28-FEB-2010 | 4434.439   | 4901.761 | 11957.00 | 0.2465858 | 1.2534058E-02 | 58.31113   |
| CM-244     | 151.1856 | 28-FEB-2010 | 5533.753   | 5882.414 | 10437.00 | 0.2435748 | 1.2410097E-02 | 52.51821   |

Instrument : CHAMBER 161  
 Detector : 70321  
 Standard ID : AESS-001  
 Standard Reference Date : 20-FEB-2008 09:54:53  
 Calibration Analysis Date/Time : 24-AUG-2009 08:39:50  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 24-AUG-2009 14:06:47  
 Average Efficiency : 0.3731306  
 Average Efficiency Error : 1.0235887E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 208.6698 | 28-FEB-2010 | 2988.799   | 3299.450 | 22121.00 | 0.3583271 | 1.5313427E-02 | 65.76945   |
| NP-237     | 171.0024 | 28-FEB-2010 | 4437.354   | 4905.712 | 19775.00 | 0.3854371 | 1.9465830E-02 | 75.53835   |
| CM-244     | 158.1060 | 28-FEB-2010 | 5533.034   | 5884.911 | 17229.00 | 0.3847365 | 1.9458989E-02 | 65.65879   |

Instrument : CHAMBER 162  
 Detector : 70323  
 Standard ID : AESS-007  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 24-AUG-2009 08:39:56  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 24-AUG-2009 14:06:56  
 Average Efficiency : 0.3723955  
 Average Efficiency Error : 1.0201765E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 206.7342 | 28-FEB-2010 | 2991.108   | 3297.679 | 22068.00 | 0.3608688 | 1.5422536E-02 | 59.05890   |
| NP-237     | 205.0260 | 28-FEB-2010 | 4437.157   | 4905.370 | 23621.00 | 0.3840082 | 1.9362321E-02 | 75.93850   |
| CM-244     | 199.6806 | 28-FEB-2010 | 5531.808   | 5882.856 | 21406.00 | 0.3787849 | 1.9115422E-02 | 59.17039   |

Instrument : CHAMBER 163  
 Detector : 70324  
 Standard ID : AESS-002  
 Standard Reference Date : 19-FEB-2008 11:05:22  
 Calibration Analysis Date/Time : 24-AUG-2009 08:40:01  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 24-AUG-2009 14:07:06  
 Average Efficiency : 0.3784964  
 Average Efficiency Error : 1.0368022E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 200.1144 | 28-FEB-2010 | 2989.316   | 3301.922 | 21875.00 | 0.3695002 | 1.5793122E-02 | 75.87975   |
| NP-237     | 200.4990 | 28-FEB-2010 | 4434.725   | 4904.333 | 23130.00 | 0.3844810 | 1.9389626E-02 | 89.93044   |
| CM-244     | 196.5558 | 28-FEB-2010 | 5532.622   | 5884.699 | 21494.00 | 0.3861476 | 1.9486297E-02 | 68.44479   |



Instrument : CHAMBER 164  
 Detector : 70325  
 Standard ID : AESS-008  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 24-AUG-2009 08:40:07  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 24-AUG-2009 14:07:20  
 Average Efficiency : 0.3795241  
 Average Efficiency Error : 1.0392675E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 206.0418 | 28-FEB-2010 | 2989.433   | 3301.590 | 22711.00 | 0.3726217 | 1.5919240E-02 | 60.22451   |
| NP-237     | 209.2716 | 28-FEB-2010 | 4434.137   | 4904.243 | 23751.00 | 0.3782692 | 1.9072101E-02 | 72.85822   |
| CM-244     | 199.6488 | 28-FEB-2010 | 5533.726   | 5886.727 | 22121.00 | 0.3914949 | 1.9750981E-02 | 58.50513   |

Instrument : CHAMBER 165  
 Detector : 72544  
 Standard ID : AESS-003  
 Standard Reference Date : 15-FEB-2008 13:12:27  
 Calibration Analysis Date/Time : 24-AUG-2009 08:40:14  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 24-AUG-2009 14:07:34  
 Average Efficiency : 0.3818519  
 Average Efficiency Error : 1.0458693E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 202.9740 | 28-FEB-2010 | 2990.235   | 3298.979 | 22293.00 | 0.3712923 | 1.5866017E-02 | 64.67880   |
| NP-237     | 203.2080 | 28-FEB-2010 | 4434.502   | 4904.549 | 23821.00 | 0.3907148 | 1.9699110E-02 | 89.80749   |
| CM-244     | 197.2236 | 28-FEB-2010 | 5532.823   | 5884.601 | 21728.00 | 0.3892223 | 1.9639486E-02 | 65.21038   |

Instrument : CHAMBER 166  
 Detector : 74545  
 Standard ID : AESS-009  
 Standard Reference Date : 19-FEB-2008 11:05:22  
 Calibration Analysis Date/Time : 24-AUG-2009 08:40:20  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 24-AUG-2009 14:07:42  
 Average Efficiency : 0.3930937  
 Average Efficiency Error : 1.0762543E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 203.3736 | 28-FEB-2010 | 2991.175   | 3297.621 | 23070.00 | 0.3834404 | 1.6378330E-02 | 51.93287   |
| NP-237     | 204.0192 | 28-FEB-2010 | 4434.428   | 4904.926 | 24581.00 | 0.4015882 | 2.0242147E-02 | 75.61842   |
| CM-244     | 197.2128 | 28-FEB-2010 | 5535.556   | 5884.119 | 22299.00 | 0.3992831 | 2.0142501E-02 | 56.82180   |

Instrument : CHAMBER 167  
 Detector : 72546  
 Standard ID : AESS-004  
 Standard Reference Date : 14-FEB-2008 09:35:18  
 Calibration Analysis Date/Time : 24-AUG-2009 08:40:25  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 24-AUG-2009 14:07:51  
 Average Efficiency : 0.3896100  
 Average Efficiency Error : 1.0666691E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 206.1222 | 28-FEB-2010 | 2990.148   | 3302.011 | 23242.00 | 0.3811870 | 1.6280681E-02 | 60.73105   |
| NP-237     | 204.2586 | 28-FEB-2010 | 4433.463   | 4903.100 | 24426.00 | 0.3985536 | 2.0090239E-02 | 78.42995   |
| CM-244     | 198.8100 | 28-FEB-2010 | 5531.940   | 5884.576 | 22136.00 | 0.3933990 | 1.9846944E-02 | 60.41788   |

Instrument : CHAMBER 168  
 Detector : 72547  
 Standard ID : AESS-010  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 24-AUG-2009 08:40:32  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 24-AUG-2009 14:07:59  
 Average Efficiency : 0.3891803  
 Average Efficiency Error : 1.0657012E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 202.0008 | 28-FEB-2010 | 2989.237   | 3300.921 | 22691.00 | 0.3797462 | 1.6223785E-02 | 60.45912   |
| NP-237     | 202.9926 | 28-FEB-2010 | 4437.534   | 4902.237 | 24096.00 | 0.3956006 | 1.9943606E-02 | 81.13048   |
| CM-244     | 196.2330 | 28-FEB-2010 | 5531.663   | 5884.741 | 22054.00 | 0.3970870 | 2.0033659E-02 | 60.17071   |

Instrument : CHAMBER 169  
 Detector : 72548  
 Standard ID : AESS-005  
 Standard Reference Date : 14-FEB-2008 09:35:18  
 Calibration Analysis Date/Time : 24-AUG-2009 08:40:37  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 24-AUG-2009 14:08:11  
 Average Efficiency : 0.3755721  
 Average Efficiency Error : 1.0284009E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 210.7452 | 28-FEB-2010 | 2992.165   | 3298.594 | 22868.00 | 0.3668304 | 1.5670519E-02 | 63.17508   |
| NP-237     | 209.5938 | 28-FEB-2010 | 4434.229   | 4903.754 | 23971.00 | 0.3811674 | 1.9216783E-02 | 80.00423   |
| CM-244     | 202.7478 | 28-FEB-2010 | 5532.658   | 5885.433 | 21988.00 | 0.3832155 | 1.9334303E-02 | 60.82853   |

Instrument : CHAMBER 170  
 Detector : 72549  
 Standard ID : AESS-011  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 24-AUG-2009 08:40:43  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 24-AUG-2009 14:08:20  
 Average Efficiency : 0.3679080  
 Average Efficiency Error : 1.0074493E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 212.8284 | 28-FEB-2010 | 2988.025   | 3299.867 | 22620.00 | 0.3593037 | 1.5351000E-02 | 55.68573   |
| NP-237     | 214.4868 | 28-FEB-2010 | 4432.622   | 4903.408 | 24183.00 | 0.3757574 | 1.8942678E-02 | 83.32780   |
| CM-244     | 208.4184 | 28-FEB-2010 | 5534.316   | 5882.981 | 22007.00 | 0.3730944 | 1.8823531E-02 | 57.78218   |

Instrument : CHAMBER 171  
 Detector : 78260  
 Standard ID : AESS-006  
 Standard Reference Date : 14-FEB-2008 09:35:18  
 Calibration Analysis Date/Time : 24-AUG-2009 08:40:49  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 24-AUG-2009 14:08:29  
 Average Efficiency : 0.3855957  
 Average Efficiency Error : 1.0559761E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 203.6952 | 28-FEB-2010 | 2988.433   | 3300.366 | 22641.00 | 0.3757591 | 1.6053872E-02 | 54.75708   |
| NP-237     | 204.7038 | 28-FEB-2010 | 4436.595   | 4905.826 | 23976.00 | 0.3903738 | 1.9680876E-02 | 77.89750   |
| CM-244     | 195.0060 | 28-FEB-2010 | 5533.870   | 5885.935 | 21851.00 | 0.3959031 | 1.9975597E-02 | 57.65449   |

Instrument : CHAMBER 172  
 Detector : 78772  
 Standard ID : AESS-012  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 24-AUG-2009 08:40:55  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 24-AUG-2009 14:08:40  
 Average Efficiency : 0.3797724  
 Average Efficiency Error : 1.0397769E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 206.2200 | 28-FEB-2010 | 2991.870   | 3297.903 | 22889.00 | 0.3752128 | 1.6028440E-02 | 52.39552   |
| NP-237     | 205.8930 | 28-FEB-2010 | 4433.678   | 4903.969 | 23812.00 | 0.3854640 | 1.9434443E-02 | 82.21458   |
| CM-244     | 203.1954 | 28-FEB-2010 | 5534.514   | 5883.121 | 21897.00 | 0.3807611 | 1.9211210E-02 | 56.07287   |

Instrument : CHAMBER 173  
 Detector : 74431  
 Standard ID : AESS-013  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 24-AUG-2009 08:41:01  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 24-AUG-2009 14:08:49  
 Average Efficiency : 0.2601730  
 Average Efficiency Error : 7.1557011E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 203.6544 | 28-FEB-2010 | 2988.449   | 3298.086 | 15819.00 | 0.2625923 | 1.1277330E-02 | 48.84491   |
| NP-237     | 210.2526 | 28-FEB-2010 | 4435.604   | 4905.905 | 16223.00 | 0.2571892 | 1.3017043E-02 | 57.42966   |
| CM-244     | 201.9108 | 28-FEB-2010 | 5534.021   | 5885.467 | 14862.00 | 0.2599279 | 1.3170394E-02 | 53.55892   |

Instrument : CHAMBER 174  
 Detector : 74432  
 Standard ID : AESS-019  
 Standard Reference Date : 19-FEB-2008 11:05:22  
 Calibration Analysis Date/Time : 24-AUG-2009 08:41:06  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 24-AUG-2009 14:08:58  
 Average Efficiency : 0.2560052  
 Average Efficiency Error : 7.0460425E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 204.6468 | 28-FEB-2010 | 2988.639   | 3300.179 | 15066.00 | 0.2488402 | 1.0695883E-02 | 51.37117   |
| NP-237     | 202.9140 | 28-FEB-2010 | 4435.486   | 4905.219 | 15899.00 | 0.2611338 | 1.3219978E-02 | 60.89258   |
| CM-244     | 199.3140 | 28-FEB-2010 | 5531.026   | 5885.734 | 14784.00 | 0.2618657 | 1.3269406E-02 | 47.62206   |

Instrument : CHAMBER 175  
 Detector : 74433  
 Standard ID : AESS-014  
 Standard Reference Date : 19-FEB-2008 11:05:22  
 Calibration Analysis Date/Time : 24-AUG-2009 08:41:12  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 24-AUG-2009 14:09:06  
 Average Efficiency : 0.2541471  
 Average Efficiency Error : 6.9896011E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 214.7088 | 28-FEB-2010 | 2992.018   | 3300.926 | 15876.00 | 0.2499355 | 1.0733101E-02 | 50.54956   |
| NP-237     | 211.7160 | 28-FEB-2010 | 4437.197   | 4902.367 | 16318.00 | 0.2568789 | 1.3000464E-02 | 57.64658   |
| CM-244     | 207.3882 | 28-FEB-2010 | 5531.134   | 5883.215 | 15134.00 | 0.2576209 | 1.3050339E-02 | 53.56906   |

Instrument : CHAMBER 176  
 Detector : 74434  
 Standard ID : AESS-020  
 Standard Reference Date : 14-FEB-2008 21:55:55  
 Calibration Analysis Date/Time : 24-AUG-2009 08:41:18  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 24-AUG-2009 14:09:15  
 Average Efficiency : 0.2565841  
 Average Efficiency Error : 7.0622312E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 205.5870 | 28-FEB-2010 | 2987.853   | 3298.318 | 15148.00 | 0.2490841 | 1.0705328E-02 | 47.98410   |
| NP-237     | 203.4984 | 28-FEB-2010 | 4433.083   | 4904.101 | 15833.00 | 0.2593126 | 1.3128439E-02 | 58.20272   |
| CM-244     | 197.1096 | 28-FEB-2010 | 5532.948   | 5884.695 | 14821.00 | 0.2655677 | 1.3456577E-02 | 49.33431   |

Instrument : CHAMBER 177  
 Detector : 74435  
 Standard ID : AESS-015  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 24-AUG-2009 08:41:25  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 24-AUG-2009 14:09:24  
 Average Efficiency : 0.2668152  
 Average Efficiency Error : 7.3382389E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 204.0270 | 28-FEB-2010 | 2989.857   | 3298.211 | 15920.00 | 0.2637714 | 1.1326759E-02 | 49.45098   |
| NP-237     | 200.6460 | 28-FEB-2010 | 4433.475   | 4903.934 | 16338.00 | 0.2714185 | 1.3736055E-02 | 53.30935   |
| CM-244     | 195.9270 | 28-FEB-2010 | 5533.213   | 5885.773 | 14796.00 | 0.2666922 | 1.3513907E-02 | 53.74039   |

Instrument : CHAMBER 178  
 Detector : 74436  
 Standard ID : AESS-021  
 Standard Reference Date : 19-FEB-2008 15:31:52  
 Calibration Analysis Date/Time : 24-AUG-2009 08:41:30  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 24-AUG-2009 14:09:35  
 Average Efficiency : 0.2595187  
 Average Efficiency Error : 7.1381964E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 208.3608 | 28-FEB-2010 | 2991.399   | 3300.807 | 15690.00 | 0.2545363 | 1.0932880E-02 | 44.11681   |
| NP-237     | 210.1548 | 28-FEB-2010 | 4432.785   | 4903.123 | 16730.00 | 0.2653126 | 1.3423340E-02 | 55.16845   |
| CM-244     | 200.7390 | 28-FEB-2010 | 5531.481   | 5883.158 | 14852.00 | 0.2611876 | 1.3234260E-02 | 50.76077   |

Instrument : CHAMBER 179  
 Detector : 74437  
 Standard ID : AESS-016  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 24-AUG-2009 08:41:36  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 24-AUG-2009 14:09:44  
 Average Efficiency : 0.2718232  
 Average Efficiency Error : 7.4735158E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 204.0534 | 28-FEB-2010 | 2990.874   | 3299.393 | 16266.00 | 0.2694745 | 1.1567459E-02 | 45.58660   |
| NP-237     | 199.3962 | 28-FEB-2010 | 4435.018   | 4905.518 | 16480.00 | 0.2754735 | 1.3939864E-02 | 58.76590   |
| CM-244     | 198.6402 | 28-FEB-2010 | 5534.758   | 5887.251 | 15277.00 | 0.2715900 | 1.3756392E-02 | 54.51526   |

Instrument : CHAMBER 180  
 Detector : 74438  
 Standard ID : AESS-022  
 Standard Reference Date : 14-FEB-2008 21:55:55  
 Calibration Analysis Date/Time : 24-AUG-2009 08:41:41  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 24-AUG-2009 14:09:54  
 Average Efficiency : 0.2528372  
 Average Efficiency Error : 6.9568004E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 209.6724 | 28-FEB-2010 | 2989.946   | 3300.627 | 15376.00 | 0.2479020 | 1.0651710E-02 | 47.69878   |
| NP-237     | 206.8830 | 28-FEB-2010 | 4434.505   | 4904.405 | 15995.00 | 0.2576708 | 1.3043700E-02 | 52.34612   |
| CM-244     | 203.0208 | 28-FEB-2010 | 5531.104   | 5886.649 | 14679.00 | 0.2553639 | 1.2941188E-02 | 49.43889   |

Instrument : CHAMBER 181  
 Detector : 74439  
 Standard ID : AESS-017  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 24-AUG-2009 08:41:46  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 24-AUG-2009 14:10:03  
 Average Efficiency : 0.2567677  
 Average Efficiency Error : 7.0618824E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 210.0798 | 28-FEB-2010 | 2988.658   | 3302.315 | 15809.00 | 0.2543999 | 1.0925616E-02 | 48.94121   |
| NP-237     | 208.5846 | 28-FEB-2010 | 4432.549   | 4902.677 | 16291.00 | 0.2603085 | 1.3174290E-02 | 56.85185   |
| CM-244     | 205.5828 | 28-FEB-2010 | 5531.208   | 5883.203 | 14943.00 | 0.2566723 | 1.3004515E-02 | 53.00024   |

Instrument : CHAMBER 182  
 Detector : 74440  
 Standard ID : AESS-023  
 Standard Reference Date : 14-FEB-2008 21:55:55  
 Calibration Analysis Date/Time : 24-AUG-2009 08:41:51  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 24-AUG-2009 14:10:14  
 Average Efficiency : 0.2534730  
 Average Efficiency Error : 6.9745579E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 207.4764 | 28-FEB-2010 | 2990.553   | 3299.709 | 15297.00 | 0.2492435 | 1.0710318E-02 | 46.65529   |
| NP-237     | 207.4998 | 28-FEB-2010 | 4435.824   | 4905.707 | 15977.00 | 0.2566445 | 1.2991886E-02 | 50.94455   |
| CM-244     | 199.8804 | 28-FEB-2010 | 5533.404   | 5884.684 | 14515.00 | 0.2565299 | 1.3002145E-02 | 46.18616   |

Instrument : CHAMBER 183  
 Detector : 74441  
 Standard ID : AESS-018  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 24-AUG-2009 08:41:56  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 24-AUG-2009 14:10:29  
 Average Efficiency : 0.2637588  
 Average Efficiency Error : 7.2541810E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 202.1856 | 28-FEB-2010 | 2989.015   | 3297.962 | 16012.00 | 0.2677119 | 1.1494849E-02 | 47.11412   |
| NP-237     | 208.8990 | 28-FEB-2010 | 4434.099   | 4904.342 | 16303.00 | 0.2601227 | 1.3164749E-02 | 52.97176   |
| CM-244     | 198.1458 | 28-FEB-2010 | 5532.826   | 5884.696 | 14712.00 | 0.2621811 | 1.3286361E-02 | 53.53780   |

Instrument : CHAMBER 184  
 Detector : 74442  
 Standard ID : AESS-024  
 Standard Reference Date : 14-FEB-2008 21:55:55  
 Calibration Analysis Date/Time : 24-AUG-2009 08:42:02  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 24-AUG-2009 14:10:41  
 Average Efficiency : 0.2604004  
 Average Efficiency Error : 7.1640476E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 203.5218 | 28-FEB-2010 | 2989.045   | 3299.169 | 15378.00 | 0.2554370 | 1.0975426E-02 | 49.39055   |
| NP-237     | 205.6662 | 28-FEB-2010 | 4437.505   | 4902.470 | 16322.00 | 0.2645144 | 1.3386835E-02 | 57.05146   |
| CM-244     | 198.3060 | 28-FEB-2010 | 5535.333   | 5886.318 | 14804.00 | 0.2636573 | 1.3359983E-02 | 50.92117   |

Instrument : CHAMBER 185  
 Detector : 68615  
 Standard ID : AESS-025  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 24-AUG-2009 08:42:07  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 24-AUG-2009 14:10:54  
 Average Efficiency : 0.2583998  
 Average Efficiency Error : 7.1241027E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 195.5670 | 28-FEB-2010 | 2987.897   | 3299.344 | 14977.00 | 0.2588871 | 1.1128917E-02 | 59.70583   |
| NP-237     | 167.9916 | 28-FEB-2010 | 4432.571   | 4905.243 | 13169.00 | 0.2612911 | 1.3261506E-02 | 62.76381   |
| CM-244     | 157.2432 | 28-FEB-2010 | 5530.503   | 5886.106 | 11355.00 | 0.2549717 | 1.2971560E-02 | 55.40694   |

Instrument : CHAMBER 186  
 Detector : 68616  
 Standard ID : AESS-031  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 24-AUG-2009 08:42:13  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 24-AUG-2009 14:11:06  
 Average Efficiency : 0.2578412  
 Average Efficiency Error : 7.1111098E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 193.6650 | 28-FEB-2010 | 2992.379   | 3299.140 | 14692.00 | 0.2564398 | 1.1027561E-02 | 55.81911   |
| NP-237     | 162.9186 | 28-FEB-2010 | 4434.242   | 4902.774 | 12639.00 | 0.2585895 | 1.3132489E-02 | 57.78773   |
| CM-244     | 153.1968 | 28-FEB-2010 | 5534.982   | 5886.349 | 11244.00 | 0.2590897 | 1.3183227E-02 | 55.94541   |

Instrument : CHAMBER 187  
 Detector : 68620  
 Standard ID : AESS-026  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 24-AUG-2009 08:42:19  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 24-AUG-2009 14:11:16  
 Average Efficiency : 0.2520546  
 Average Efficiency Error : 7.3888451E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 199.5072 | 28-FEB-2010 | 2991.498   | 3300.157 | 14978.00 | 0.2537758 | 1.2857930E-02 | 50.69514   |
| NP-237     | 168.0294 | 28-FEB-2010 | 4437.493   | 4903.961 | 12739.00 | 0.2526664 | 1.2830210E-02 | 58.36928   |
| CM-244     | 160.5822 | 28-FEB-2010 | 5535.243   | 5883.722 | 11357.00 | 0.2497735 | 1.2706947E-02 | 53.40160   |



Instrument : CHAMBER 188  
 Detector : 68621  
 Standard ID : AESS-032  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 24-AUG-2009 08:42:24  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 24-AUG-2009 14:11:25  
 Average Efficiency : 0.2590206  
 Average Efficiency Error : 7.1418569E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 195.2364 | 28-FEB-2010 | 2988.985   | 3297.497 | 14940.00 | 0.2586645 | 1.1119837E-02 | 50.77880   |
| NP-237     | 165.9822 | 28-FEB-2010 | 4433.354   | 4904.064 | 12857.00 | 0.2581703 | 1.3107833E-02 | 59.69577   |
| CM-244     | 153.7938 | 28-FEB-2010 | 5533.683   | 5886.437 | 11347.00 | 0.2603945 | 1.3247656E-02 | 50.83346   |

Instrument : CHAMBER 189  
 Detector : 68622  
 Standard ID : AESS-027  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 24-AUG-2009 08:42:30  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 24-AUG-2009 14:11:34  
 Average Efficiency : 0.2605012  
 Average Efficiency Error : 7.6393606E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 193.4238 | 28-FEB-2010 | 2990.052   | 3301.735 | 14579.00 | 0.2547995 | 1.2914370E-02 | 54.11663   |
| NP-237     | 161.6154 | 28-FEB-2010 | 4436.853   | 4905.539 | 12669.00 | 0.2612749 | 1.3268417E-02 | 57.74998   |
| CM-244     | 148.1754 | 28-FEB-2010 | 5532.776   | 5884.354 | 11162.00 | 0.2659585 | 1.3534531E-02 | 55.68552   |

Instrument : CHAMBER 190  
 Detector : 68623  
 Standard ID : AESS-033  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 24-AUG-2009 08:42:35  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 24-AUG-2009 14:11:43  
 Average Efficiency : 0.2627709  
 Average Efficiency Error : 7.2474247E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 192.4158 | 28-FEB-2010 | 2991.652   | 3298.950 | 14837.00 | 0.2606309 | 1.1205810E-02 | 49.34105   |
| NP-237     | 161.7816 | 28-FEB-2010 | 4435.677   | 4904.720 | 12625.00 | 0.2599701 | 1.3203092E-02 | 52.76612   |
| CM-244     | 147.2670 | 28-FEB-2010 | 5532.170   | 5883.736 | 11225.00 | 0.2689729 | 1.3686700E-02 | 52.48962   |

Instrument : CHAMBER 191  
 Detector : 68624  
 Standard ID : AESS-028  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 24-AUG-2009 08:42:40  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 24-AUG-2009 14:11:54  
 Average Efficiency : 0.2621362  
 Average Efficiency Error : 7.6808794E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 199.6542 | 28-FEB-2010 | 2991.100   | 3299.772 | 15569.00 | 0.2636111 | 1.3349629E-02 | 49.40056   |
| NP-237     | 168.1992 | 28-FEB-2010 | 4437.436   | 4904.158 | 13280.00 | 0.2631744 | 1.3355431E-02 | 53.16087   |
| CM-244     | 156.7614 | 28-FEB-2010 | 5530.545   | 5884.668 | 11529.00 | 0.2596773 | 1.3207550E-02 | 53.47022   |

Instrument : CHAMBER 192  
 Detector : 74430  
 Standard ID : AESS-034  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 24-AUG-2009 08:42:45  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 24-AUG-2009 14:12:04  
 Average Efficiency : 0.2555450  
 Average Efficiency Error : 7.0466422E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 200.5488 | 28-FEB-2010 | 2988.046   | 3297.560 | 14899.00 | 0.2511216 | 1.0796109E-02 | 50.91946   |
| NP-237     | 167.2962 | 28-FEB-2010 | 4437.061   | 4903.990 | 12977.00 | 0.2585397 | 1.3124744E-02 | 59.22014   |
| CM-244     | 154.4388 | 28-FEB-2010 | 5535.519   | 5883.955 | 11337.00 | 0.2591194 | 1.3182904E-02 | 51.43979   |

Instrument : CHAMBER 193  
 Detector : 68627  
 Standard ID : AESS-029  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 24-AUG-2009 08:42:50  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 24-AUG-2009 14:12:15  
 Average Efficiency : 0.2629034  
 Average Efficiency Error : 7.7030240E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 201.5742 | 28-FEB-2010 | 2990.087   | 3301.572 | 15539.00 | 0.2605920 | 1.3197066E-02 | 51.03585   |
| NP-237     | 169.7700 | 28-FEB-2010 | 4436.483   | 4905.309 | 13298.00 | 0.2610572 | 1.3247789E-02 | 60.49369   |
| CM-244     | 154.8234 | 28-FEB-2010 | 5532.931   | 5884.819 | 11722.00 | 0.2672982 | 1.3591460E-02 | 49.40217   |

Instrument : CHAMBER 194  
 Detector : 68635  
 Standard ID : AESS-035  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 24-AUG-2009 08:42:56  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 24-AUG-2009 14:12:24  
 Average Efficiency : 0.2559154  
 Average Efficiency Error : 7.0551960E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 198.6666 | 28-FEB-2010 | 2990.152   | 3297.570 | 15094.00 | 0.2568187 | 1.1038445E-02 | 52.22760   |
| NP-237     | 168.2934 | 28-FEB-2010 | 4434.536   | 4903.587 | 12941.00 | 0.2562945 | 1.3011310E-02 | 57.01247   |
| CM-244     | 158.8128 | 28-FEB-2010 | 5530.970   | 5882.461 | 11437.00 | 0.2543004 | 1.2935611E-02 | 52.26905   |

Instrument : CHAMBER 195  
 Detector : 68636  
 Standard ID : AESS-030  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 24-AUG-2009 08:43:02  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 24-AUG-2009 14:12:38  
 Average Efficiency : 0.2667065  
 Average Efficiency Error : 7.8130718E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 198.9792 | 28-FEB-2010 | 2992.288   | 3300.624 | 15672.00 | 0.2662604 | 1.3482675E-02 | 51.81870   |
| NP-237     | 166.3758 | 28-FEB-2010 | 4434.057   | 4902.978 | 13400.00 | 0.2684508 | 1.3621432E-02 | 55.01876   |
| CM-244     | 157.1856 | 28-FEB-2010 | 5534.813   | 5885.542 | 11813.00 | 0.2654414 | 1.3495106E-02 | 48.18431   |

Instrument : CHAMBER 196  
 Detector : 68637  
 Standard ID : AESS-036  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 24-AUG-2009 08:43:07  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 24-AUG-2009 14:12:49  
 Average Efficiency : 0.2563491  
 Average Efficiency Error : 7.0671304E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 201.3204 | 28-FEB-2010 | 2990.410   | 3301.963 | 15144.00 | 0.2542627 | 1.0927959E-02 | 54.37652   |
| NP-237     | 167.4312 | 28-FEB-2010 | 4437.321   | 4906.417 | 12971.00 | 0.2582058 | 1.3107896E-02 | 61.84642   |
| CM-244     | 156.4188 | 28-FEB-2010 | 5534.476   | 5886.645 | 11409.00 | 0.2574924 | 1.3098660E-02 | 57.13540   |

Instrument : CHAMBER 197  
 Detector : 78894  
 Standard ID : AESS-037  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 24-AUG-2009 08:43:12  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 24-AUG-2009 14:12:58  
 Average Efficiency : 0.2565553  
 Average Efficiency Error : 7.0746746E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 197.7372 | 28-FEB-2010 | 2991.920   | 3300.320 | 14773.00 | 0.2525423 | 1.0858861E-02 | 53.38351   |
| NP-237     | 167.1294 | 28-FEB-2010 | 4436.468   | 4902.348 | 13097.00 | 0.2612088 | 1.3258392E-02 | 59.72187   |
| CM-244     | 154.7664 | 28-FEB-2010 | 5532.745   | 5886.065 | 11302.00 | 0.2578566 | 1.3119171E-02 | 59.33312   |

Instrument : CHAMBER 198  
 Detector : 78895  
 Standard ID : AESS-043  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 24-AUG-2009 08:43:18  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 24-AUG-2009 14:13:11  
 Average Efficiency : 0.2541020  
 Average Efficiency Error : 7.0067579E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 197.7708 | 28-FEB-2010 | 2991.305   | 3299.642 | 14821.00 | 0.2533123 | 1.0891330E-02 | 54.52969   |
| NP-237     | 168.7422 | 28-FEB-2010 | 4434.397   | 4904.448 | 12902.00 | 0.2548661 | 1.2939337E-02 | 62.13729   |
| CM-244     | 156.3252 | 28-FEB-2010 | 5533.011   | 5885.087 | 11271.00 | 0.2544529 | 1.2946853E-02 | 57.18044   |

Instrument : CHAMBER 199  
 Detector : 78896  
 Standard ID : AESS-038  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 24-AUG-2009 08:43:24  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 24-AUG-2009 14:13:20  
 Average Efficiency : 0.2501573  
 Average Efficiency Error : 6.8986462E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 200.1408 | 28-FEB-2010 | 2988.912   | 3297.497 | 14841.00 | 0.2506579 | 1.0776930E-02 | 55.76347   |
| NP-237     | 170.0886 | 28-FEB-2010 | 4433.891   | 4904.941 | 12813.00 | 0.2510752 | 1.2748260E-02 | 59.43263   |
| CM-244     | 157.7460 | 28-FEB-2010 | 5535.121   | 5882.869 | 11103.00 | 0.2485638 | 1.2650183E-02 | 55.23568   |

Instrument : CHAMBER 200  
 Detector : 78900  
 Standard ID : AESS-044  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 24-AUG-2009 08:43:29  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 24-AUG-2009 14:13:29  
 Average Efficiency : 0.2684568  
 Average Efficiency Error : 7.3974063E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 194.4510 | 28-FEB-2010 | 2991.845   | 3300.480 | 15537.00 | 0.2700785 | 1.1602442E-02 | 51.63891   |
| NP-237     | 166.6248 | 28-FEB-2010 | 4436.941   | 4902.709 | 13461.00 | 0.2692276 | 1.3660024E-02 | 60.85046   |
| CM-244     | 155.8290 | 28-FEB-2010 | 5532.744   | 5885.759 | 11723.00 | 0.2655081 | 1.3500395E-02 | 52.11015   |

Instrument : CHAMBER 201  
 Detector : 78902  
 Standard ID : AESS-039  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 24-AUG-2009 08:43:34  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 24-AUG-2009 14:13:38  
 Average Efficiency : 0.2592217  
 Average Efficiency Error : 7.1504964E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 192.2418 | 28-FEB-2010 | 2988.531   | 3297.499 | 14697.00 | 0.2584198 | 1.1112645E-02 | 48.26062   |
| NP-237     | 159.1506 | 28-FEB-2010 | 4434.991   | 4906.359 | 12598.00 | 0.2638277 | 1.3399226E-02 | 56.82220   |
| CM-244     | 151.7142 | 28-FEB-2010 | 5531.510   | 5884.700 | 10999.00 | 0.2559689 | 1.3029314E-02 | 45.31117   |

Instrument : CHAMBER 202  
 Detector : 78903  
 Standard ID : AESS-045  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 24-AUG-2009 08:43:39  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 24-AUG-2009 14:13:47  
 Average Efficiency : 0.2636107  
 Average Efficiency Error : 7.2720256E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 186.9936 | 28-FEB-2010 | 2990.301   | 3298.322 | 14668.00 | 0.2651460 | 1.1402297E-02 | 43.51926   |
| NP-237     | 160.8066 | 28-FEB-2010 | 4432.596   | 4902.750 | 12471.00 | 0.2585094 | 1.3131124E-02 | 55.44957   |
| CM-244     | 145.8384 | 28-FEB-2010 | 5531.710   | 5884.137 | 11024.00 | 0.2668914 | 1.3584715E-02 | 46.64507   |

Instrument : CHAMBER 203  
 Detector : 78905  
 Standard ID : AESS-040  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 24-AUG-2009 08:43:44  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 24-AUG-2009 14:16:33  
 Average Efficiency : 0.2640079  
 Average Efficiency Error : 7.2768405E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 194.4828 | 28-FEB-2010 | 2988.566   | 3301.771 | 15299.00 | 0.2658898 | 1.1425615E-02 | 49.79924   |
| NP-237     | 166.8174 | 28-FEB-2010 | 4437.077   | 4902.609 | 13111.00 | 0.2619471 | 1.3295709E-02 | 56.73104   |
| CM-244     | 155.0100 | 28-FEB-2010 | 5532.534   | 5885.590 | 11568.00 | 0.2635126 | 1.3401660E-02 | 53.98056   |

Instrument : CHAMBER 204  
 Detector : 78907  
 Standard ID : AESS-046  
 Standard Reference Date : 19-FEB-2008 19:35:48  
 Calibration Analysis Date/Time : 24-AUG-2009 08:43:49  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 24-AUG-2009 14:14:37  
 Average Efficiency : 0.2523464  
 Average Efficiency Error : 6.9619059E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 194.7474 | 28-FEB-2010 | 2990.303   | 3298.289 | 14571.00 | 0.2528380 | 1.0874456E-02 | 50.39679   |
| NP-237     | 164.6658 | 28-FEB-2010 | 4433.152   | 4903.866 | 12403.00 | 0.2510013 | 1.2750966E-02 | 53.81767   |
| CM-244     | 151.3824 | 28-FEB-2010 | 5533.856   | 5886.993 | 10856.00 | 0.2530294 | 1.2882944E-02 | 47.99111   |

Instrument : CHAMBER 205  
 Detector : 78908  
 Standard ID : AESS-041  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 24-AUG-2009 08:43:54  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 24-AUG-2009 14:14:46  
 Average Efficiency : 0.2560018  
 Average Efficiency Error : 7.0556081E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 203.9034 | 28-FEB-2010 | 2991.267   | 3299.423 | 15358.00 | 0.2545983 | 1.0939639E-02 | 47.30880   |
| NP-237     | 171.2268 | 28-FEB-2010 | 4434.928   | 4905.917 | 13265.00 | 0.2582288 | 1.3104673E-02 | 60.39516   |
| CM-244     | 159.5796 | 28-FEB-2010 | 5530.946   | 5884.256 | 11561.00 | 0.2557920 | 1.3009178E-02 | 54.31215   |

Instrument : CHAMBER 206  
 Detector : 78909  
 Standard ID : AESS-047  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 24-AUG-2009 08:44:00  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 24-AUG-2009 14:14:55  
 Average Efficiency : 0.2539860  
 Average Efficiency Error : 7.0044687E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 197.4804 | 28-FEB-2010 | 2991.740   | 3299.836 | 14668.00 | 0.2510710 | 1.0797012E-02 | 49.54147   |
| NP-237     | 168.3948 | 28-FEB-2010 | 4434.469   | 4904.811 | 12921.00 | 0.2557680 | 1.2984839E-02 | 58.90450   |
| CM-244     | 154.6032 | 28-FEB-2010 | 5534.058   | 5886.660 | 11229.00 | 0.2564440 | 1.3048770E-02 | 52.29348   |

Instrument : CHAMBER 207  
 Detector : 78910  
 Standard ID : AESS-042  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 24-AUG-2009 08:44:06  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 24-AUG-2009 14:15:04  
 Average Efficiency : 0.2567169  
 Average Efficiency Error : 7.0834220E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 188.7090 | 28-FEB-2010 | 2987.560   | 3301.824 | 14325.00 | 0.2565888 | 1.1039187E-02 | 52.32441   |
| NP-237     | 159.6558 | 28-FEB-2010 | 4434.563   | 4905.877 | 12409.00 | 0.2590533 | 1.3159815E-02 | 57.42267   |
| CM-244     | 150.5208 | 28-FEB-2010 | 5530.790   | 5883.765 | 10855.00 | 0.2546263 | 1.2963978E-02 | 55.85357   |

Instrument : CHAMBER 208  
 Detector : 78911  
 Standard ID : AESS-048  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 24-AUG-2009 08:44:11  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 24-AUG-2009 14:15:14  
 Average Efficiency : 0.2558721  
 Average Efficiency Error : 7.0590605E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 191.8350 | 28-FEB-2010 | 2990.613   | 3299.492 | 14536.00 | 0.2561232 | 1.1016136E-02 | 49.47414   |
| NP-237     | 161.5530 | 28-FEB-2010 | 4436.795   | 4902.883 | 12269.00 | 0.2531039 | 1.2859914E-02 | 57.37383   |
| CM-244     | 151.1856 | 28-FEB-2010 | 5533.327   | 5886.561 | 11065.00 | 0.2584097 | 1.3152145E-02 | 53.34291   |

Instrument : CHAMBER 209  
 Detector : 79188  
 Standard ID : AESS-001  
 Standard Reference Date : 20-FEB-2008 09:54:53  
 Calibration Analysis Date/Time : 28-AUG-2009 07:06:29  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-AUG-2009 13:24:07  
 Average Efficiency : 0.3688648  
 Average Efficiency Error : 1.0119580E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 208.6698 | 28-FEB-2010 | 2991.940   | 3298.642 | 21909.00 | 0.3549186 | 1.5169610E-02 | 67.58371   |
| NP-237     | 171.0024 | 28-FEB-2010 | 4435.592   | 4905.793 | 19508.00 | 0.3802500 | 1.9206451E-02 | 83.29742   |
| CM-244     | 158.1060 | 28-FEB-2010 | 5530.388   | 5883.749 | 17000.00 | 0.3798451 | 1.9214446E-02 | 66.10979   |

Instrument : CHAMBER 210  
 Detector : 79189  
 Standard ID : AESS-002  
 Standard Reference Date : 19-FEB-2008 11:05:22  
 Calibration Analysis Date/Time : 28-AUG-2009 07:06:35  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-AUG-2009 13:25:35  
 Average Efficiency : 0.3925964  
 Average Efficiency Error : 1.0751541E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 200.1144 | 28-FEB-2010 | 2988.073   | 3301.089 | 22564.00 | 0.3811763 | 1.6285976E-02 | 59.50077   |
| NP-237     | 200.4990 | 28-FEB-2010 | 4435.142   | 4905.164 | 24168.00 | 0.4017925 | 2.0255197E-02 | 72.98598   |
| CM-244     | 196.5558 | 28-FEB-2010 | 5533.916   | 5886.208 | 22310.00 | 0.4010454 | 2.0231251E-02 | 59.60097   |

Instrument : CHAMBER 211  
 Detector : 79190  
 Standard ID : AESS-003  
 Standard Reference Date : 15-FEB-2008 13:12:27  
 Calibration Analysis Date/Time : 28-AUG-2009 07:06:39  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-AUG-2009 13:25:47  
 Average Efficiency : 0.3783190  
 Average Efficiency Error : 1.0361547E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 202.9740 | 28-FEB-2010 | 2991.282   | 3299.071 | 22252.00 | 0.3706464 | 1.5838793E-02 | 59.43069   |
| NP-237     | 203.2080 | 28-FEB-2010 | 4434.230   | 4900.253 | 23526.00 | 0.3867531 | 1.9501008E-02 | 83.71527   |
| CM-244     | 197.2236 | 28-FEB-2010 | 5531.327   | 5885.262 | 21283.00 | 0.3814342 | 1.9250123E-02 | 60.34041   |



Instrument : CHAMBER 212  
 Detector : 79191  
 Standard ID : AESS-004  
 Standard Reference Date : 14-FEB-2008 09:35:18  
 Calibration Analysis Date/Time : 28-AUG-2009 07:06:45  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-AUG-2009 13:26:50  
 Average Efficiency : 0.3842054  
 Average Efficiency Error : 1.0521159E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 206.1222 | 28-FEB-2010 | 2991.918   | 3298.870 | 22817.00 | 0.3742636 | 1.5988497E-02 | 61.37182   |
| NP-237     | 204.2586 | 28-FEB-2010 | 4437.027   | 4902.590 | 24211.00 | 0.3950988 | 1.9917466E-02 | 76.39180   |
| CM-244     | 198.8100 | 28-FEB-2010 | 5533.378   | 5887.318 | 21854.00 | 0.3886002 | 1.9607035E-02 | 60.73505   |

Instrument : CHAMBER 213  
 Detector : 79192  
 Standard ID : AESS-005  
 Standard Reference Date : 14-FEB-2008 09:35:18  
 Calibration Analysis Date/Time : 28-AUG-2009 07:06:50  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-AUG-2009 13:27:02  
 Average Efficiency : 0.3626718  
 Average Efficiency Error : 9.9363821E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 210.7452 | 28-FEB-2010 | 2991.497   | 3299.775 | 21877.00 | 0.3509731 | 1.5001265E-02 | 65.21502   |
| NP-237     | 209.5938 | 28-FEB-2010 | 4434.841   | 4905.254 | 23395.00 | 0.3720641 | 1.8761570E-02 | 80.31606   |
| CM-244     | 202.7478 | 28-FEB-2010 | 5534.504   | 5887.063 | 21311.00 | 0.3715691 | 1.8752033E-02 | 64.10100   |

Instrument : CHAMBER 214  
 Detector : 79193  
 Standard ID : AESS-006  
 Standard Reference Date : 14-FEB-2008 09:35:18  
 Calibration Analysis Date/Time : 28-AUG-2009 07:06:55  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-AUG-2009 13:27:13  
 Average Efficiency : 0.3838671  
 Average Efficiency Error : 1.0511074E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 203.6952 | 28-FEB-2010 | 2991.133   | 3298.396 | 22762.00 | 0.3778099 | 1.6140467E-02 | 58.86099   |
| NP-237     | 204.7038 | 28-FEB-2010 | 4436.844   | 4902.153 | 23748.00 | 0.3866856 | 1.9496445E-02 | 74.56451   |
| CM-244     | 195.0060 | 28-FEB-2010 | 5532.271   | 5885.676 | 21514.00 | 0.3900006 | 1.9680507E-02 | 59.70840   |

Instrument : CHAMBER 215  
 Detector : 79194  
 Standard ID : AESS-007  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 28-AUG-2009 07:06:59  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-AUG-2009 13:27:24  
 Average Efficiency : 0.3806459  
 Average Efficiency Error : 1.0423170E-02  
 Confidence : 95.00000

| Cal. Isteps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|-------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148      | 206.7342 | 28-FEB-2010 | 2991.638   | 3298.993 | 22783.00 | 0.3725980 | 1.5917629E-02 | 61.31356   |
| NP-237      | 205.0260 | 28-FEB-2010 | 4433.482   | 4904.904 | 23893.00 | 0.3884499 | 1.9584404E-02 | 80.36595   |
| CM-244      | 199.6806 | 28-FEB-2010 | 5531.246   | 5885.655 | 21745.00 | 0.3849533 | 1.9423924E-02 | 60.77392   |

Instrument : CHAMBER 216  
 Detector : 79195  
 Standard ID : AESS-008  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 28-AUG-2009 07:07:04  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-AUG-2009 13:27:35  
 Average Efficiency : 0.3745080  
 Average Efficiency Error : 1.0257245E-02  
 Confidence : 95.00000

| Cal. Isteps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|-------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148      | 206.0418 | 28-FEB-2010 | 2992.181   | 3299.336 | 22346.00 | 0.3666793 | 1.5668461E-02 | 61.23994   |
| NP-237      | 209.2716 | 28-FEB-2010 | 4432.606   | 4903.311 | 23466.00 | 0.3737679 | 1.8847005E-02 | 82.70575   |
| CM-244      | 199.6488 | 28-FEB-2010 | 5533.853   | 5887.574 | 21885.00 | 0.3874936 | 1.9550970E-02 | 61.73182   |

Instrument : CHAMBER 217  
 Detector : 79410  
 Standard ID : AESS-009  
 Standard Reference Date : 19-FEB-2008 11:05:22  
 Calibration Analysis Date/Time : 28-AUG-2009 07:07:09  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-AUG-2009 13:27:45  
 Average Efficiency : 0.3777330  
 Average Efficiency Error : 1.0345438E-02  
 Confidence : 95.00000

| Cal. Isteps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|-------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148      | 203.3736 | 28-FEB-2010 | 2989.031   | 3301.074 | 22245.00 | 0.3697601 | 1.5800970E-02 | 58.22815   |
| NP-237      | 204.0192 | 28-FEB-2010 | 4434.240   | 4905.058 | 23534.00 | 0.3845063 | 1.9388009E-02 | 79.31593   |
| CM-244      | 197.2128 | 28-FEB-2010 | 5530.547   | 5884.453 | 21374.00 | 0.3829291 | 1.9324809E-02 | 62.42009   |

Instrument : CHAMBER 218  
 Detector : 79411  
 Standard ID : AESS-010  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 28-AUG-2009 07:07:14  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-AUG-2009 13:27:55  
 Average Efficiency : 0.3930598  
 Average Efficiency Error : 1.0761084E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 202.0008 | 28-FEB-2010 | 2988.583   | 3301.235 | 23052.00 | 0.3858313 | 1.6480651E-02 | 58.44905   |
| NP-237     | 202.9926 | 28-FEB-2010 | 4435.884   | 4901.733 | 24227.00 | 0.3977866 | 2.0052891E-02 | 78.90448   |
| CM-244     | 196.2330 | 28-FEB-2010 | 5532.602   | 5886.438 | 22153.00 | 0.3990829 | 2.0133503E-02 | 64.39376   |

Instrument : CHAMBER 219  
 Detector : 79412  
 Standard ID : AESS-011  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 28-AUG-2009 07:07:18  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-AUG-2009 13:28:06  
 Average Efficiency : 0.3681216  
 Average Efficiency Error : 1.0080670E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 212.8284 | 28-FEB-2010 | 2992.207   | 3300.096 | 22591.00 | 0.3588740 | 1.5332905E-02 | 58.48974   |
| NP-237     | 214.4868 | 28-FEB-2010 | 4435.206   | 4906.290 | 24021.00 | 0.3732913 | 1.8819345E-02 | 78.80820   |
| CM-244     | 208.4184 | 28-FEB-2010 | 5531.669   | 5885.285 | 22231.00 | 0.3770731 | 1.9022530E-02 | 63.56152   |

Instrument : CHAMBER 220  
 Detector : 79413  
 Standard ID : AESS-012  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 28-AUG-2009 07:07:23  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-AUG-2009 13:28:15  
 Average Efficiency : 0.3790617  
 Average Efficiency Error : 1.0378873E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 206.2200 | 28-FEB-2010 | 2990.930   | 3297.738 | 22806.00 | 0.3739041 | 1.5973235E-02 | 57.23833   |
| NP-237     | 205.8930 | 28-FEB-2010 | 4435.749   | 4901.420 | 23881.00 | 0.3866248 | 1.9492462E-02 | 76.47005   |
| CM-244     | 203.1954 | 28-FEB-2010 | 5532.504   | 5886.683 | 21795.00 | 0.3791749 | 1.9131947E-02 | 59.12632   |

Instrument : CHAMBER 221  
 Detector : 79414  
 Standard ID : AESS-013  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 28-AUG-2009 07:07:27  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-AUG-2009 13:28:26  
 Average Efficiency : 0.3760977  
 Average Efficiency Error : 1.0297902E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 203.6544 | 28-FEB-2010 | 2989.954   | 3298.454 | 22543.00 | 0.3742467 | 1.5990108E-02 | 51.83245   |
| NP-237     | 210.2526 | 28-FEB-2010 | 4435.659   | 4902.272 | 23655.00 | 0.3750251 | 1.8909130E-02 | 73.29375   |
| CM-244     | 201.9108 | 28-FEB-2010 | 5533.925   | 5882.692 | 21697.00 | 0.3798594 | 1.9167274E-02 | 59.34735   |

Instrument : CHAMBER 222  
 Detector : 79415  
 Standard ID : AESS-014  
 Standard Reference Date : 19-FEB-2008 11:05:22  
 Calibration Analysis Date/Time : 28-AUG-2009 07:07:32  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-AUG-2009 13:28:40  
 Average Efficiency : 0.3479734  
 Average Efficiency Error : 9.5388982E-03  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 214.7088 | 28-FEB-2010 | 2990.392   | 3301.657 | 21181.00 | 0.3334915 | 1.4259904E-02 | 57.45364   |
| NP-237     | 211.7160 | 28-FEB-2010 | 4433.525   | 4905.197 | 22862.00 | 0.3599479 | 1.8154154E-02 | 71.83906   |
| CM-244     | 207.3882 | 28-FEB-2010 | 5534.683   | 5886.672 | 21099.00 | 0.3594557 | 1.8142378E-02 | 61.07040   |

Instrument : CHAMBER 223  
 Detector : 79416  
 Standard ID : AESS-015  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 28-AUG-2009 07:07:38  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-AUG-2009 13:28:50  
 Average Efficiency : 0.3915000  
 Average Efficiency Error : 1.0720647E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 204.0270 | 28-FEB-2010 | 2990.058   | 3298.884 | 22991.00 | 0.3809772 | 1.6273832E-02 | 50.91898   |
| NP-237     | 200.6460 | 28-FEB-2010 | 4432.434   | 4905.074 | 24293.00 | 0.4035698 | 2.0343946E-02 | 76.26361   |
| CM-244     | 195.9270 | 28-FEB-2010 | 5532.599   | 5887.467 | 21933.00 | 0.3957134 | 1.9965306E-02 | 59.83861   |

Instrument : CHAMBER 224  
 Detector : 79417  
 Standard ID : AESS-016  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 28-AUG-2009 07:07:44  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-AUG-2009 13:29:01  
 Average Efficiency : 0.3813685  
 Average Efficiency Error : 1.0448295E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 204.0534 | 28-FEB-2010 | 2988.636   | 3298.216 | 22249.00 | 0.3686436 | 1.5753238E-02 | 55.61435   |
| NP-237     | 199.3962 | 28-FEB-2010 | 4432.951   | 4905.382 | 23877.00 | 0.3991403 | 2.0123499E-02 | 76.52156   |
| CM-244     | 198.6402 | 28-FEB-2010 | 5532.025   | 5886.099 | 21587.00 | 0.3841456 | 1.9384453E-02 | 60.82283   |

Instrument : CHAMBER 225  
 Detector : 79418  
 Standard ID : AESS-017  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 28-AUG-2009 07:07:50  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-AUG-2009 13:29:13  
 Average Efficiency : 0.3798896  
 Average Efficiency Error : 1.0400972E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 210.0798 | 28-FEB-2010 | 2991.462   | 3299.408 | 23067.00 | 0.3712333 | 1.5856978E-02 | 56.54003   |
| NP-237     | 208.5846 | 28-FEB-2010 | 4434.737   | 4905.917 | 24322.00 | 0.3886784 | 1.9593079E-02 | 73.79168   |
| CM-244     | 205.5828 | 28-FEB-2010 | 5531.430   | 5885.124 | 22345.00 | 0.3842223 | 1.9382324E-02 | 56.97727   |

Instrument : CHAMBER 226  
 Detector : 79419  
 Standard ID : AESS-018  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 28-AUG-2009 07:07:57  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-AUG-2009 13:29:24  
 Average Efficiency : 0.3827937  
 Average Efficiency Error : 1.0482643E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 202.1856 | 28-FEB-2010 | 2991.793   | 3300.581 | 22481.00 | 0.3759236 | 1.6062303E-02 | 52.26083   |
| NP-237     | 208.8990 | 28-FEB-2010 | 4433.080   | 4904.877 | 23880.00 | 0.3810358 | 1.9210700E-02 | 71.56741   |
| CM-244     | 198.1458 | 28-FEB-2010 | 5530.936   | 5884.804 | 22156.00 | 0.3952768 | 1.9941466E-02 | 57.91118   |

Instrument : CHAMBER 227  
 Detector : 79420  
 Standard ID : AESS-019  
 Standard Reference Date : 19-FEB-2008 11:05:22  
 Calibration Analysis Date/Time : 28-AUG-2009 07:08:03  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-AUG-2009 13:29:35  
 Average Efficiency : 0.3801799  
 Average Efficiency Error : 1.0412521E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 204.6468 | 28-FEB-2010 | 2989.468   | 3297.622 | 22414.00 | 0.3702514 | 1.5820496E-02 | 54.09752   |
| NP-237     | 202.9140 | 28-FEB-2010 | 4433.427   | 4904.675 | 23804.00 | 0.3910310 | 1.9715140E-02 | 71.53796   |
| CM-244     | 199.3140 | 28-FEB-2010 | 5535.505   | 5883.794 | 21696.00 | 0.3846057 | 1.9406769E-02 | 56.80846   |

Instrument : CHAMBER 228  
 Detector : 79421  
 Standard ID : AESS-020  
 Standard Reference Date : 14-FEB-2008 21:55:55  
 Calibration Analysis Date/Time : 28-AUG-2009 07:08:10  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-AUG-2009 13:30:03  
 Average Efficiency : 0.3820991  
 Average Efficiency Error : 1.0465804E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 205.5870 | 28-FEB-2010 | 2992.529   | 3302.052 | 22496.00 | 0.3699491 | 1.5806897E-02 | 57.79967   |
| NP-237     | 203.4984 | 28-FEB-2010 | 4435.206   | 4906.368 | 23880.00 | 0.3911529 | 1.9720770E-02 | 74.62083   |
| CM-244     | 197.1096 | 28-FEB-2010 | 5530.800   | 5883.365 | 21859.00 | 0.3920157 | 1.9779330E-02 | 58.42591   |

Instrument : CHAMBER 229  
 Detector : 79422  
 Standard ID : AESS-021  
 Standard Reference Date : 19-FEB-2008 15:31:52  
 Calibration Analysis Date/Time : 28-AUG-2009 07:08:15  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-AUG-2009 13:30:14  
 Average Efficiency : 0.3792264  
 Average Efficiency Error : 1.0383990E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 208.3608 | 28-FEB-2010 | 2989.967   | 3297.813 | 22847.00 | 0.3706752 | 1.5834933E-02 | 56.62864   |
| NP-237     | 210.1548 | 28-FEB-2010 | 4433.942   | 4905.968 | 24067.00 | 0.3817250 | 1.9244215E-02 | 74.03220   |
| CM-244     | 200.7390 | 28-FEB-2010 | 5533.045   | 5882.442 | 22147.00 | 0.3898062 | 1.9665552E-02 | 61.11129   |

Instrument : CHAMBER 230  
 Detector : 79423  
 Standard ID : AESS-022  
 Standard Reference Date : 14-FEB-2008 21:55:55  
 Calibration Analysis Date/Time : 28-AUG-2009 07:08:19  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-AUG-2009 13:31:10  
 Average Efficiency : 0.3733873  
 Average Efficiency Error : 1.0229134E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 209.6724 | 28-FEB-2010 | 2992.307   | 3300.916 | 22287.00 | 0.3593755 | 1.5356863E-02 | 52.42038   |
| NP-237     | 206.8830 | 28-FEB-2010 | 4432.950   | 4904.639 | 23944.00 | 0.3857800 | 1.9449461E-02 | 68.40366   |
| CM-244     | 203.0208 | 28-FEB-2010 | 5530.626   | 5884.491 | 22017.00 | 0.3833580 | 1.9341249E-02 | 56.79975   |

Instrument : CHAMBER 231  
 Detector : 79424  
 Standard ID : AESS-023  
 Standard Reference Date : 14-FEB-2008 21:55:55  
 Calibration Analysis Date/Time : 28-AUG-2009 07:08:24  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-AUG-2009 13:31:59  
 Average Efficiency : 0.3850142  
 Average Efficiency Error : 1.0541392E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 207.4764 | 28-FEB-2010 | 2989.314   | 3302.411 | 23101.00 | 0.3764438 | 1.6079262E-02 | 62.44617   |
| NP-237     | 207.4998 | 28-FEB-2010 | 4437.493   | 4903.010 | 24175.00 | 0.3883348 | 1.9576734E-02 | 78.49866   |
| CM-244     | 199.8804 | 28-FEB-2010 | 5532.978   | 5886.091 | 22319.00 | 0.3947221 | 1.9912189E-02 | 60.41550   |

Instrument : CHAMBER 232  
 Detector : 79425  
 Standard ID : AESS-024  
 Standard Reference Date : 14-FEB-2008 21:55:55  
 Calibration Analysis Date/Time : 28-AUG-2009 07:08:30  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-AUG-2009 13:32:18  
 Average Efficiency : 0.3742643  
 Average Efficiency Error : 1.0255569E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 203.5218 | 28-FEB-2010 | 2990.963   | 3301.243 | 21662.00 | 0.3598436 | 1.5382325E-02 | 53.98000   |
| NP-237     | 205.6662 | 28-FEB-2010 | 4436.020   | 4902.090 | 23797.00 | 0.3856703 | 1.9444924E-02 | 72.96513   |
| CM-244     | 198.3060 | 28-FEB-2010 | 5531.563   | 5883.791 | 21651.00 | 0.3859375 | 1.9474341E-02 | 56.32160   |

Instrument : CHAMBER 233  
 Detector : 79426  
 Standard ID : AESS-025  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 28-AUG-2009 07:08:35  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-AUG-2009 13:32:35  
 Average Efficiency : 0.3806617  
 Average Efficiency Error : 1.0437921E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 195.5670 | 28-FEB-2010 | 2990.373   | 3302.025 | 21917.00 | 0.3788947 | 1.6194314E-02 | 59.57938   |
| NP-237     | 167.9916 | 28-FEB-2010 | 4434.487   | 4905.324 | 19388.00 | 0.3846898 | 1.9431910E-02 | 80.68842   |
| CM-244     | 157.2432 | 28-FEB-2010 | 5531.110   | 5885.315 | 16870.00 | 0.3792152 | 1.9184273E-02 | 59.70237   |

Instrument : CHAMBER 234  
 Detector : 79427  
 Standard ID : AESS-026  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 28-AUG-2009 07:08:41  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-AUG-2009 13:32:51  
 Average Efficiency : 0.3701842  
 Average Efficiency Error : 1.0801505E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 199.5072 | 28-FEB-2010 | 2988.269   | 3300.079 | 21287.00 | 0.3607304 | 1.8206345E-02 | 60.36027   |
| NP-237     | 168.0294 | 28-FEB-2010 | 4436.893   | 4901.571 | 19195.00 | 0.3807805 | 1.9236386E-02 | 87.24484   |
| CM-244     | 160.5822 | 28-FEB-2010 | 5530.864   | 5883.822 | 16817.00 | 0.3701437 | 1.8726060E-02 | 61.15481   |

Instrument : CHAMBER 235  
 Detector : 79428  
 Standard ID : AESS-027  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 28-AUG-2009 07:08:45  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-AUG-2009 13:33:07  
 Average Efficiency : 0.3924418  
 Average Efficiency Error : 1.1451972E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 193.4238 | 28-FEB-2010 | 2989.964   | 3301.553 | 21591.00 | 0.3773947 | 1.9044928E-02 | 59.06186   |
| NP-237     | 161.6154 | 28-FEB-2010 | 4434.767   | 4906.350 | 19376.00 | 0.3996259 | 2.0186499E-02 | 69.60875   |
| CM-244     | 148.1754 | 28-FEB-2010 | 5533.497   | 5883.248 | 16865.00 | 0.4023240 | 2.0353375E-02 | 59.46798   |



Instrument : CHAMBER 236  
 Detector : 79429  
 Standard ID : AESS-028  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 28-AUG-2009 07:08:51  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-AUG-2009 13:33:24  
 Average Efficiency : 0.3822154  
 Average Efficiency Error : 1.1149851E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 199.6542 | 28-FEB-2010 | 2989.553   | 3300.921 | 21911.00 | 0.3710214 | 1.8720830E-02 | 59.63935   |
| NP-237     | 168.1992 | 28-FEB-2010 | 4432.813   | 4903.618 | 19461.00 | 0.3856082 | 1.9477623E-02 | 76.00614   |
| CM-244     | 156.7614 | 28-FEB-2010 | 5534.883   | 5883.901 | 17350.00 | 0.3912177 | 1.9785114E-02 | 63.22596   |

Instrument : CHAMBER 237  
 Detector : 79430  
 Standard ID : AESS-029  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 28-AUG-2009 07:08:55  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-AUG-2009 13:33:41  
 Average Efficiency : 0.3836243  
 Average Efficiency Error : 1.1190724E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 201.5742 | 28-FEB-2010 | 2990.412   | 3298.430 | 22171.00 | 0.3718633 | 1.8761324E-02 | 57.93632   |
| NP-237     | 169.7700 | 28-FEB-2010 | 4434.021   | 4905.306 | 19694.00 | 0.3866741 | 1.9529065E-02 | 74.67754   |
| CM-244     | 154.8234 | 28-FEB-2010 | 5530.956   | 5884.725 | 17244.00 | 0.3937016 | 1.9912098E-02 | 63.18201   |

Instrument : CHAMBER 238  
 Detector : 79431  
 Standard ID : AESS-030  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 28-AUG-2009 07:09:00  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-AUG-2009 13:33:59  
 Average Efficiency : 0.3827302  
 Average Efficiency Error : 1.1164652E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 198.9792 | 28-FEB-2010 | 2988.738   | 3300.787 | 21962.00 | 0.3731618 | 1.8828424E-02 | 57.84193   |
| NP-237     | 166.3758 | 28-FEB-2010 | 4433.583   | 4904.073 | 19552.00 | 0.3916996 | 1.9784329E-02 | 69.05827   |
| CM-244     | 157.1856 | 28-FEB-2010 | 5534.315   | 5882.484 | 17088.00 | 0.3842701 | 1.9437104E-02 | 55.46104   |

Instrument : CHAMBER 239  
 Detector : 79432  
 Standard ID : AESS-031  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 28-AUG-2009 07:09:05  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-AUG-2009 13:34:23  
 Average Efficiency : 0.3877645  
 Average Efficiency Error : 1.0634423E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 193.6650 | 28-FEB-2010 | 2991.271   | 3298.066 | 21814.00 | 0.3807774 | 1.6275739E-02 | 53.01001   |
| NP-237     | 162.9186 | 28-FEB-2010 | 4436.718   | 4902.950 | 19446.00 | 0.3978185 | 2.0094519E-02 | 75.58379   |
| CM-244     | 153.1968 | 28-FEB-2010 | 5535.054   | 5884.530 | 16836.00 | 0.3883347 | 1.9646063E-02 | 61.05005   |

Instrument : CHAMBER 240  
 Detector : 79433  
 Standard ID : AESS-032  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 28-AUG-2009 07:09:09  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-AUG-2009 13:34:40  
 Average Efficiency : 0.3763680  
 Average Efficiency Error : 1.0324174E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 195.2364 | 28-FEB-2010 | 2990.716   | 3297.687 | 21305.00 | 0.3688990 | 1.5772741E-02 | 54.18781   |
| NP-237     | 165.9822 | 28-FEB-2010 | 4436.108   | 4901.861 | 19099.00 | 0.3835373 | 1.9376662E-02 | 70.26006   |
| CM-244     | 153.7938 | 28-FEB-2010 | 5532.981   | 5887.143 | 16557.00 | 0.3804168 | 1.9249255E-02 | 59.34691   |

Instrument : CHAMBER 241  
 Detector : 79434  
 Standard ID : AESS-033  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 28-AUG-2009 07:09:15  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-AUG-2009 13:34:57  
 Average Efficiency : 0.3975072  
 Average Efficiency Error : 1.0901848E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 192.4158 | 28-FEB-2010 | 2991.942   | 3297.913 | 22027.00 | 0.3869813 | 1.6538920E-02 | 56.90702   |
| NP-237     | 161.7816 | 28-FEB-2010 | 4434.531   | 4905.642 | 19524.00 | 0.4022706 | 2.0318527E-02 | 70.70508   |
| CM-244     | 147.2670 | 28-FEB-2010 | 5532.339   | 5887.328 | 17047.00 | 0.4090414 | 2.0690644E-02 | 61.22742   |

Instrument : CHAMBER 242  
 Detector : 79435  
 Standard ID : AESS-034  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 28-AUG-2009 07:09:21  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-AUG-2009 13:35:16  
 Average Efficiency : 0.3864579  
 Average Efficiency Error : 1.0596083E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 200.5488 | 28-FEB-2010 | 2990.675   | 3302.424 | 22431.00 | 0.3781182 | 1.6156483E-02 | 57.80299   |
| NP-237     | 167.2962 | 28-FEB-2010 | 4435.599   | 4901.625 | 19682.00 | 0.3921467 | 1.9805590E-02 | 79.14774   |
| CM-244     | 154.4388 | 28-FEB-2010 | 5533.423   | 5882.719 | 17192.00 | 0.3933641 | 1.9895712E-02 | 58.04135   |

Instrument : CHAMBER 243  
 Detector : 79436  
 Standard ID : AESS-035  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 28-AUG-2009 07:09:26  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-AUG-2009 13:35:39  
 Average Efficiency : 0.3714339  
 Average Efficiency Error : 1.0188053E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 198.6666 | 28-FEB-2010 | 2990.382   | 3298.347 | 21390.00 | 0.3639862 | 1.5561880E-02 | 52.11441   |
| NP-237     | 168.2934 | 28-FEB-2010 | 4434.037   | 4905.494 | 19170.00 | 0.3796824 | 1.9181171E-02 | 79.79841   |
| CM-244     | 158.8128 | 28-FEB-2010 | 5531.482   | 5885.497 | 16828.00 | 0.3744243 | 1.8942432E-02 | 60.93315   |

Instrument : CHAMBER 244  
 Detector : 79437  
 Standard ID : AESS-036  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 28-AUG-2009 07:09:32  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-AUG-2009 13:36:07  
 Average Efficiency : 0.3715149  
 Average Efficiency Error : 1.0192083E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 201.3204 | 28-FEB-2010 | 2987.566   | 3299.789 | 21504.00 | 0.3610823 | 1.5436707E-02 | 66.23463   |
| NP-237     | 167.4312 | 28-FEB-2010 | 4433.571   | 4904.626 | 19293.00 | 0.3840864 | 1.9402392E-02 | 76.43731   |
| CM-244     | 156.4188 | 28-FEB-2010 | 5530.417   | 5884.486 | 16611.00 | 0.3752594 | 1.8987549E-02 | 63.78664   |

Instrument : CHAMBER 245  
 Detector : 79438  
 Standard ID : AESS-037  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 28-AUG-2009 07:09:37  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-AUG-2009 13:36:53  
 Average Efficiency : 0.3848314  
 Average Efficiency Error : 1.0552316E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 197.7372 | 28-FEB-2010 | 2988.843   | 3302.525 | 22076.00 | 0.3774236 | 1.6129972E-02 | 66.05534   |
| NP-237     | 167.1294 | 28-FEB-2010 | 4434.670   | 4906.399 | 19600.00 | 0.3909029 | 1.9743593E-02 | 75.47243   |
| CM-244     | 154.7664 | 28-FEB-2010 | 5532.436   | 5886.326 | 17075.00 | 0.3898463 | 1.9719332E-02 | 65.09534   |

Instrument : CHAMBER 246  
 Detector : 78912  
 Standard ID : AESS-038  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 28-AUG-2009 07:09:44  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-AUG-2009 13:37:05  
 Average Efficiency : 0.3738058  
 Average Efficiency Error : 1.0253170E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 200.1408 | 28-FEB-2010 | 2991.420   | 3298.792 | 21522.00 | 0.3635281 | 1.5541083E-02 | 66.60865   |
| NP-237     | 170.0886 | 28-FEB-2010 | 4433.098   | 4904.335 | 19515.00 | 0.3824243 | 1.9316213E-02 | 81.32760   |
| CM-244     | 157.7460 | 28-FEB-2010 | 5530.336   | 5884.508 | 17010.00 | 0.3810334 | 1.9274388E-02 | 64.73948   |

Instrument : CHAMBER 247  
 Detector : 79440  
 Standard ID : AESS-039  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 28-AUG-2009 07:09:50  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-AUG-2009 13:37:16  
 Average Efficiency : 0.3955781  
 Average Efficiency Error : 1.0848942E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 192.2418 | 28-FEB-2010 | 2991.040   | 3298.952 | 21948.00 | 0.3859353 | 1.6494961E-02 | 55.97421   |
| NP-237     | 159.1506 | 28-FEB-2010 | 4435.157   | 4901.869 | 19486.00 | 0.4080938 | 2.0613093E-02 | 75.98156   |
| CM-244     | 151.7142 | 28-FEB-2010 | 5534.103   | 5883.404 | 17090.00 | 0.3980037 | 2.0131798E-02 | 63.42304   |

Instrument : CHAMBER 248  
 Detector : 79441  
 Standard ID : AESS-040  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 28-AUG-2009 07:09:55  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-AUG-2009 13:37:28  
 Average Efficiency : 0.3941916  
 Average Efficiency Error : 1.0806664E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 194.4828 | 28-FEB-2010 | 2989.950   | 3302.491 | 22290.00 | 0.3874540 | 1.6556673E-02 | 56.03559   |
| NP-237     | 166.8174 | 28-FEB-2010 | 4437.546   | 4903.912 | 19884.00 | 0.3972850 | 2.0063095E-02 | 79.90582   |
| CM-244     | 155.0100 | 28-FEB-2010 | 5530.441   | 5884.950 | 17598.00 | 0.4011423 | 2.0283826E-02 | 58.96740   |

Instrument : CHAMBER 249  
 Detector : 79442  
 Standard ID : AESS-041  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 28-AUG-2009 07:10:01  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-AUG-2009 13:37:39  
 Average Efficiency : 0.3691496  
 Average Efficiency Error : 1.0125251E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 203.9034 | 28-FEB-2010 | 2991.458   | 3299.653 | 21709.00 | 0.3599154 | 1.5384958E-02 | 54.07297   |
| NP-237     | 171.2268 | 28-FEB-2010 | 4437.087   | 4904.383 | 19560.00 | 0.3807467 | 1.9231046E-02 | 72.35228   |
| CM-244     | 159.5796 | 28-FEB-2010 | 5532.120   | 5887.291 | 16794.00 | 0.3718590 | 1.8813105E-02 | 57.81293   |

Instrument : CHAMBER 250  
 Detector : 79443  
 Standard ID : AESS-042  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 28-AUG-2009 07:10:06  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-AUG-2009 13:37:51  
 Average Efficiency : 0.3921595  
 Average Efficiency Error : 1.0755106E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 188.7090 | 28-FEB-2010 | 2988.375   | 3300.259 | 21703.00 | 0.3887982 | 1.6619630E-02 | 48.88448   |
| NP-237     | 159.6558 | 28-FEB-2010 | 4433.621   | 4904.859 | 19099.00 | 0.3987351 | 2.0144468E-02 | 67.77724   |
| CM-244     | 150.5208 | 28-FEB-2010 | 5531.200   | 5885.729 | 16638.00 | 0.3905834 | 1.9762557E-02 | 55.02527   |

Instrument : CHAMBER 251  
 Detector : 79444  
 Standard ID : AESS-043  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 28-AUG-2009 07:10:12  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-AUG-2009 13:38:01  
 Average Efficiency : 0.3860320  
 Average Efficiency Error : 1.0584467E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 197.7708 | 28-FEB-2010 | 2992.181   | 3299.694 | 22112.00 | 0.3779713 | 1.6153051E-02 | 53.81643   |
| NP-237     | 168.7422 | 28-FEB-2010 | 4435.877   | 4903.211 | 19812.00 | 0.3913130 | 1.9762235E-02 | 75.40137   |
| CM-244     | 156.3252 | 28-FEB-2010 | 5531.476   | 5887.181 | 17382.00 | 0.3928898 | 1.9869251E-02 | 59.21478   |

Instrument : CHAMBER 252  
 Detector : 79445  
 Standard ID : AESS-044  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 28-AUG-2009 07:10:17  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-AUG-2009 13:38:11  
 Average Efficiency : 0.3746736  
 Average Efficiency Error : 1.0277720E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 194.4510 | 28-FEB-2010 | 2990.594   | 3297.549 | 21166.00 | 0.3679778 | 1.5734663E-02 | 58.89096   |
| NP-237     | 166.6248 | 28-FEB-2010 | 4436.816   | 4903.310 | 19132.00 | 0.3827184 | 1.9334946E-02 | 82.92307   |
| CM-244     | 155.8290 | 28-FEB-2010 | 5530.420   | 5885.459 | 16612.00 | 0.3766809 | 1.9059464E-02 | 58.52933   |

Instrument : CHAMBER 253  
 Detector : 79446  
 Standard ID : AESS-045  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 28-AUG-2009 07:10:22  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-AUG-2009 13:38:20  
 Average Efficiency : 0.4166903  
 Average Efficiency Error : 1.1423565E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 186.9936 | 28-FEB-2010 | 2990.116   | 3298.147 | 22479.00 | 0.4063848 | 1.7363828E-02 | 54.86803   |
| NP-237     | 160.8066 | 28-FEB-2010 | 4437.082   | 4905.908 | 20384.00 | 0.4224682 | 2.1329734E-02 | 78.85169   |
| CM-244     | 145.8384 | 28-FEB-2010 | 5531.106   | 5882.794 | 17611.00 | 0.4266897 | 2.1575425E-02 | 60.09909   |

Instrument : CHAMBER 254  
 Detector : 79447  
 Standard ID : AESS-046  
 Standard Reference Date : 19-FEB-2008 19:35:48  
 Calibration Analysis Date/Time : 28-AUG-2009 07:10:27  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-AUG-2009 13:38:31  
 Average Efficiency : 0.3994595  
 Average Efficiency Error : 1.0953108E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 194.7474 | 28-FEB-2010 | 2990.155   | 3297.706 | 22342.00 | 0.3878187 | 1.6571781E-02 | 57.29897   |
| NP-237     | 164.6658 | 28-FEB-2010 | 4433.107   | 4904.992 | 20059.00 | 0.4060186 | 2.0502383E-02 | 81.53826   |
| CM-244     | 151.3824 | 28-FEB-2010 | 5532.020   | 5886.853 | 17611.00 | 0.4110290 | 2.0783551E-02 | 57.98274   |

Instrument : CHAMBER 255  
 Detector : 79448  
 Standard ID : AESS-047  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 28-AUG-2009 07:10:32  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-AUG-2009 13:38:42  
 Average Efficiency : 0.3673038  
 Average Efficiency Error : 1.0076646E-02  
 Confidence : 95.00000

| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 197.4804 | 28-FEB-2010 | 2987.598   | 3300.373 | 21106.00 | 0.3613006 | 1.5449724E-02 | 54.03281   |
| NP-237     | 168.3948 | 28-FEB-2010 | 4437.418   | 4905.095 | 18737.00 | 0.3708411 | 1.8738993E-02 | 71.81757   |
| CM-244     | 154.6032 | 28-FEB-2010 | 5533.813   | 5884.354 | 16306.00 | 0.3726670 | 1.8860538E-02 | 60.74806   |

Instrument : CHAMBER 256  
 Detector : 79449  
 Standard ID : AESS-048  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 28-AUG-2009 07:10:37  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-AUG-2009 13:38:54  
 Average Efficiency : 0.3796731  
 Average Efficiency Error : 1.0416142E-02  
 Confidence : 95.00000

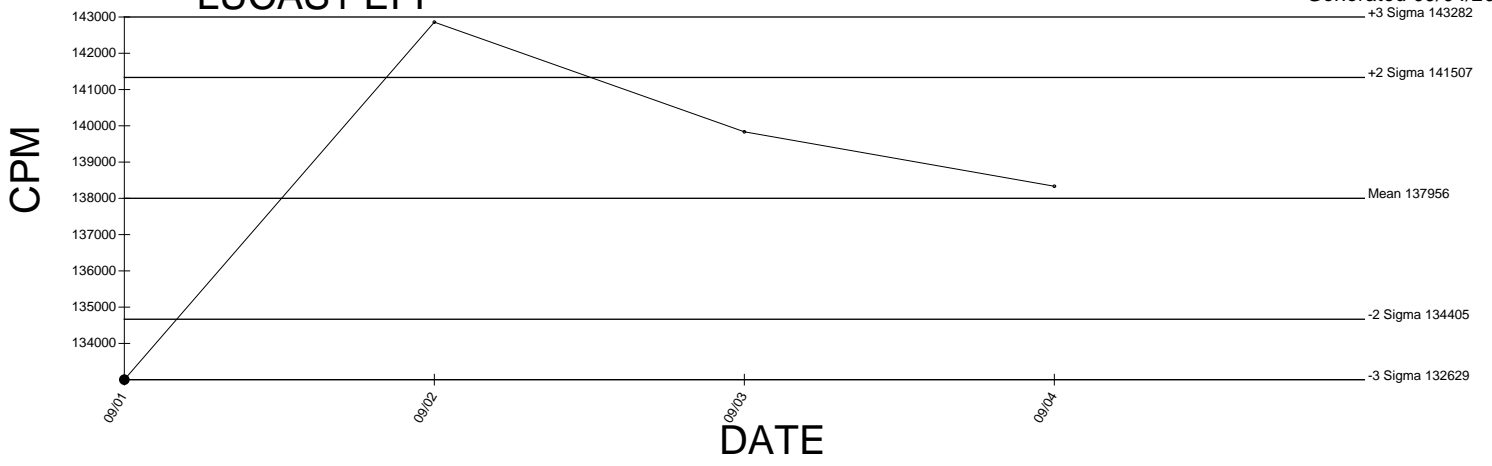
| Cal. Istps | DPM      | Exp. Date   | Start Engy | End Engy | Counts   | EFF.      | EFF Err       | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148     | 191.8350 | 28-FEB-2010 | 2991.222   | 3298.267 | 21126.00 | 0.3722856 | 1.5919263E-02 | 56.71911   |
| NP-237     | 161.5530 | 28-FEB-2010 | 4432.956   | 4905.052 | 18745.00 | 0.3867485 | 1.9542677E-02 | 77.89369   |
| CM-244     | 151.1856 | 28-FEB-2010 | 5532.797   | 5882.840 | 16417.00 | 0.3836786 | 1.9416265E-02 | 61.63605   |

# BACKGROUND AND EFFICIENCY DATA



# LUCAS1 EFF

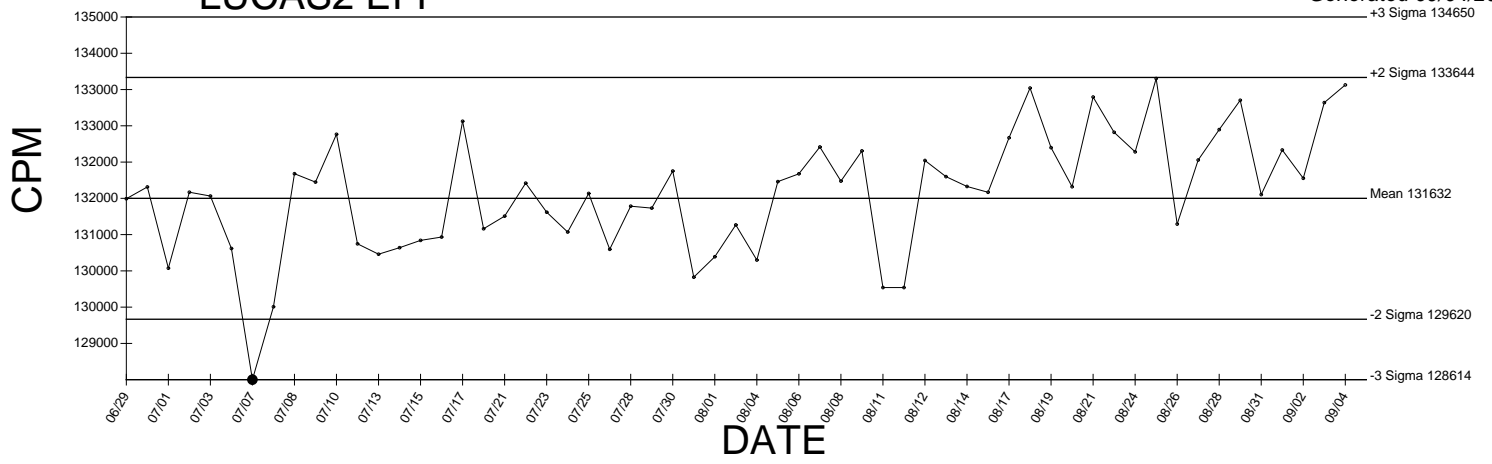
Generated 09/04/2009



● Denotes Outlier

# LUCAS2 EFF

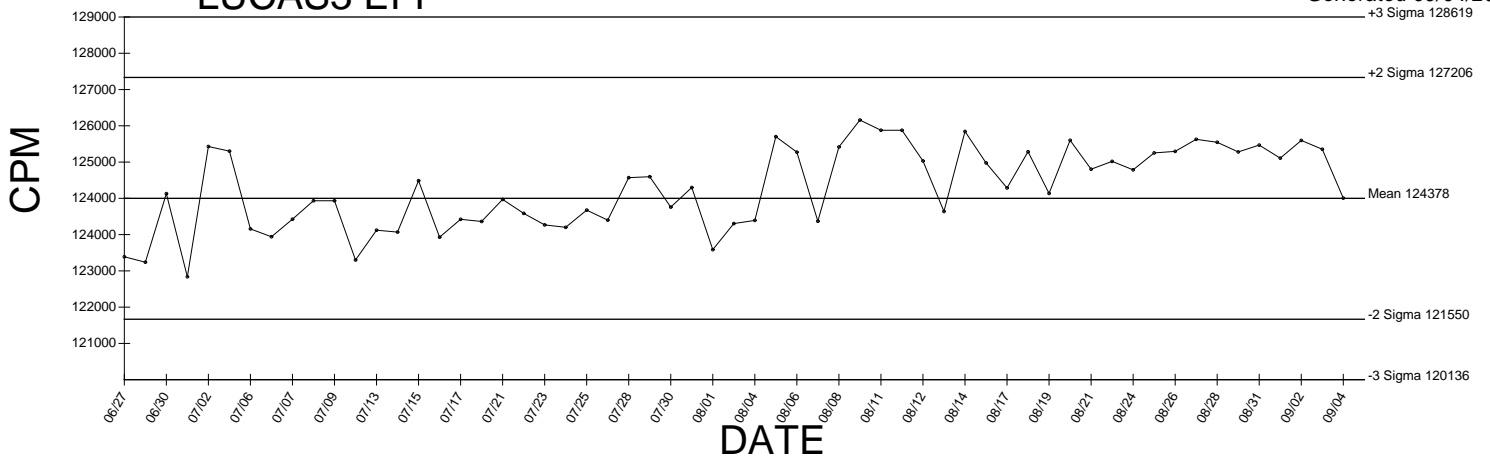
Generated 09/04/2009



● Denotes Outlier

# LUCAS3 EFF

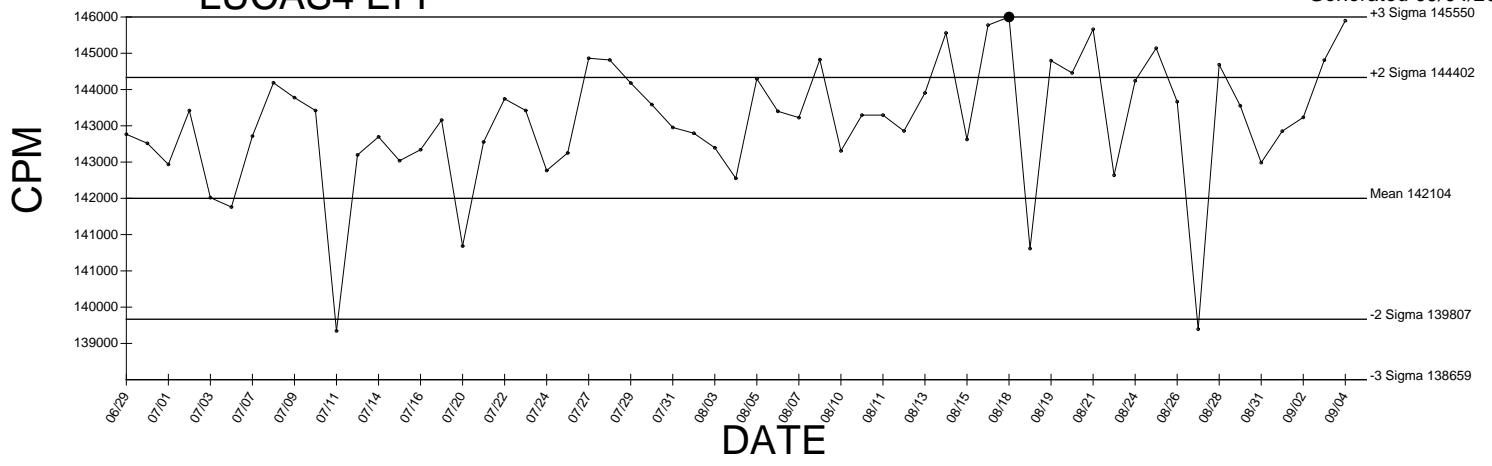
Generated 09/04/2009



● Denotes Outlier

# LUCAS4 EFF

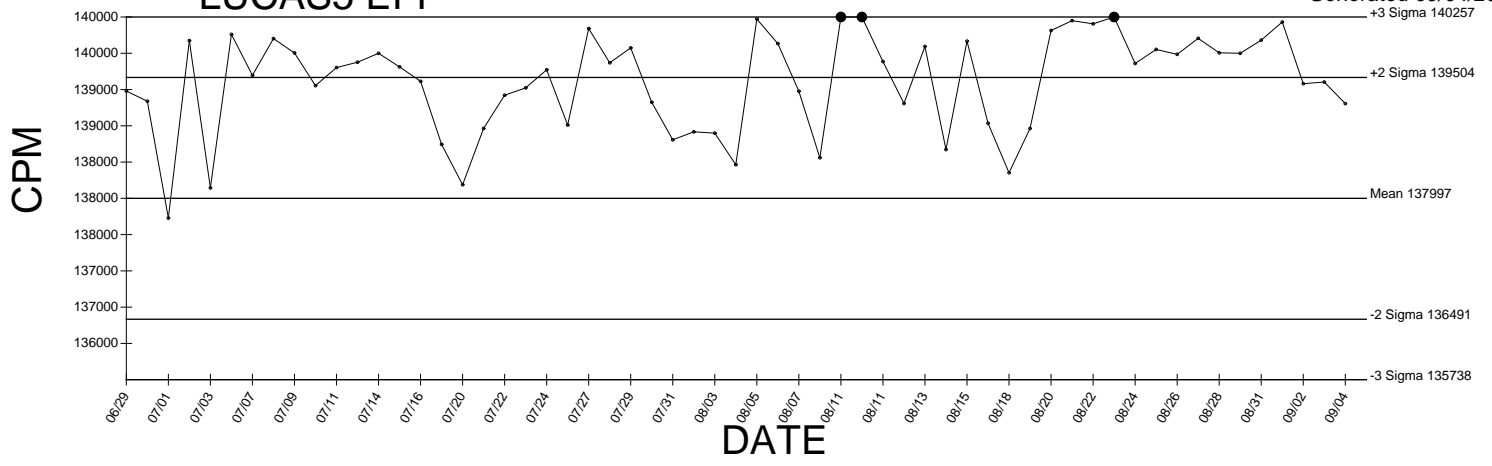
Generated 09/04/2009



● Denotes Outlier

# LUCAS5 EFF

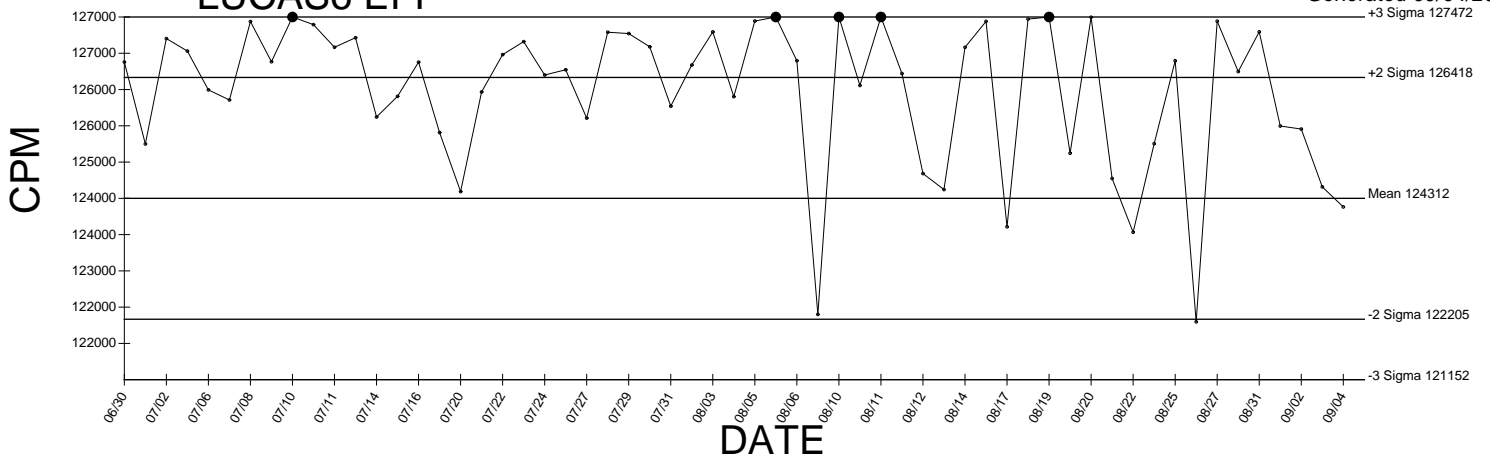
Generated 09/04/2009



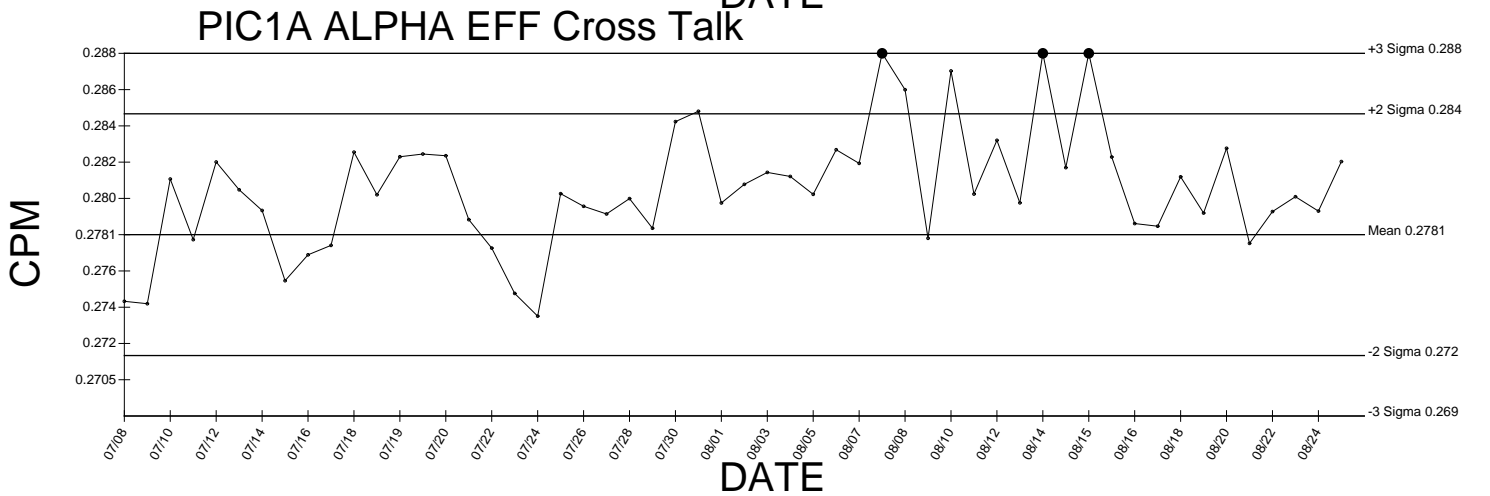
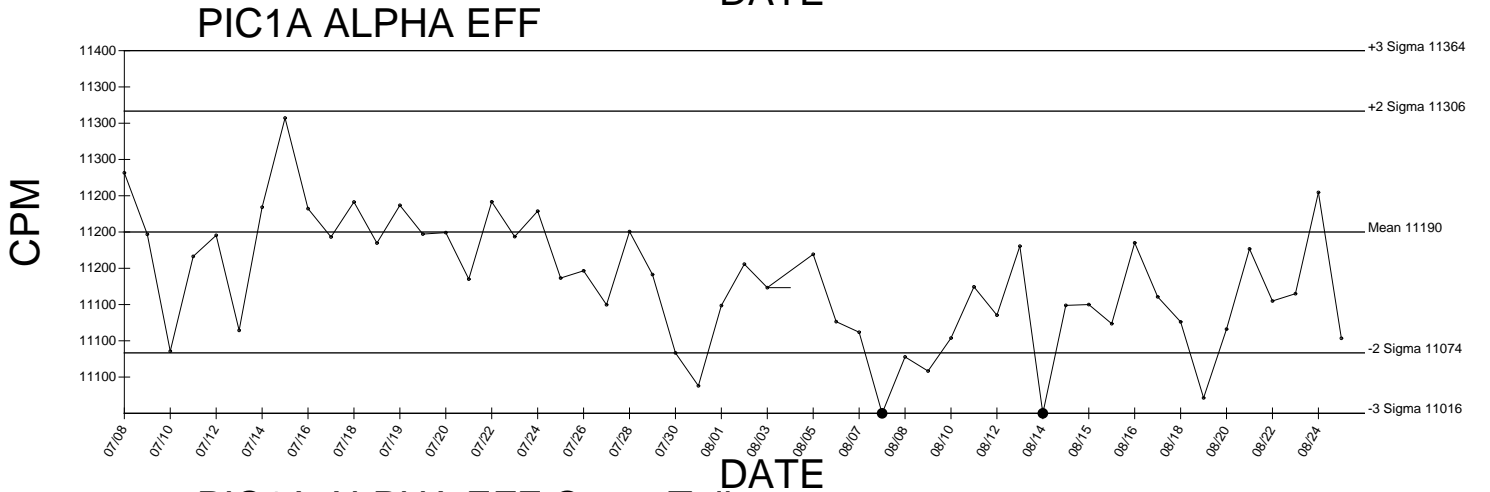
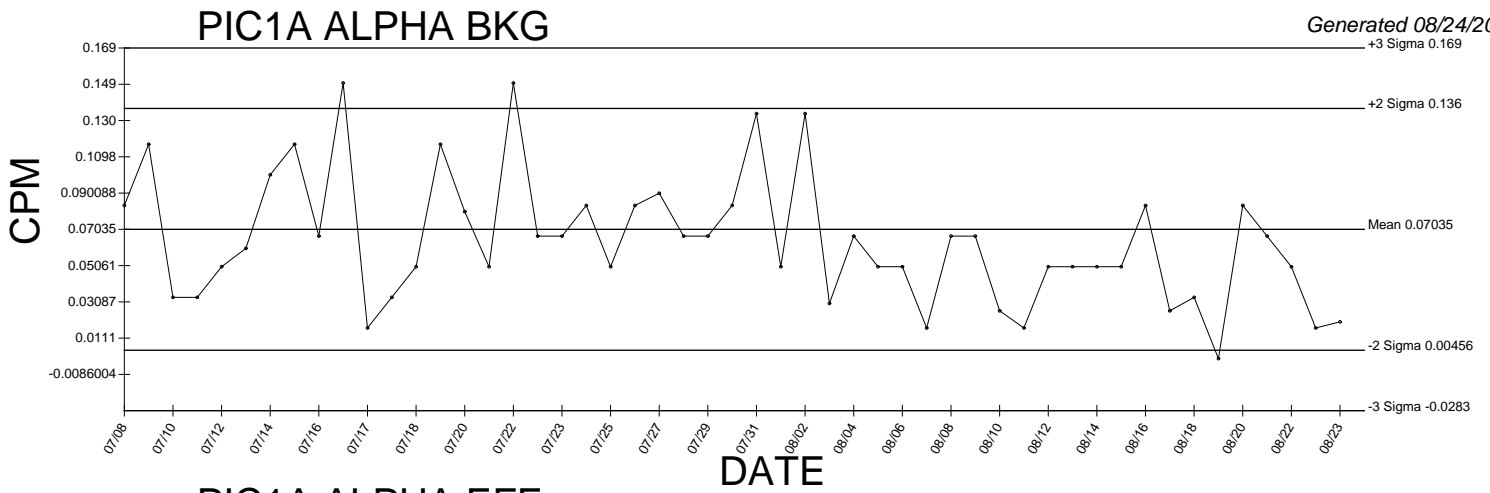
● Denotes Outlier

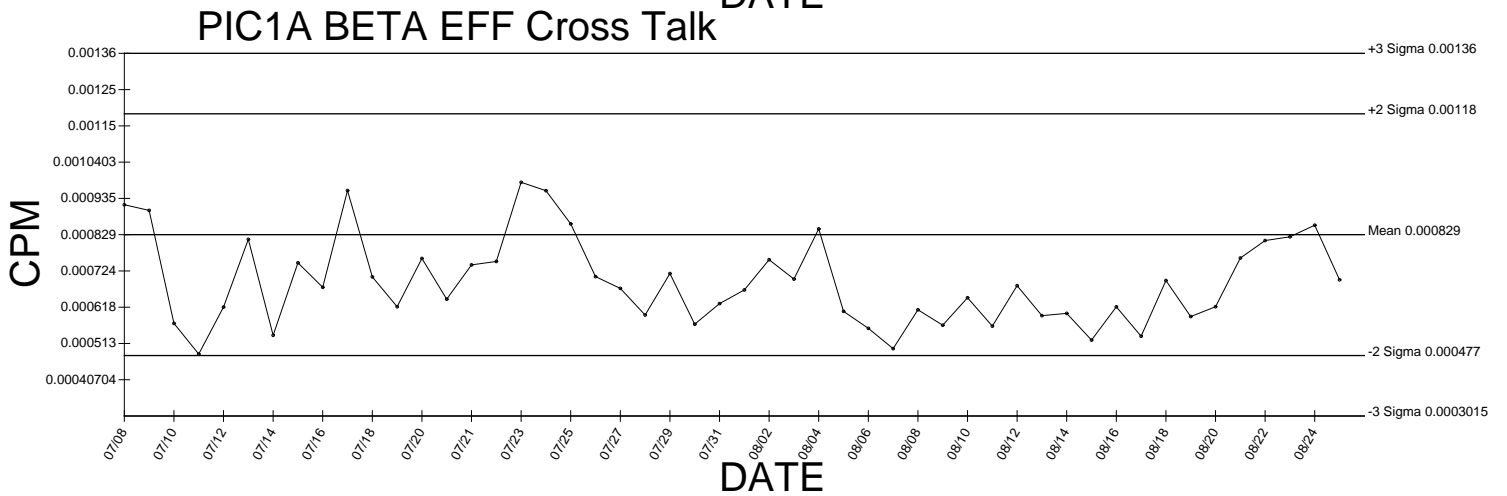
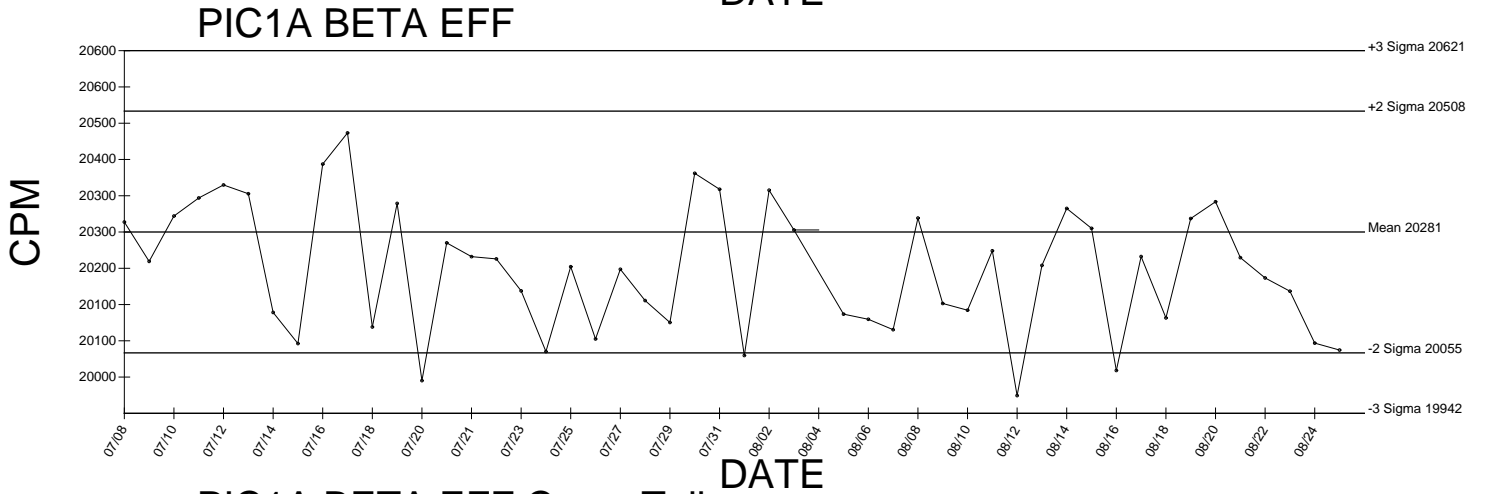
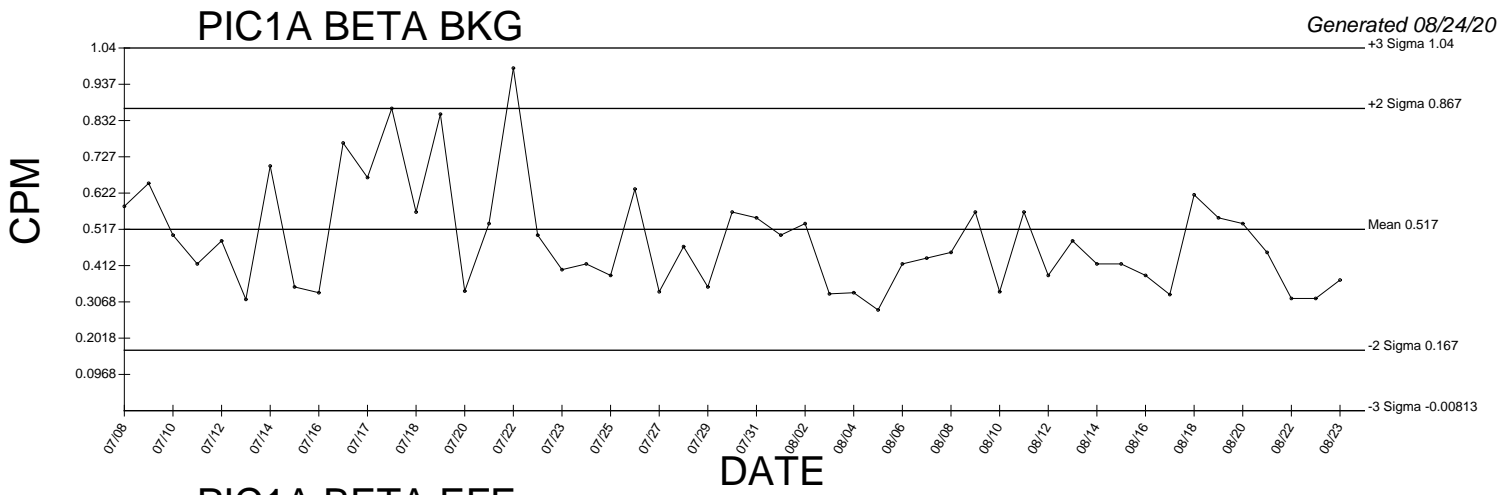
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Generated 09/04/2009



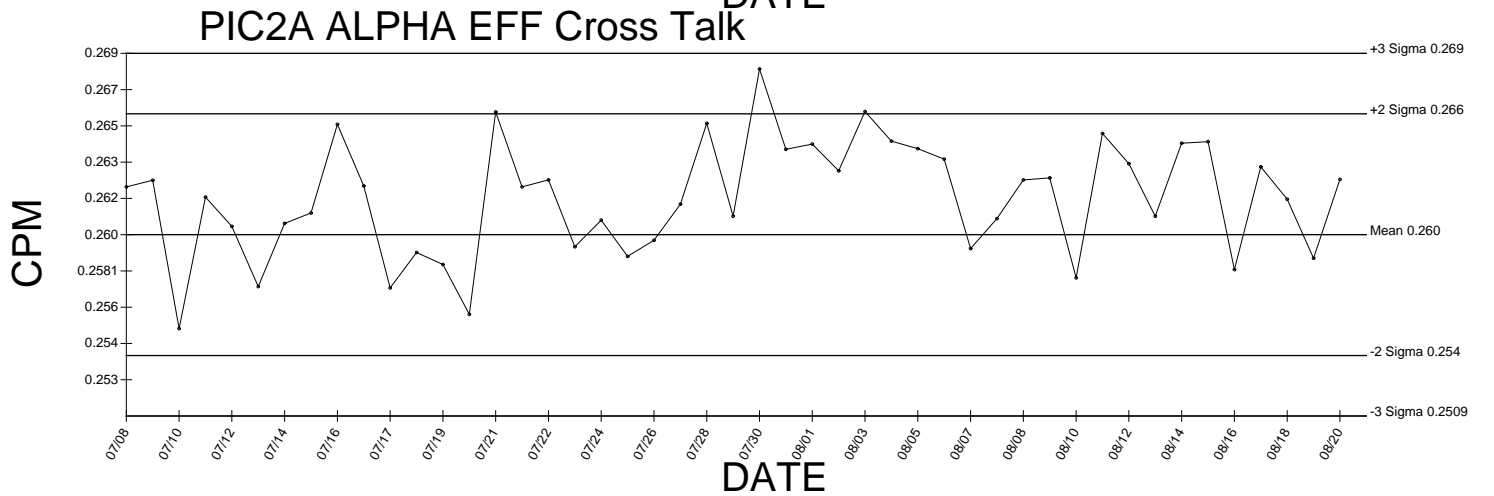
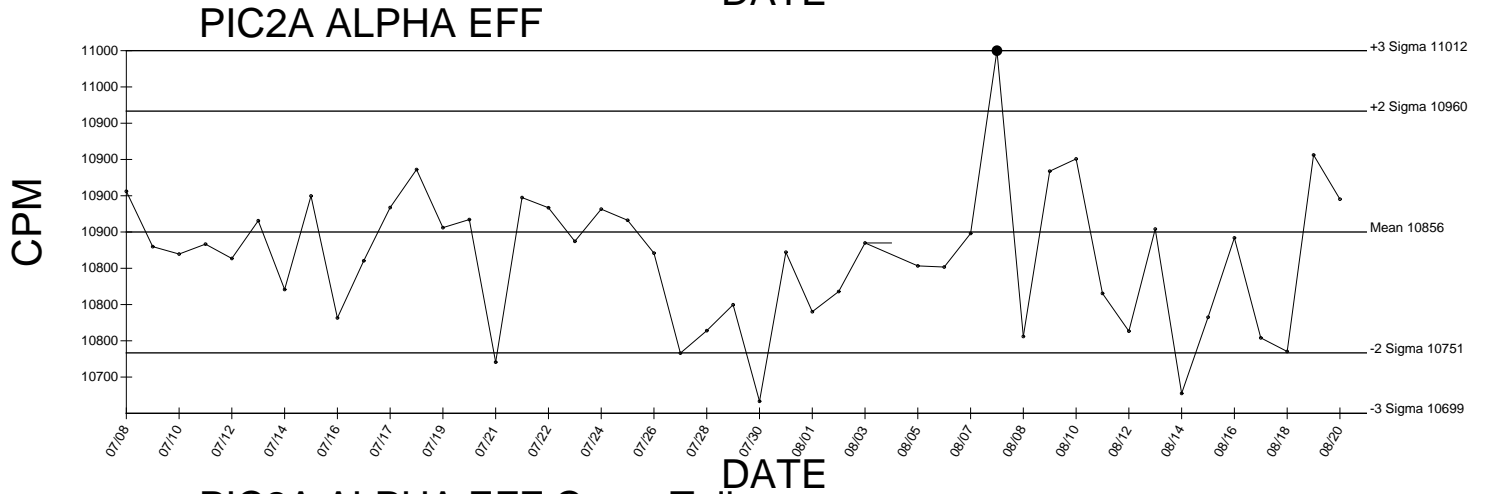
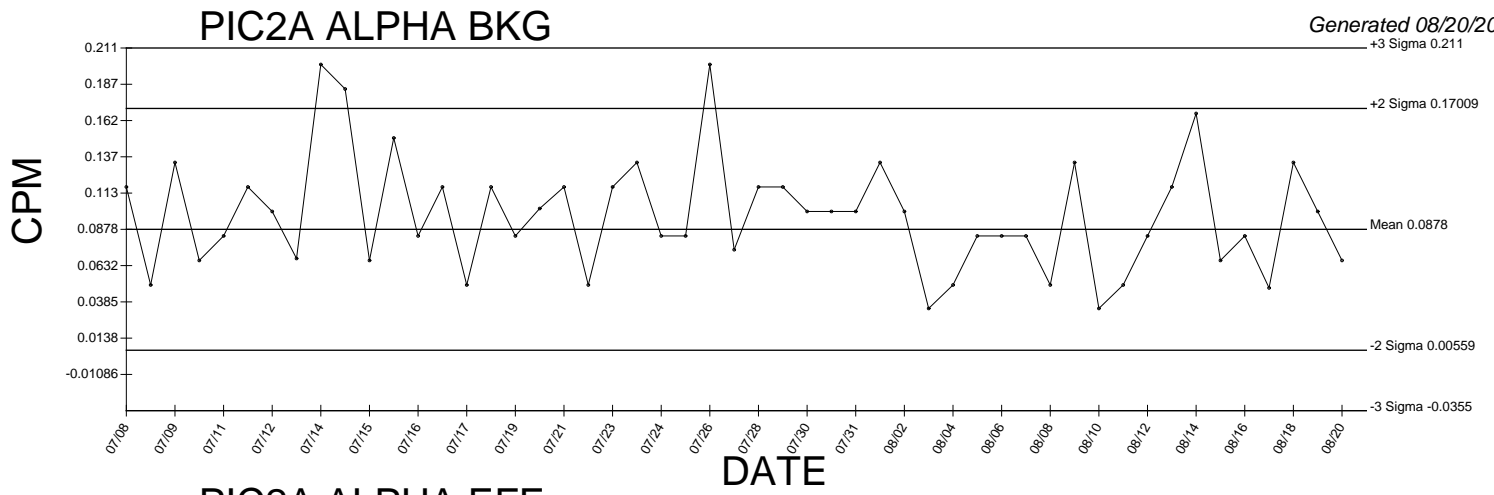
● Denotes Outlier



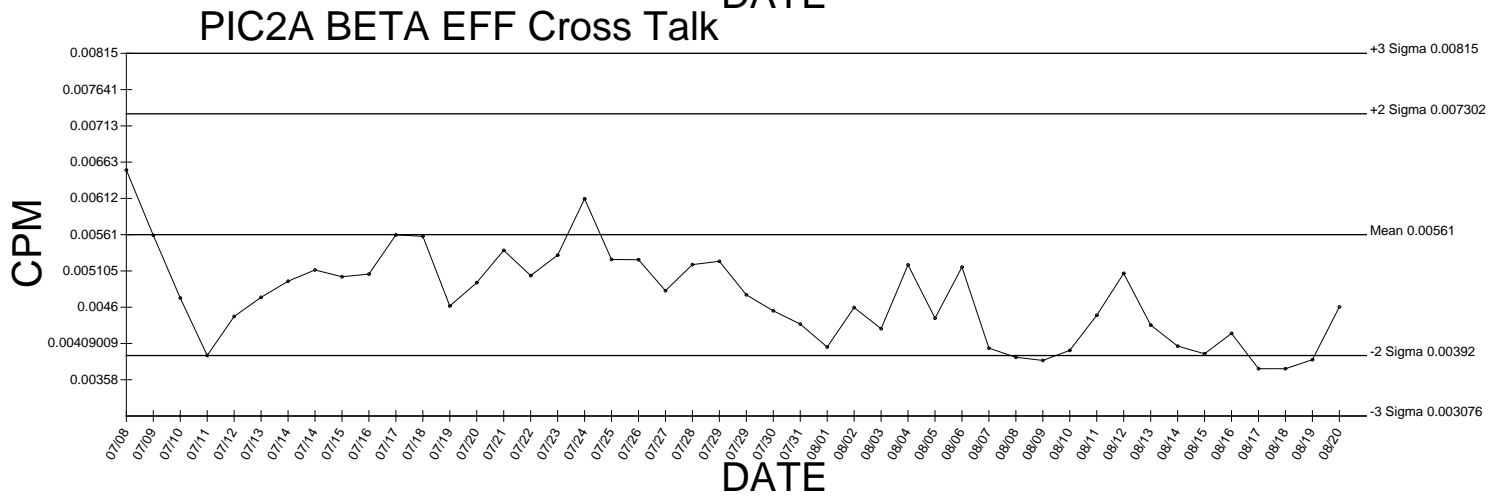
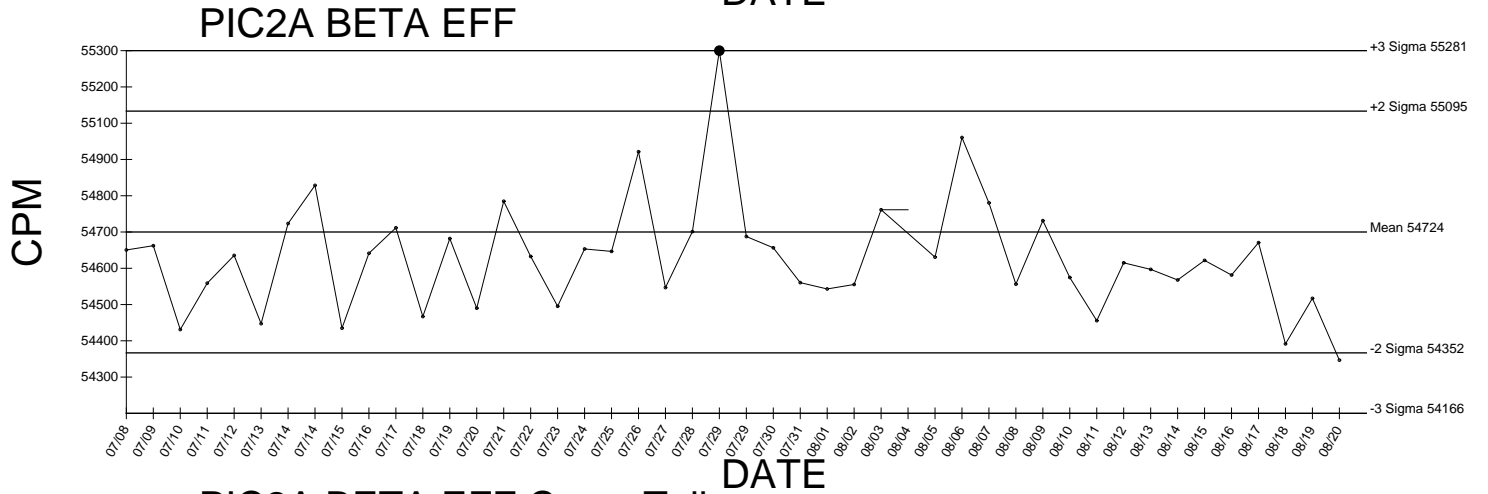
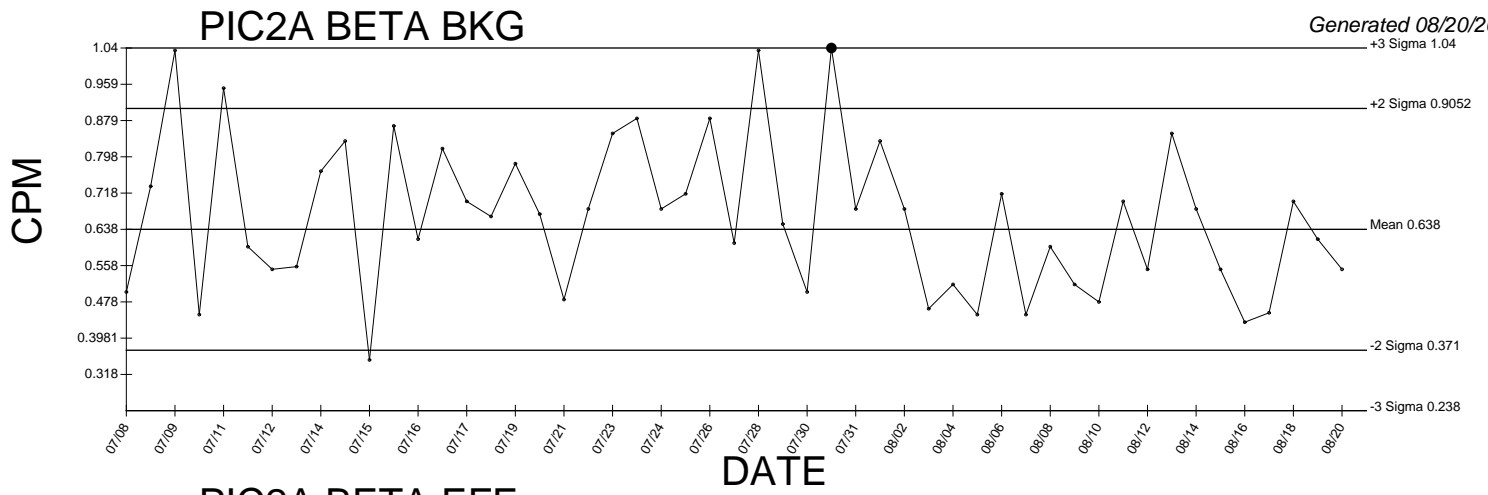


● Denotes Outlier





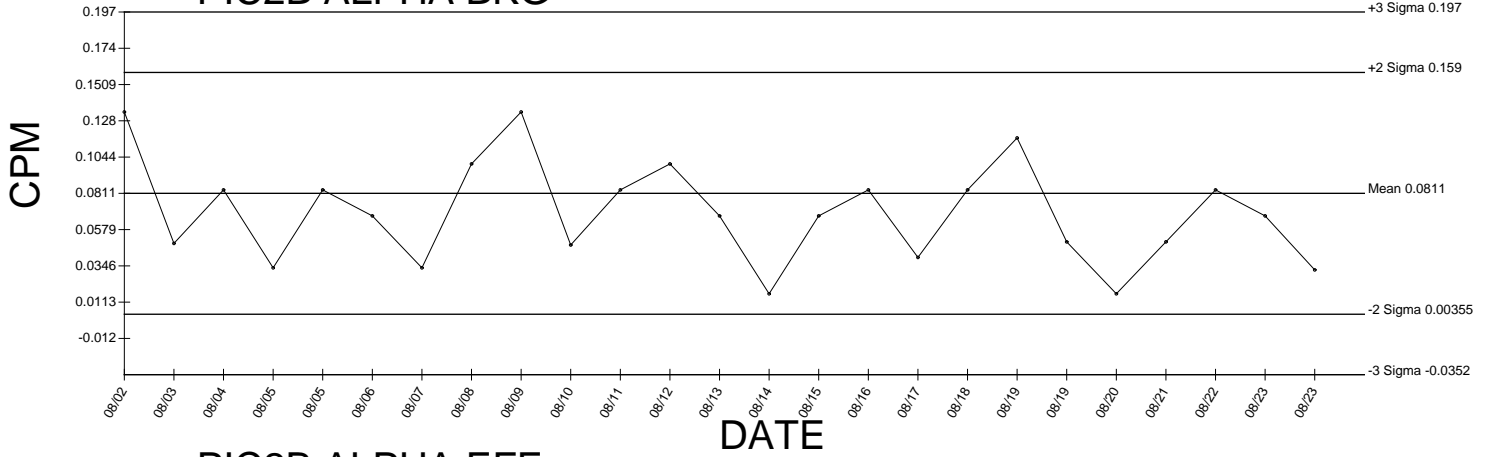
● Denotes Outlier



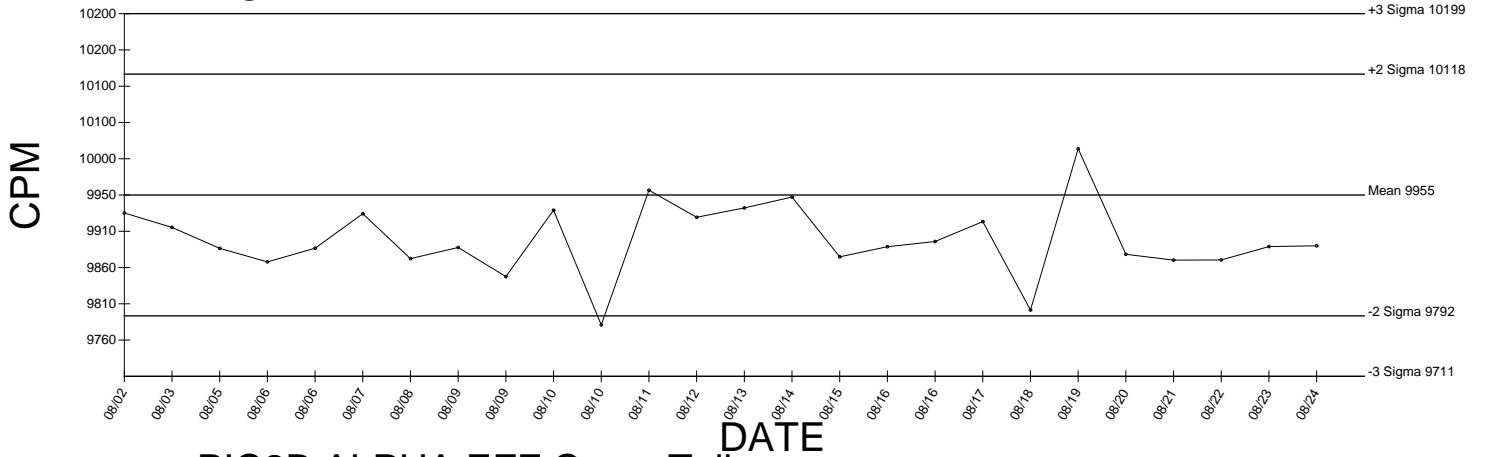
● Denotes Outlier

# PIC2B ALPHA BKG

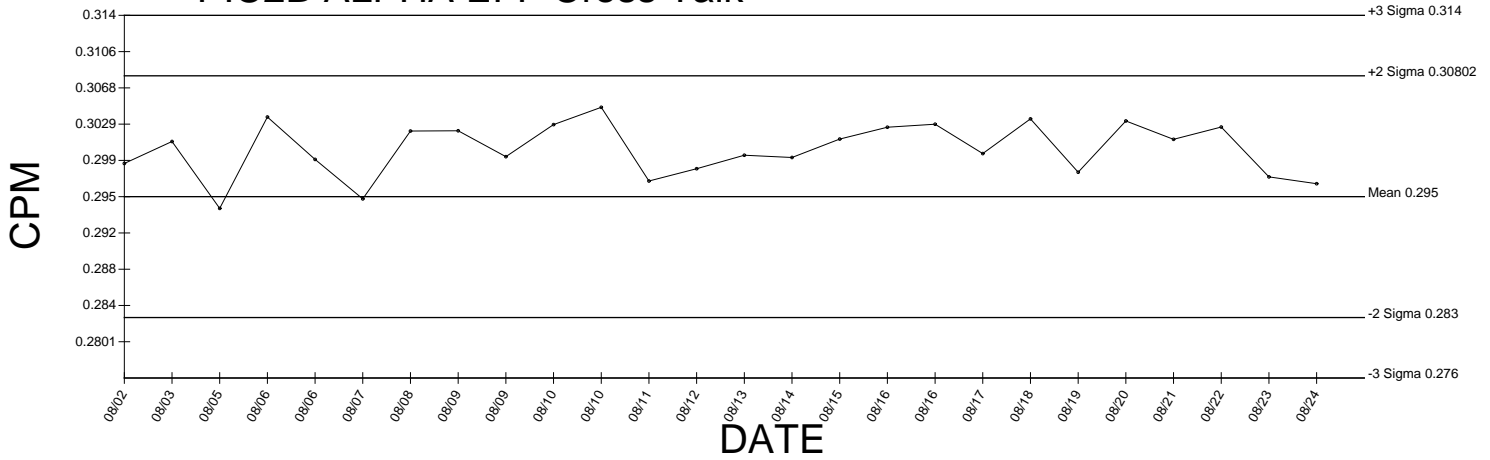
Generated 08/24/2009



# PIC2B ALPHA EFF

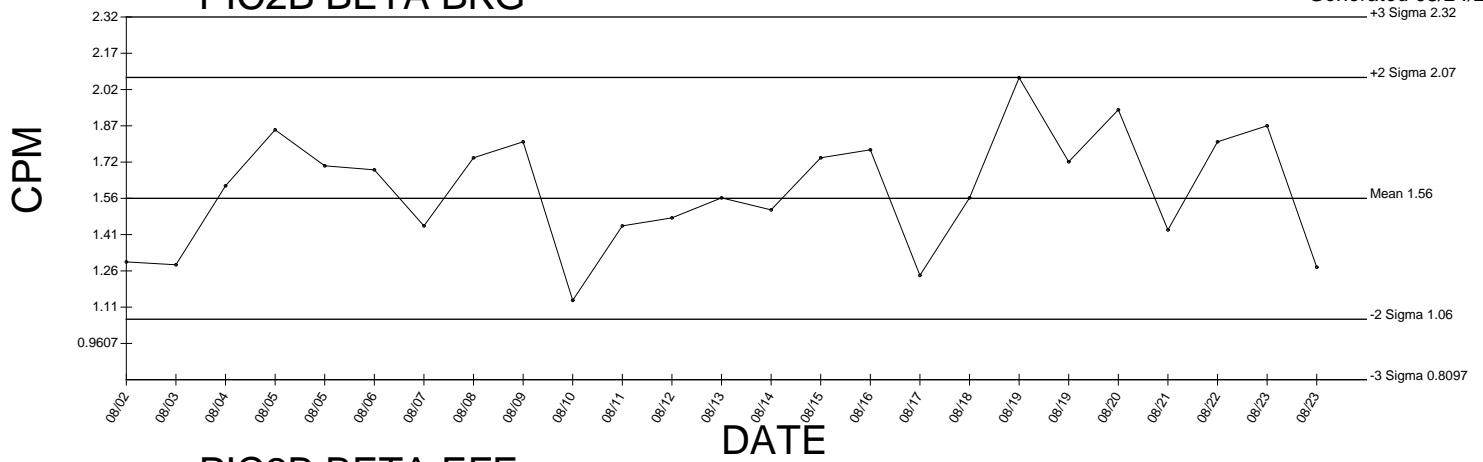


# PIC2B ALPHA EFF Cross Talk

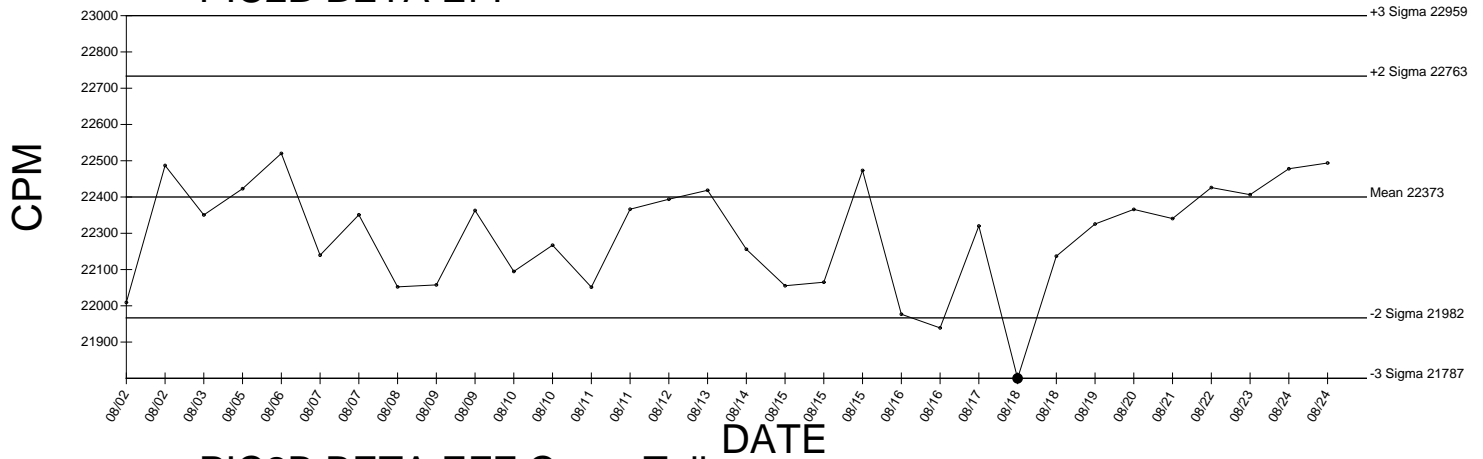


● Denotes Outlier

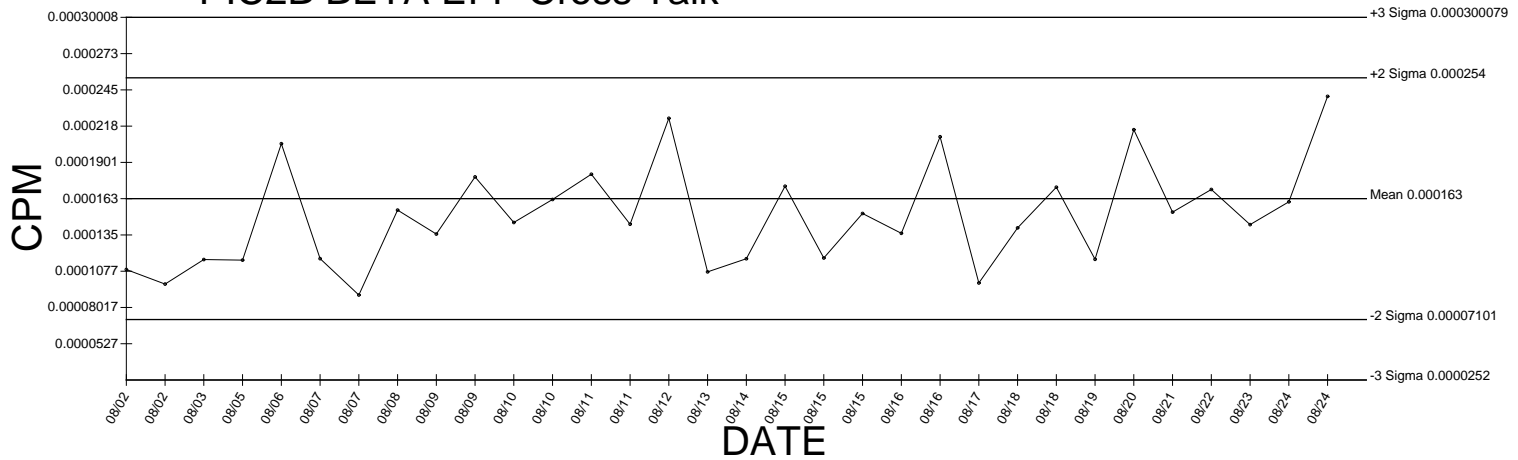
### PIC2B BETA BKG



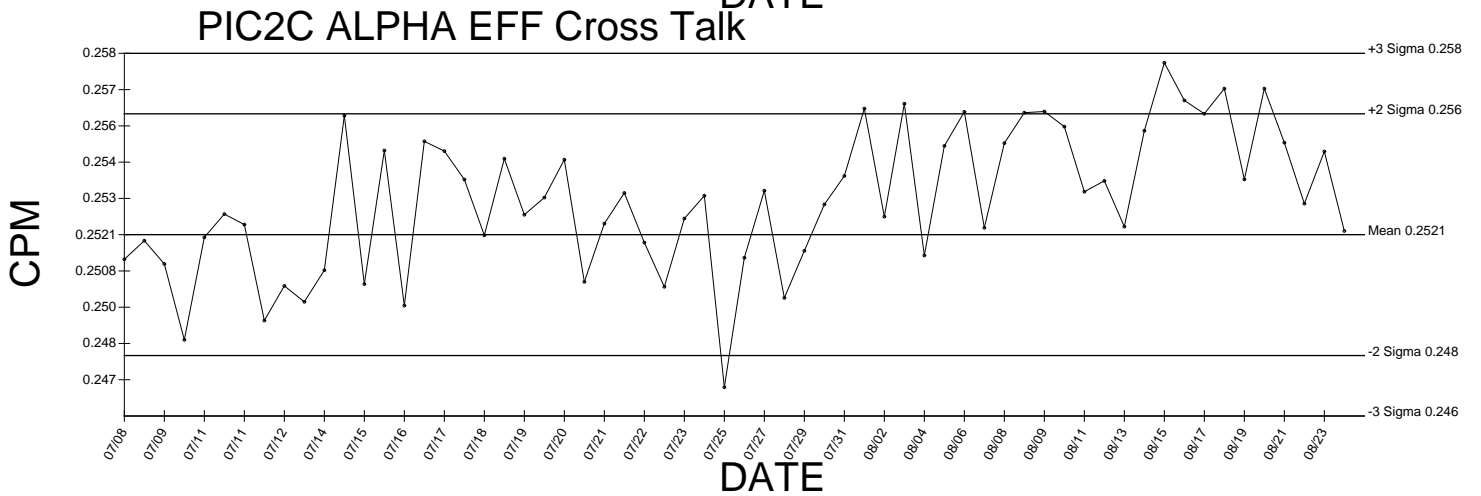
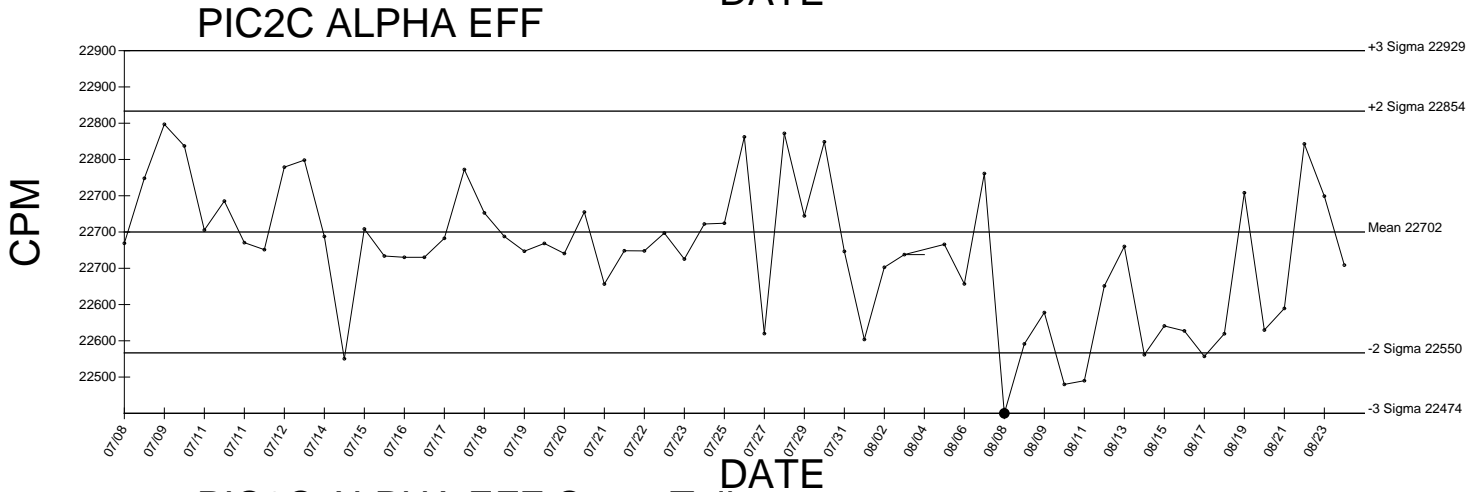
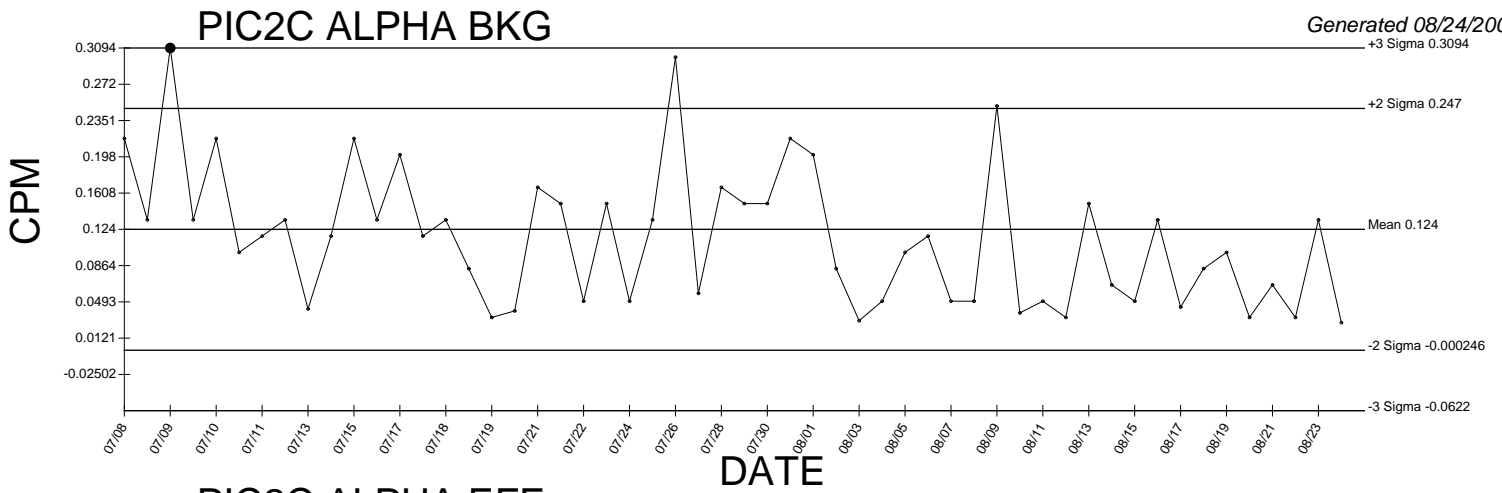
### PIC2B BETA EFF



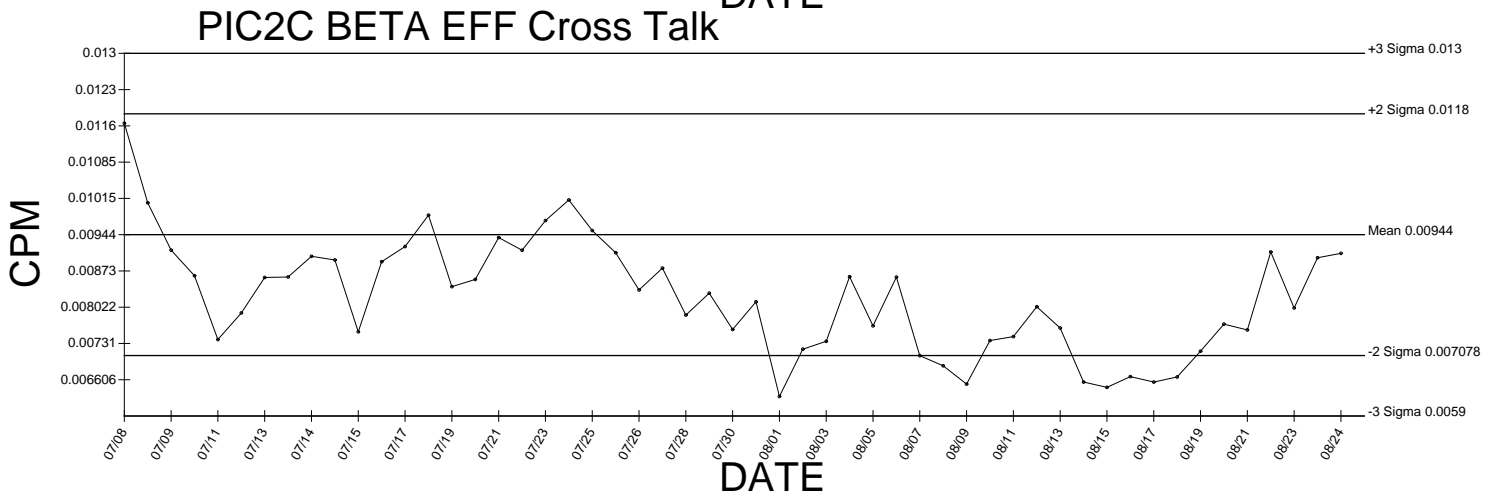
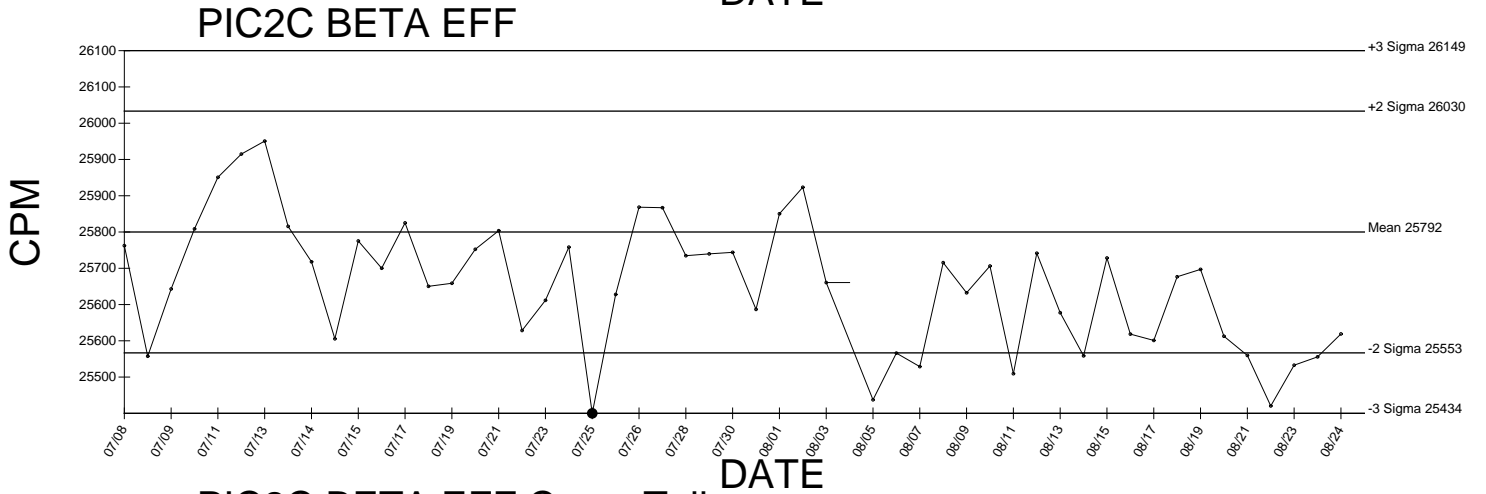
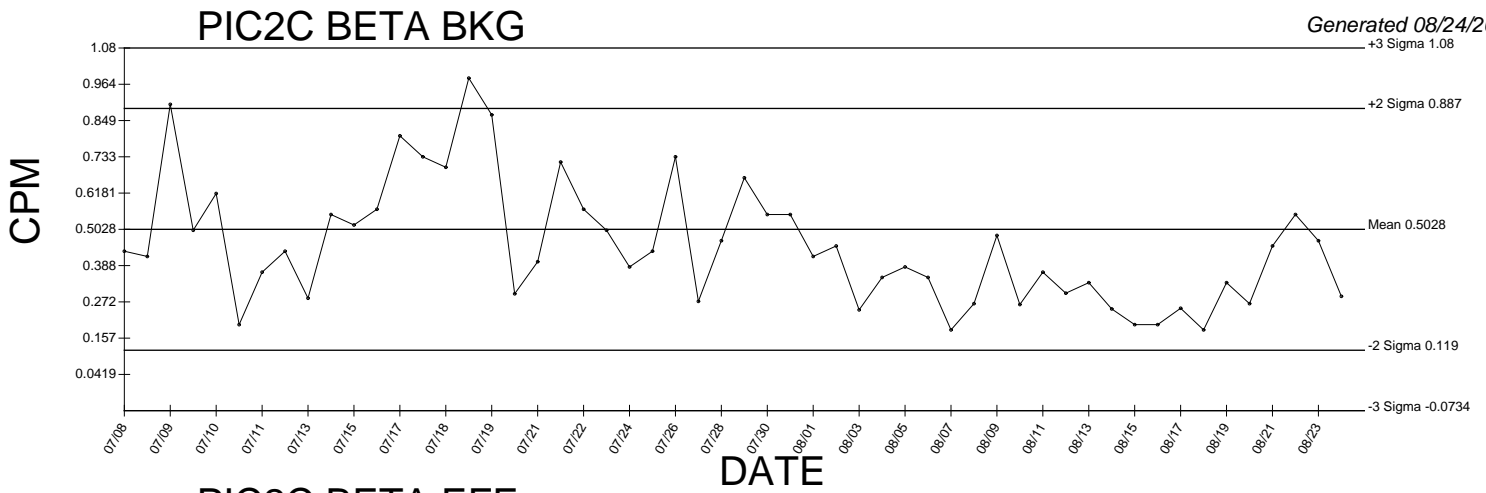
### PIC2B BETA EFF Cross Talk



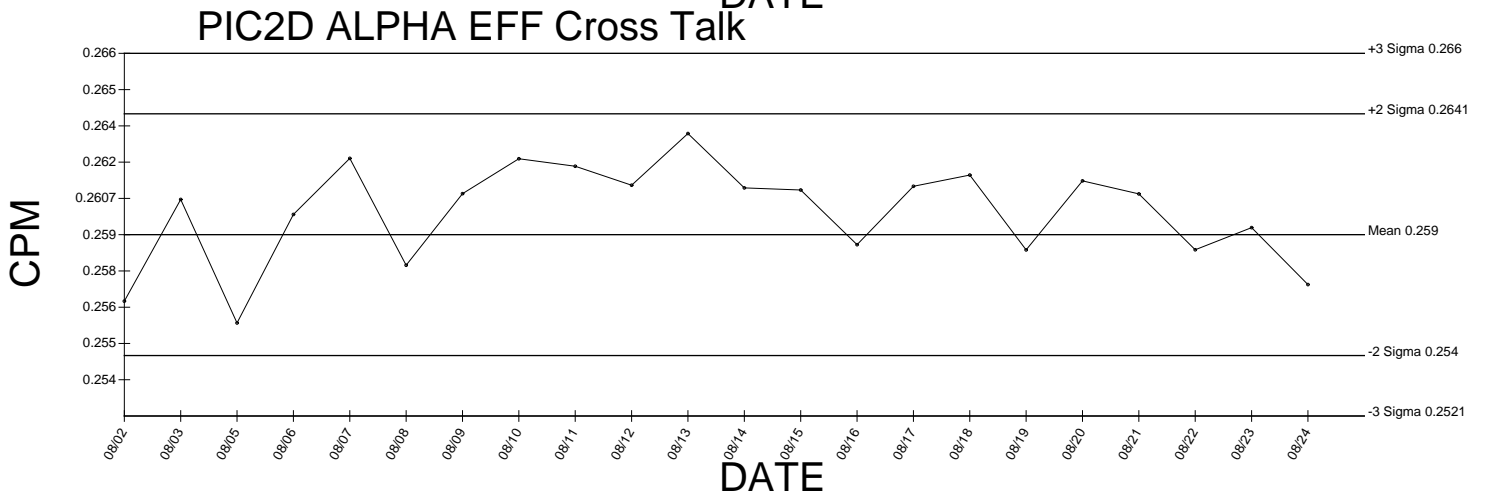
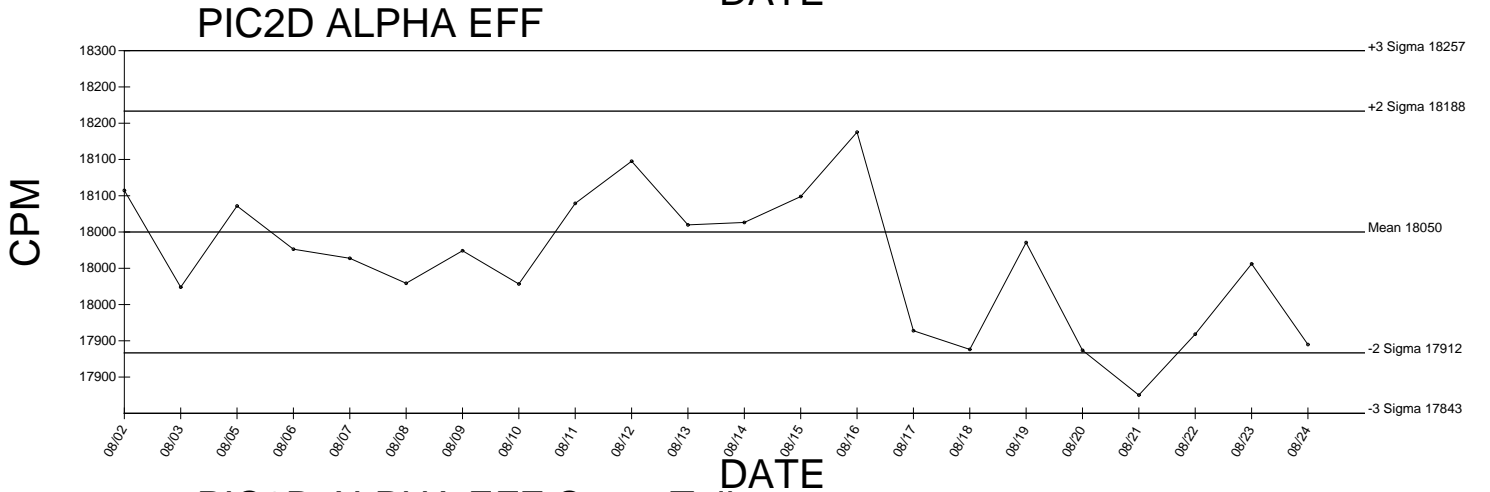
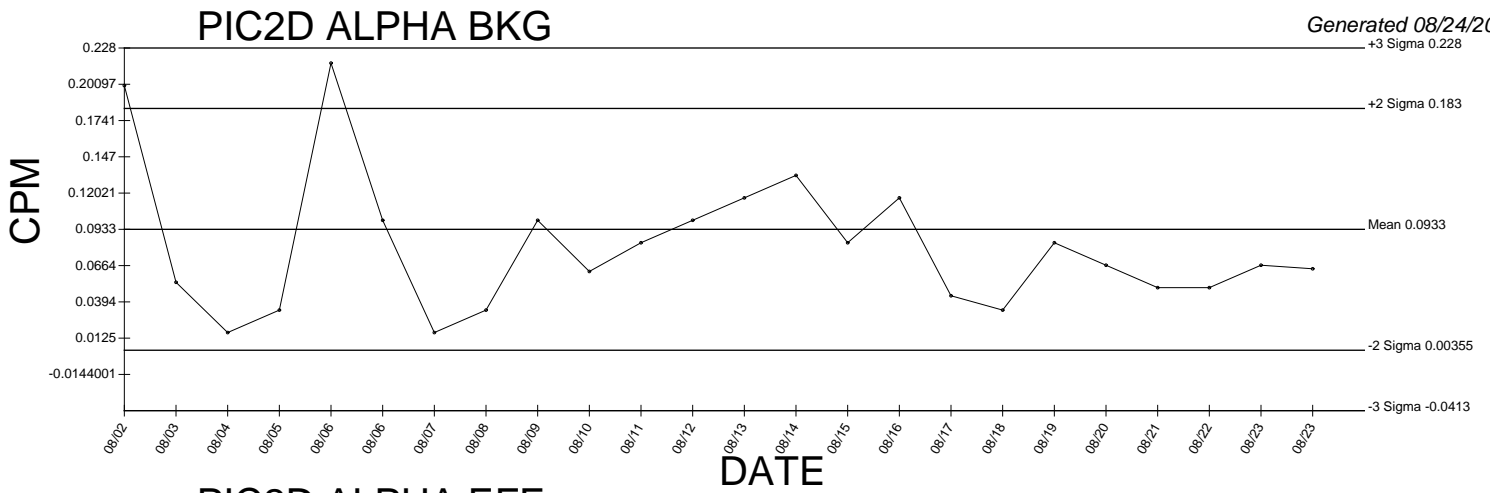
● Denotes Outlier



● Denotes Outlier



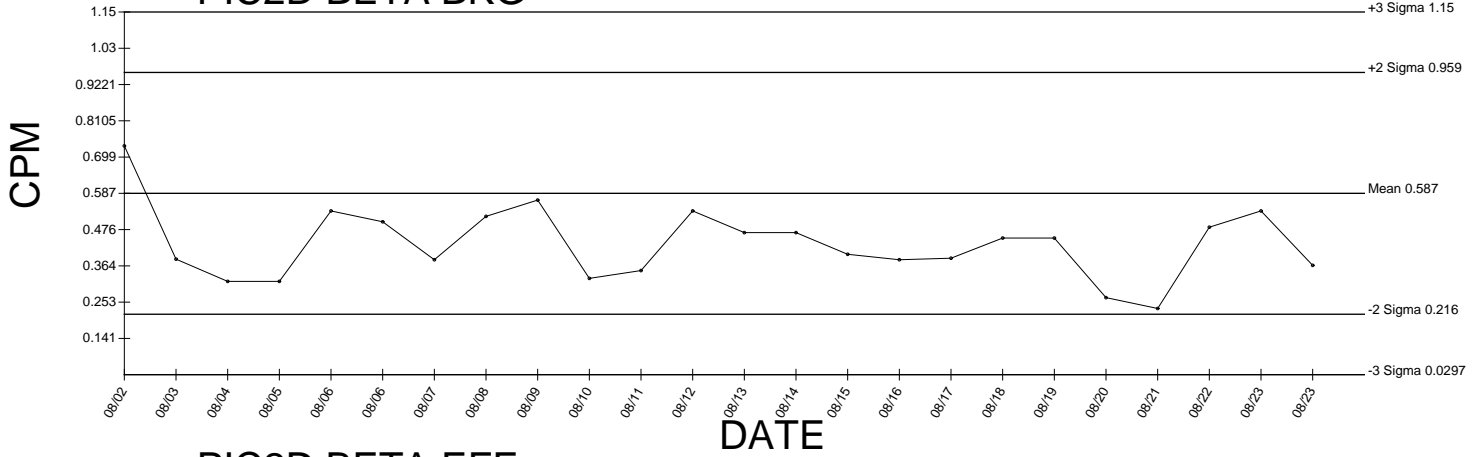
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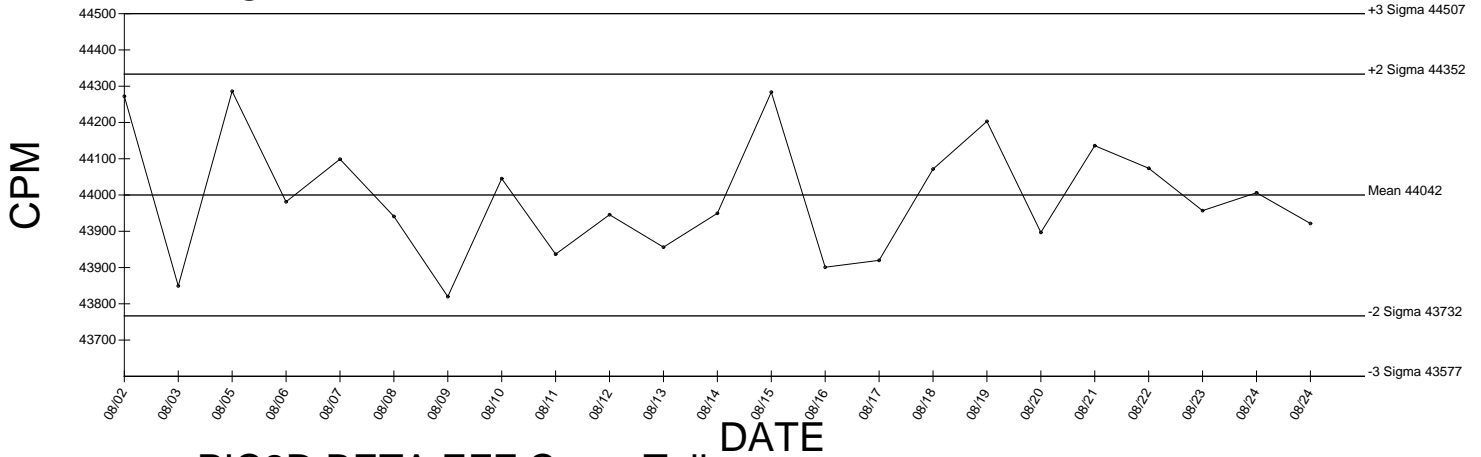
● Denotes Outlier

# PIC2D BETA BKG

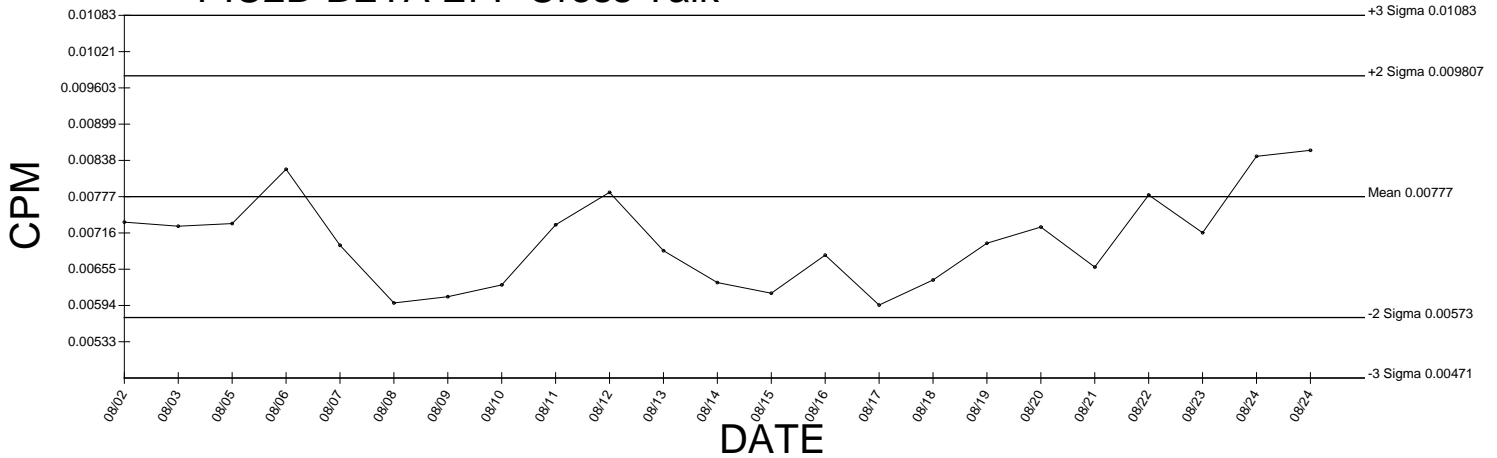
Generated 08/24/2009  
+3 Sigma 1.15



# PIC2D BETA EFF

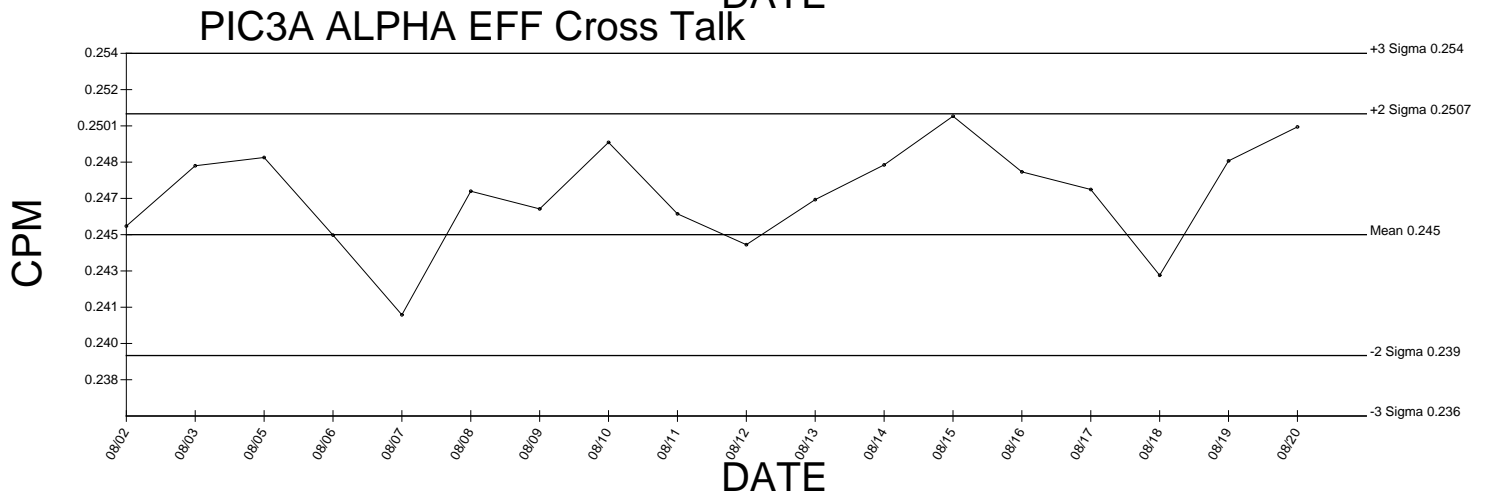
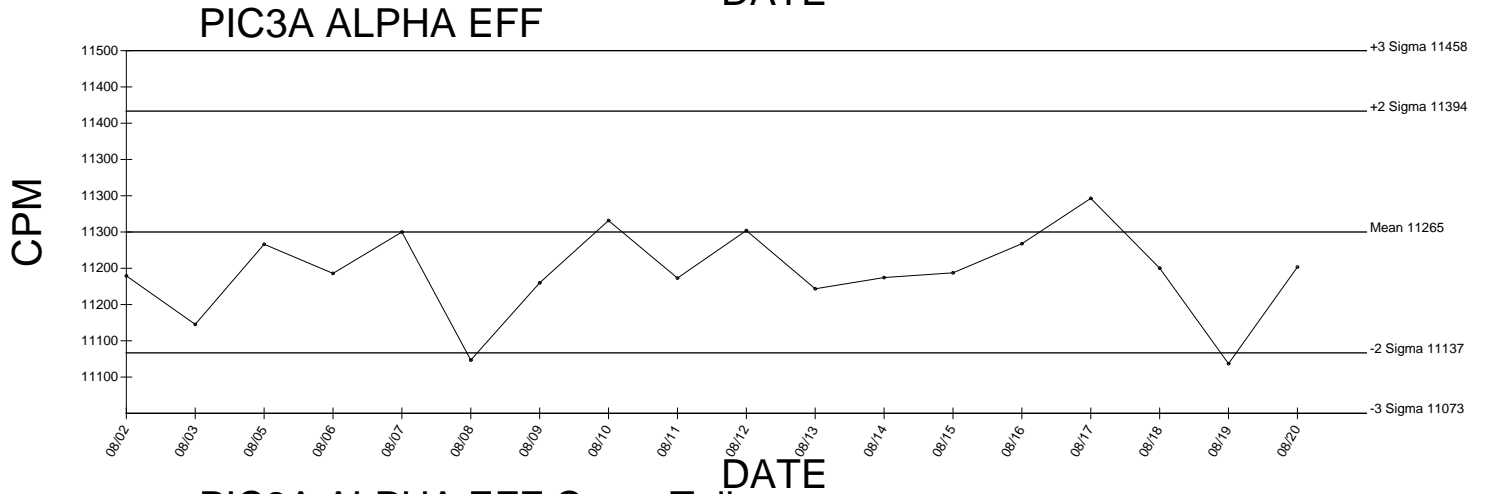
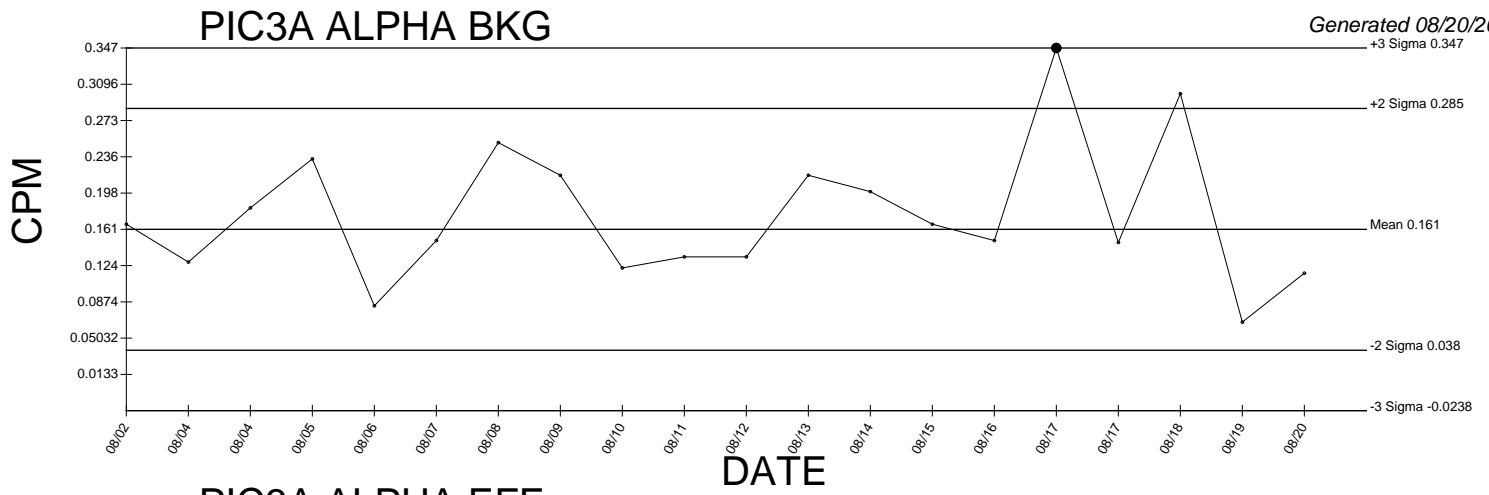


# PIC2D BETA EFF Cross Talk



● Denotes Outlier

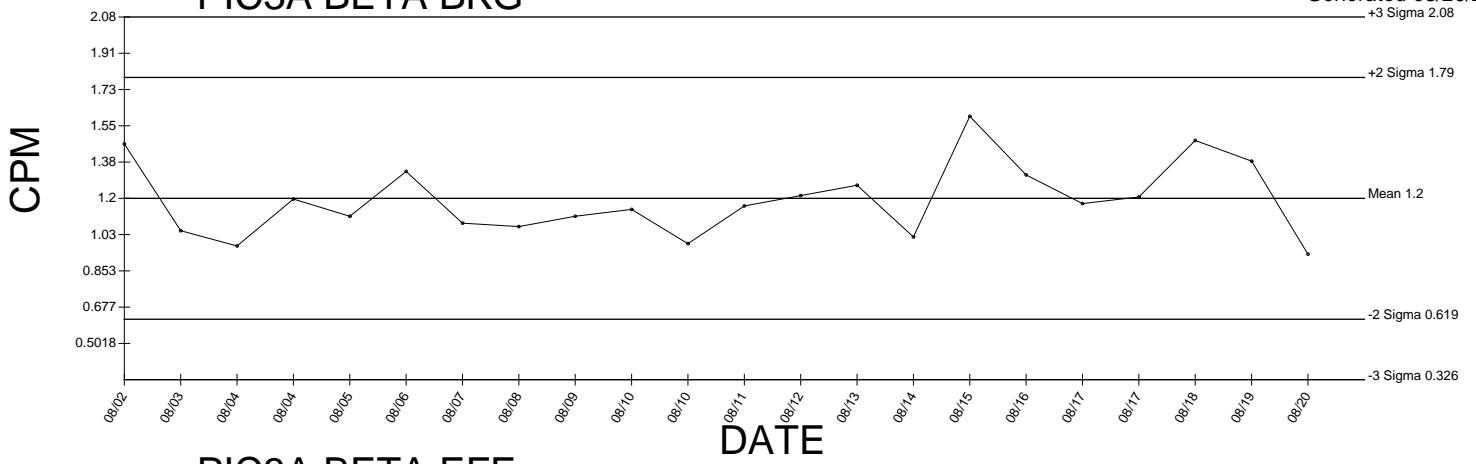




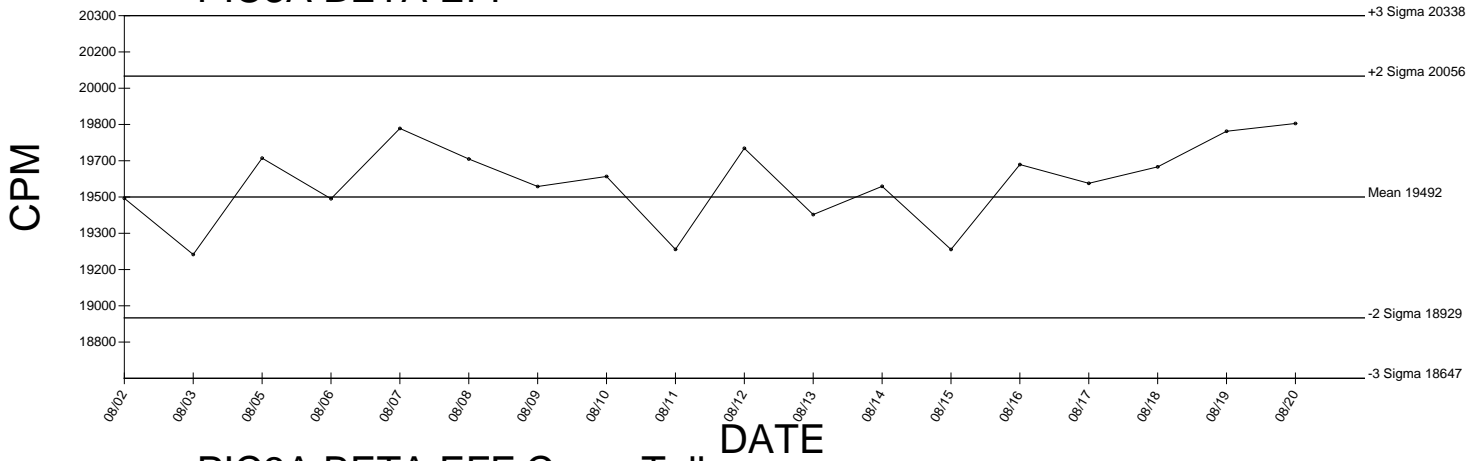
● Denotes Outlier

# PIC3A BETA BKG

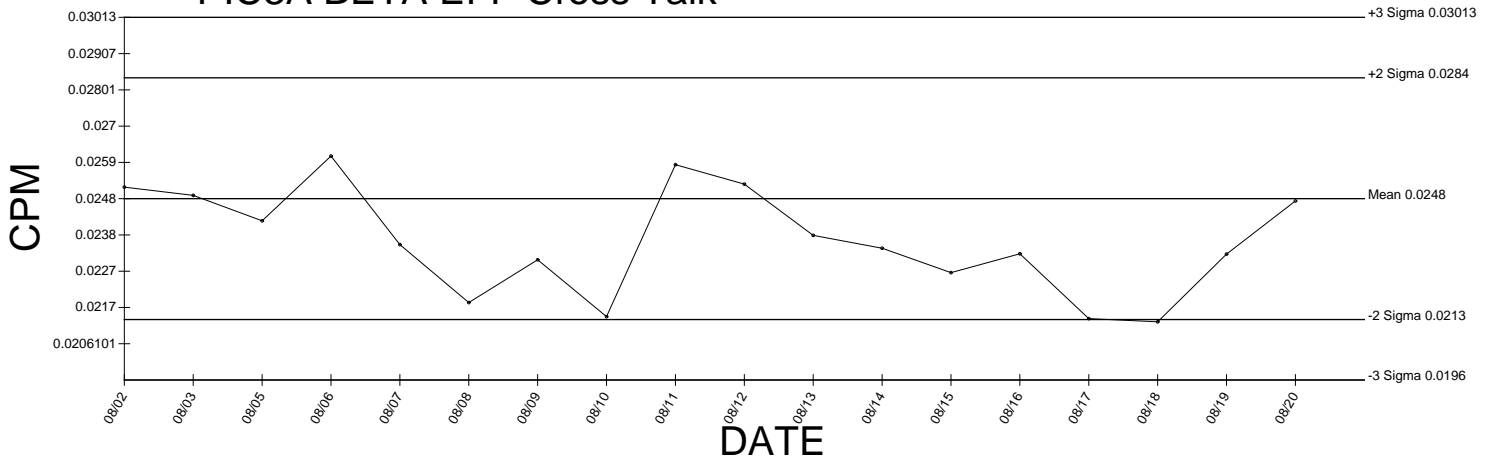
Generated 08/20/2009



# PIC3A BETA EFF



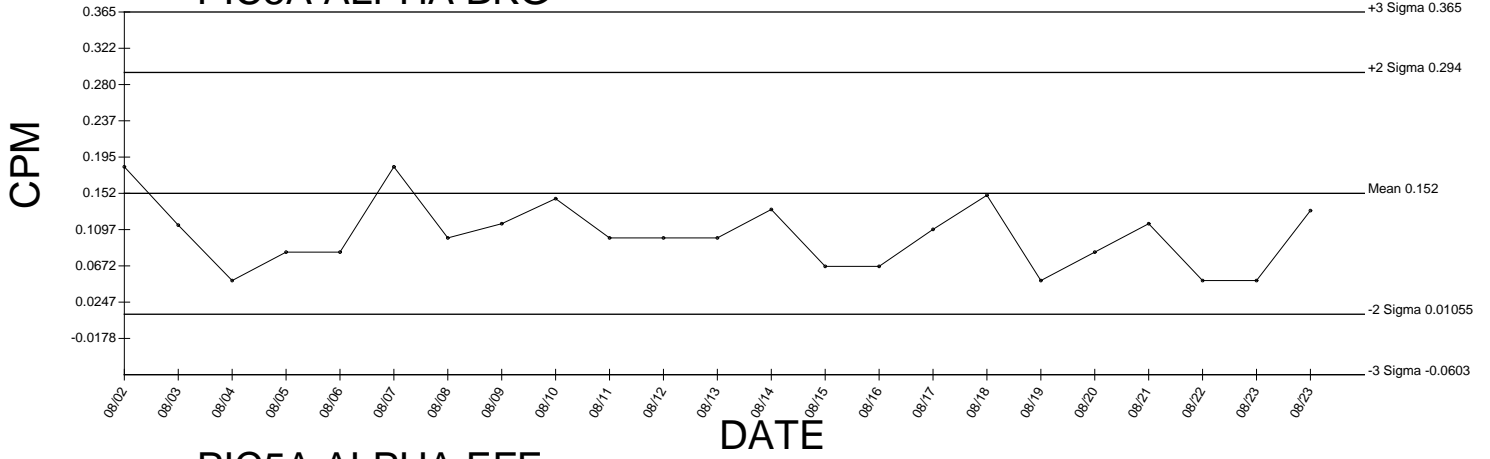
# PIC3A BETA EFF Cross Talk



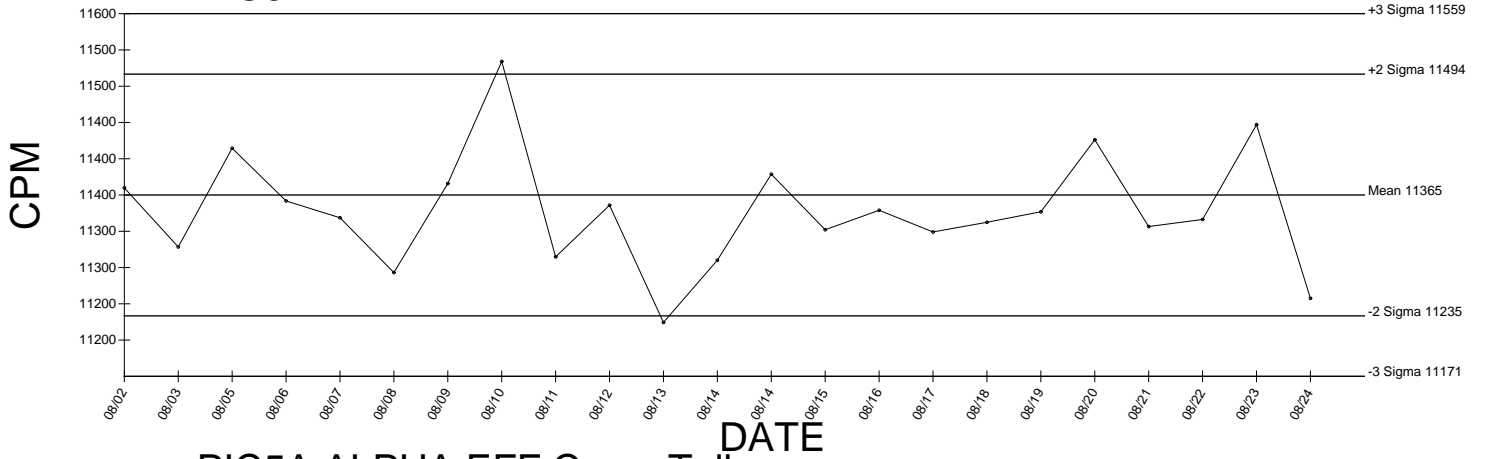
● Denotes Outlier

# PIC5A ALPHA BKG

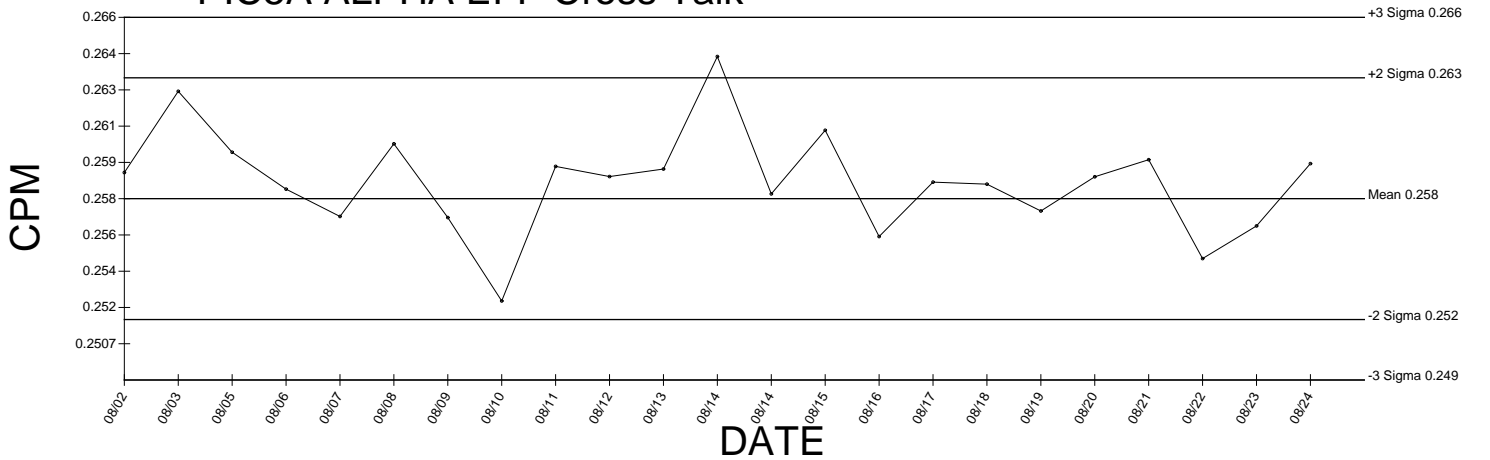
Generated 08/24/2009



# PIC5A ALPHA EFF



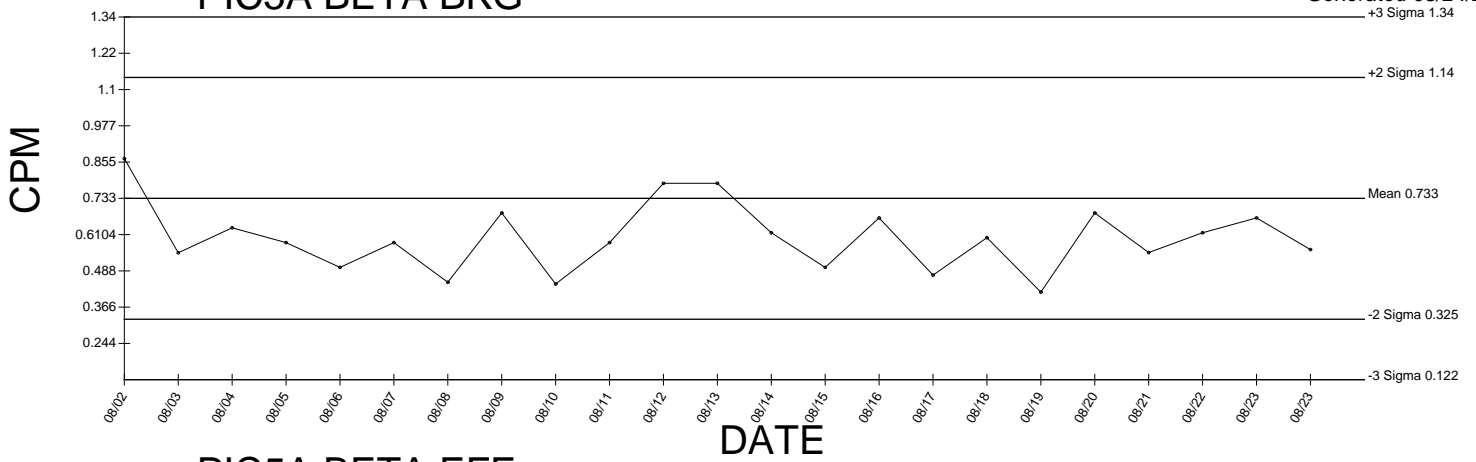
# PIC5A ALPHA EFF Cross Talk



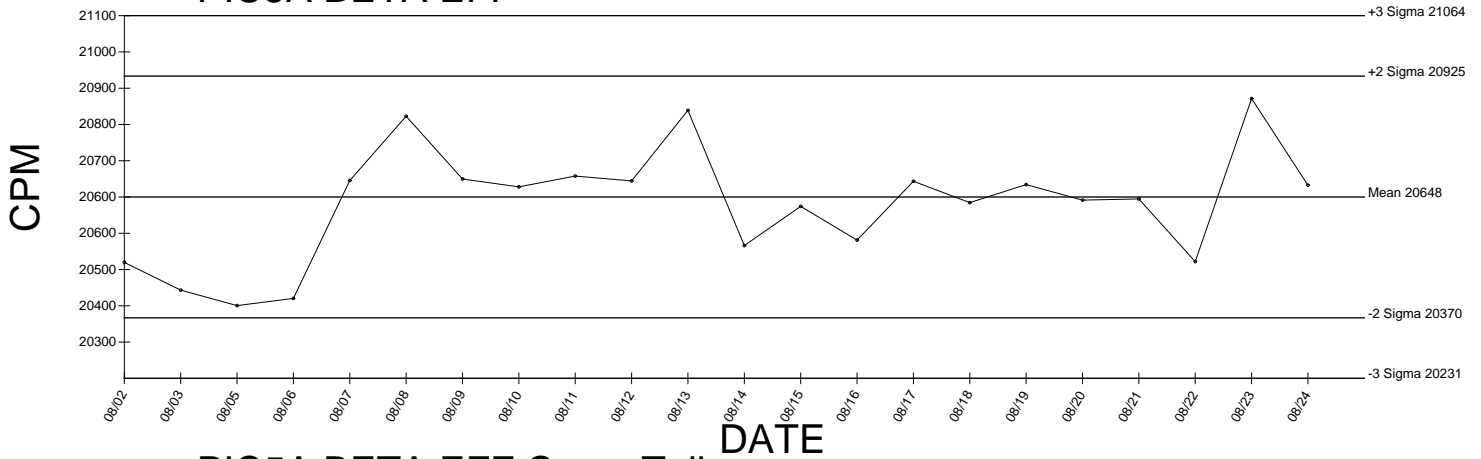
● Denotes Outlier

# PIC5A BETA BKG

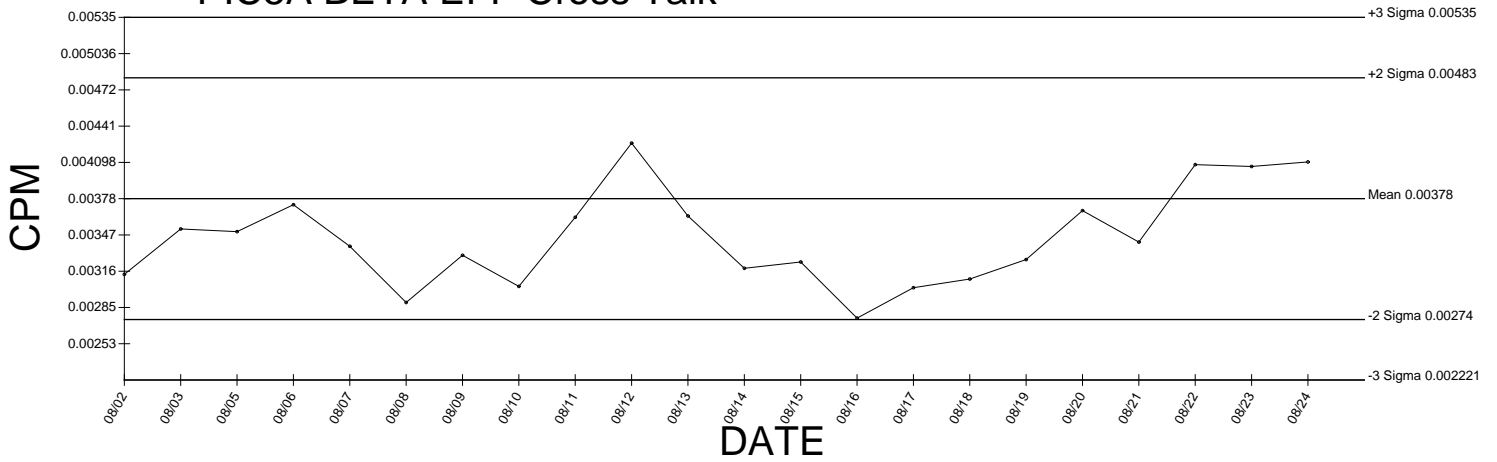
Generated 08/24/2009



# PIC5A BETA EFF



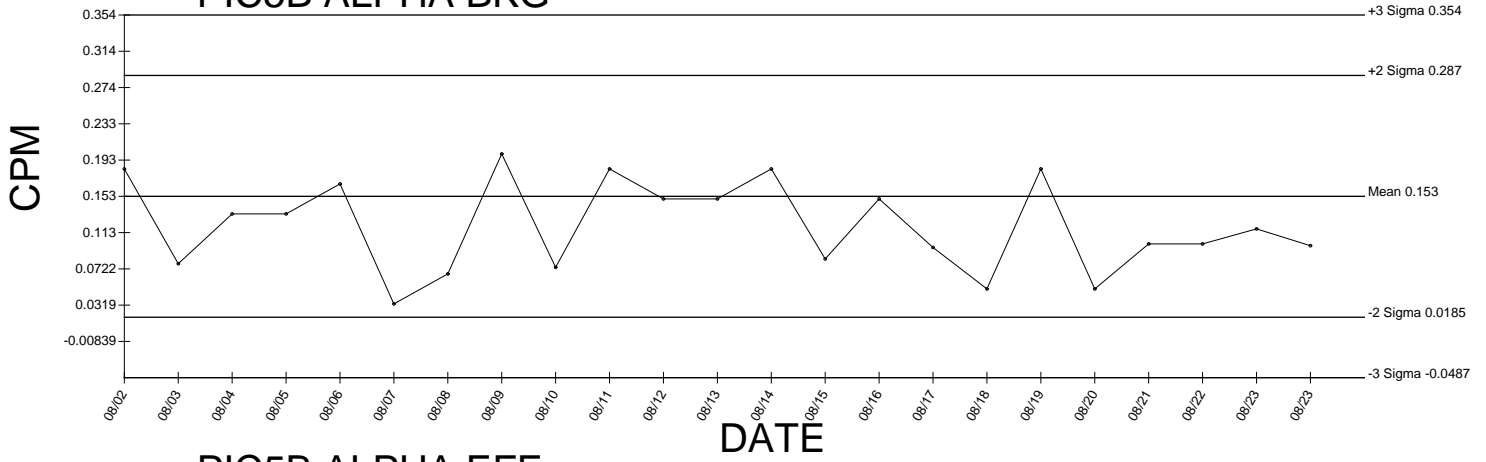
# PIC5A BETA EFF Cross Talk



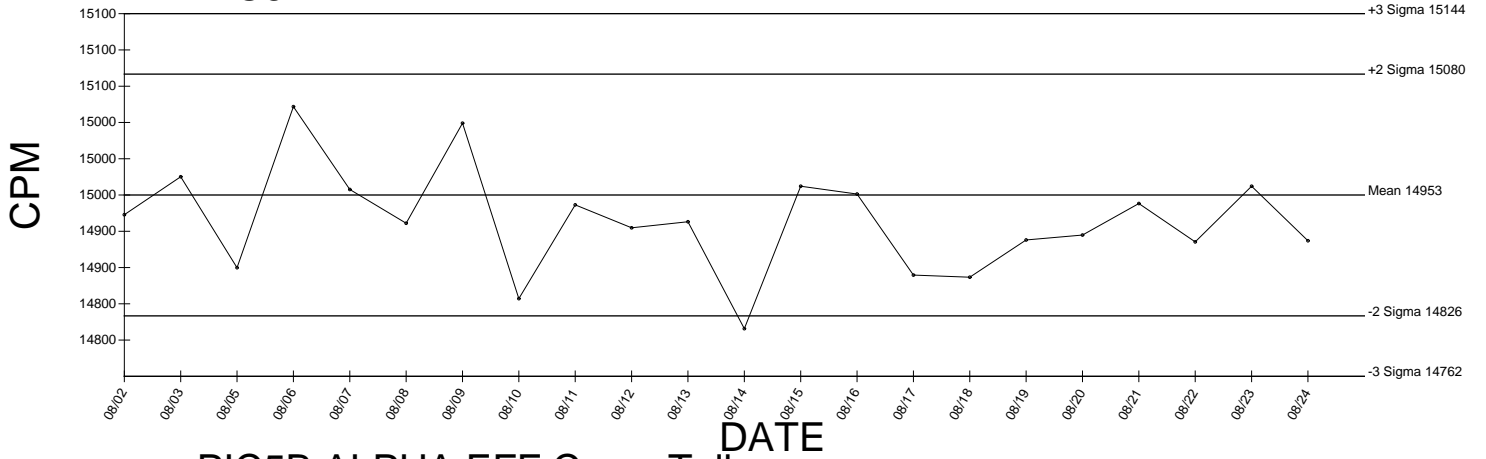
● Denotes Outlier

# PIC5B ALPHA BKG

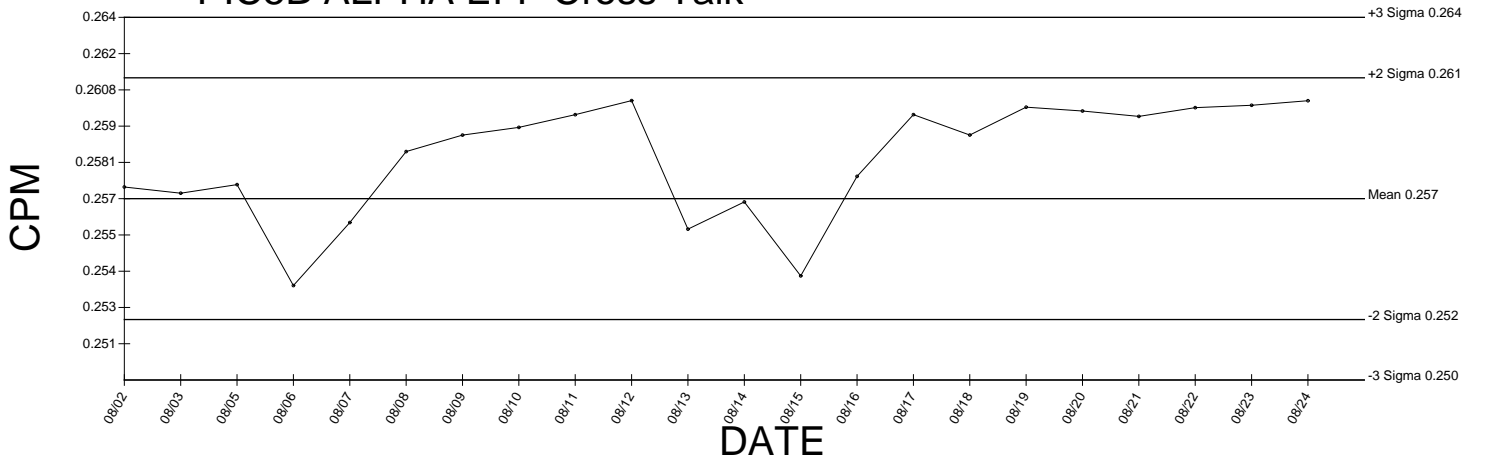
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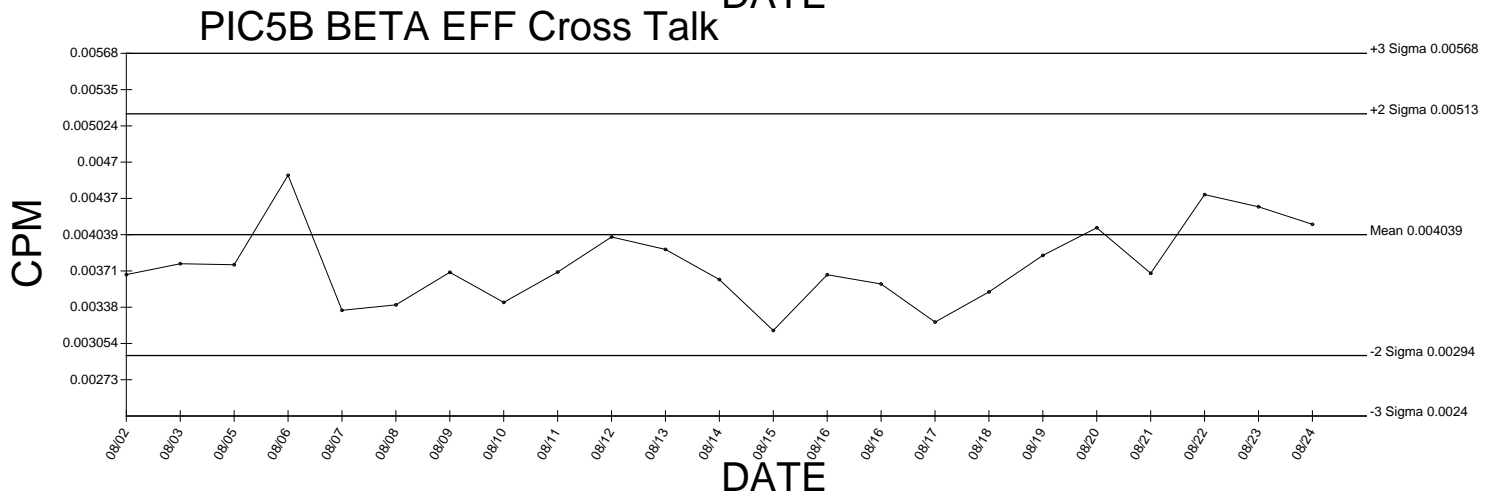
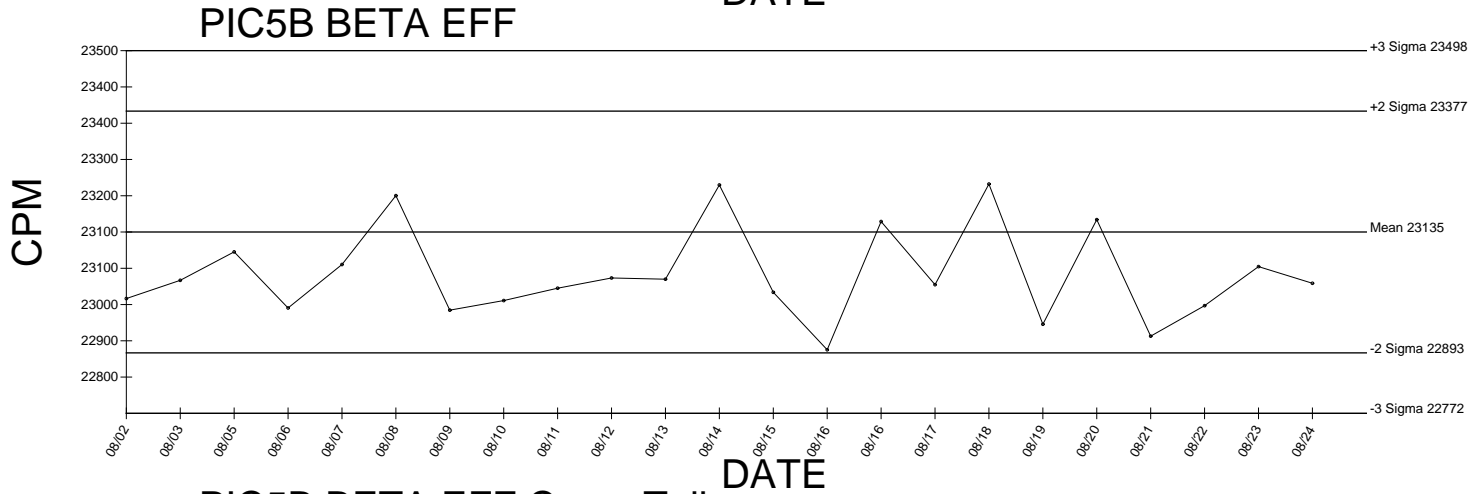
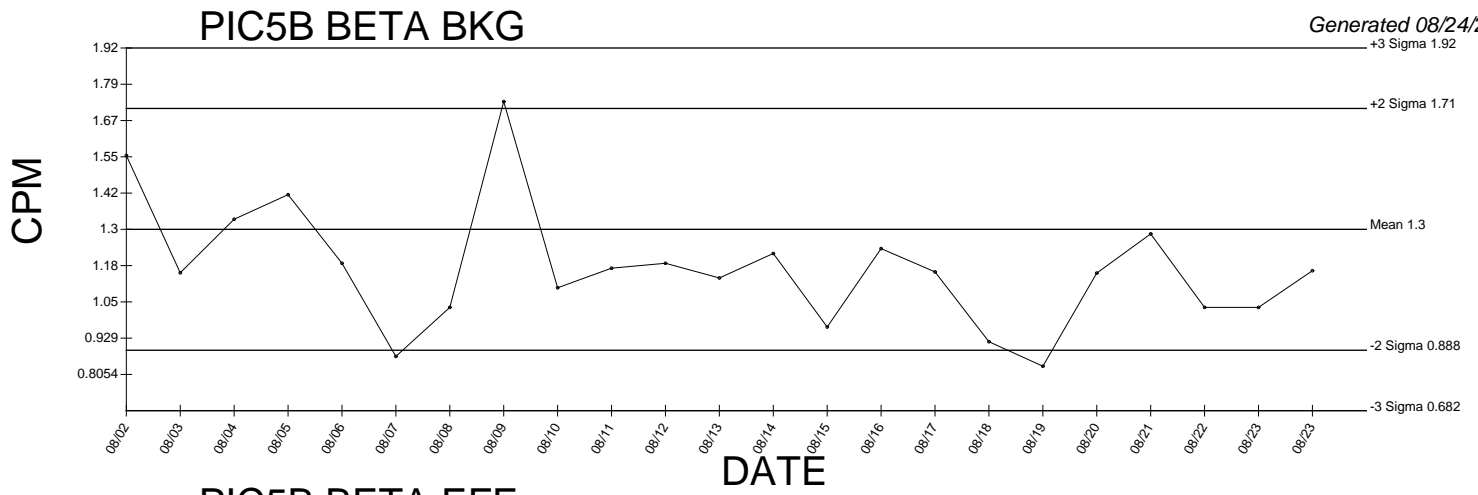
# PIC5B ALPHA EFF



# PIC5B ALPHA EFF Cross Talk



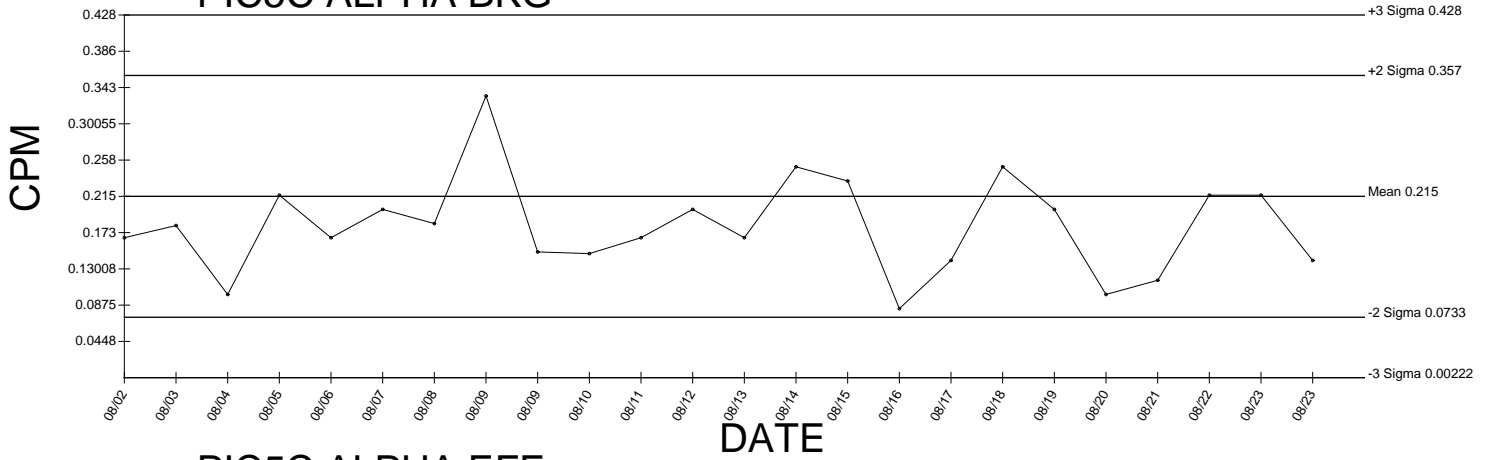
● Denotes Outlier



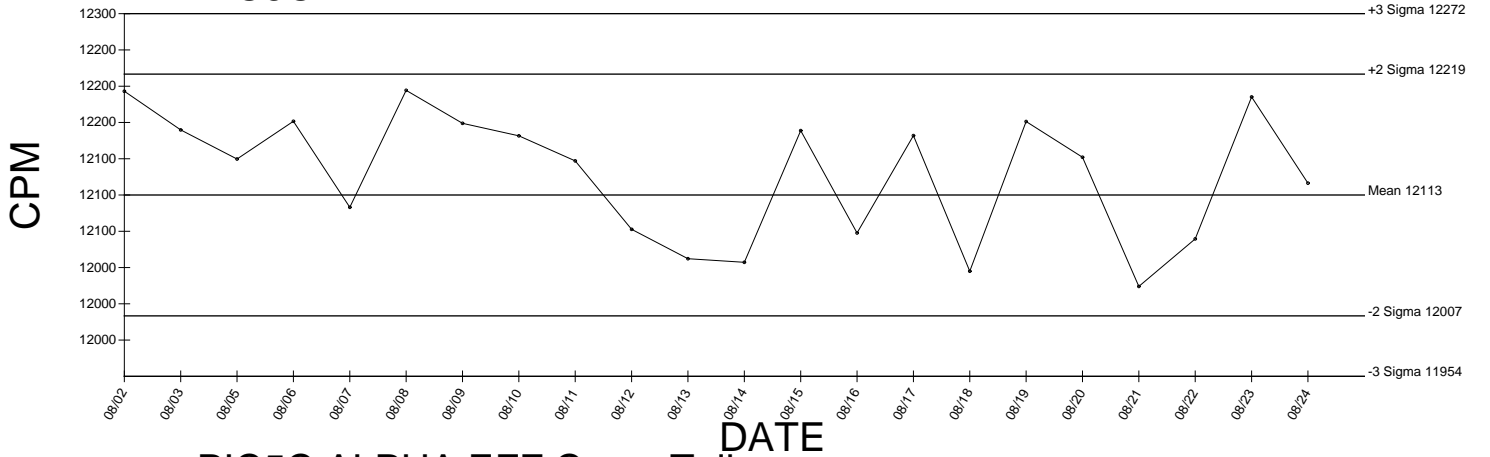
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# PIC5C ALPHA BKG

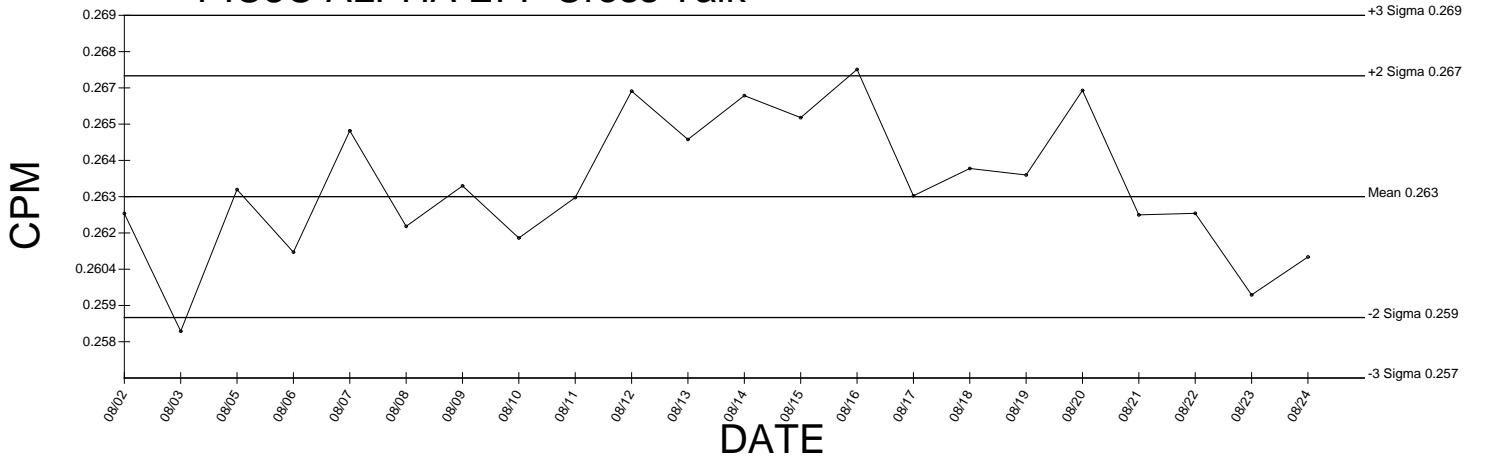
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# PIC5C ALPHA EFF



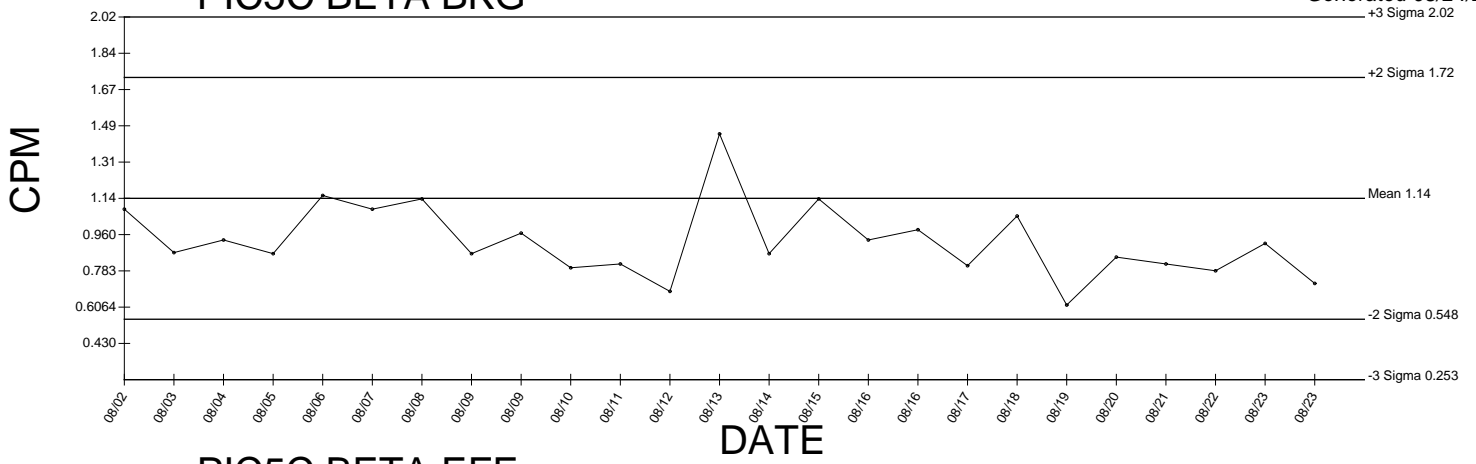
# PIC5C ALPHA EFF Cross Talk



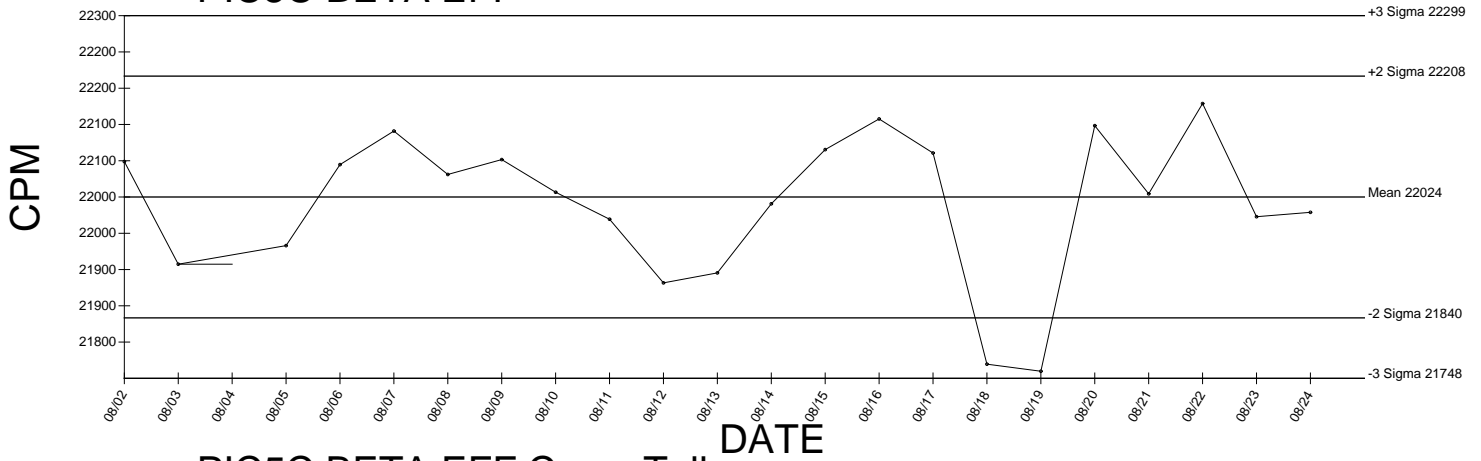
● Denotes Outlier

# PIC5C BETA BKG

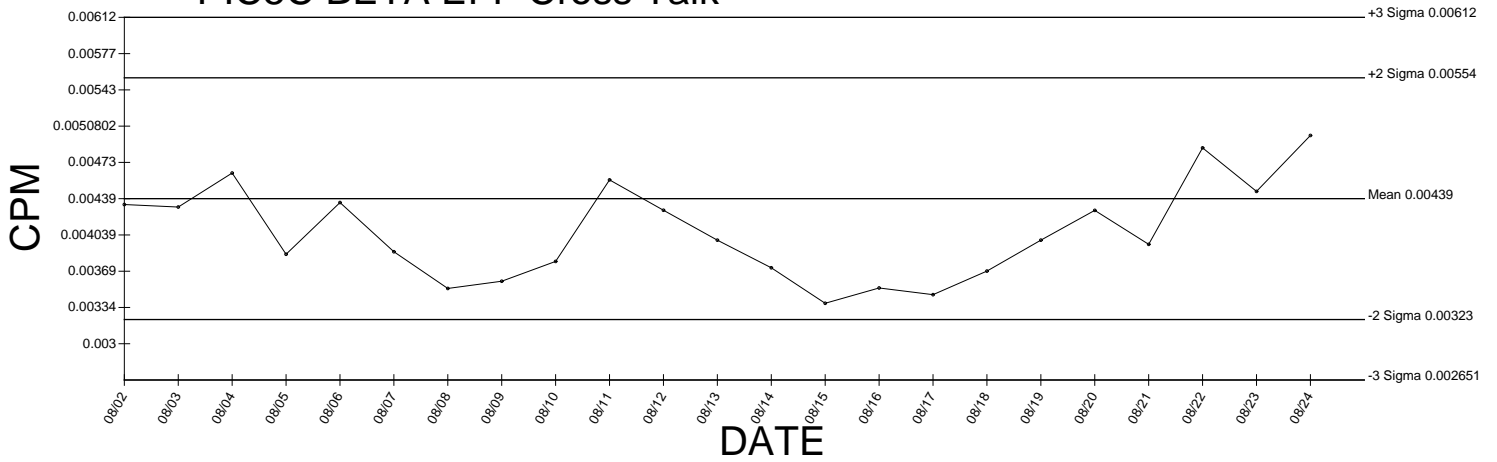
Generated 08/24/2009



# PIC5C BETA EFF



# PIC5C BETA EFF Cross Talk

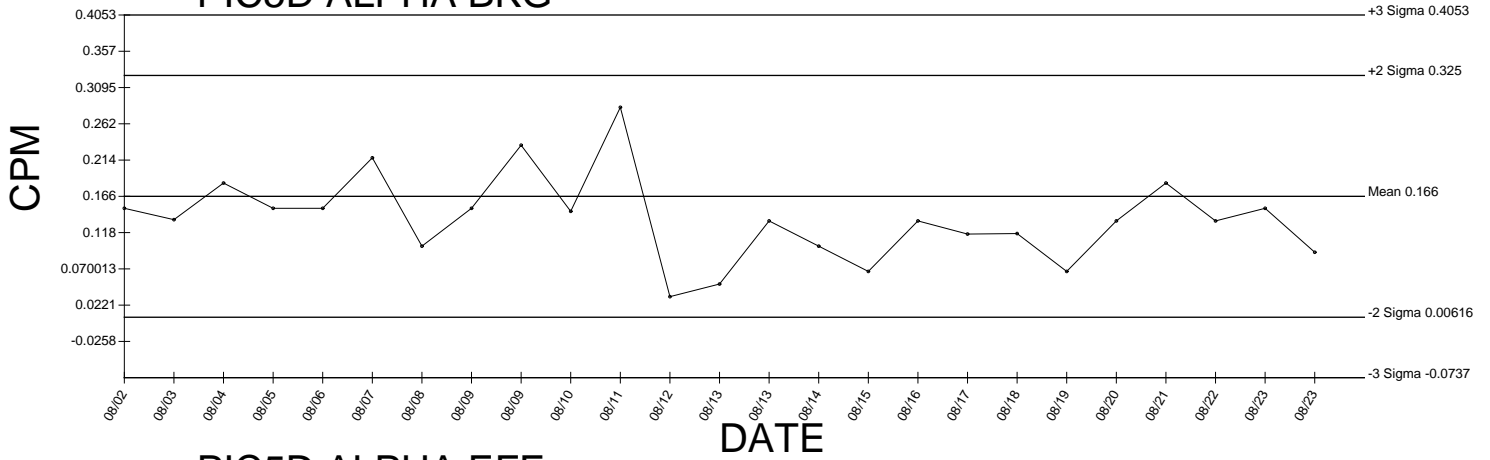


● Denotes Outlier

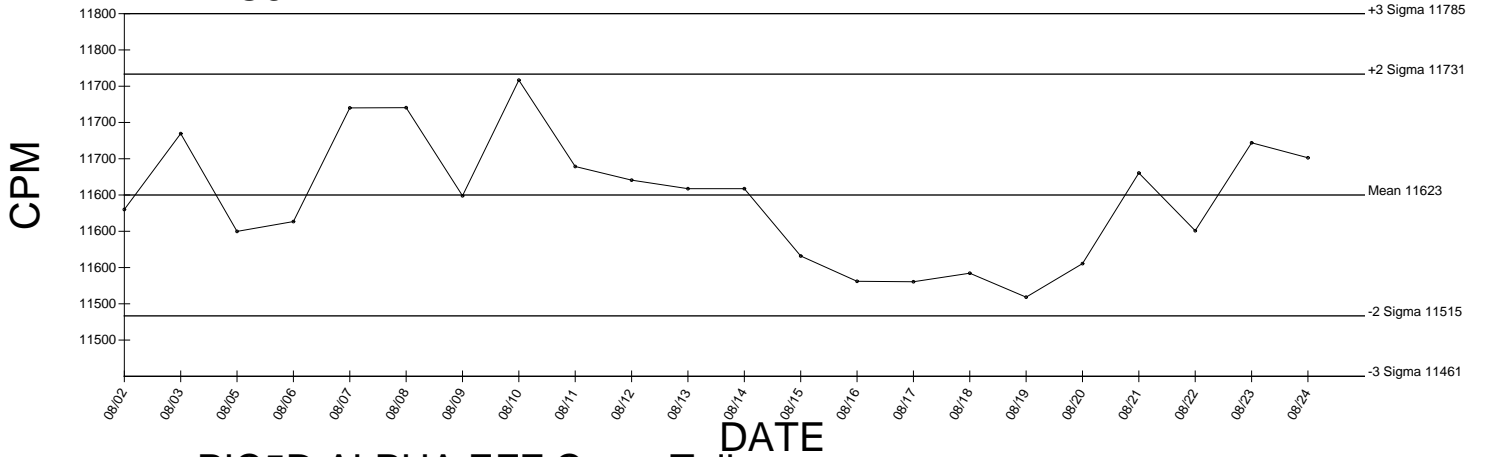


# PIC5D ALPHA BKG

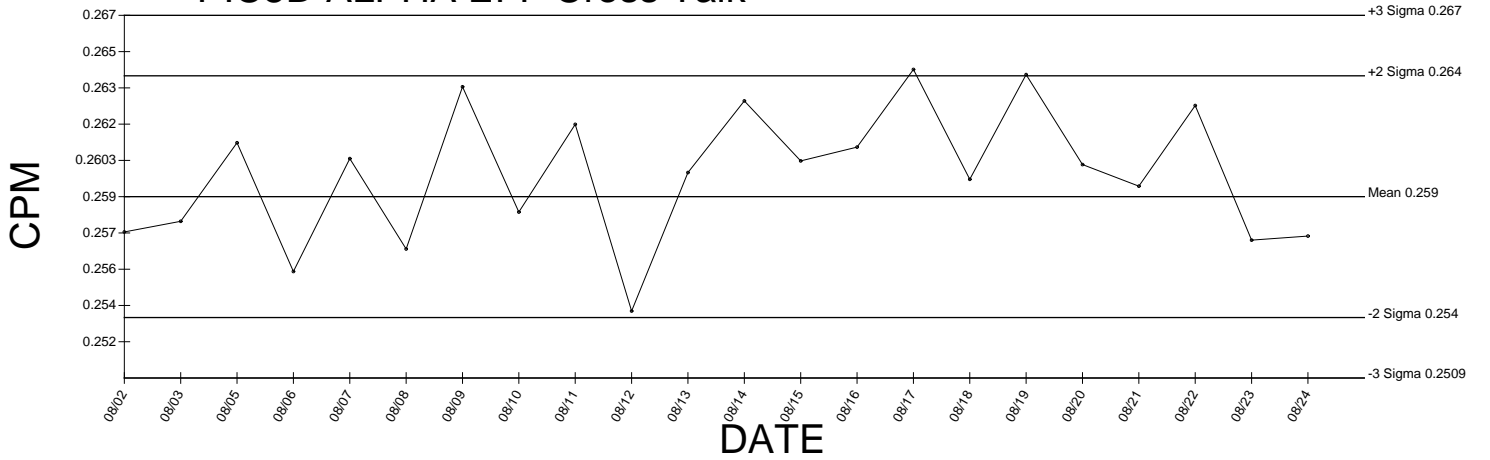
Generated 08/24/2009



# PIC5D ALPHA EFF



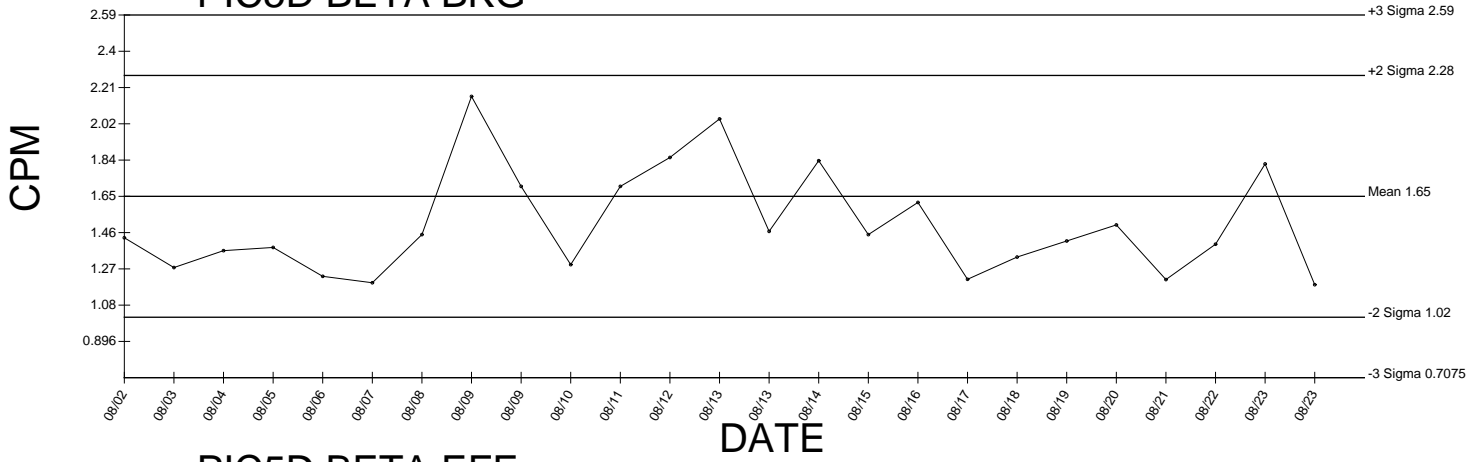
# PIC5D ALPHA EFF Cross Talk



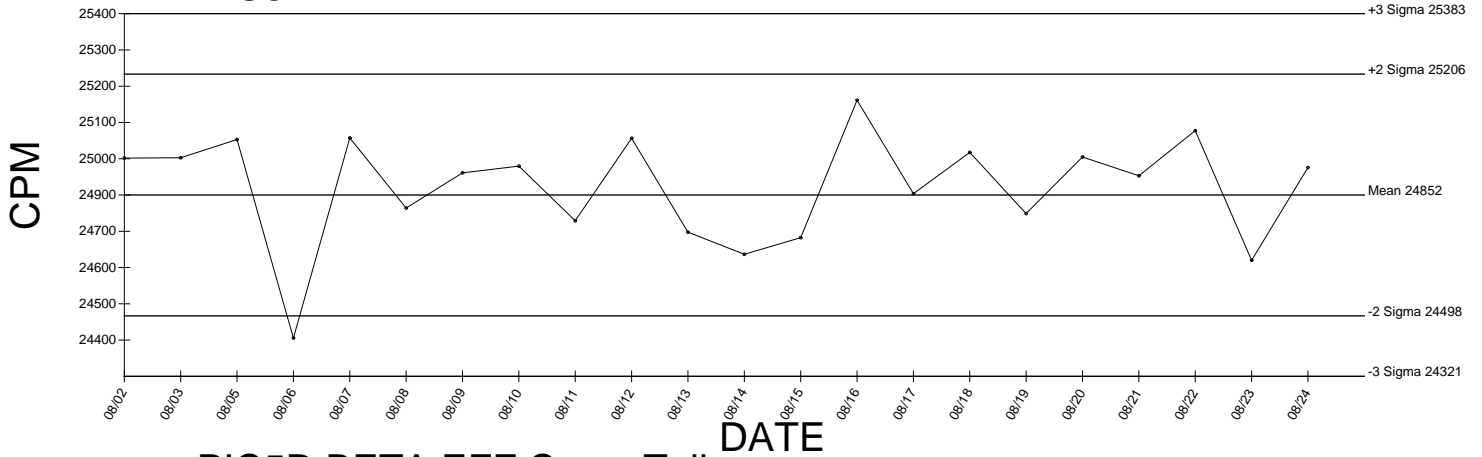
● Denotes Outlier

# PIC5D BETA BKG

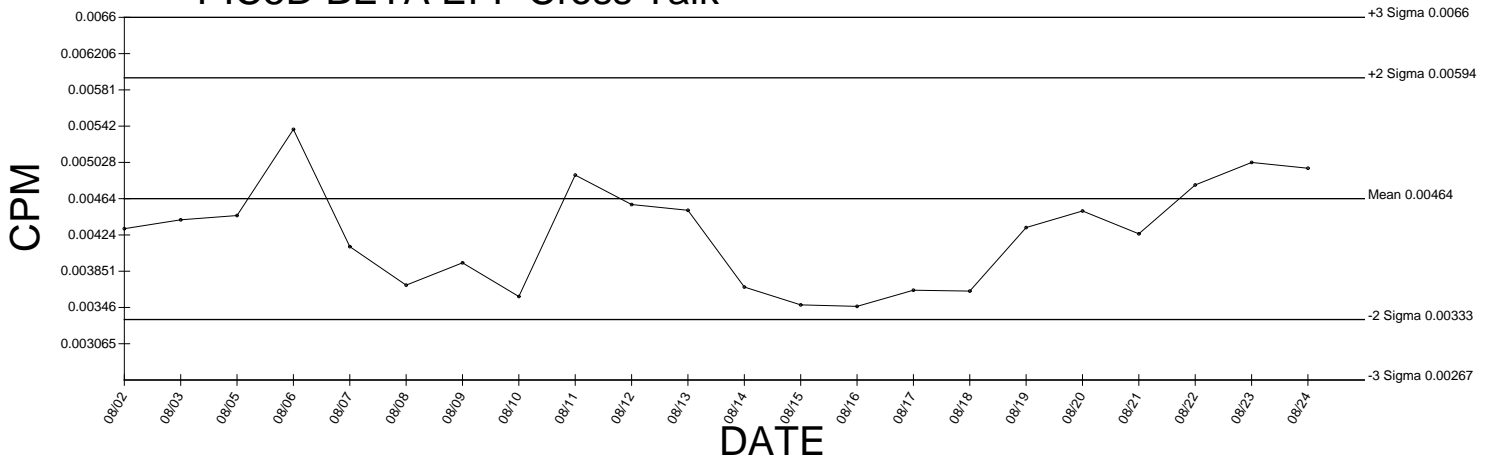
Generated 08/24/2009  
+3 Sigma 2.59



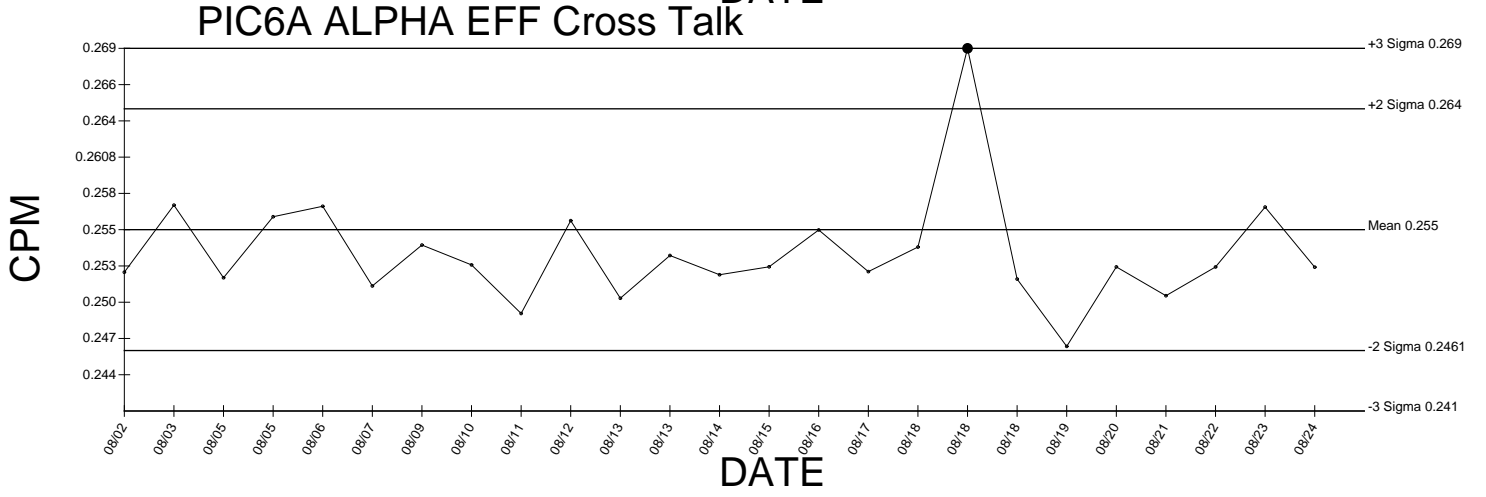
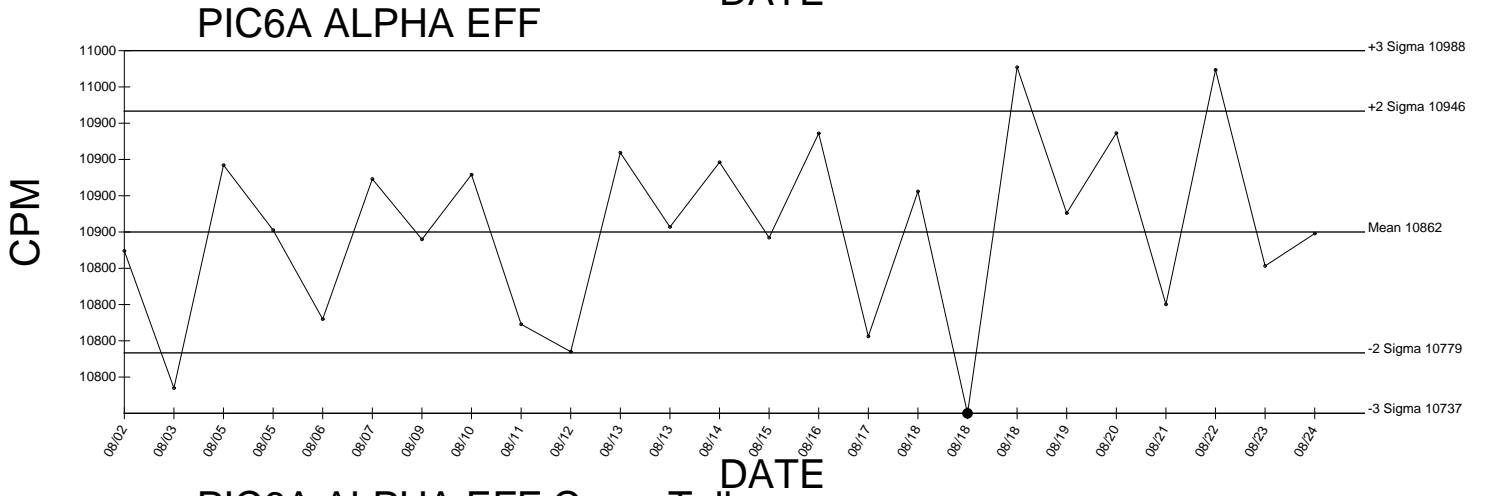
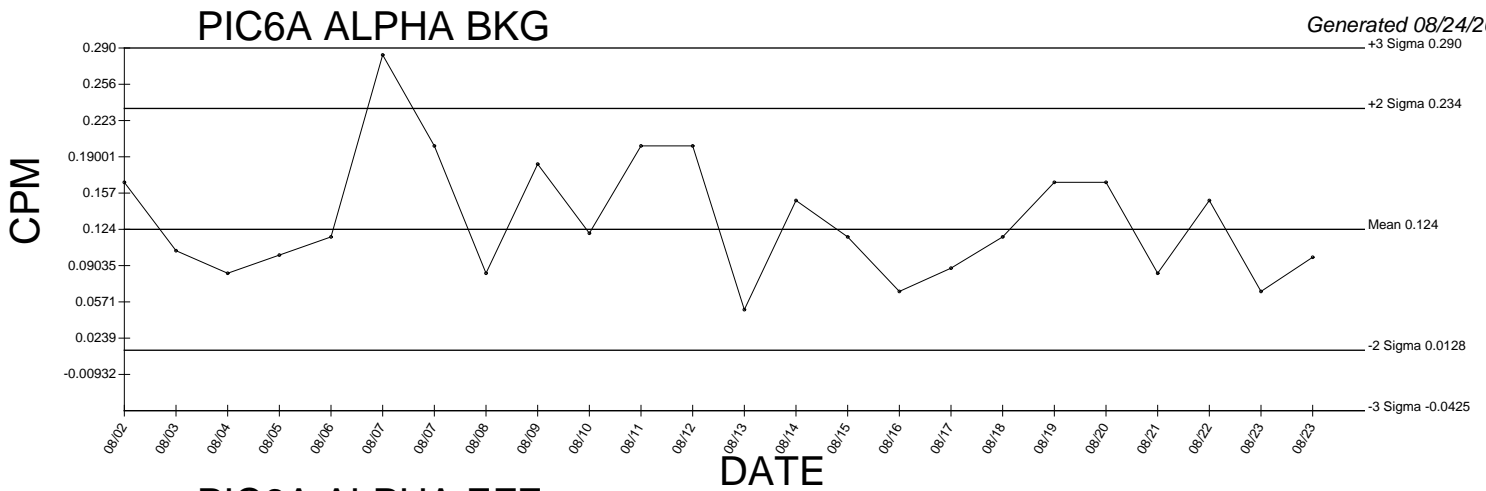
# PIC5D BETA EFF



# PIC5D BETA EFF Cross Talk



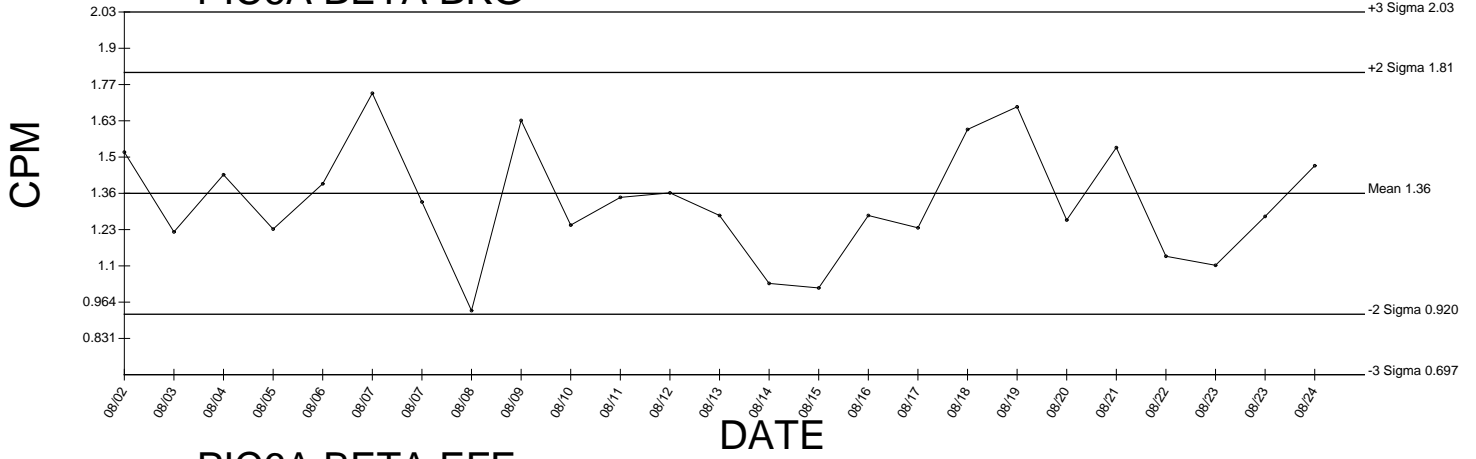
● Denotes Outlier



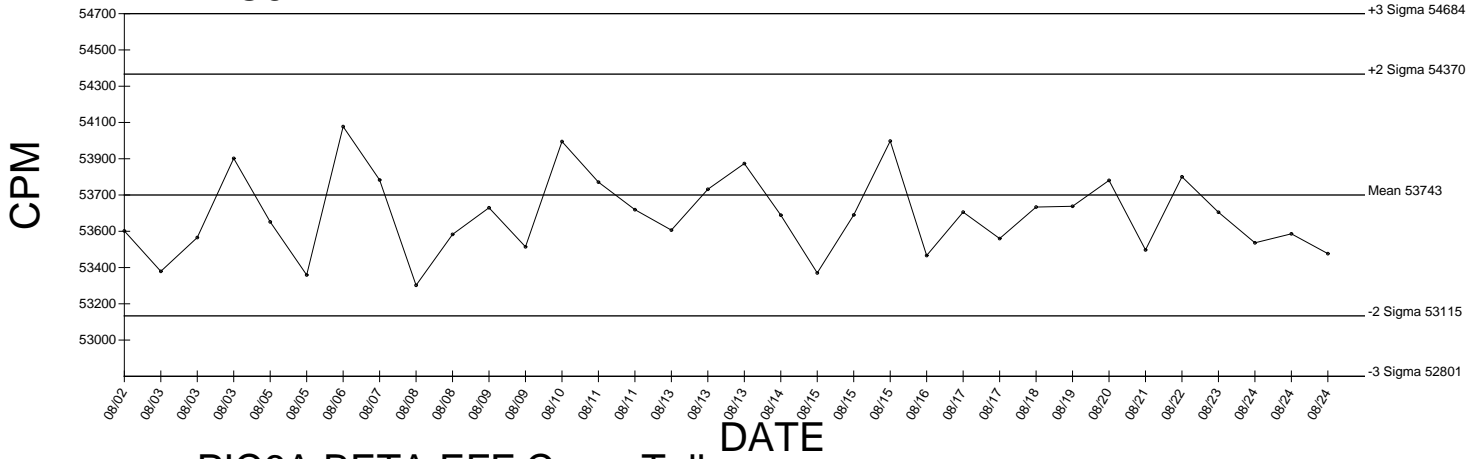
● Denotes Outlier

# PIC6A BETA BKG

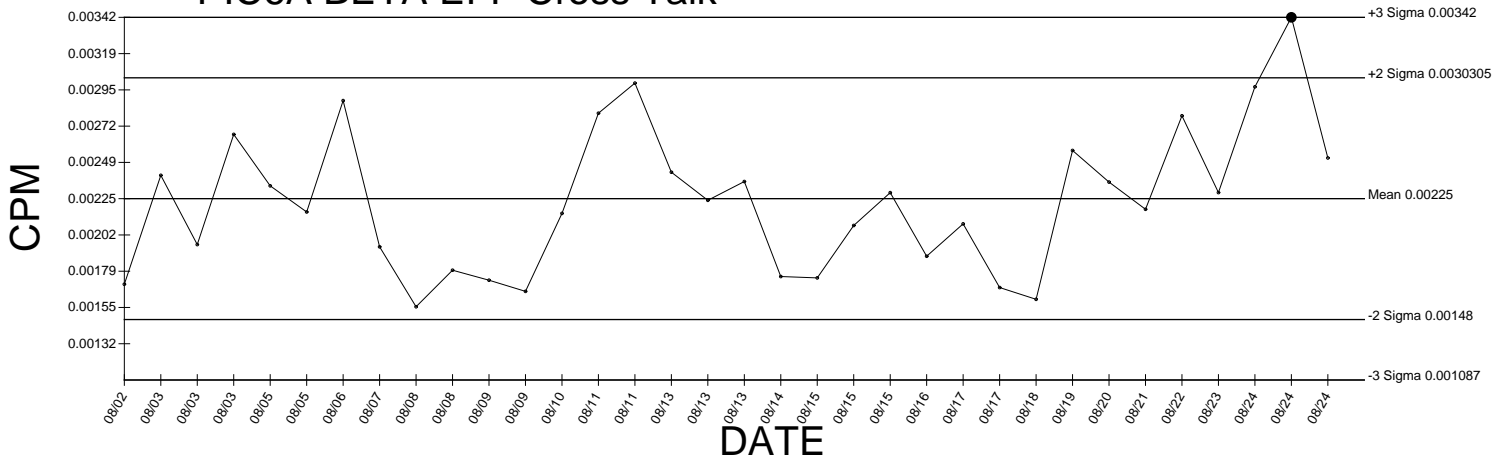
Generated 08/24/2009  
+3 Sigma 2.03

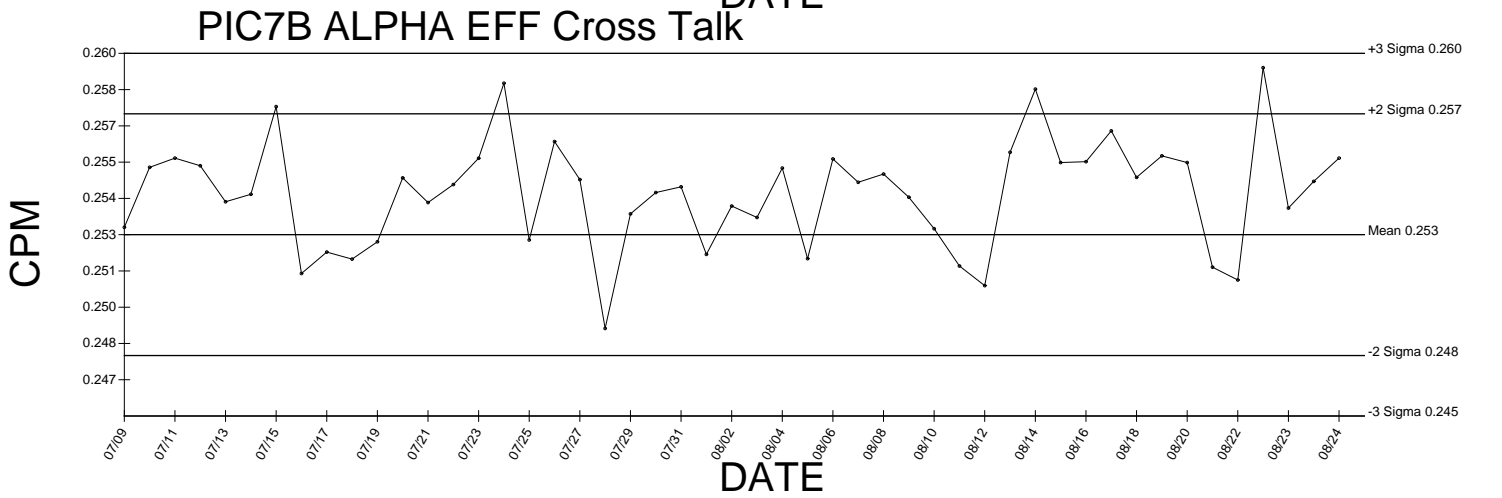
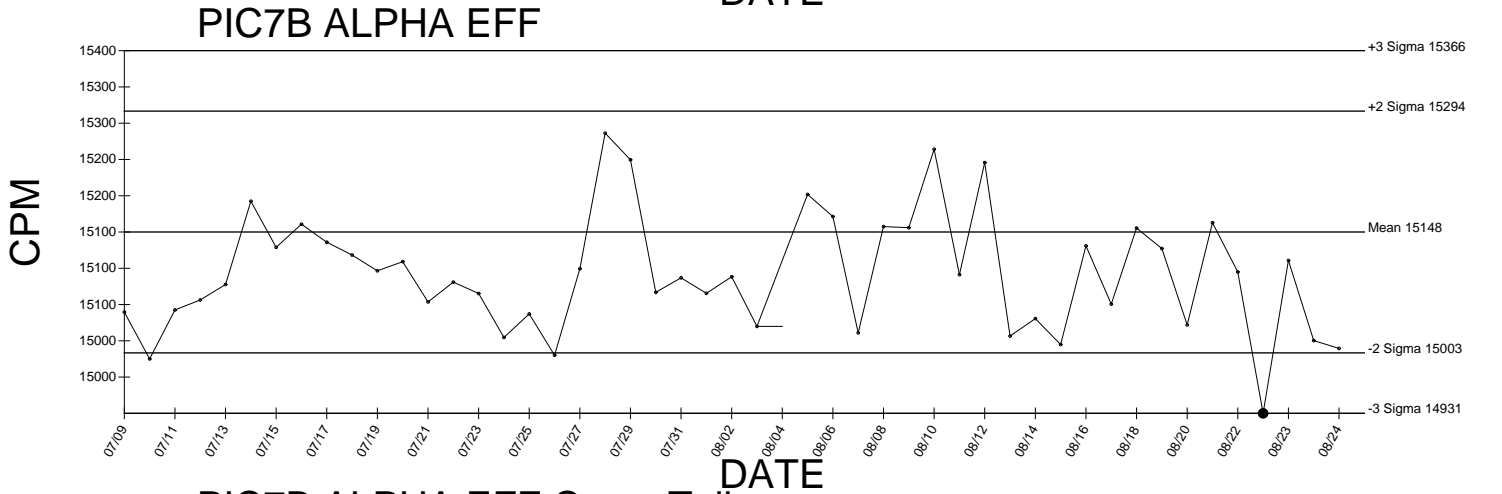
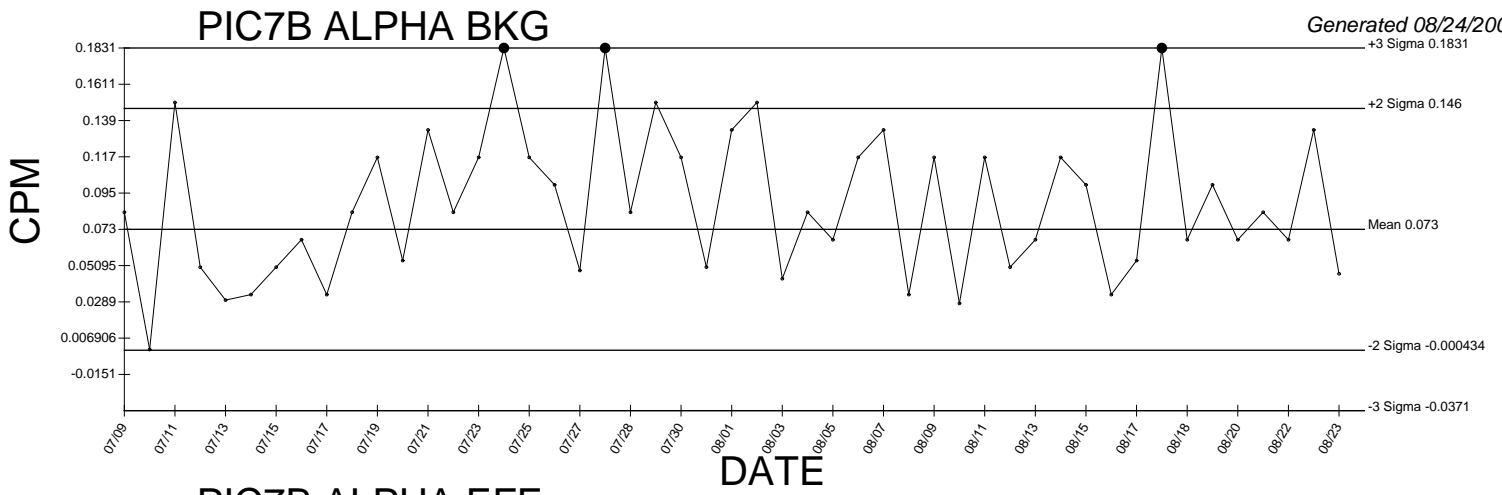


# PIC6A BETA EFF



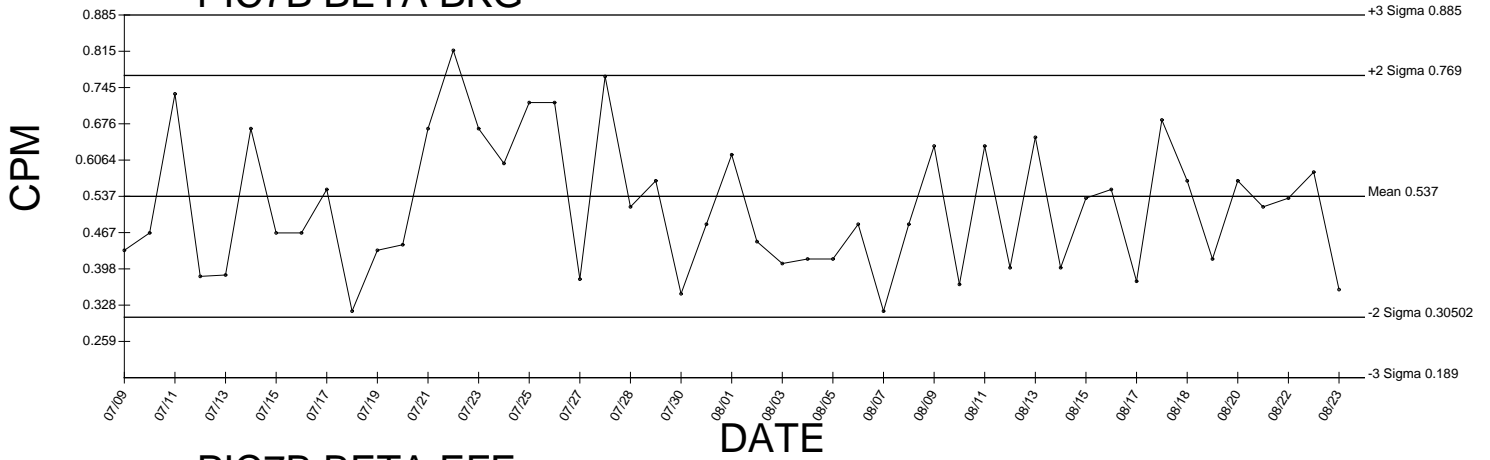
# PIC6A BETA EFF Cross Talk



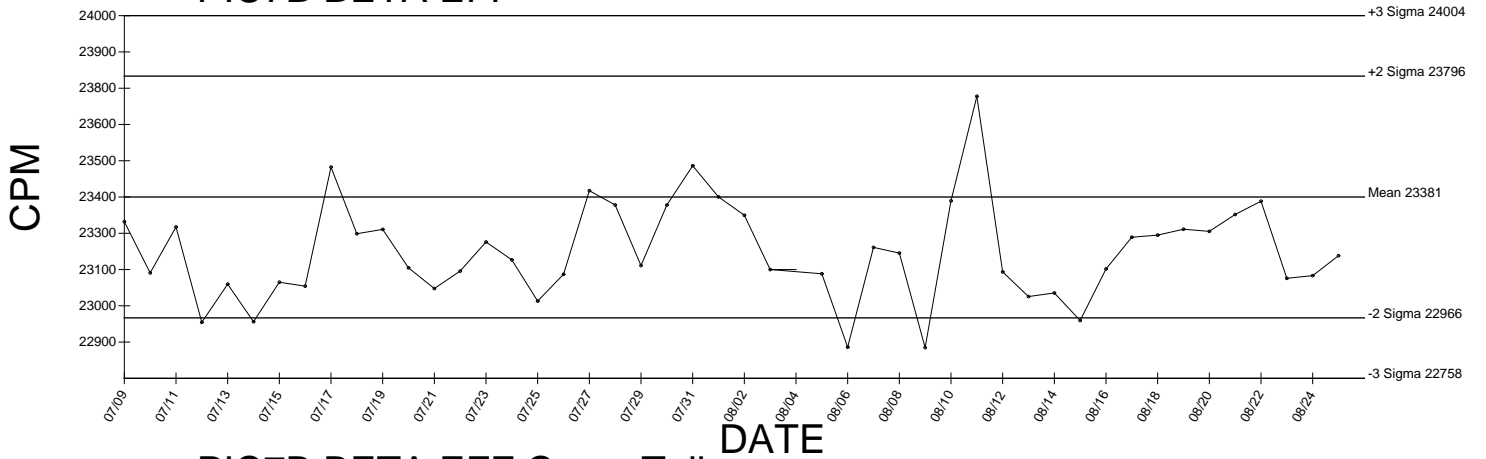


● Denotes Outlier

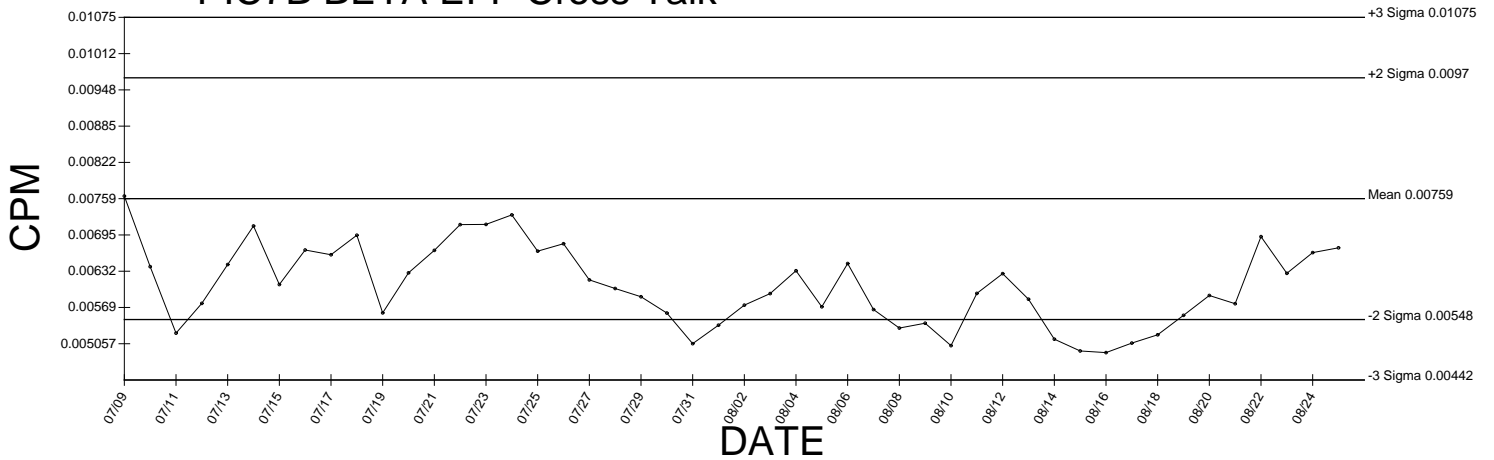
### PIC7B BETA BKG



### PIC7B BETA EFF

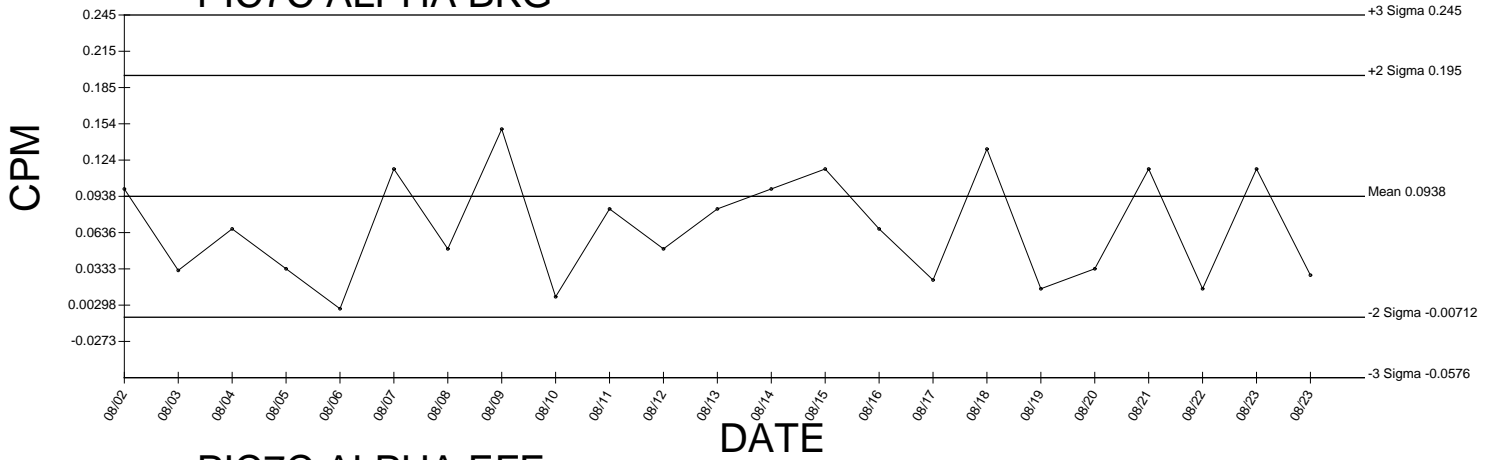


### PIC7B BETA EFF Cross Talk

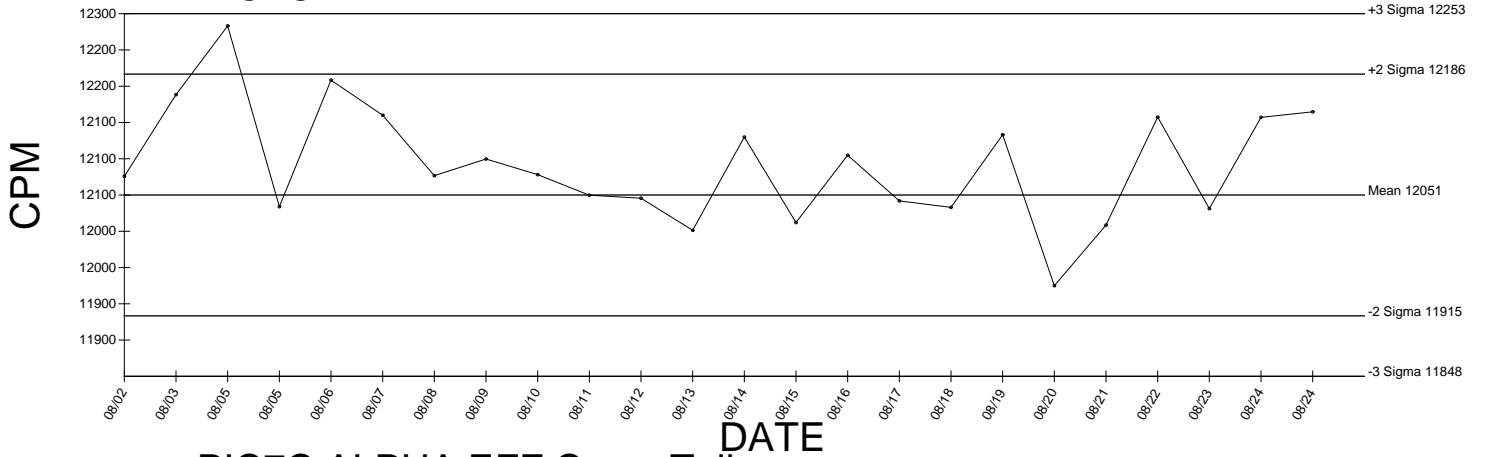


● Denotes Outlier

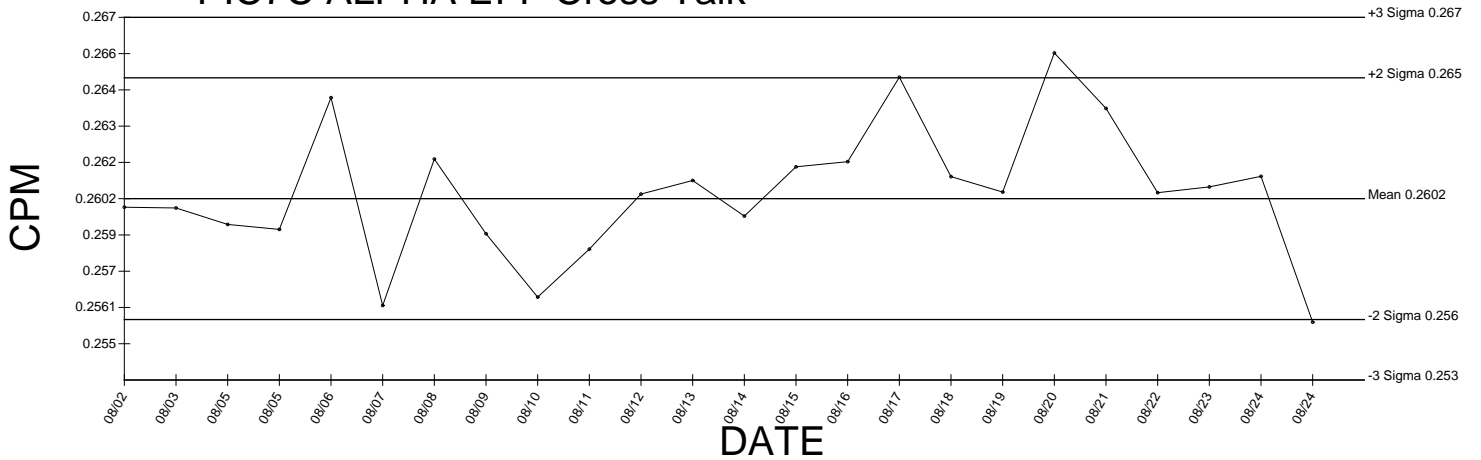
### PIC7C ALPHA BKG



### PIC7C ALPHA EFF



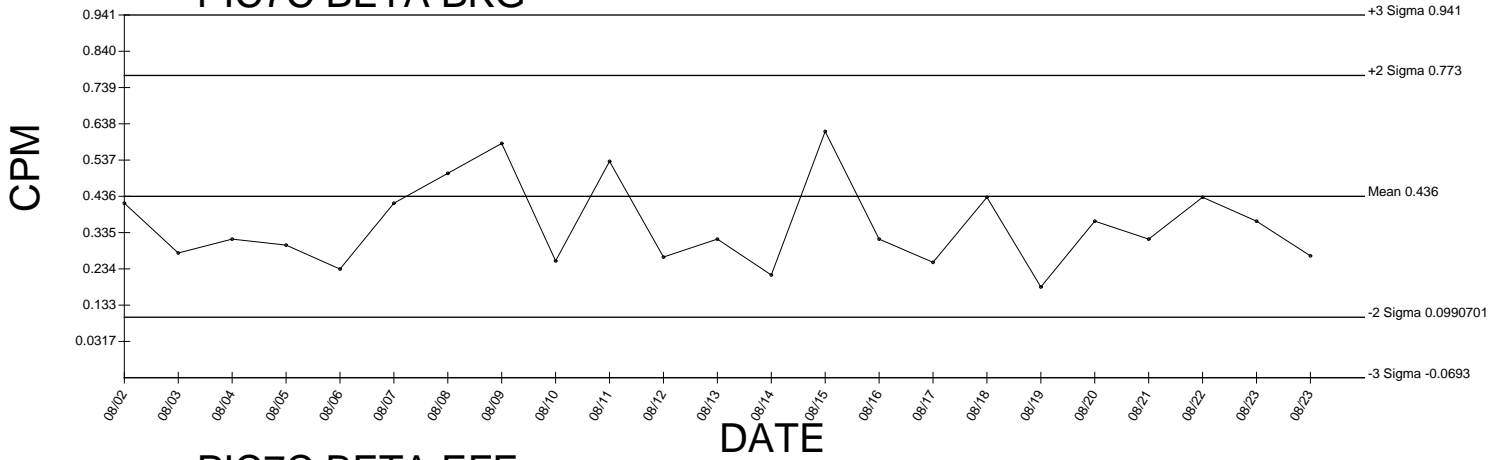
### PIC7C ALPHA EFF Cross Talk



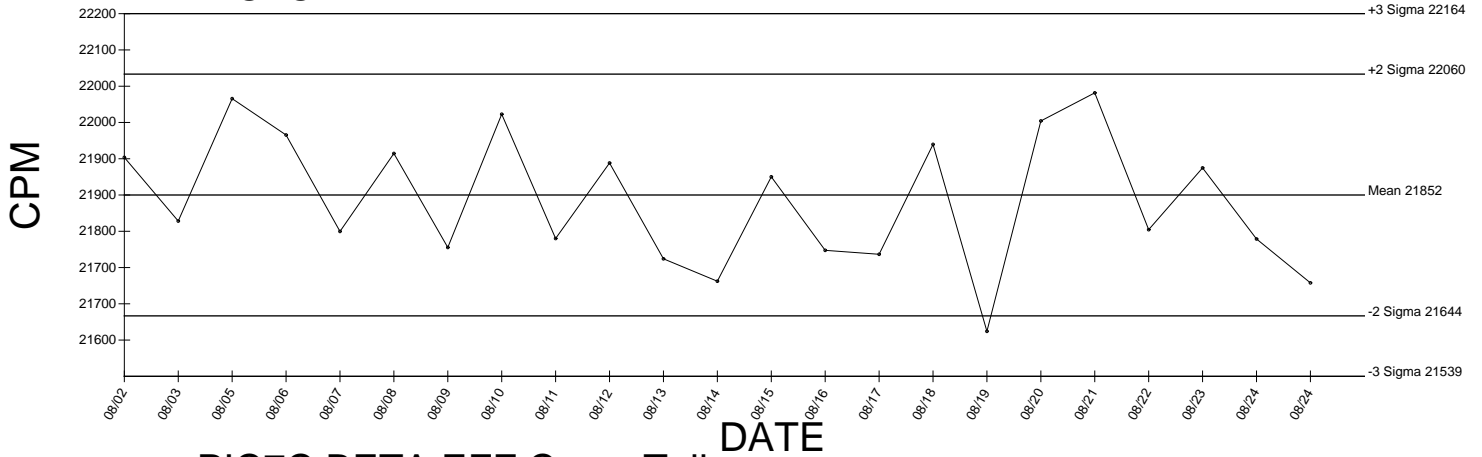
● Denotes Outlier

# PIC7C BETA BKG

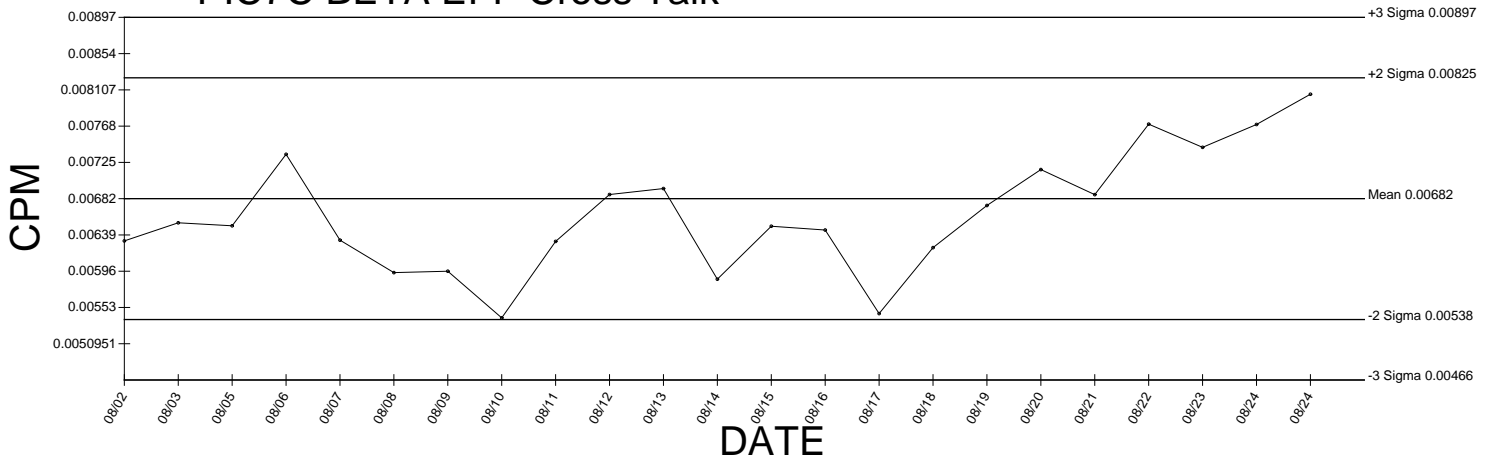
Generated 08/24/2009



# PIC7C BETA EFF



# PIC7C BETA EFF Cross Talk

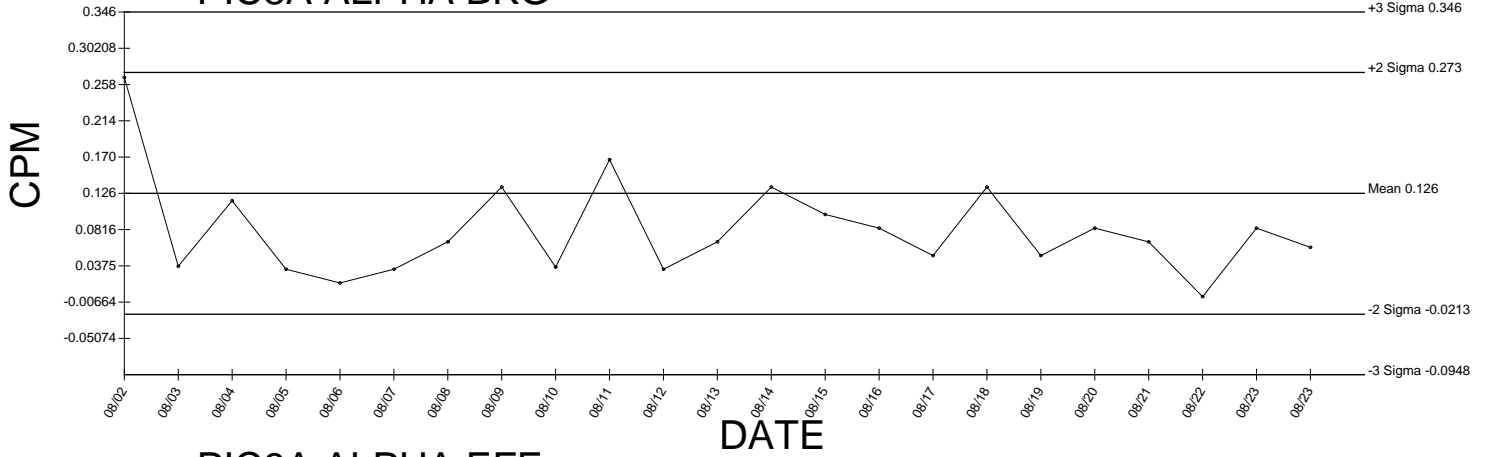


● Denotes Outlier

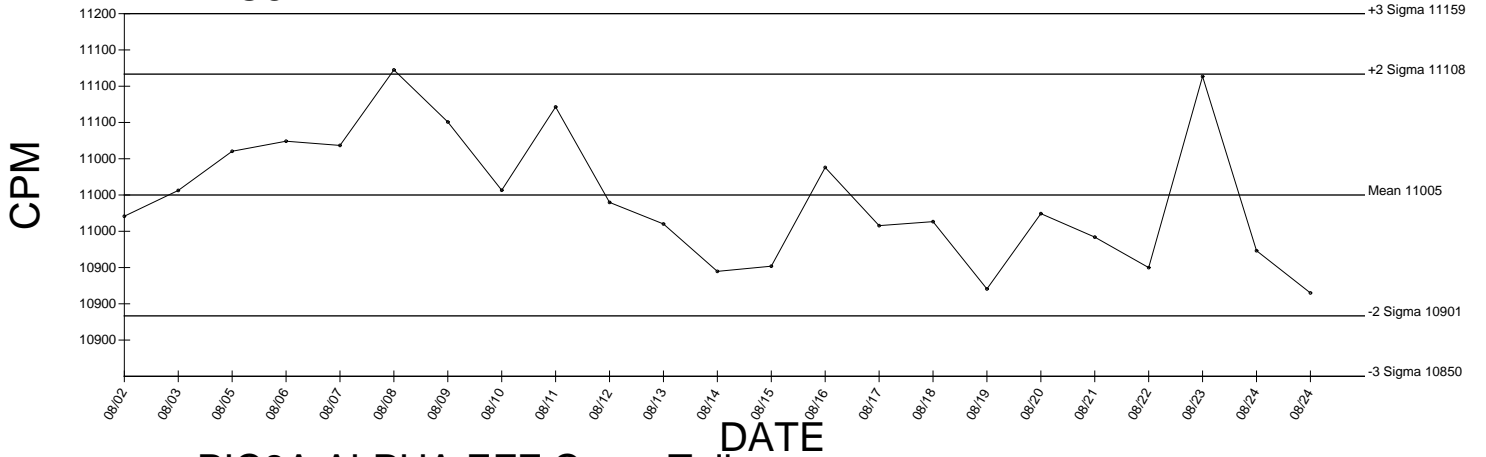


# PIC8A ALPHA BKG

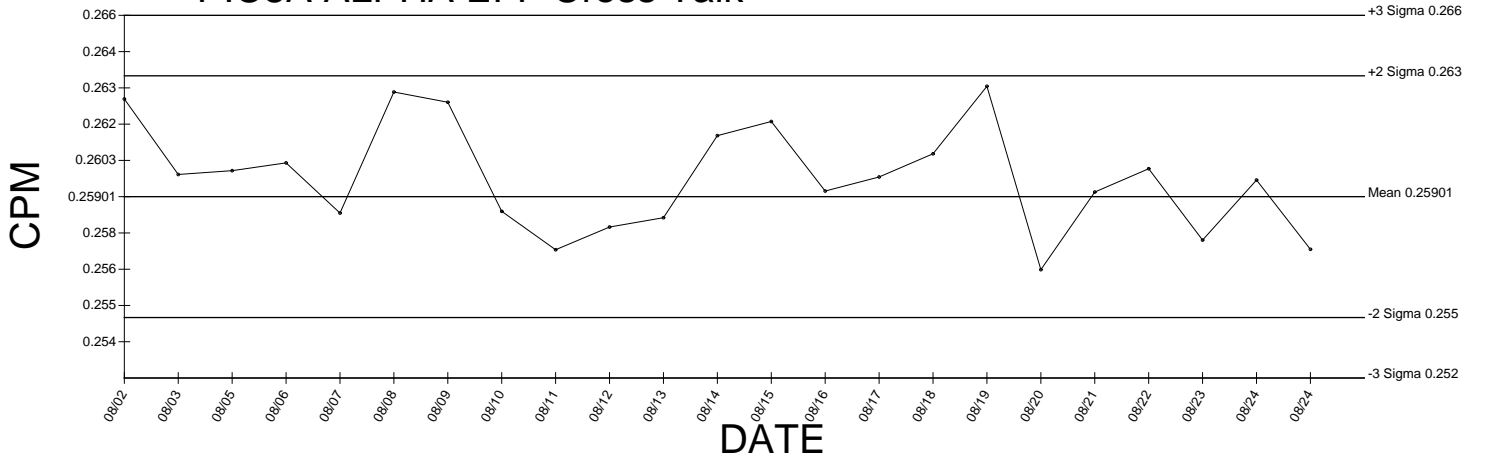
Generated 08/24/2009



# PIC8A ALPHA EFF



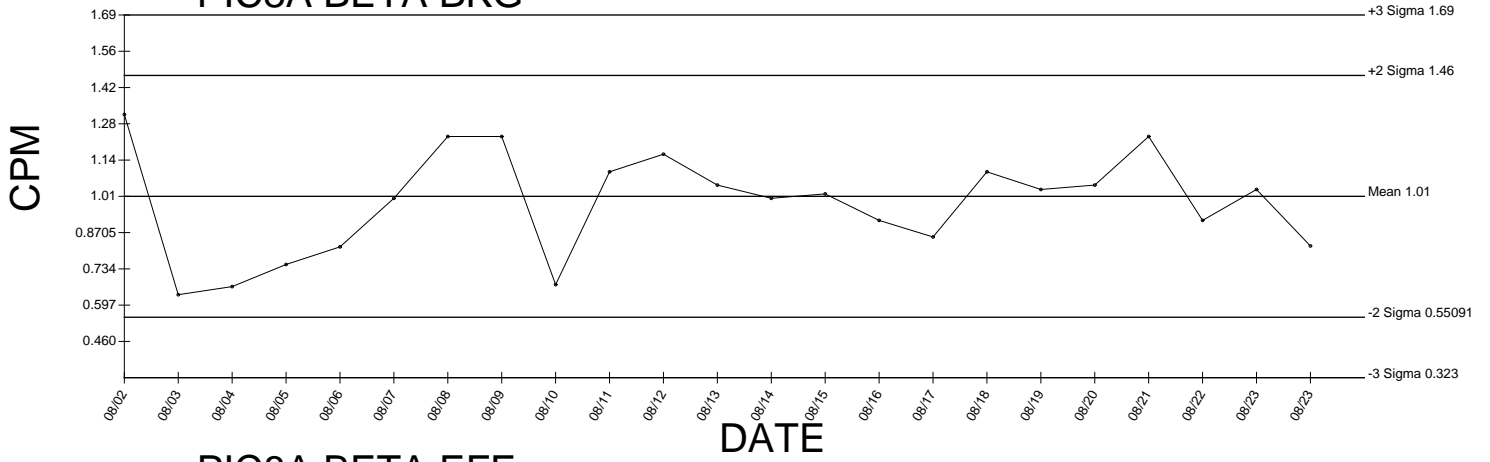
# PIC8A ALPHA EFF Cross Talk



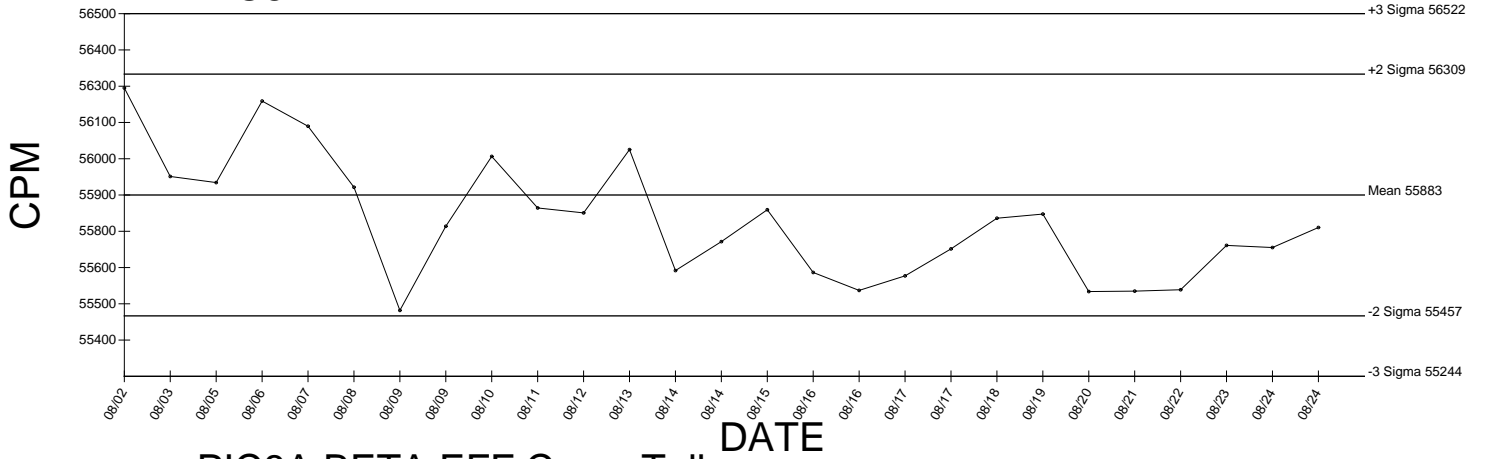
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# PIC8A BETA BKG

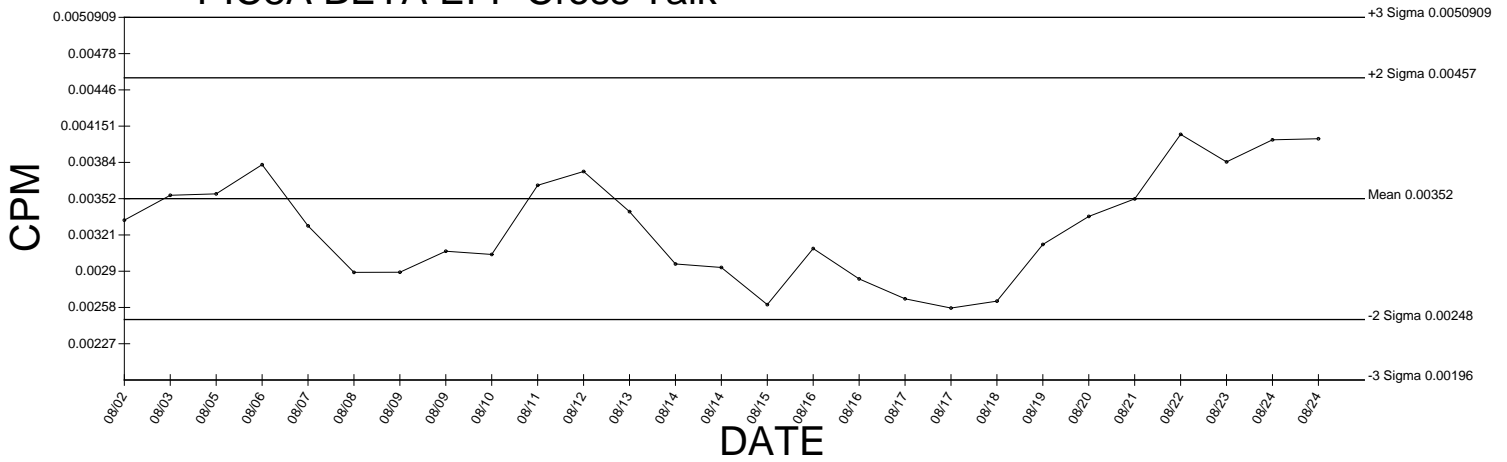
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# PIC8A BETA EFF



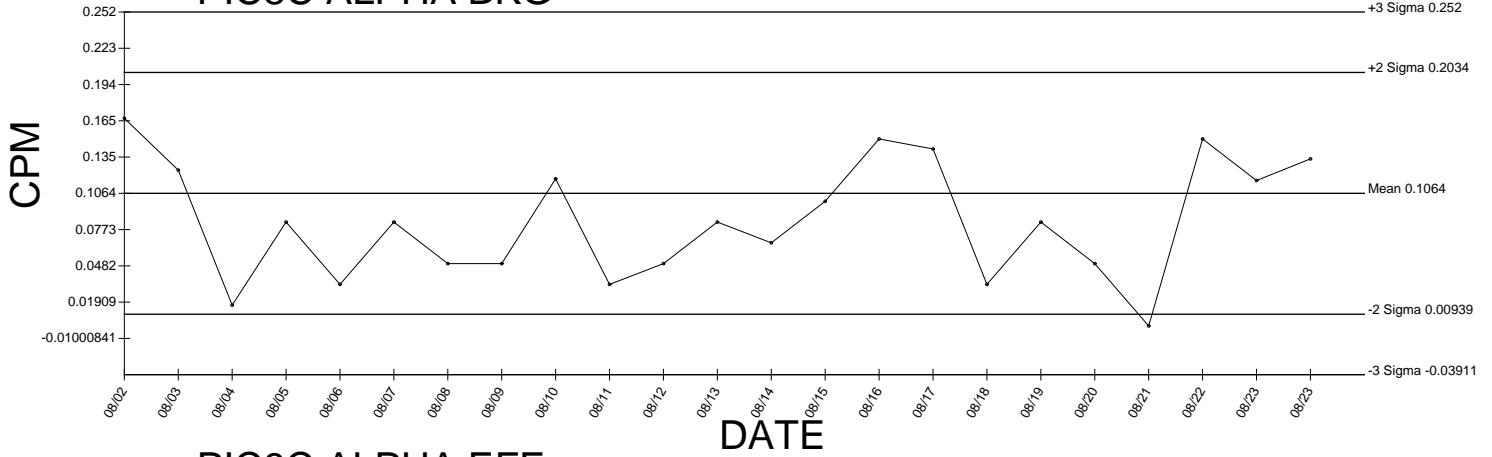
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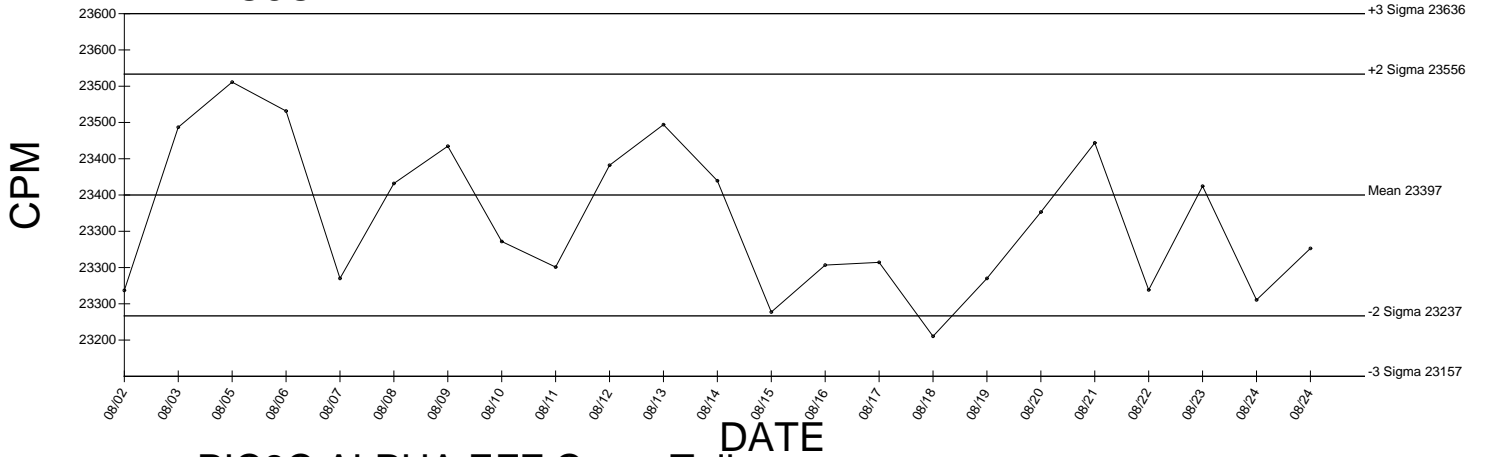
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# PIC8C ALPHA BKG

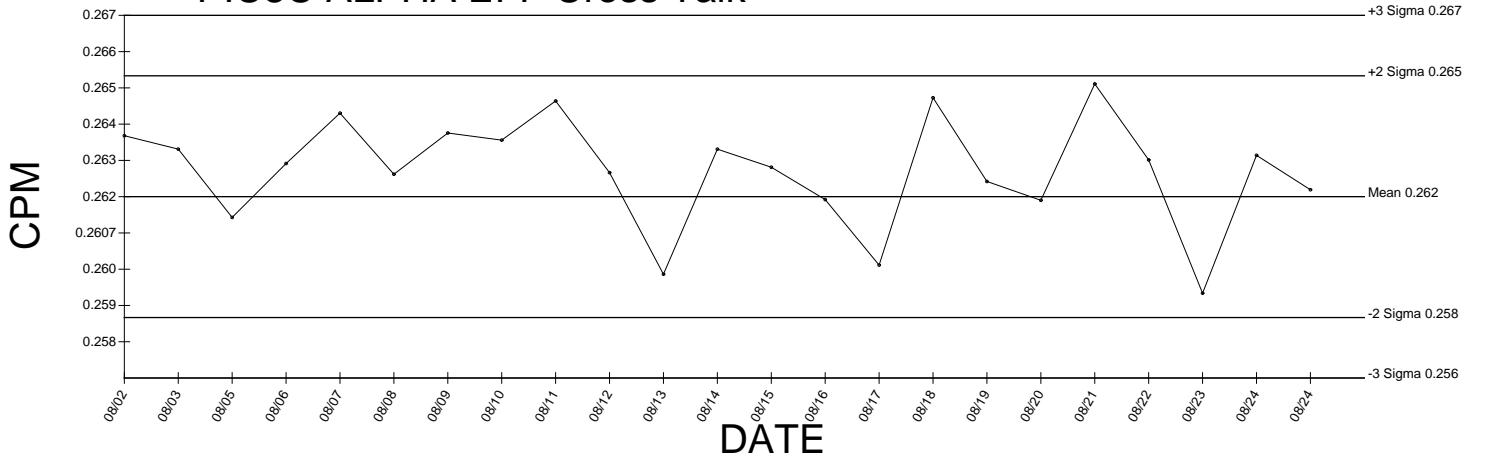
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# PIC8C ALPHA EFF



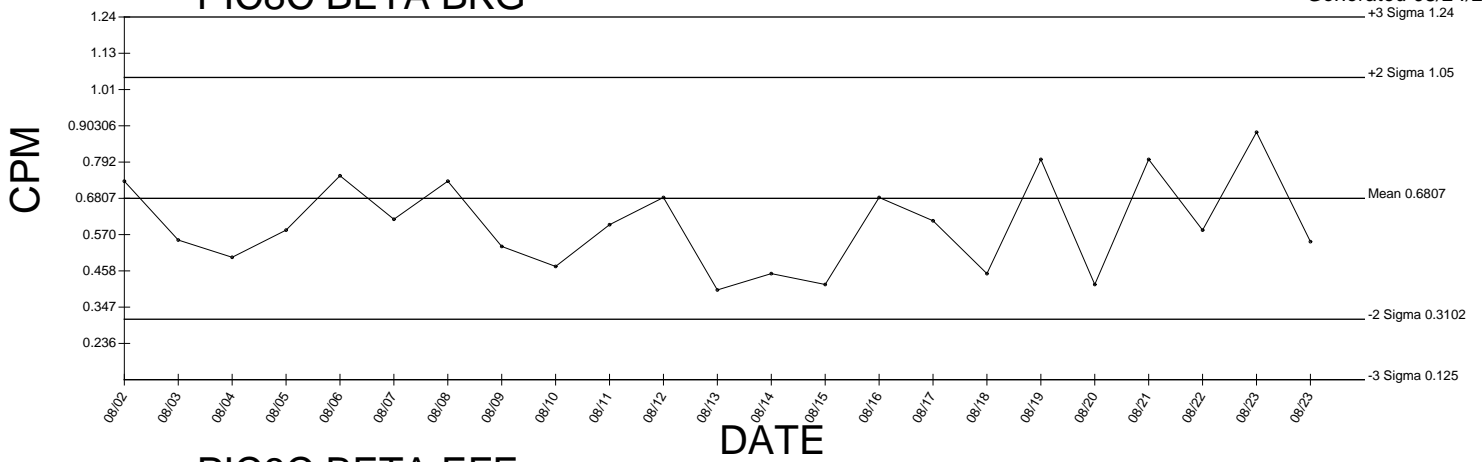
# PIC8C ALPHA EFF Cross Talk



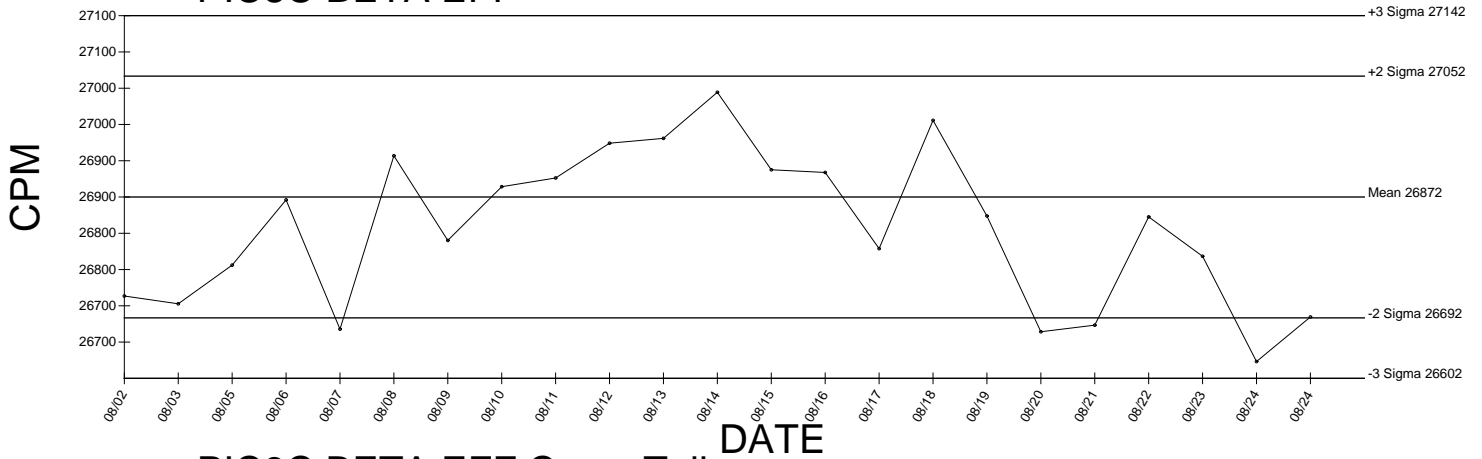
● Denotes Outlier

# PIC8C BETA BKG

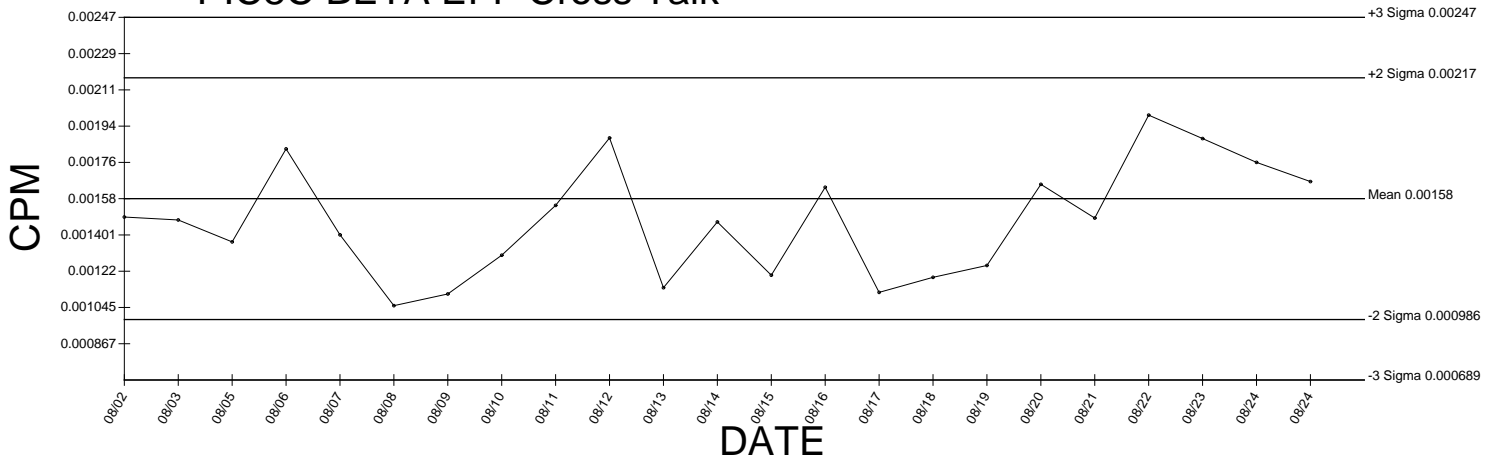
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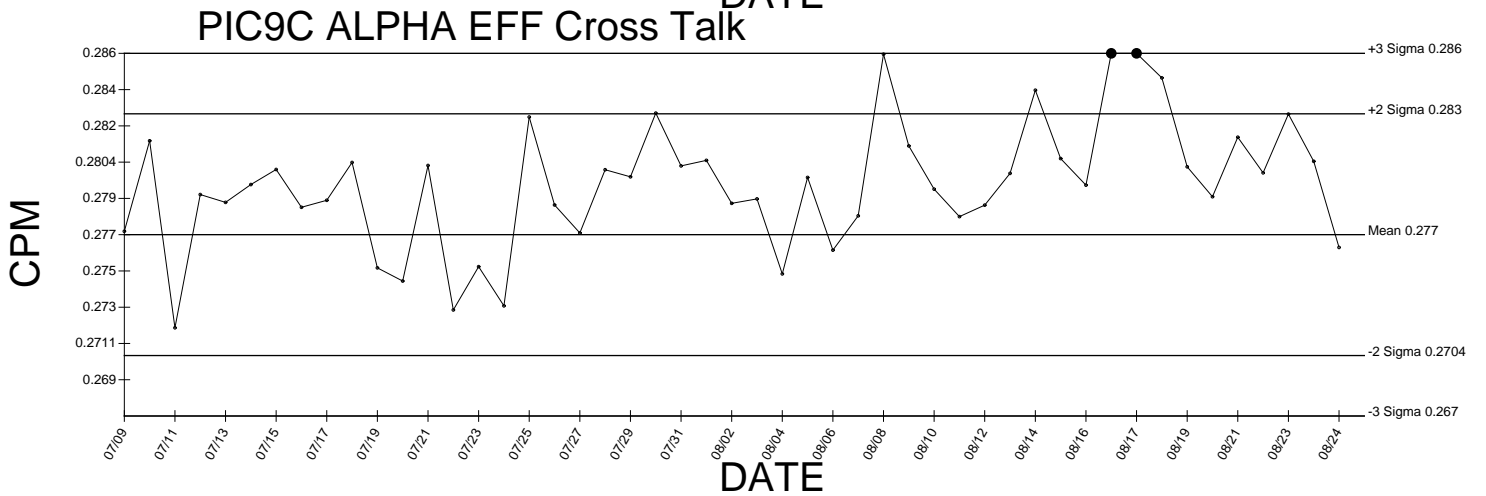
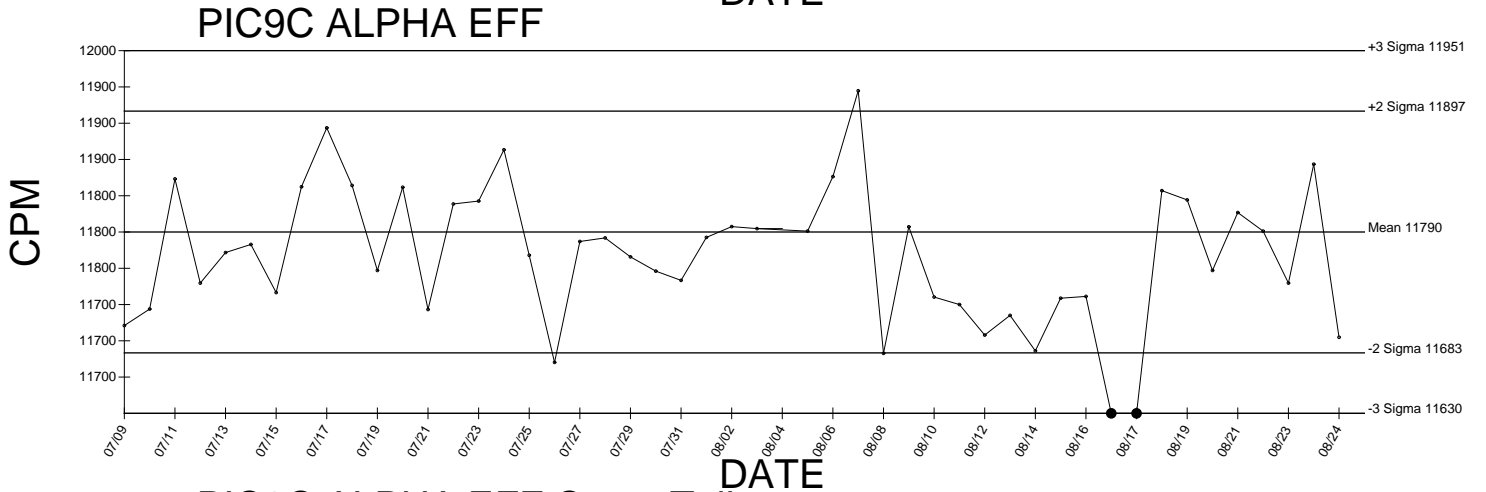
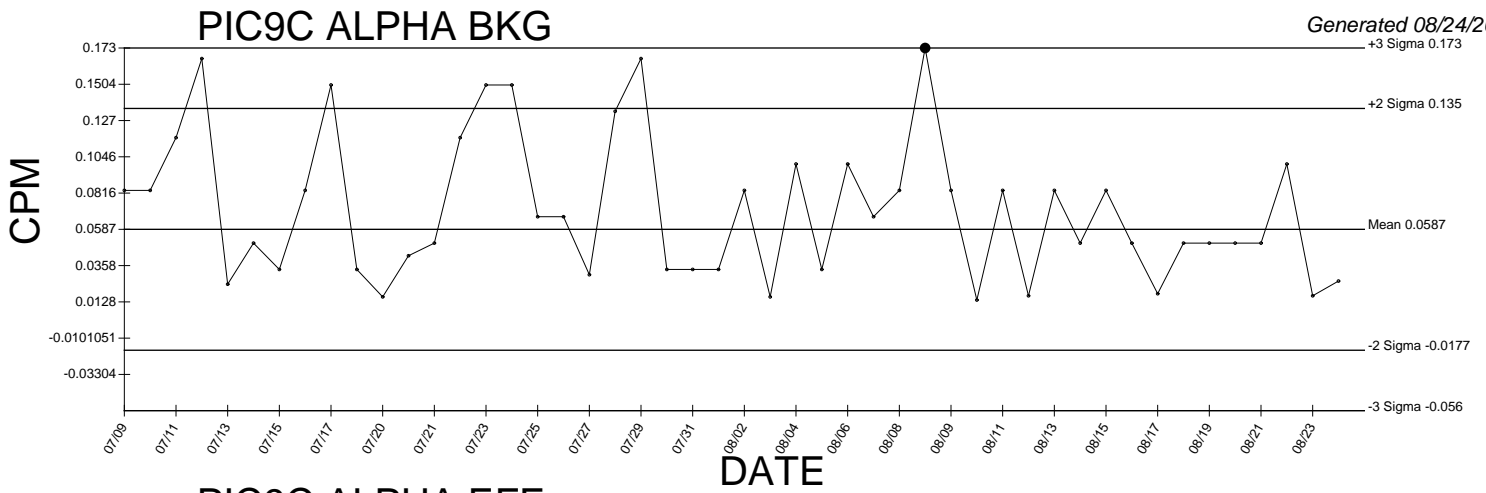
# PIC8C BETA EFF



# PIC8C BETA EFF Cross Talk



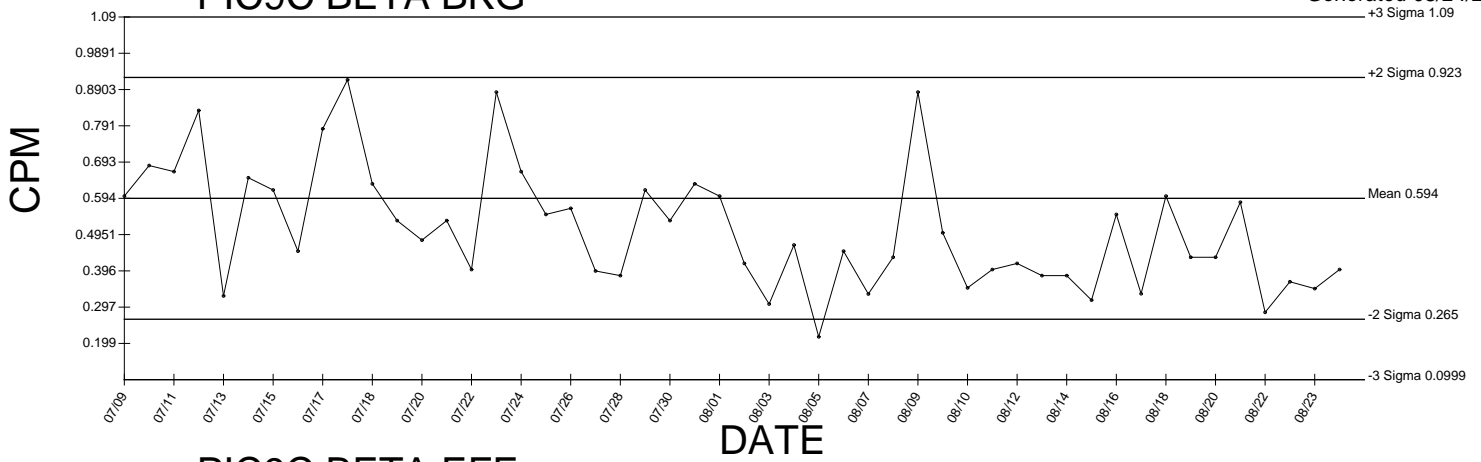
● Denotes Outlier



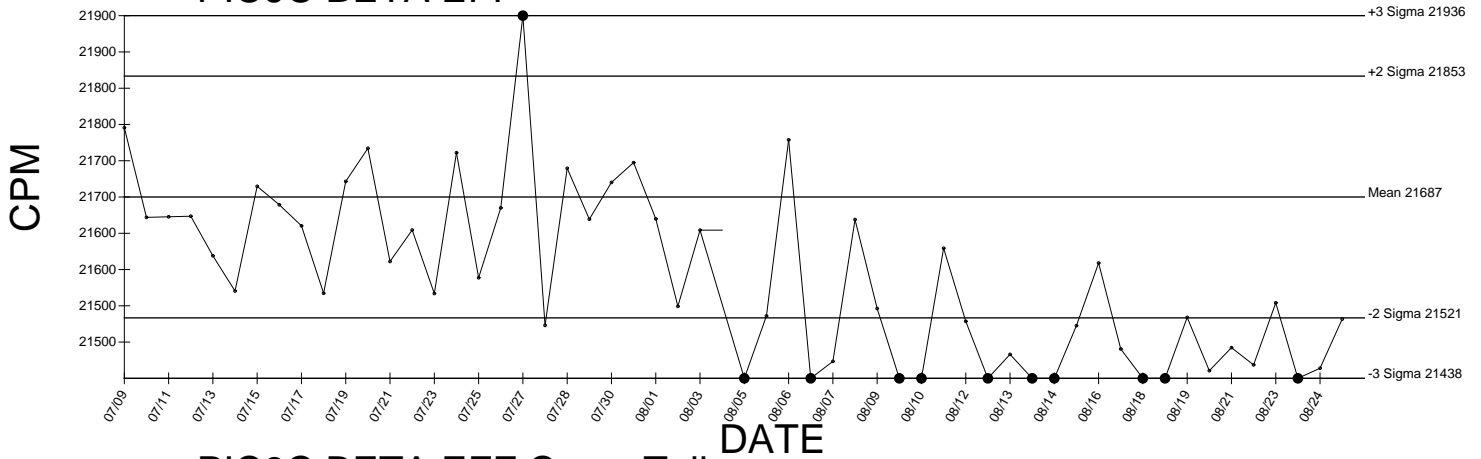
● Denotes Outlier

# PIC9C BETA BKG

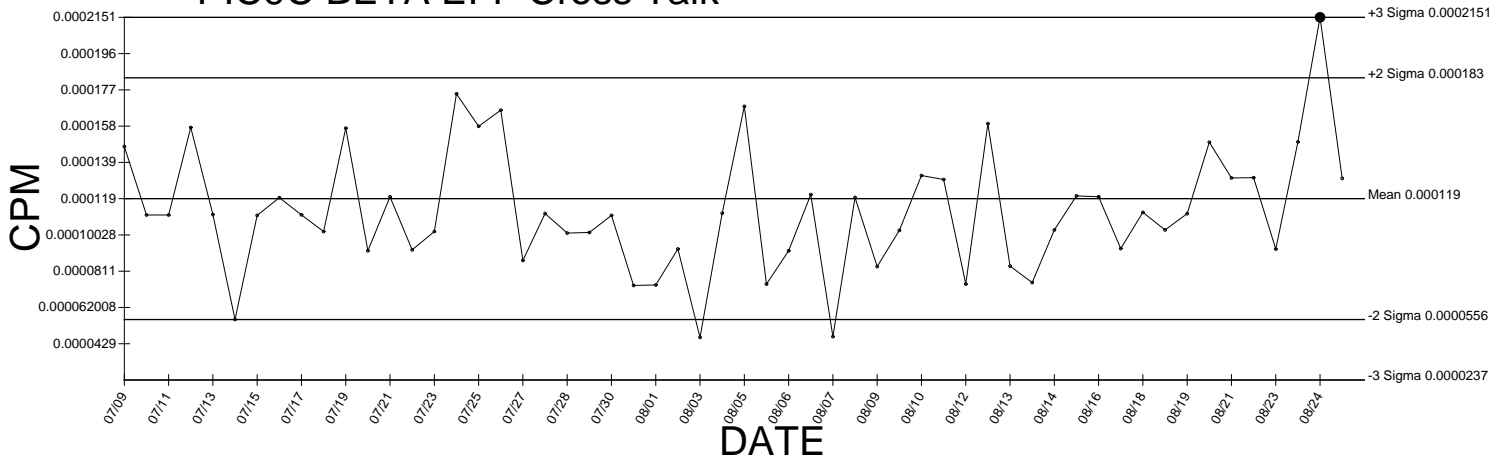
Generated 08/24/2009



# PIC9C BETA EFF



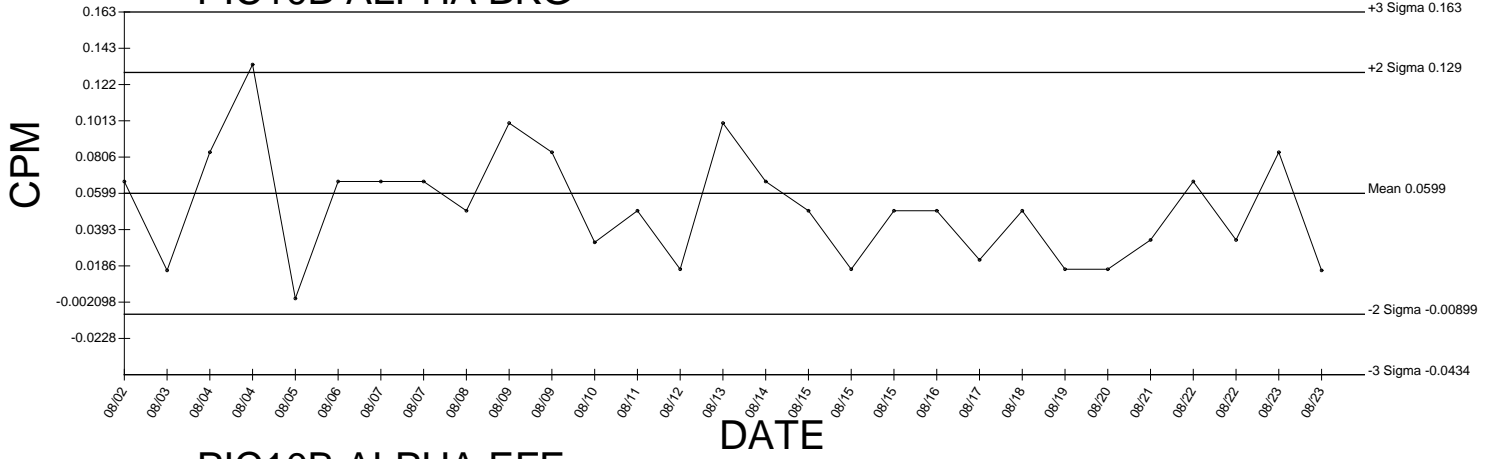
# PIC9C BETA EFF Cross Talk



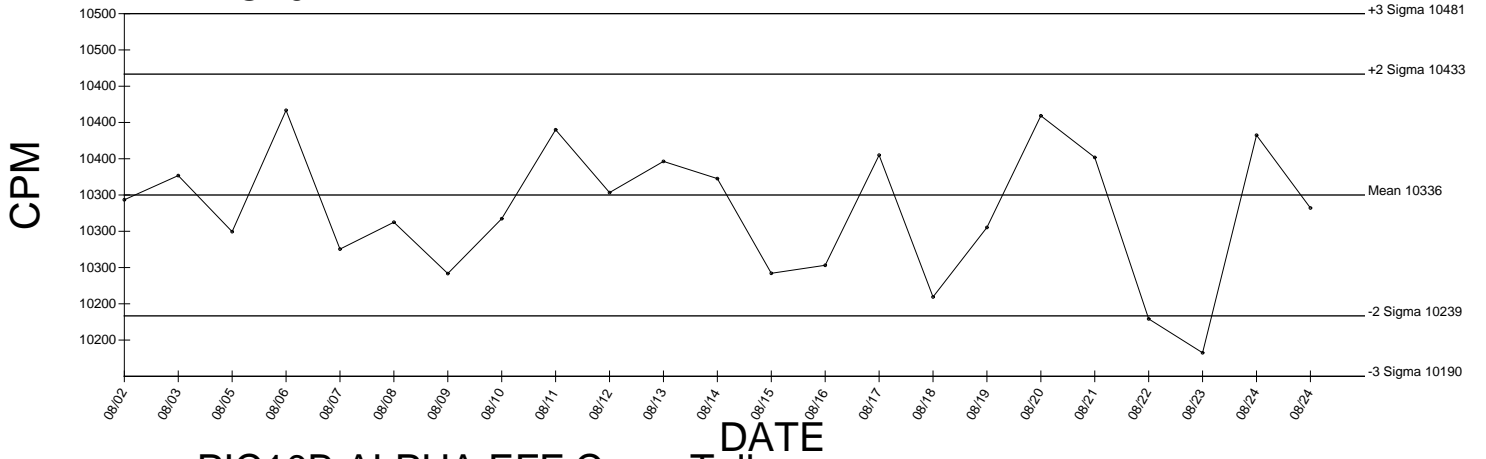
● Denotes Outlier

# PIC10B ALPHA BKG

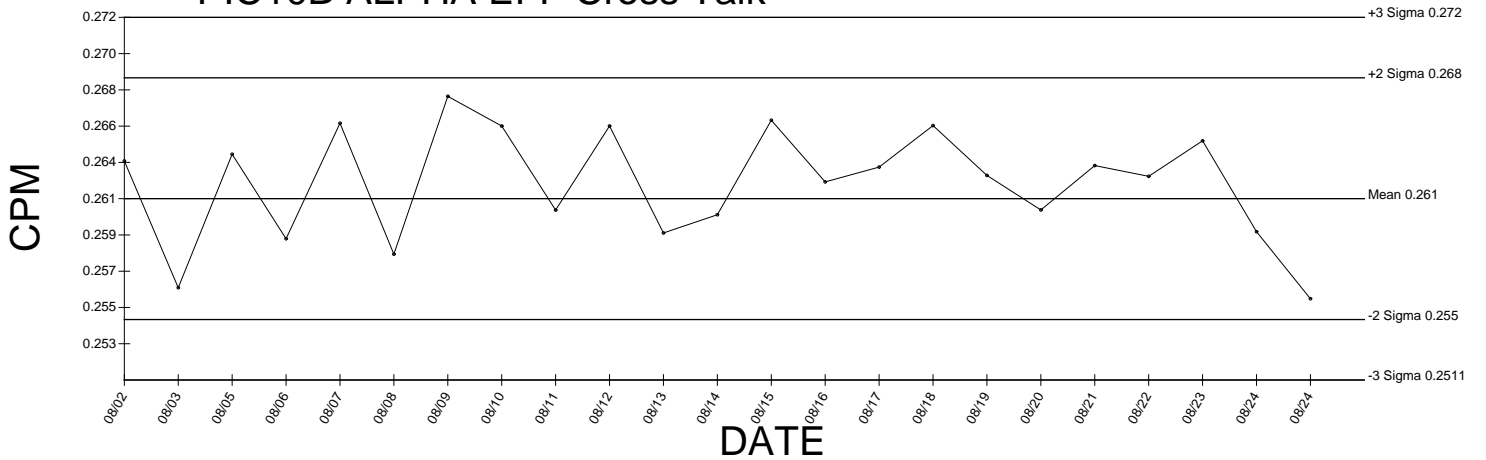
Generated 08/24/2009



# PIC10B ALPHA EFF



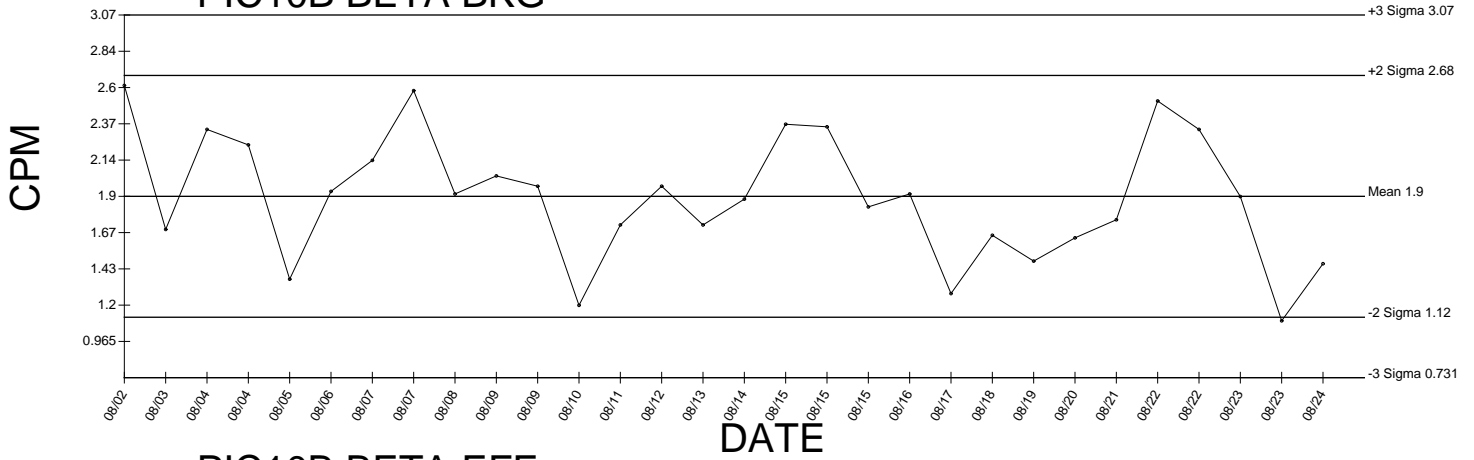
# PIC10B ALPHA EFF Cross Talk



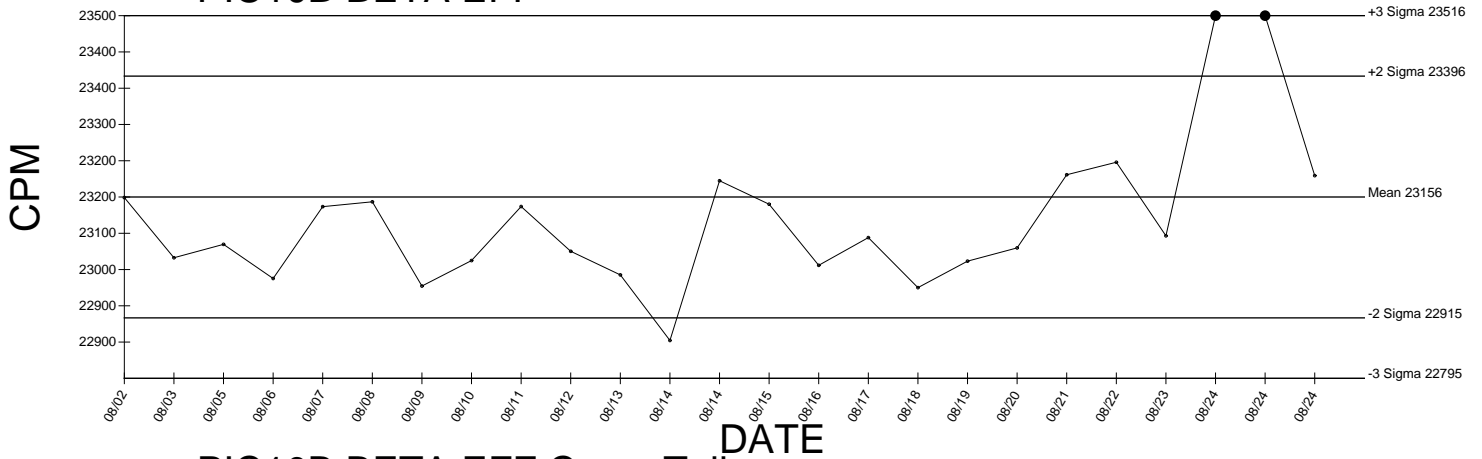
● Denotes Outlier

# PIC10B BETA BKG

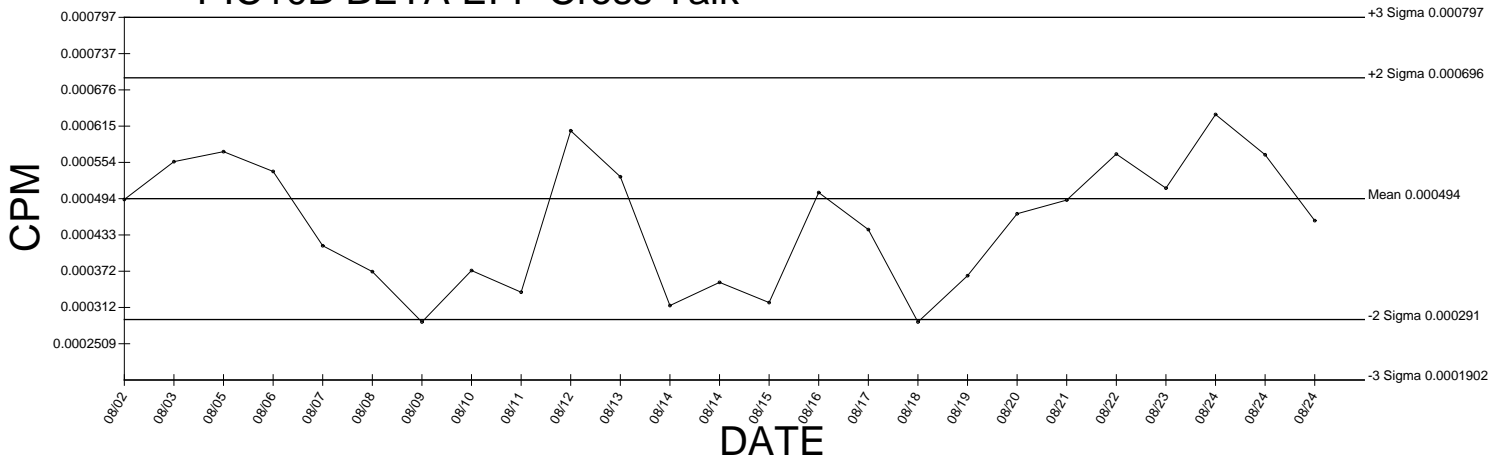
Generated 08/24/2009



# PIC10B BETA EFF



# PIC10B BETA EFF Cross Talk

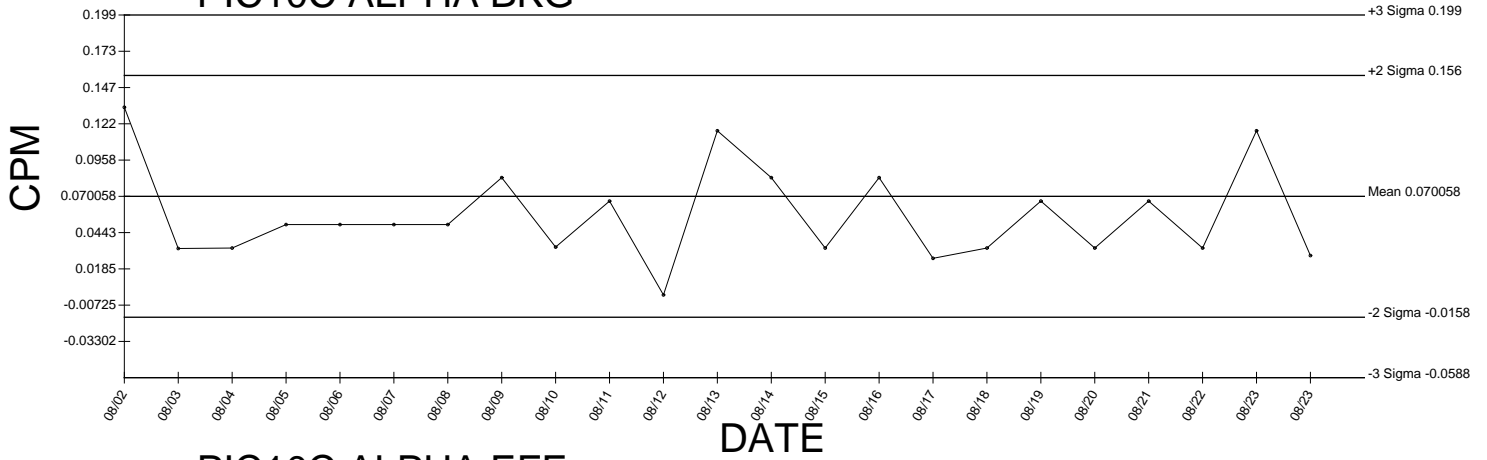


● Denotes Outlier

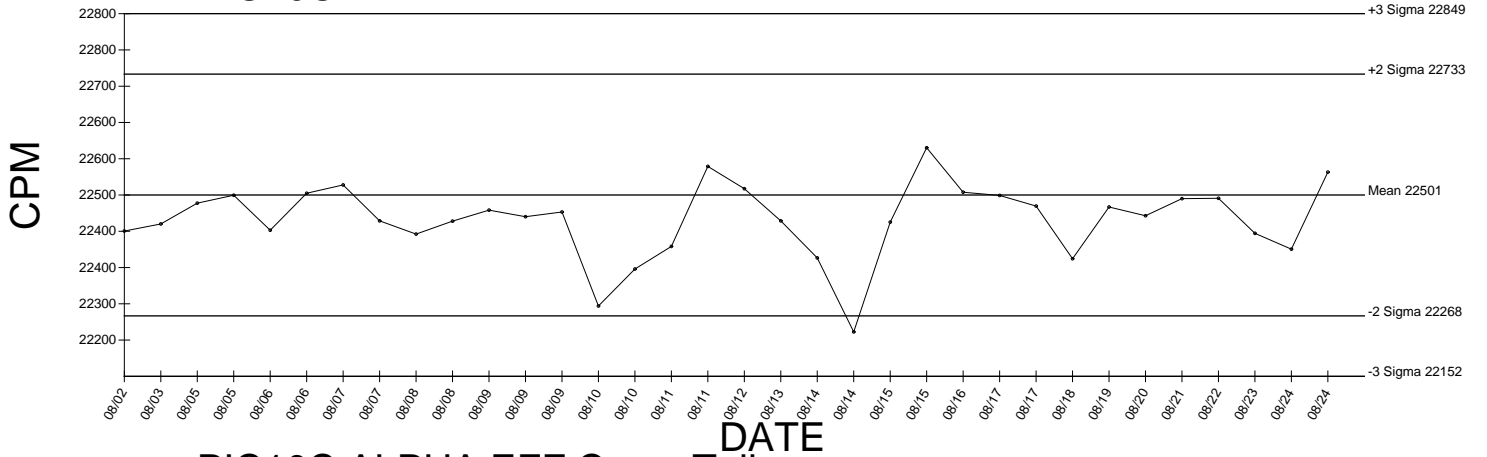


# PIC10C ALPHA BKG

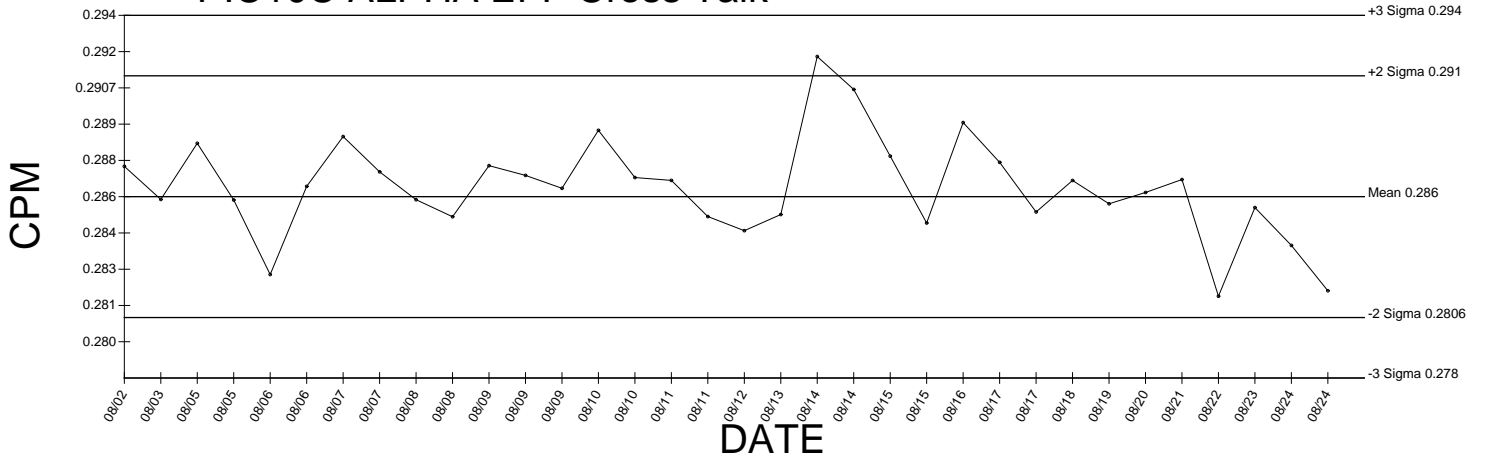
Generated 08/24/2009



# PIC10C ALPHA EFF



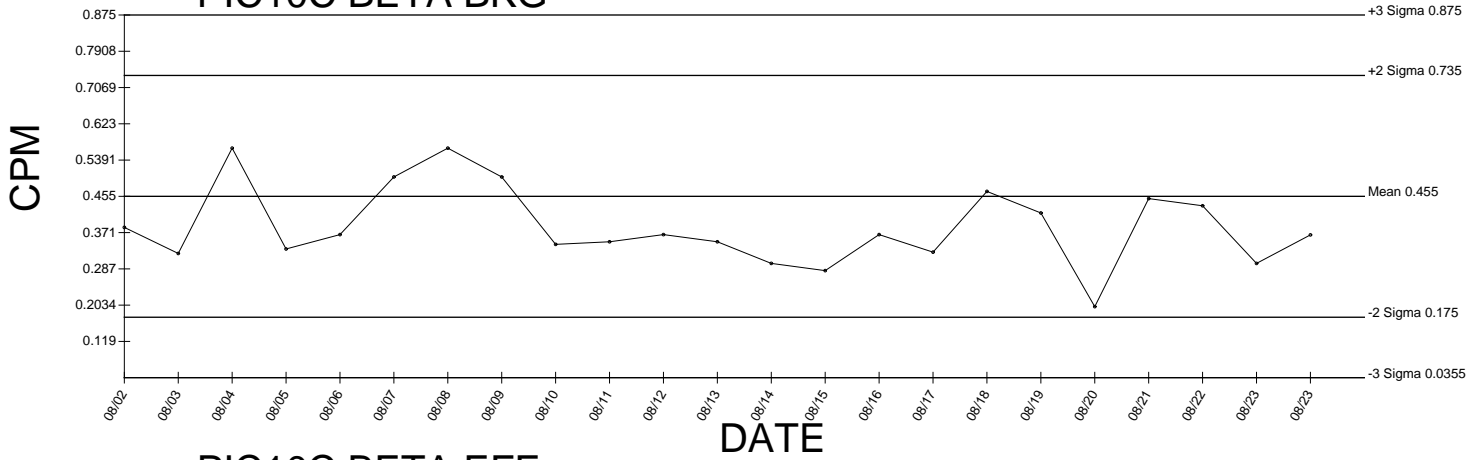
# PIC10C ALPHA EFF Cross Talk



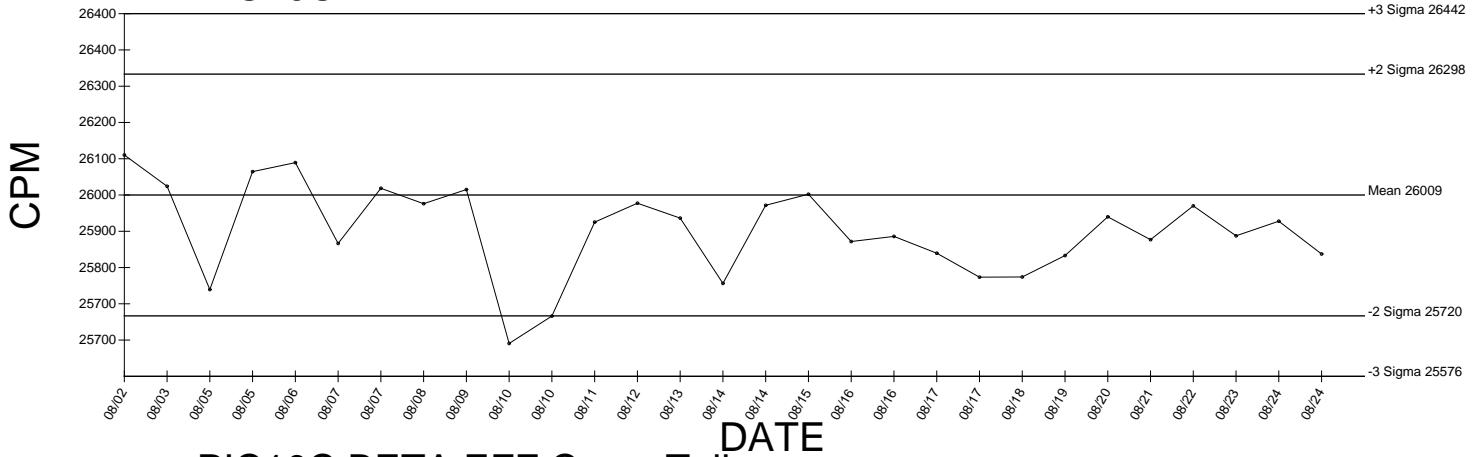
● Denotes Outlier

# PIC10C BETA BKG

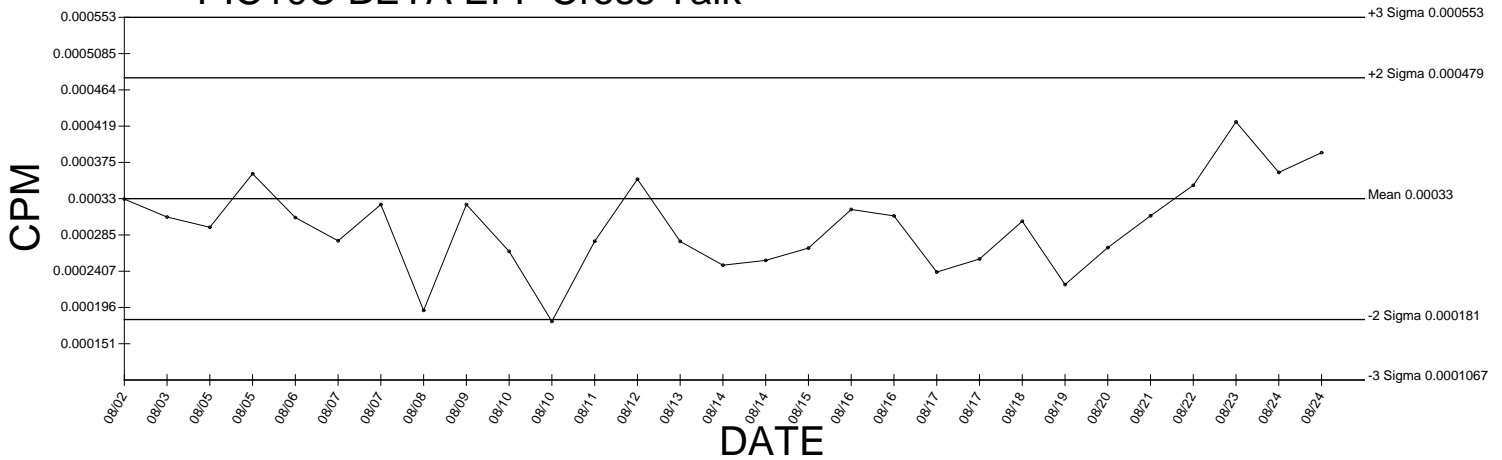
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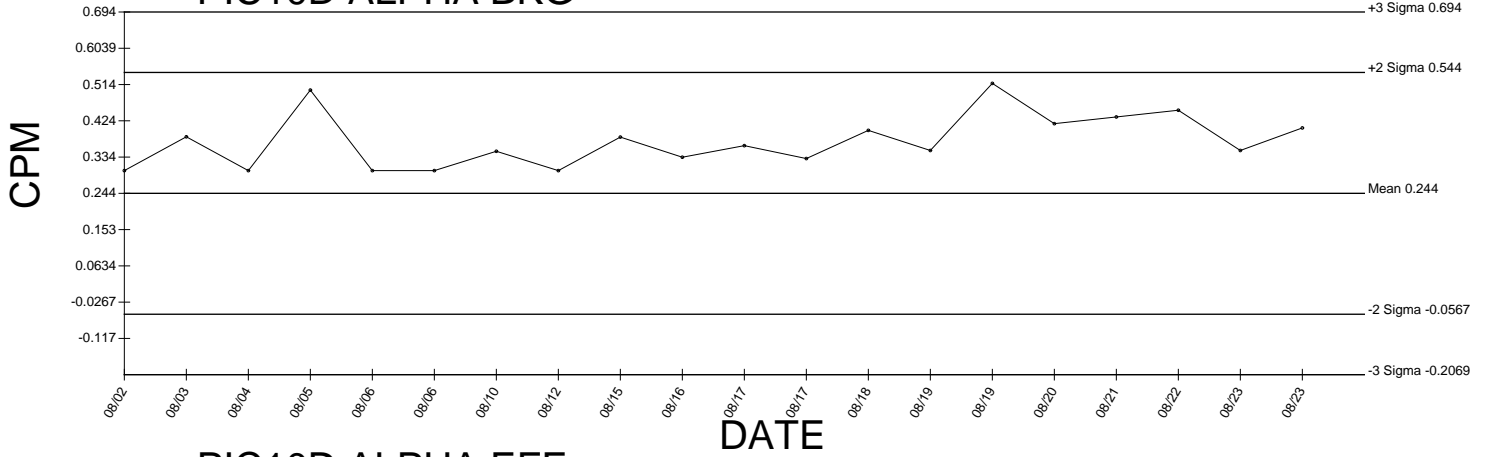
# PIC10C BETA EFF Cross Talk



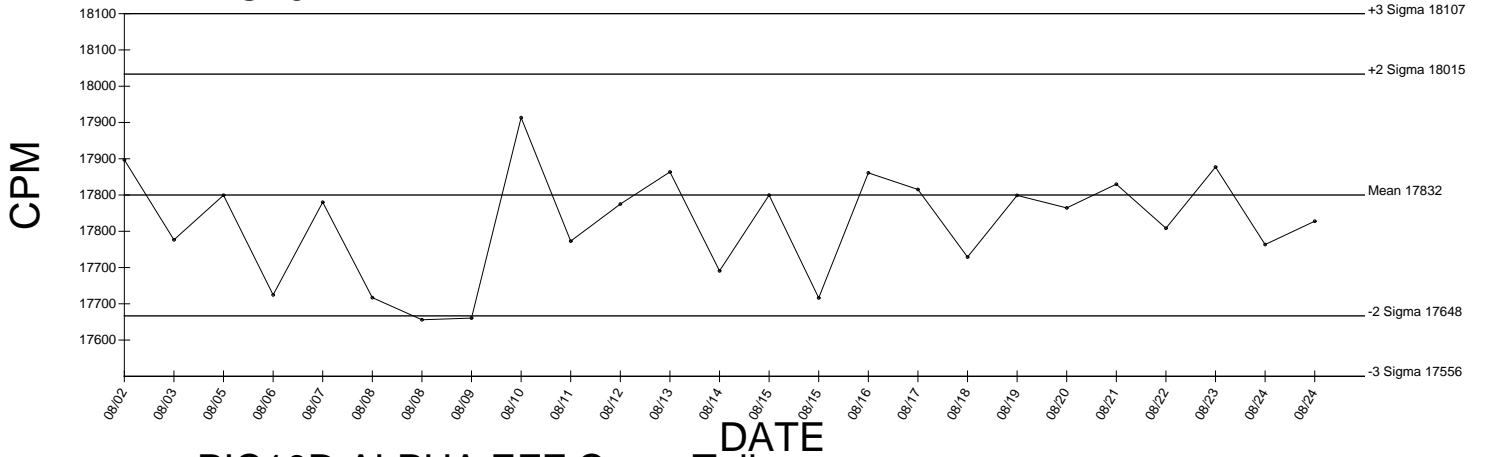
● Denotes Outlier

# PIC10D ALPHA BKG

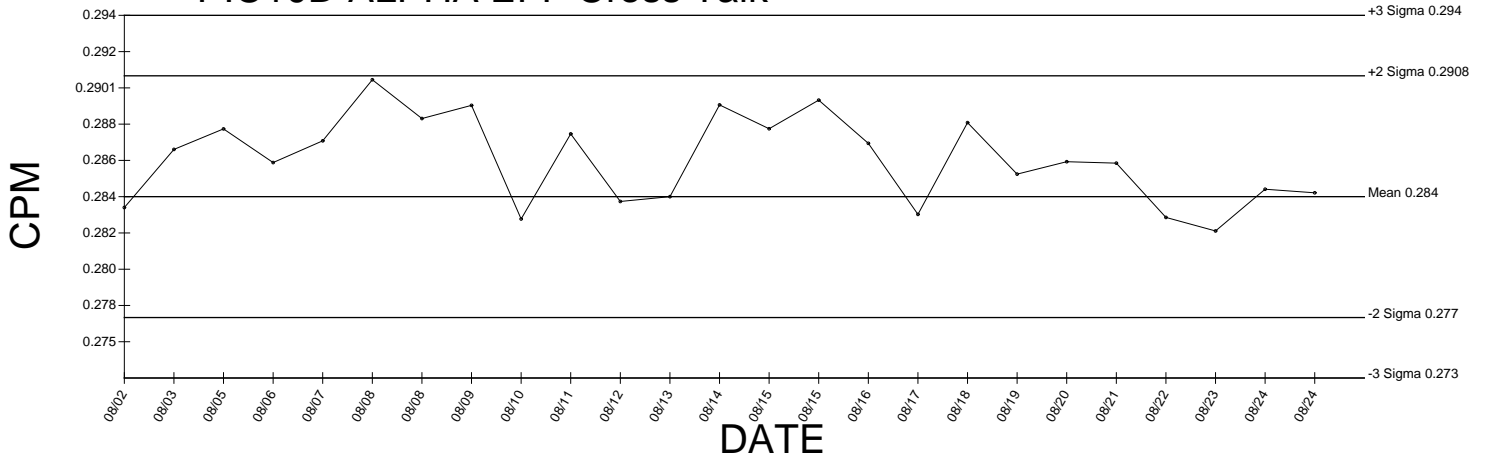
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# PIC10D ALPHA EFF



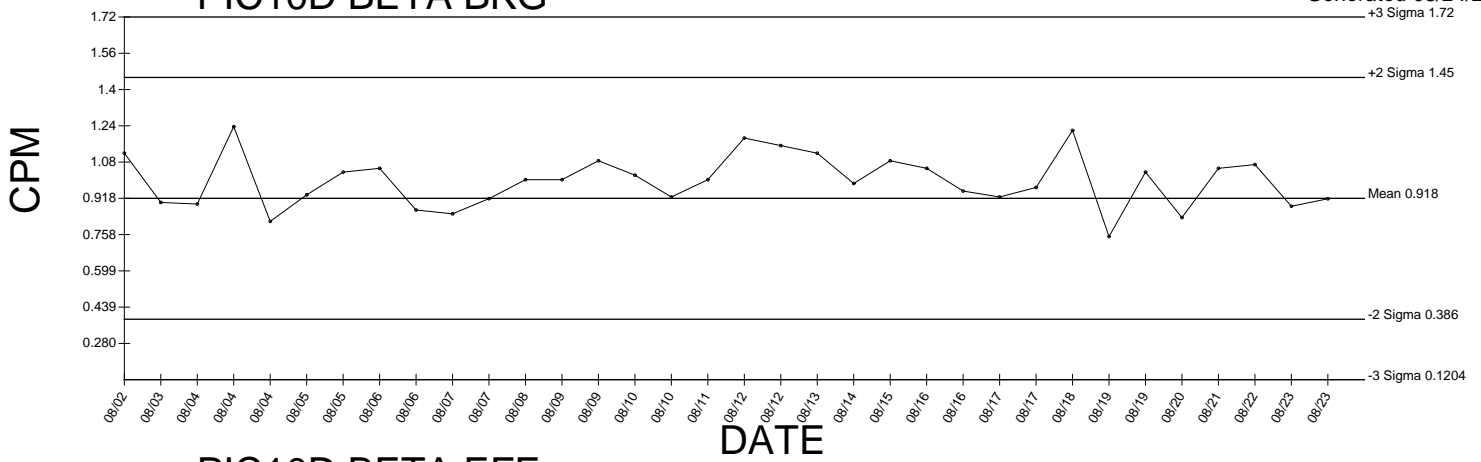
# PIC10D ALPHA EFF Cross Talk



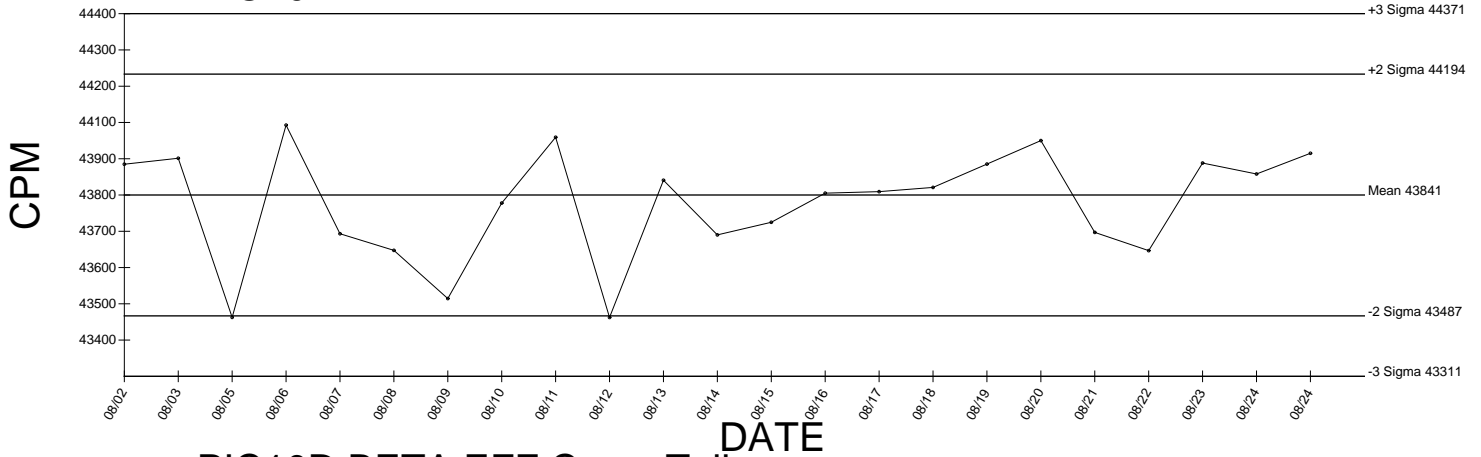
● Denotes Outlier

# PIC10D BETA BKG

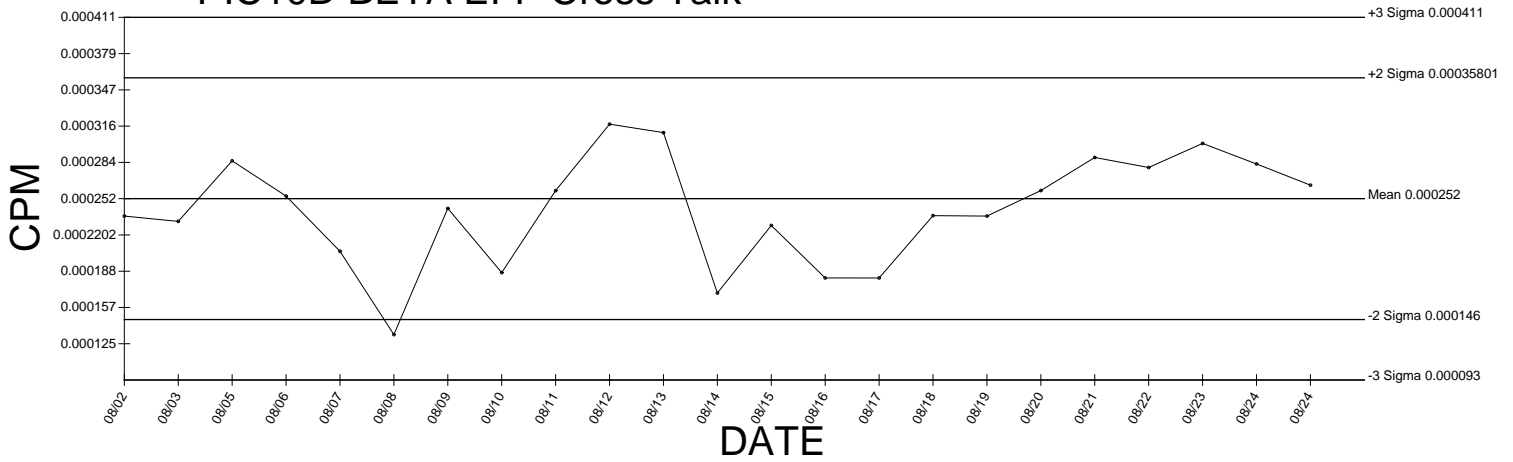
Generated 08/24/2009



# PIC10D BETA EFF



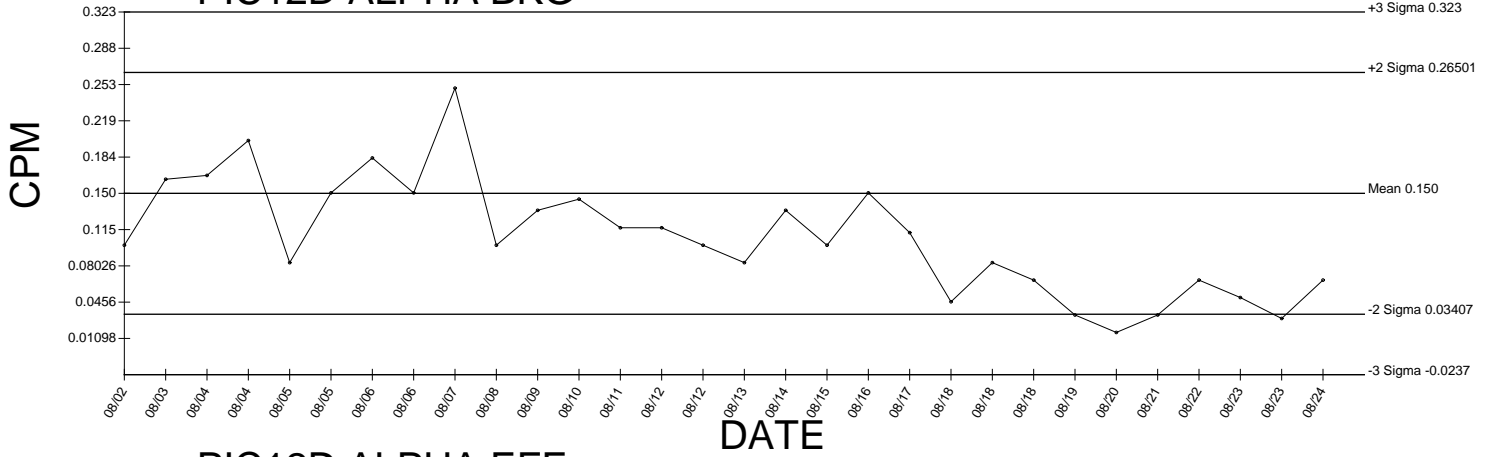
# PIC10D BETA EFF Cross Talk



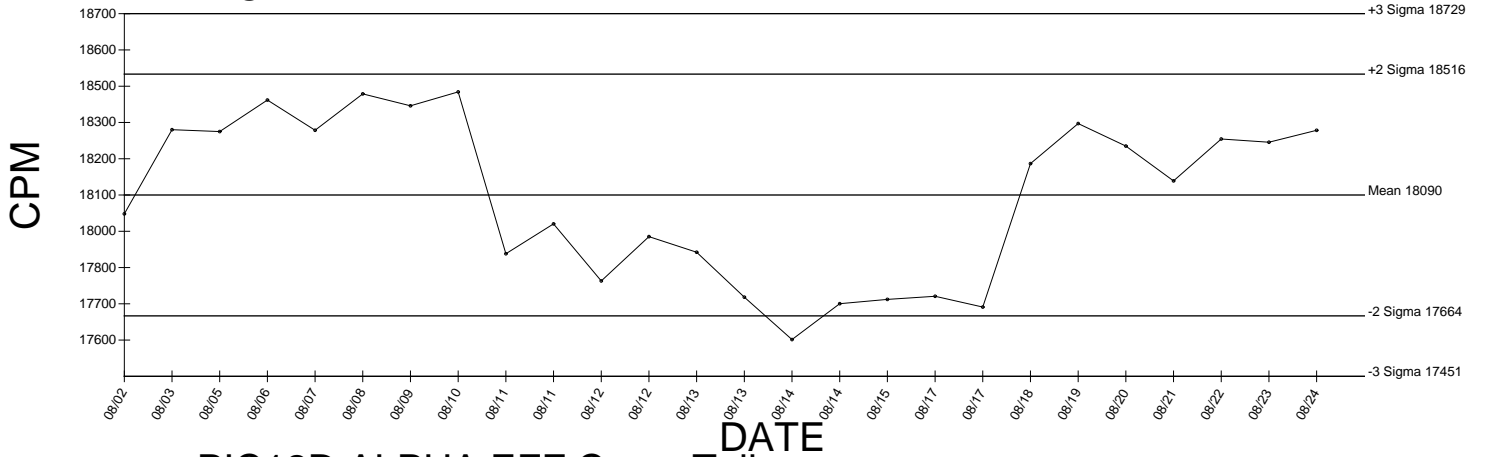
● Denotes Outlier

# PIC12D ALPHA BKG

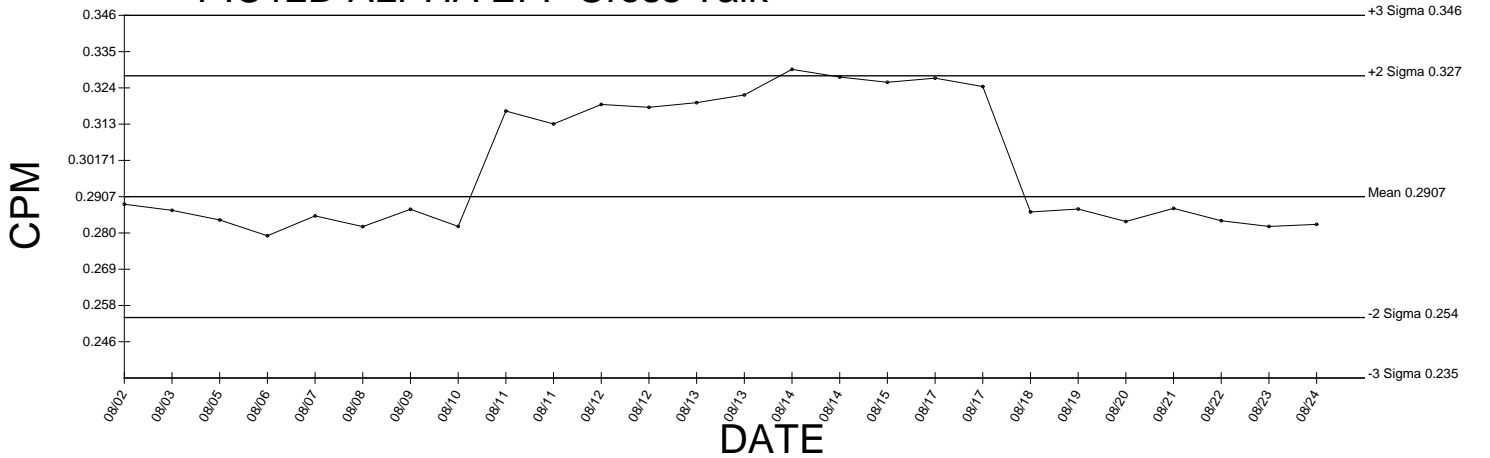
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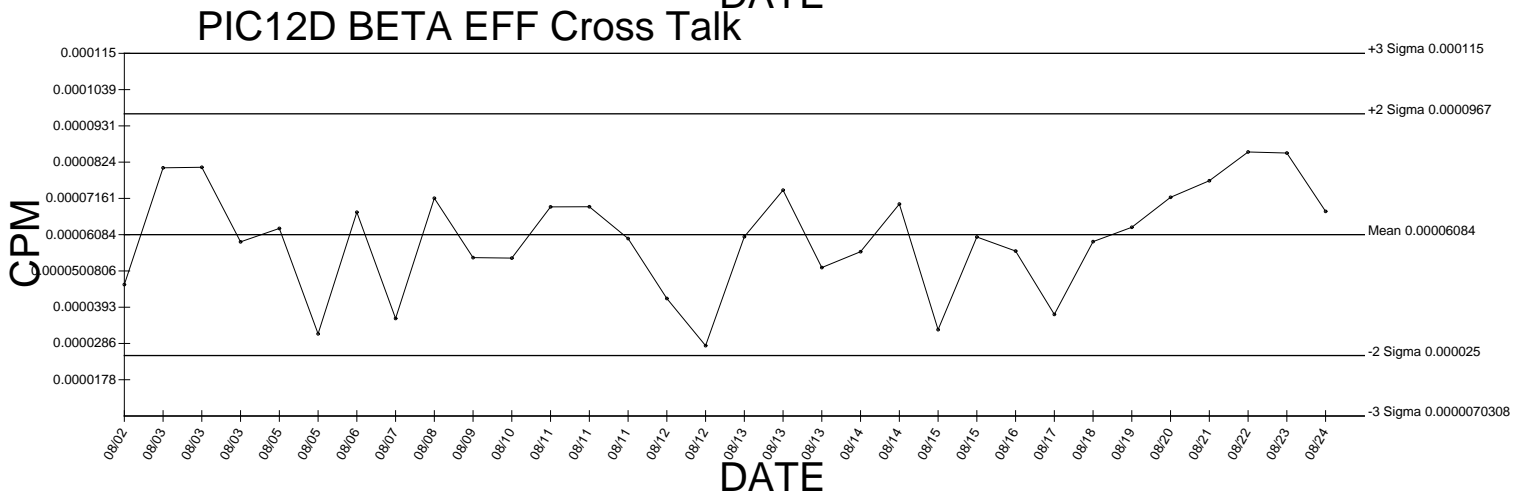
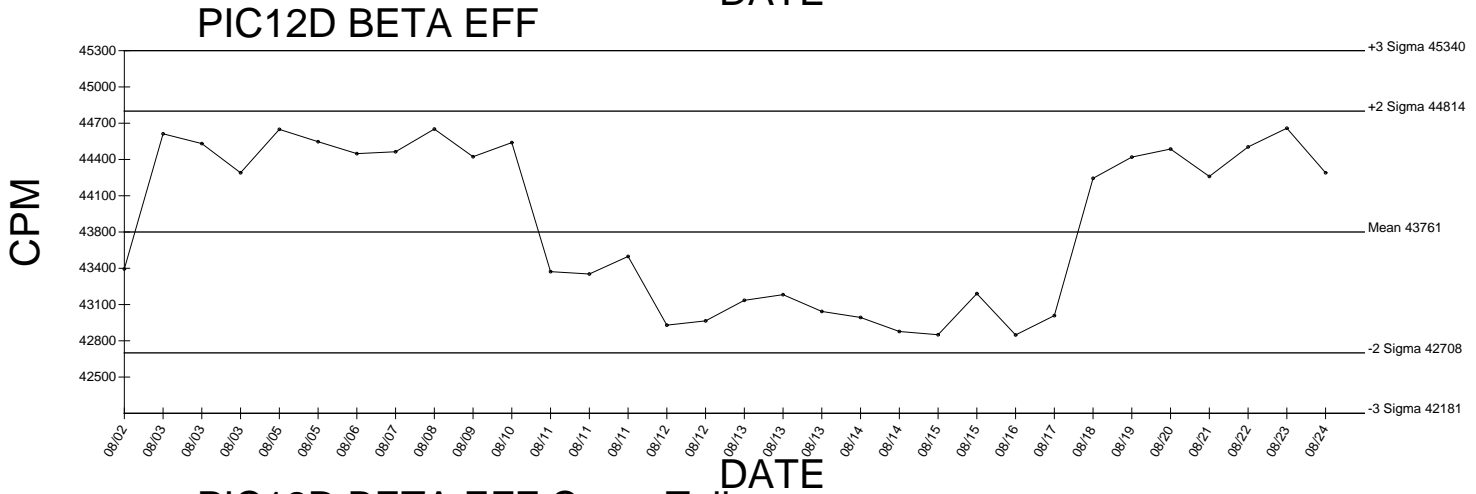
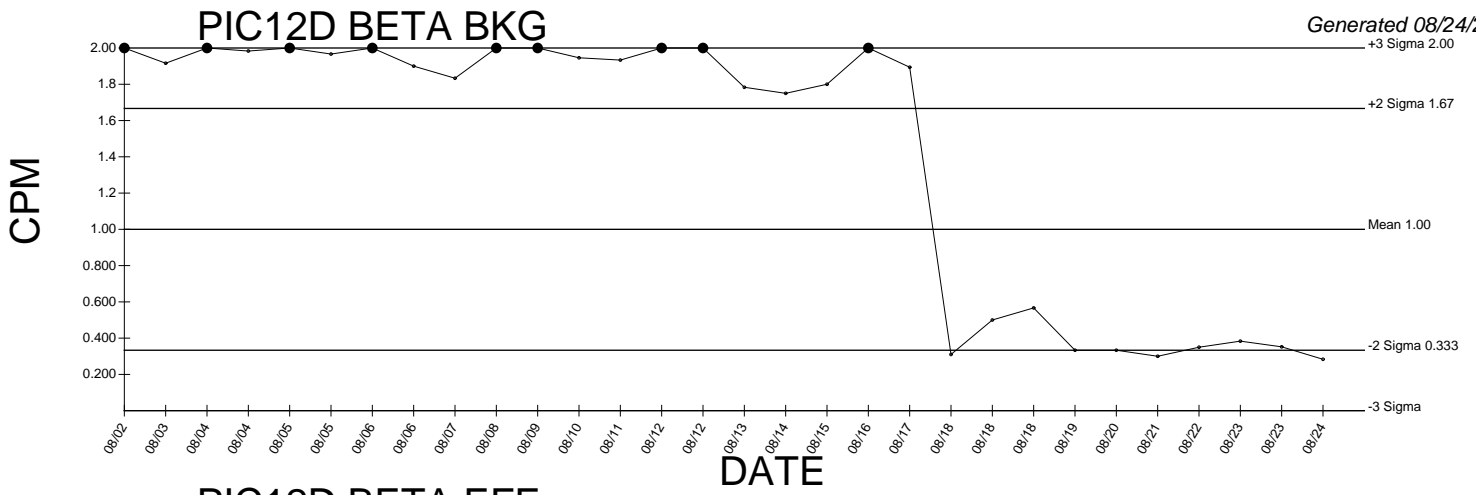
# PIC12D ALPHA EFF



# PIC12D ALPHA EFF Cross Talk



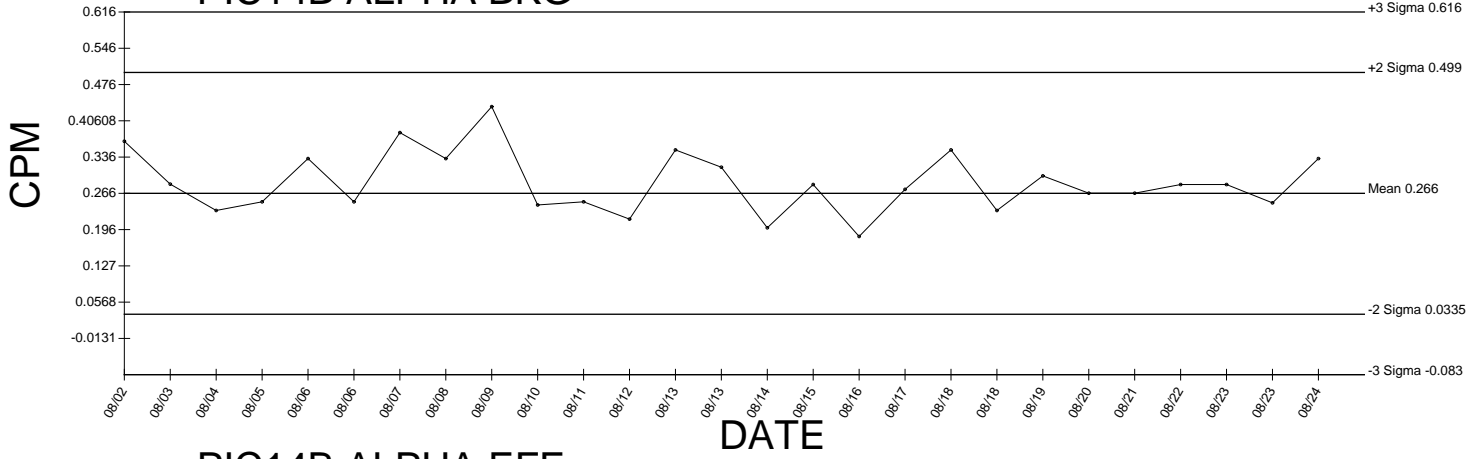
● Denotes Outlier



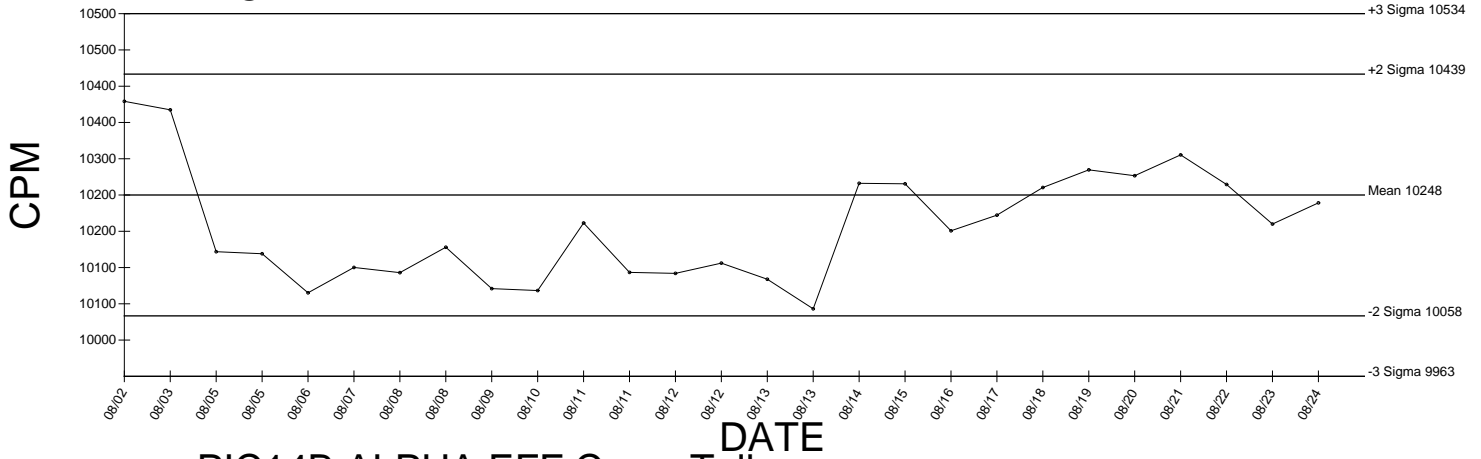
● Denotes Outlier

# PIC14B ALPHA BKG

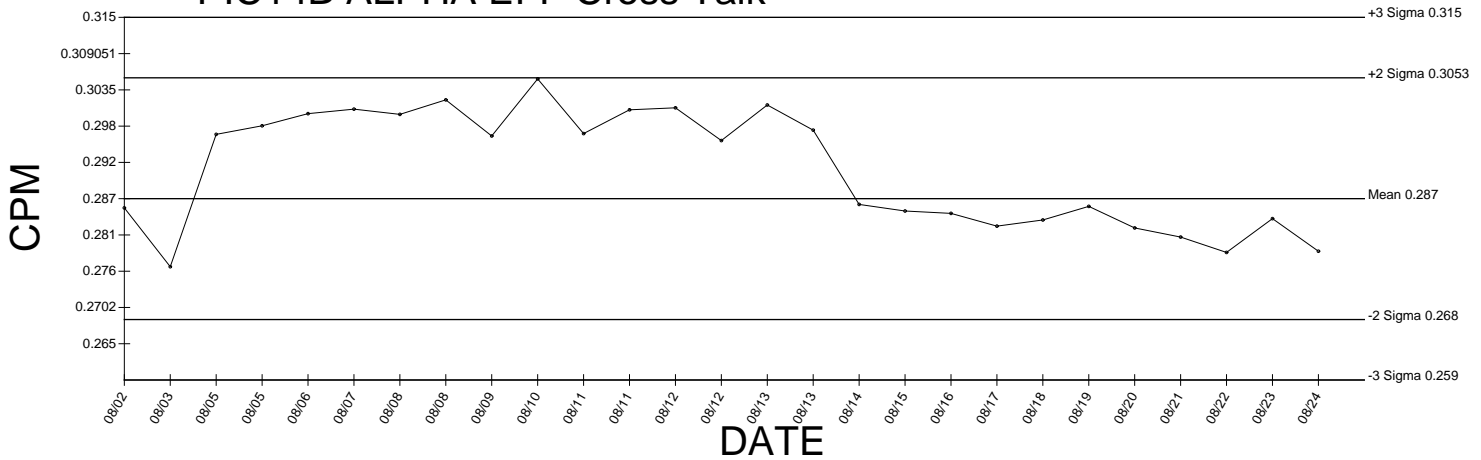
Generated 08/24/2009



# PIC14B ALPHA EFF



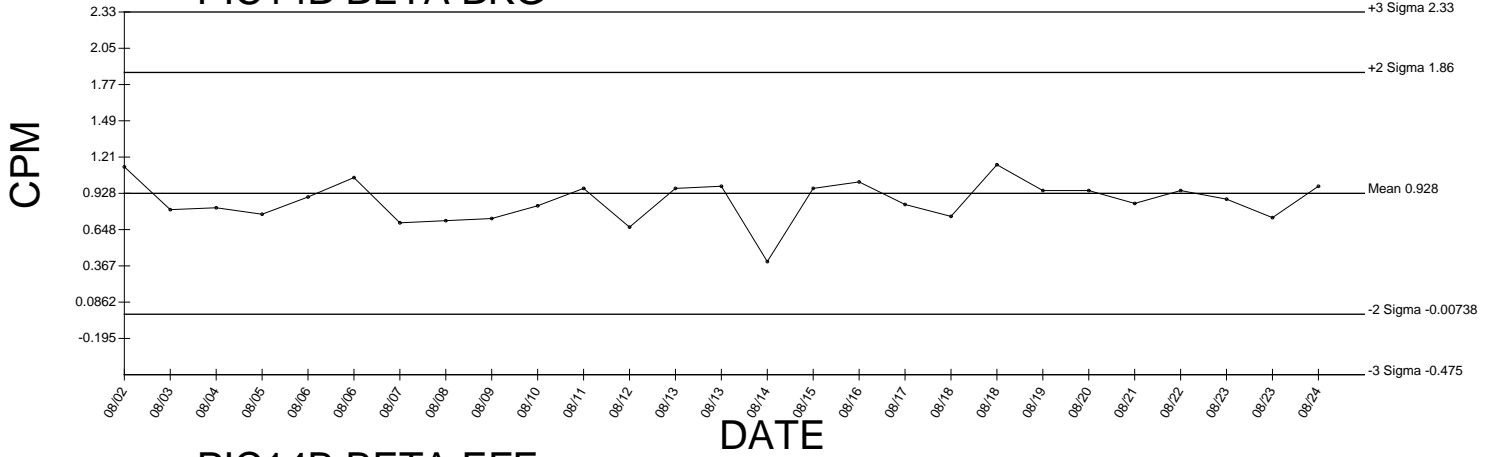
# PIC14B ALPHA EFF Cross Talk



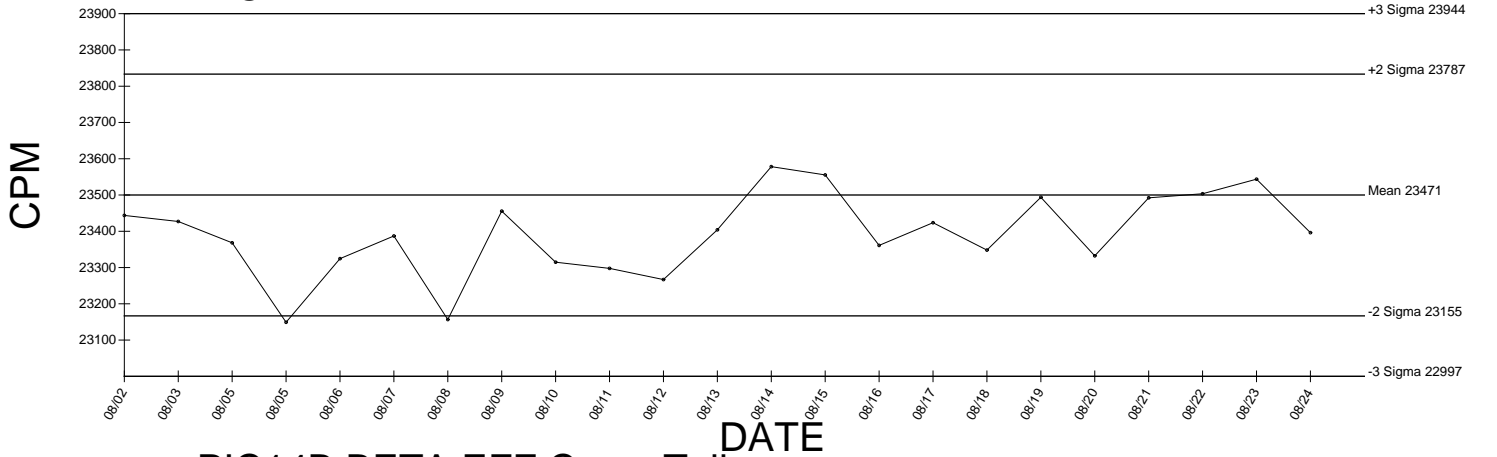
● Denotes Outlier

# PIC14B BETA BKG

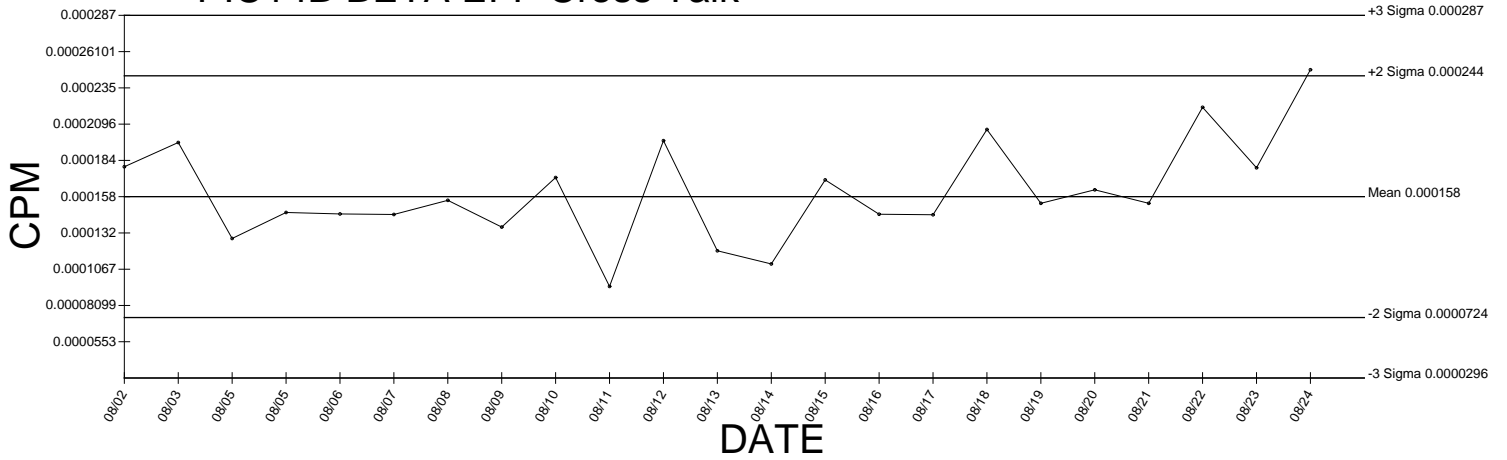
Generated 08/24/2009



# PIC14B BETA EFF



# PIC14B BETA EFF Cross Talk

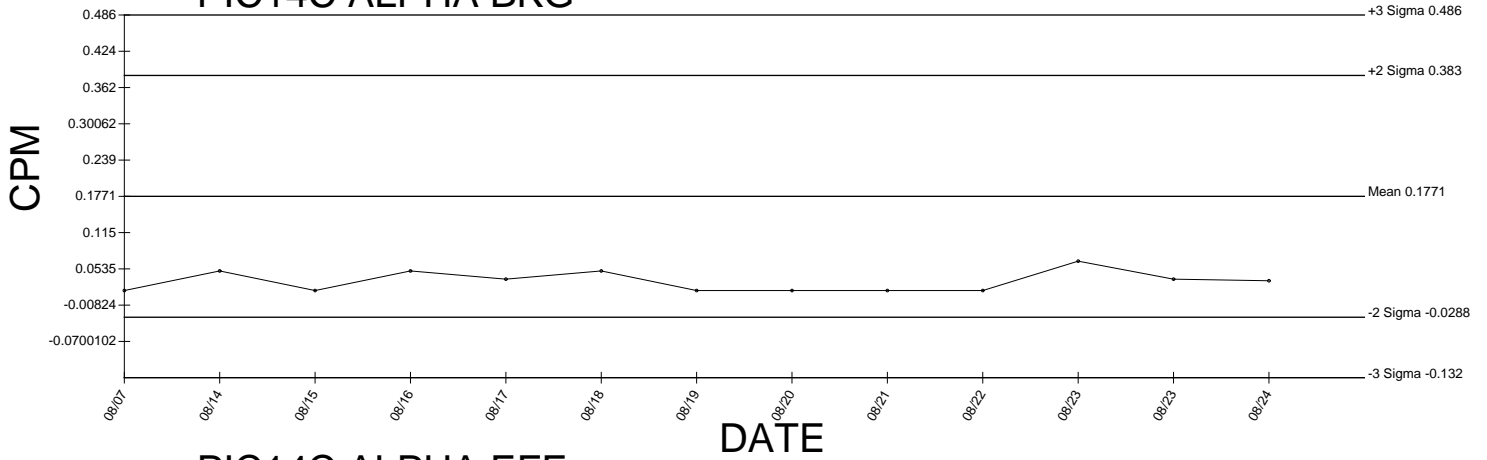


● Denotes Outlier

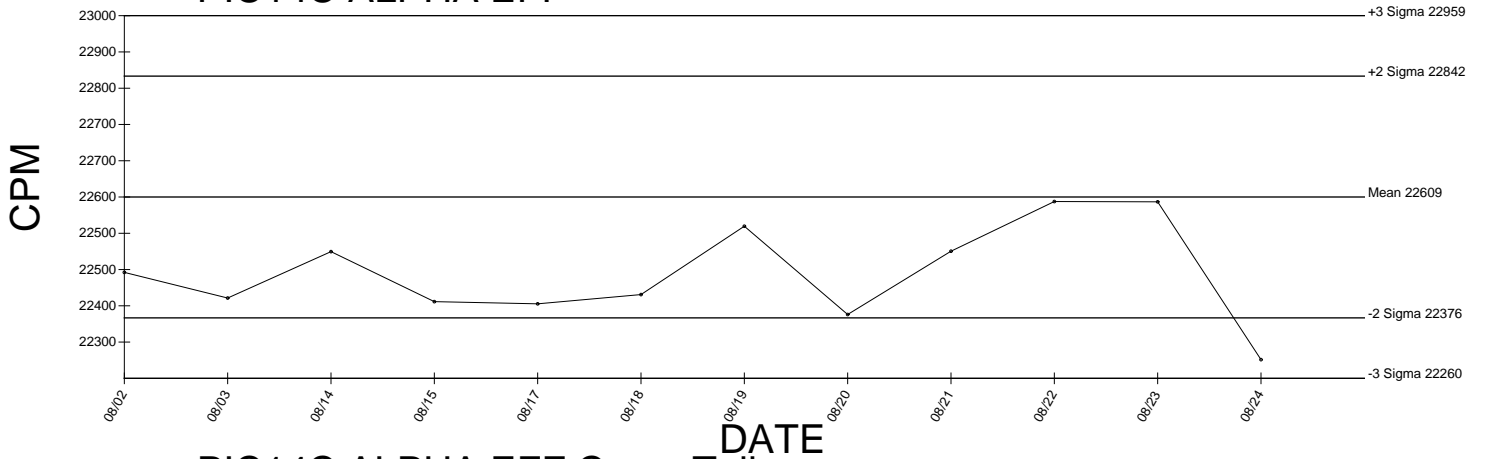


# PIC14C ALPHA BKG

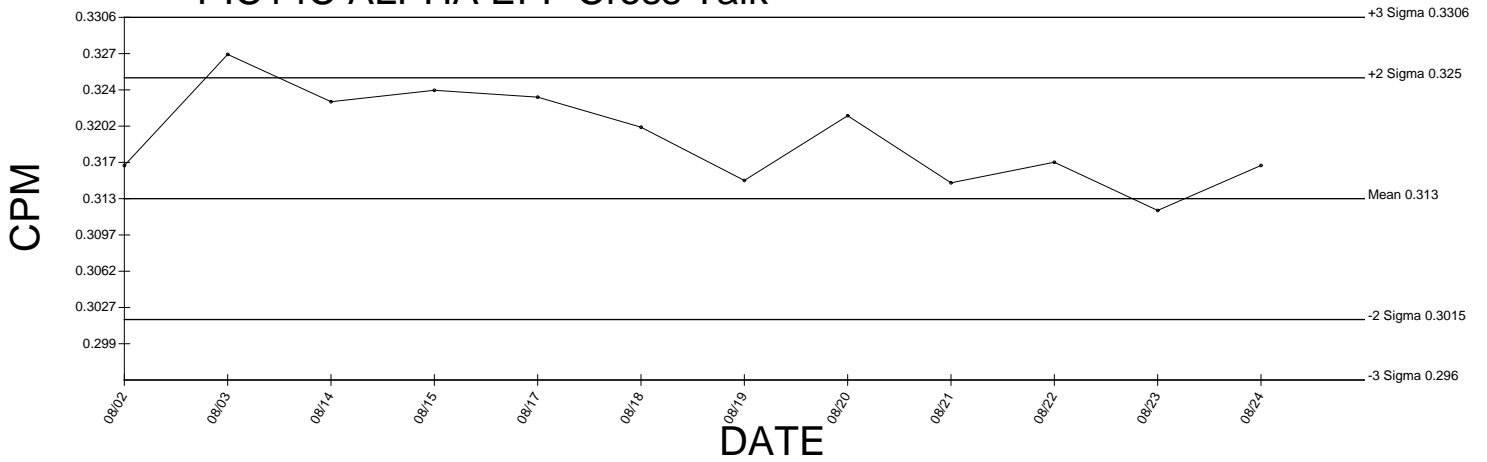
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# PIC14C ALPHA EFF



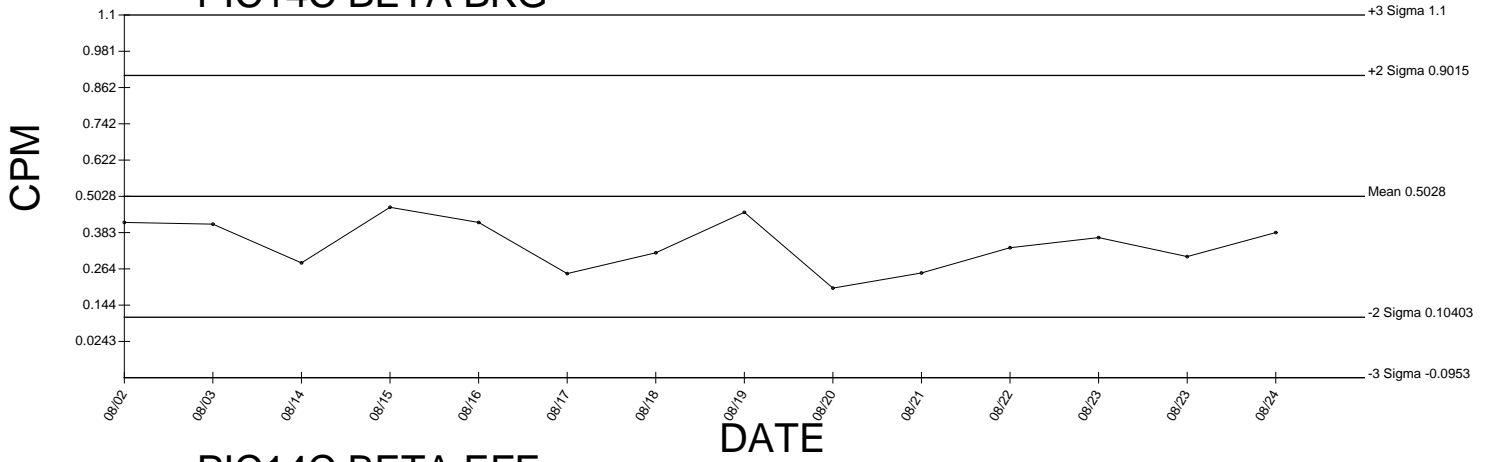
# PIC14C ALPHA EFF Cross Talk



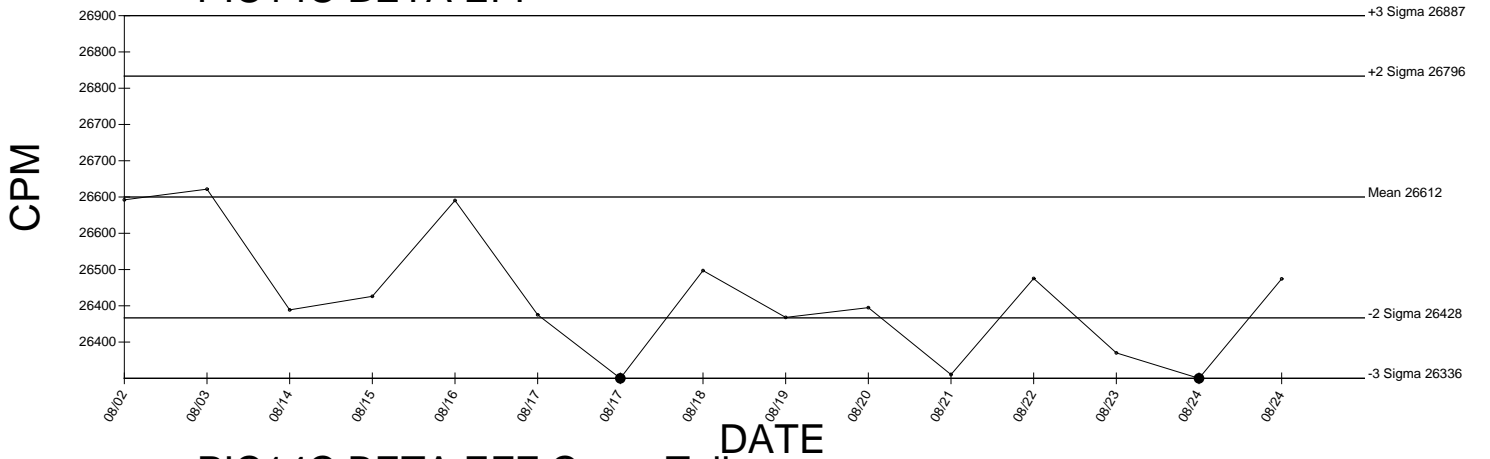
● Denotes Outlier

# PIC14C BETA BKG

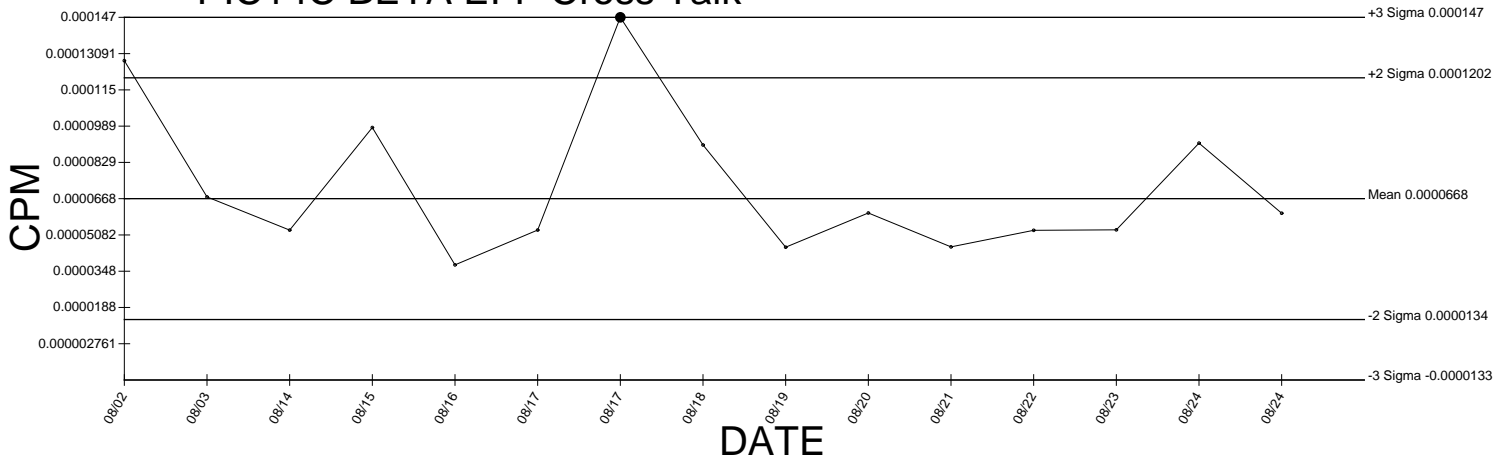
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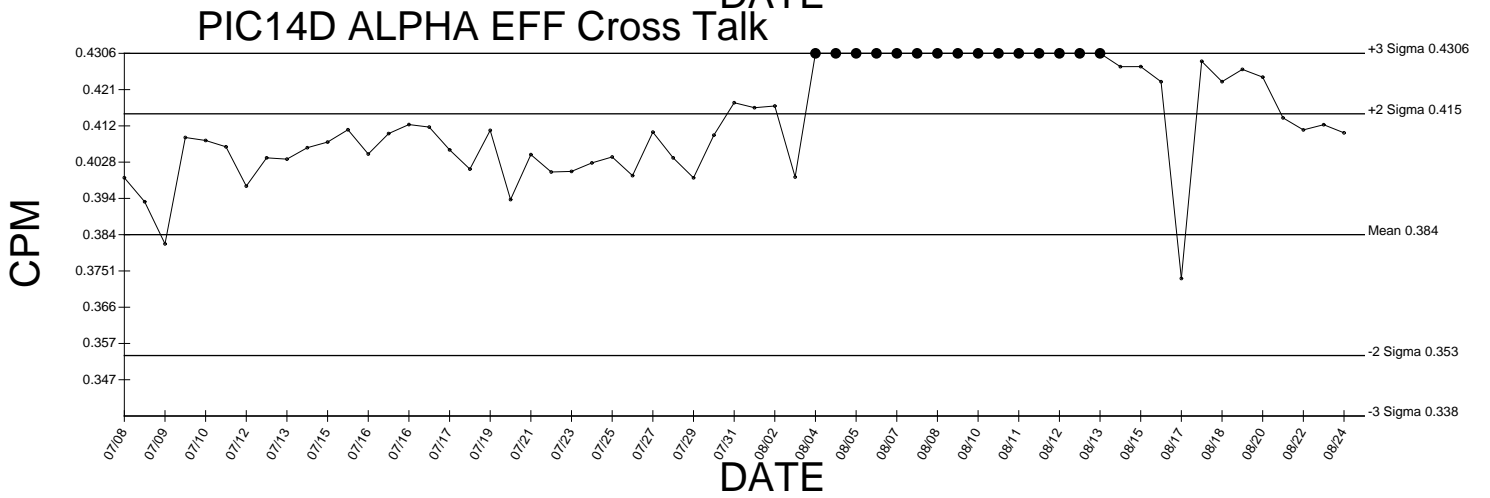
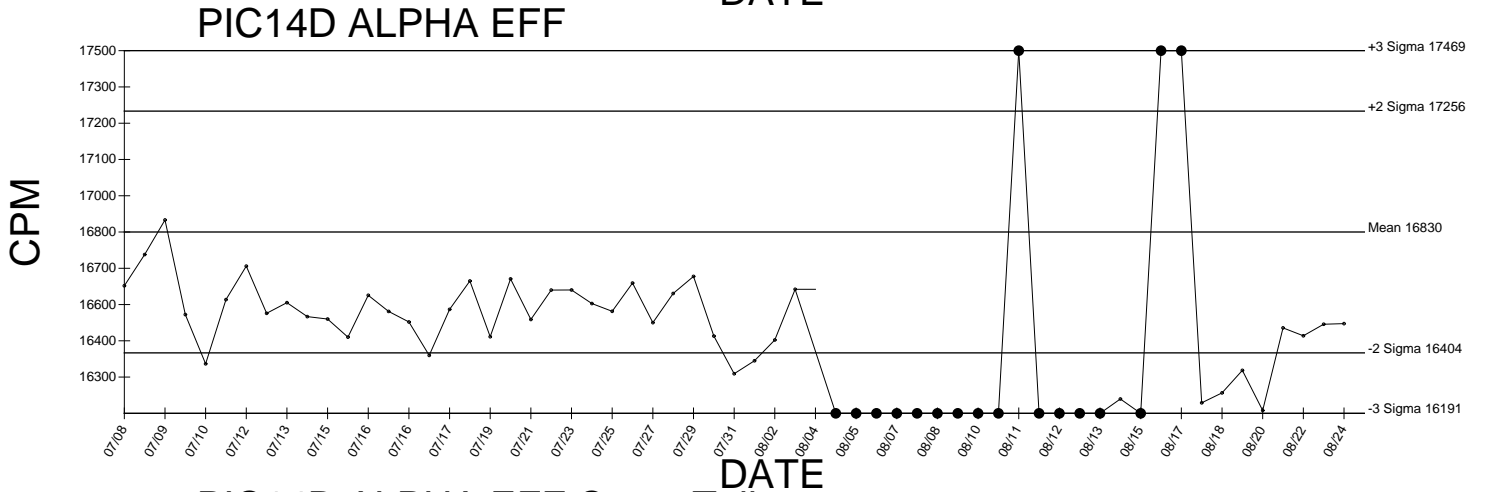
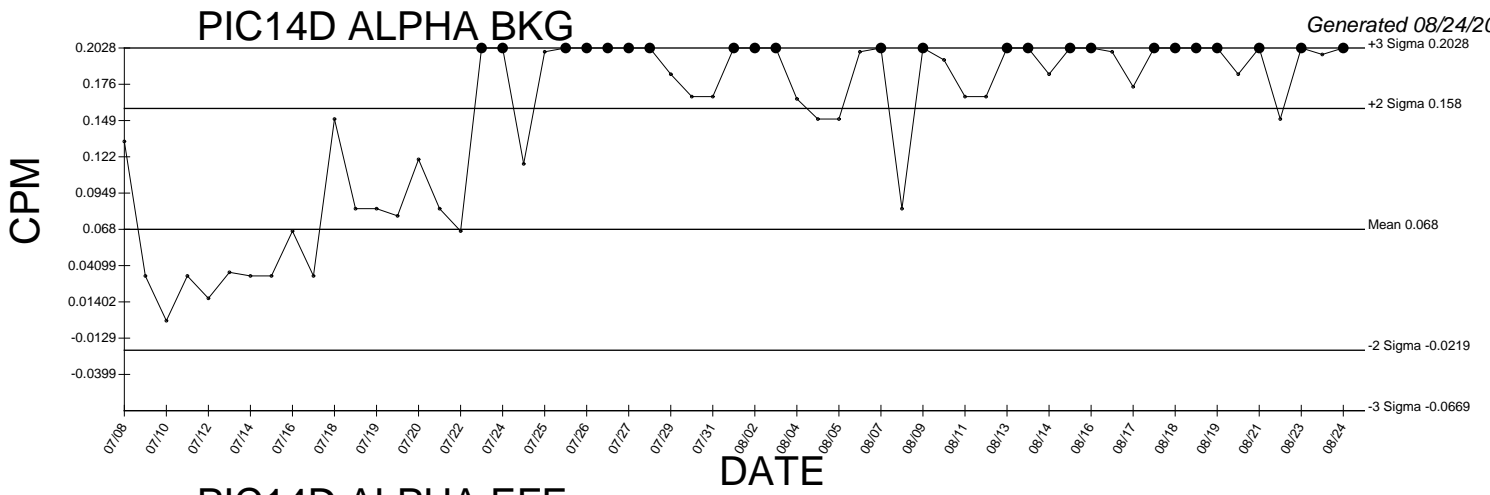
# PIC14C BETA EFF



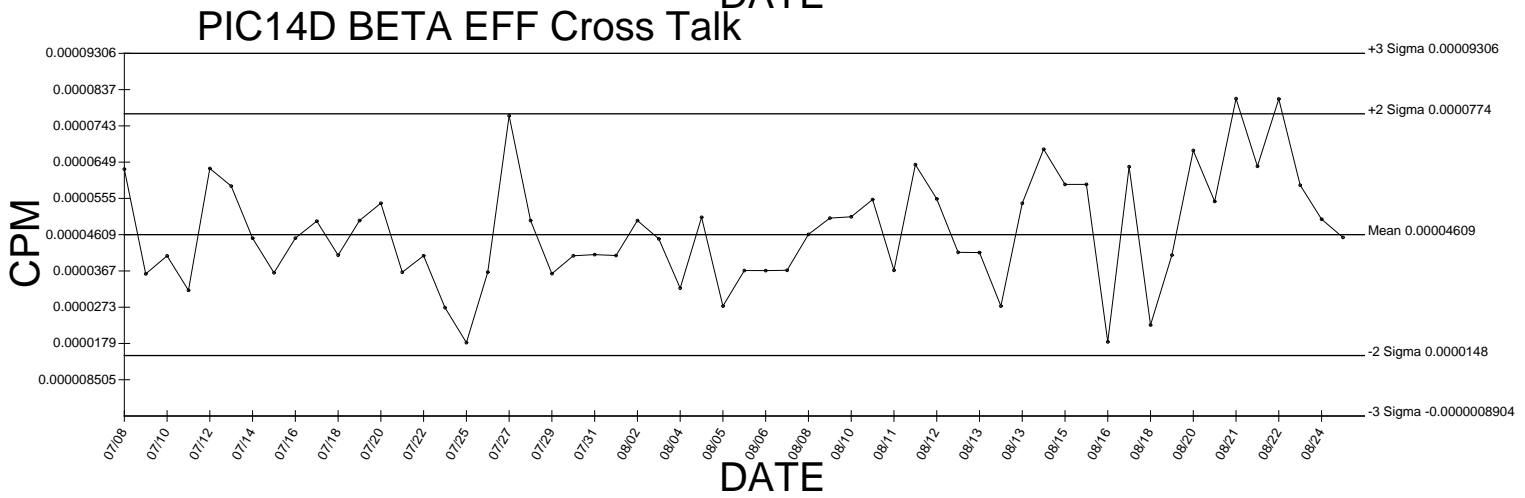
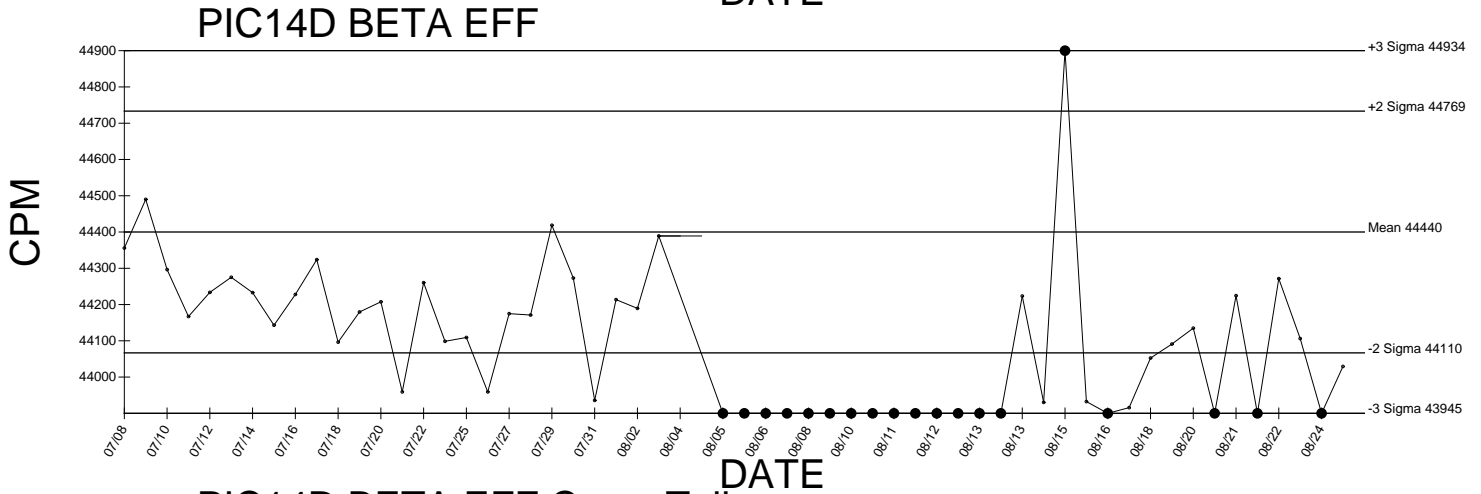
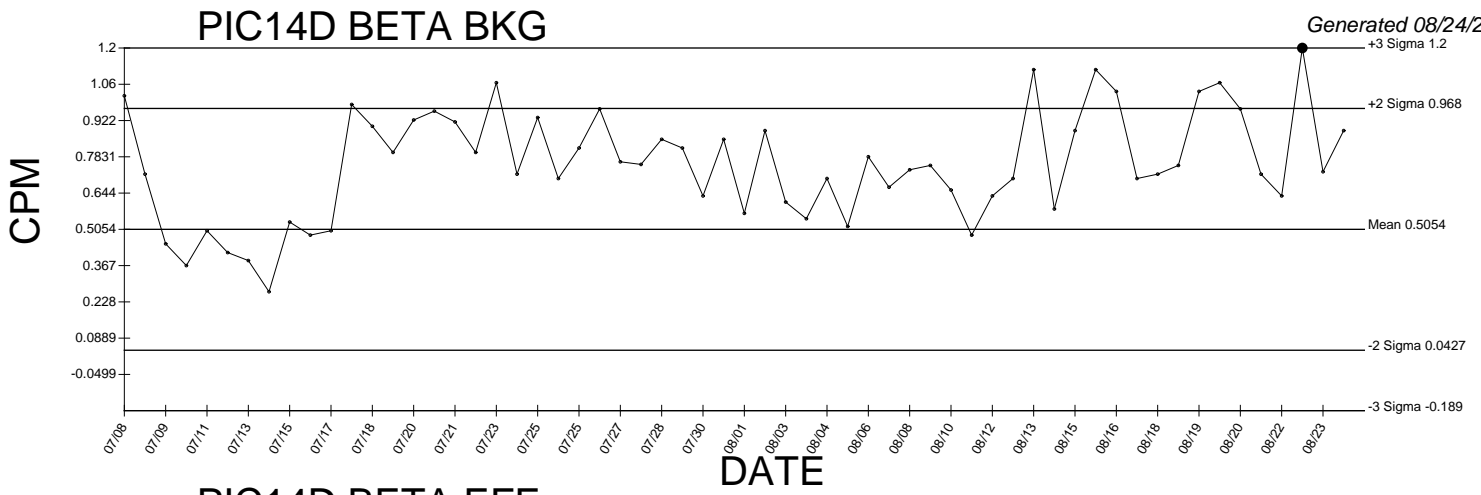
# PIC14C BETA EFF Cross Talk



● Denotes Outlier

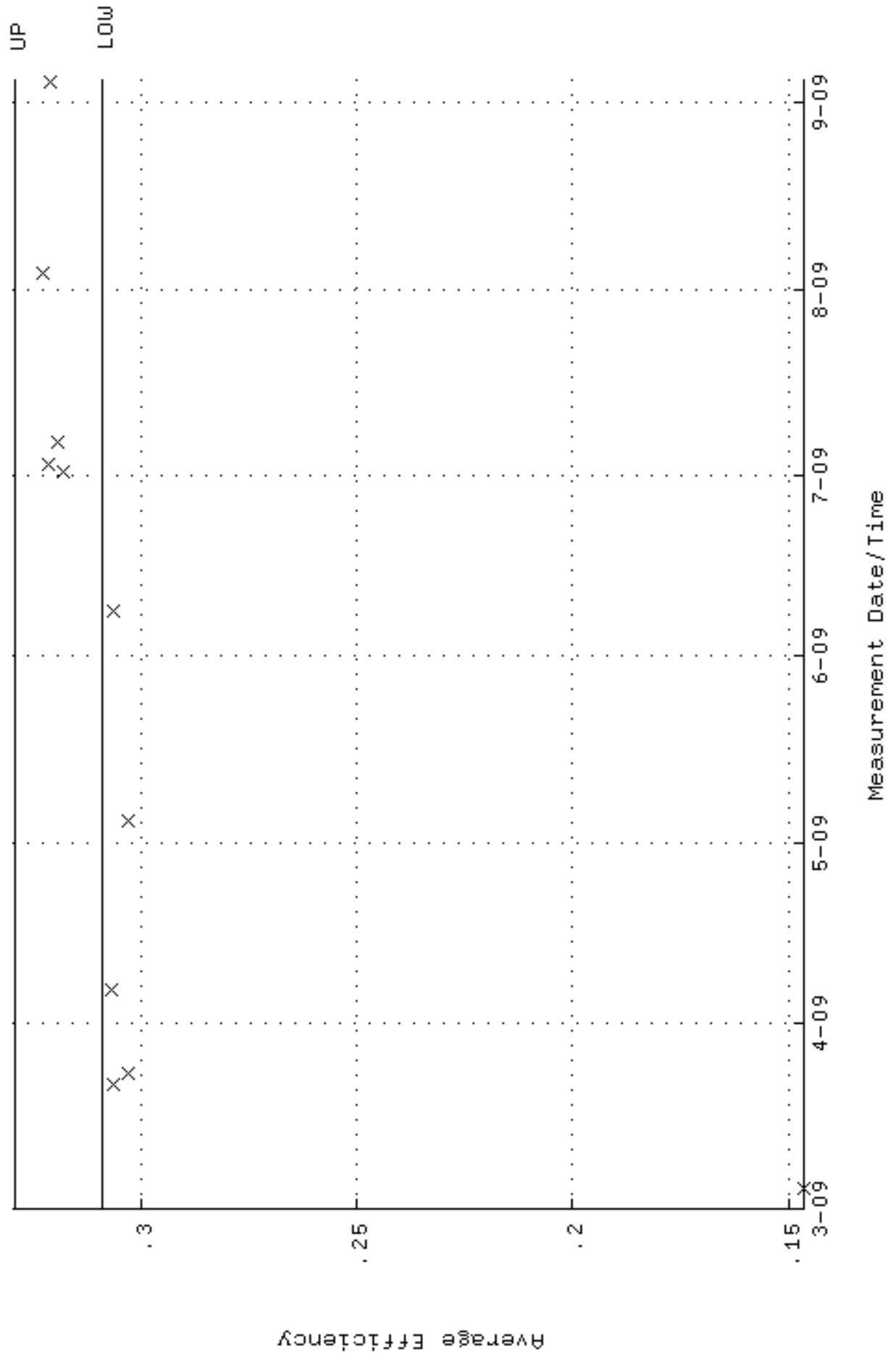


● Denotes Outlier

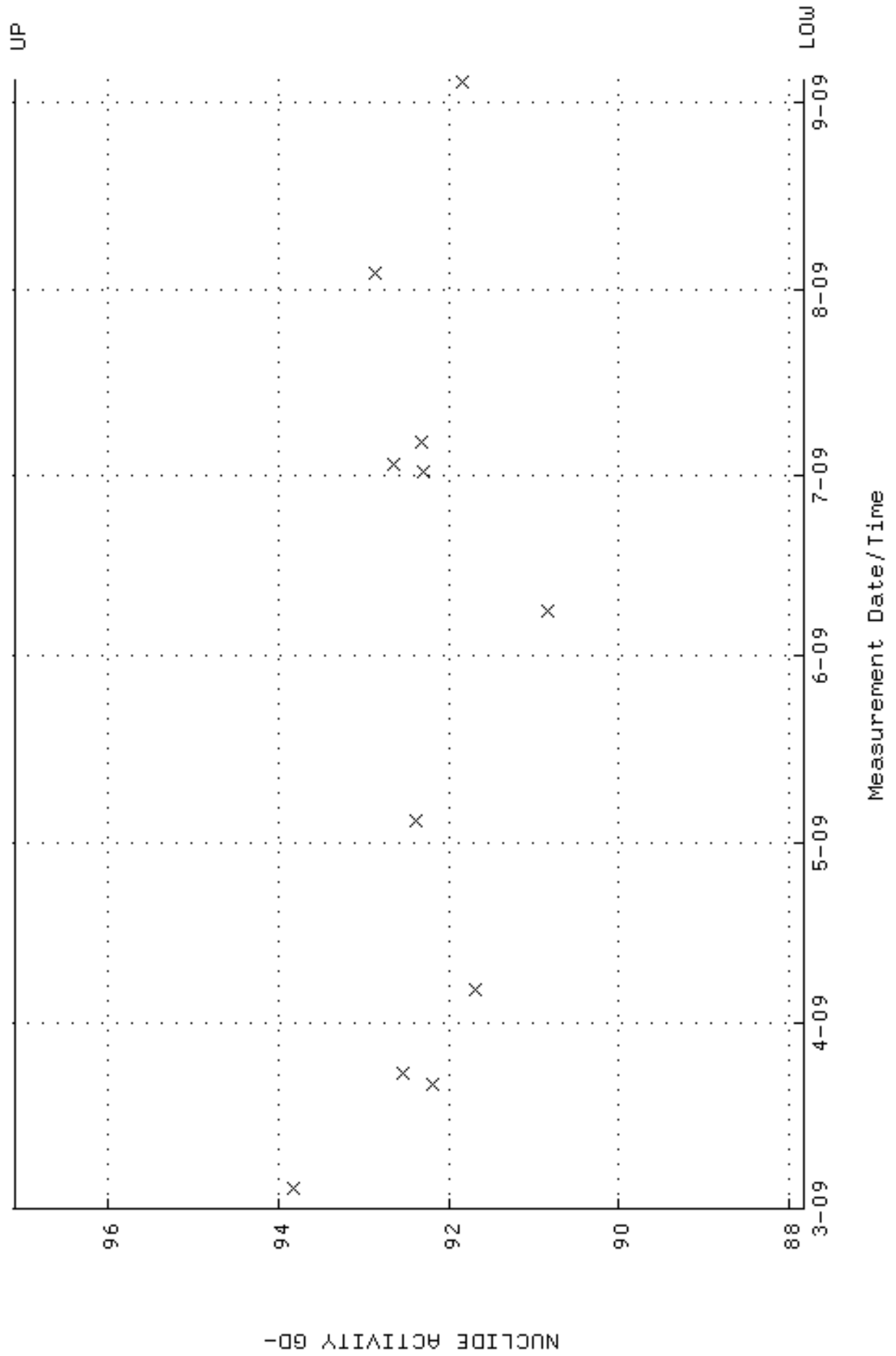


● Denotes Outlier

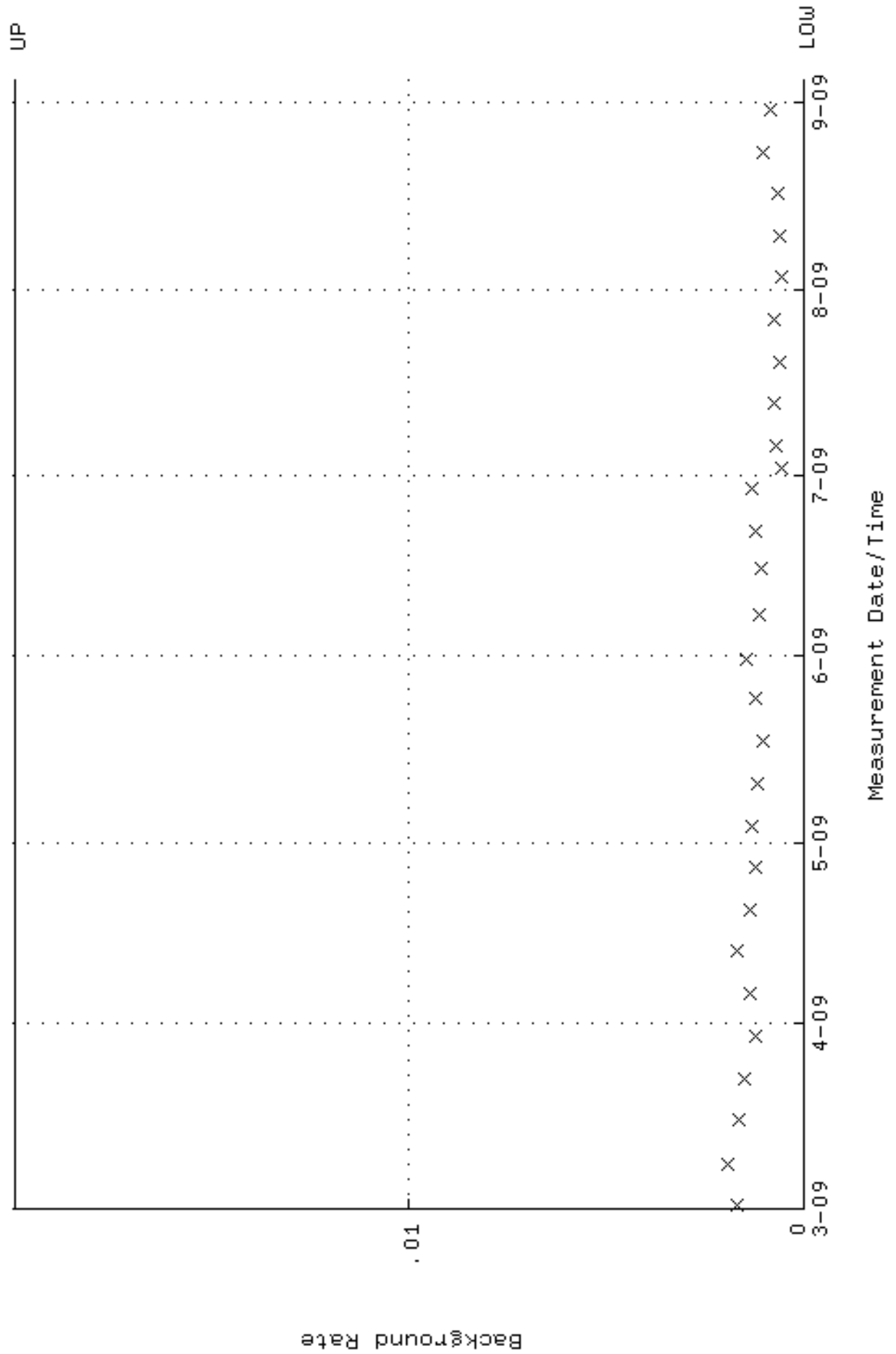
QA filename : DKA100:[ENV\_ALPHA.QA.W]W008.QAF;4  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 4-MAR-2009 12:51:49 through 4-SEP-2009 12:00:00  
 Lower/Upper Lmts: 0.309318 through 0.329318



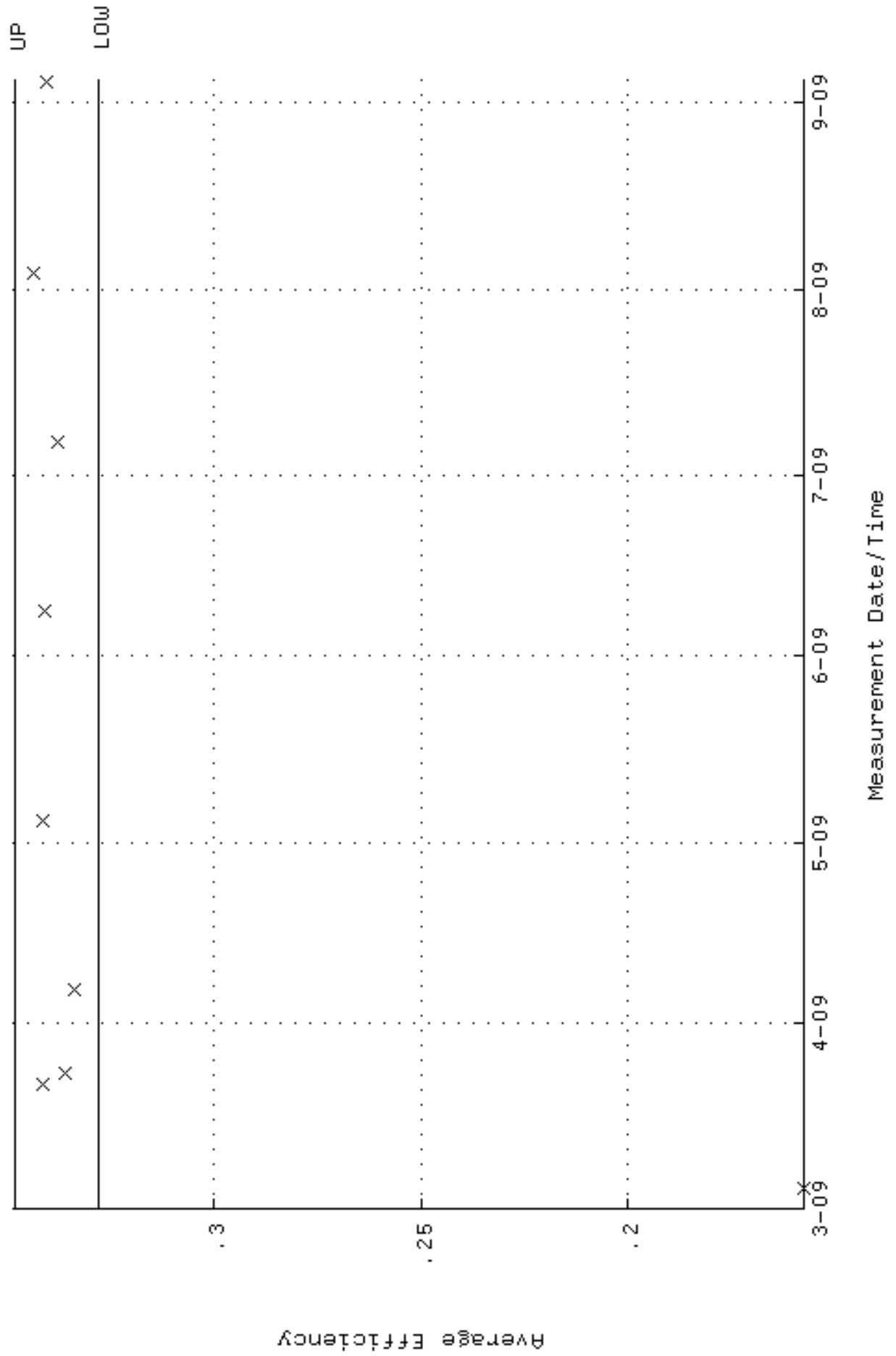
QA filename : DKA100:[ENV\_ALPHA.QA.W]W008.QAF;4  
Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
Start/End Dates : 4-MAR-2009 12:51:49 through 4-SEP-2009 12:00:00  
Lower/Upper Lmts: 87.8346 through 97.0804



QA filename : DKA100:[ENV\_ALPHA.QA.B]B008.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-MAR-2009 17:17:21 through 4-SEP-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02

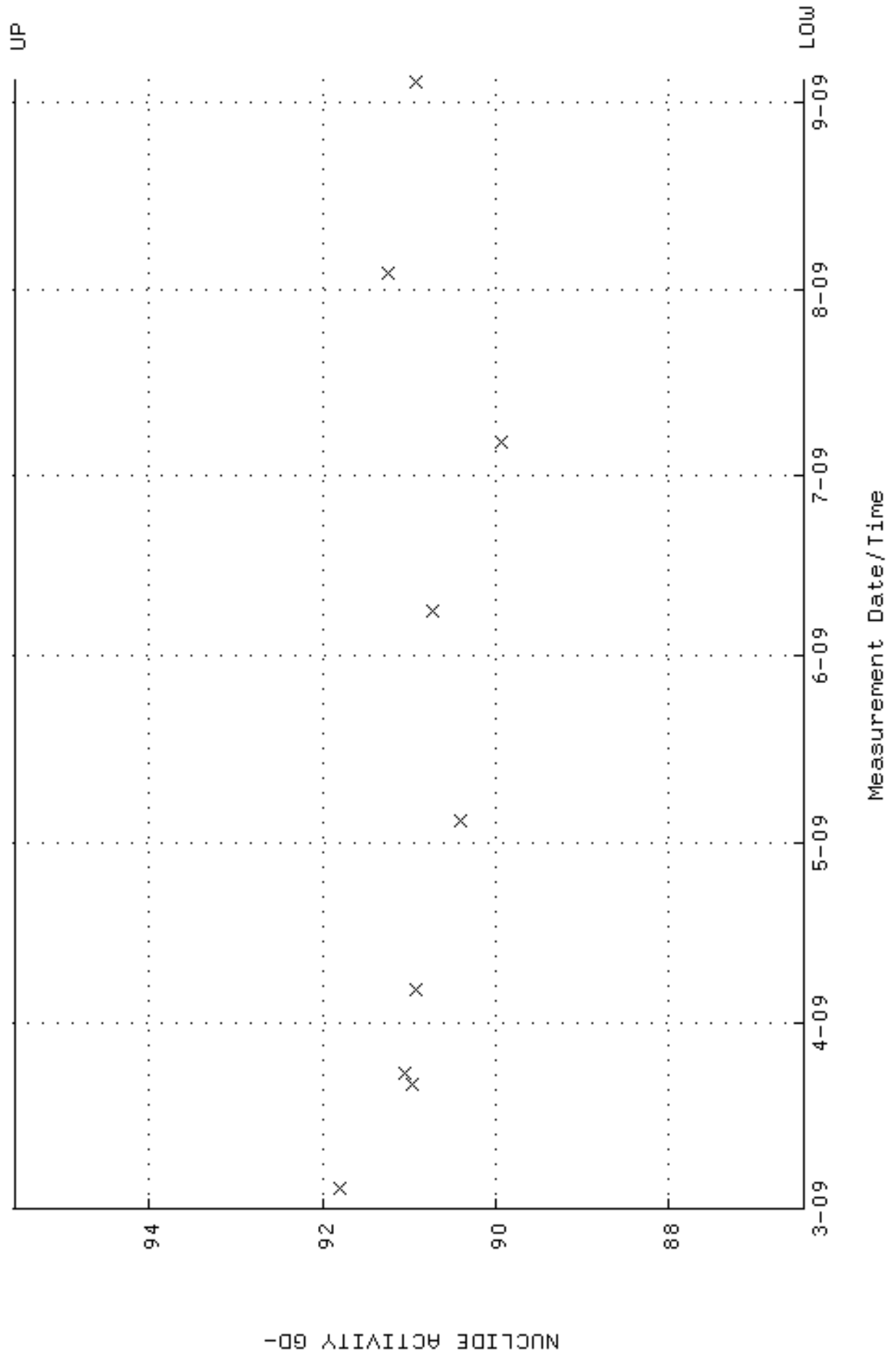


QA filename : DKA100:[ENV\_ALPHA.QA.W]W009.QAF;3  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 4-MAR-2009 12:51:49 through 4-SEP-2009 12:00:00  
 Lower/Upper Lmts: 0.328261 through 0.348261

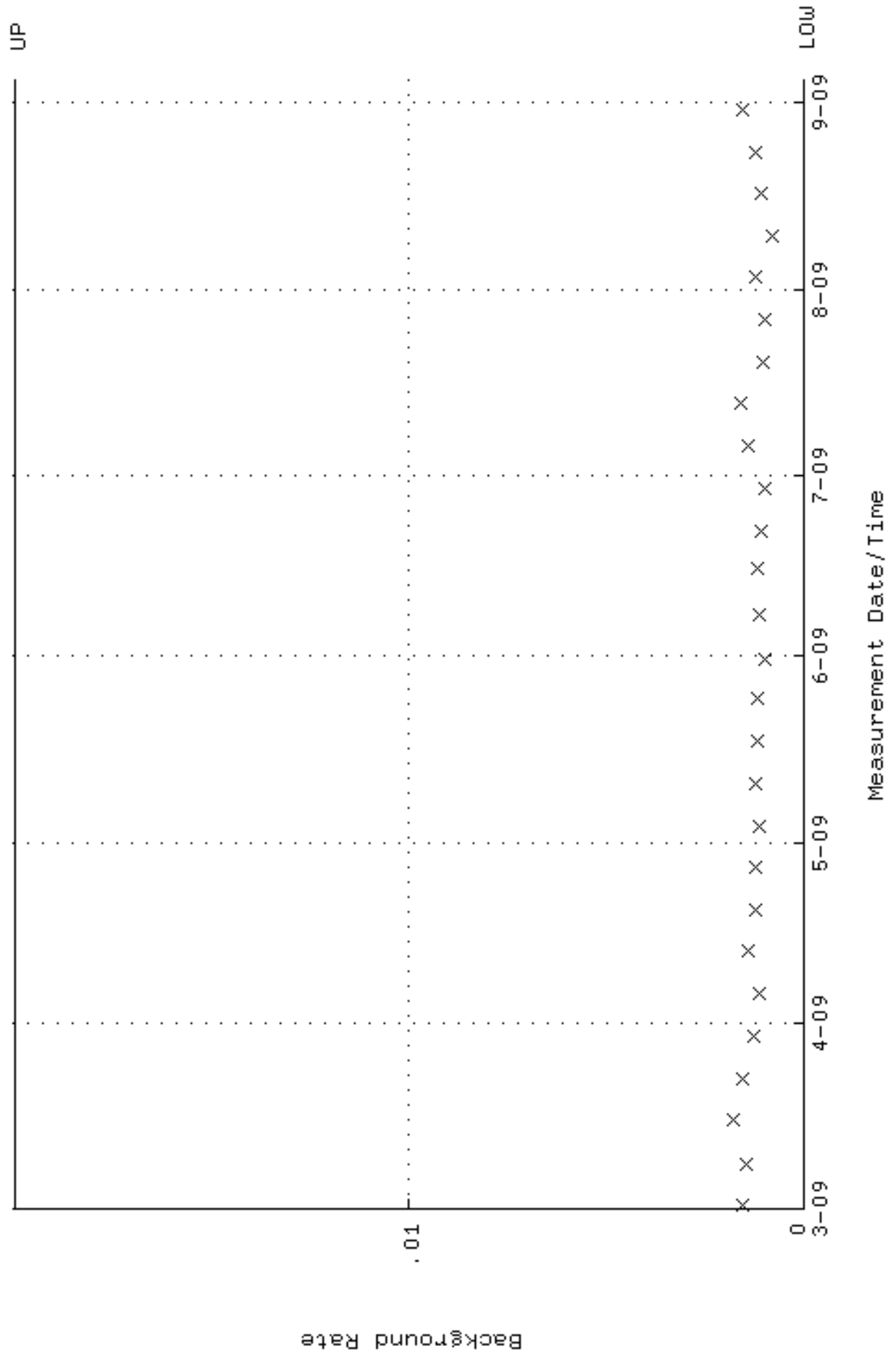




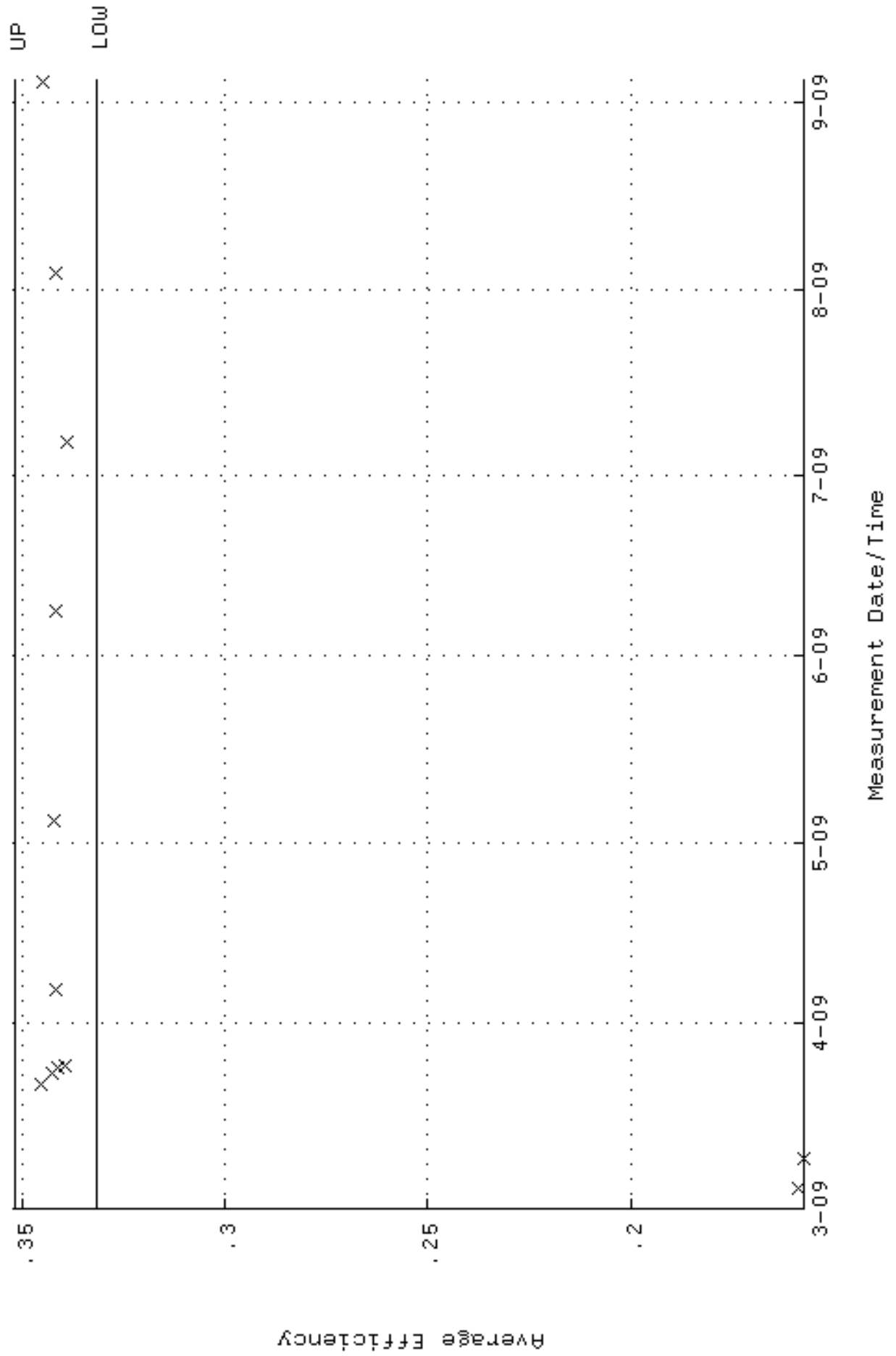
QA filename : DKA100:[ENV\_ALPHA.QA.W]W009.QAF;3  
Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
Start/End Dates : 4-MAR-2009 12:51:49 through 4-SEP-2009 12:00:00  
Lower/Upper Lmts: 86.4475 through 95.5473



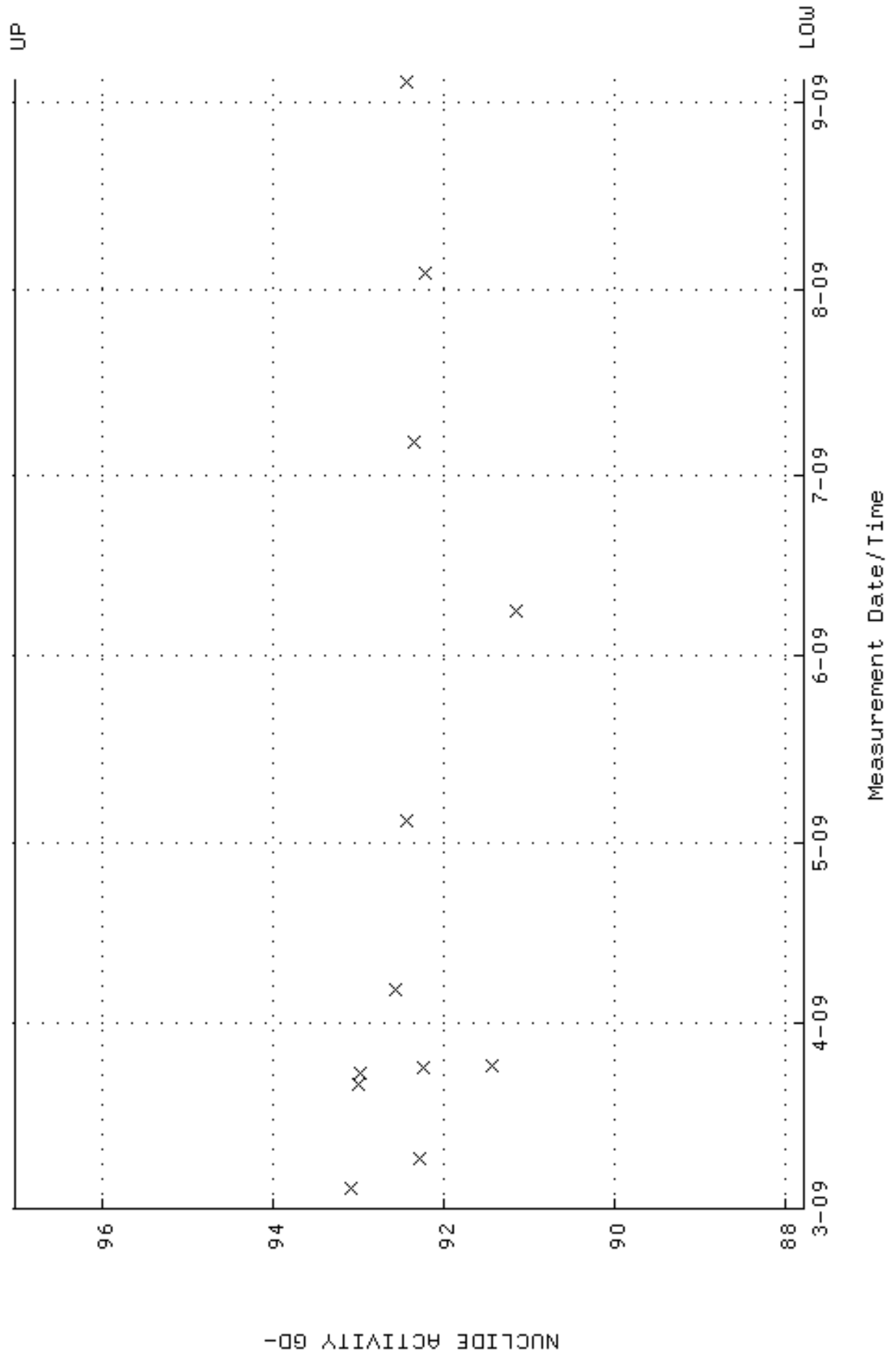
QA filename : DKA100:[ENV\_ALPHA.QA.B]B009.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-MAR-2009 17:17:21 through 4-SEP-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



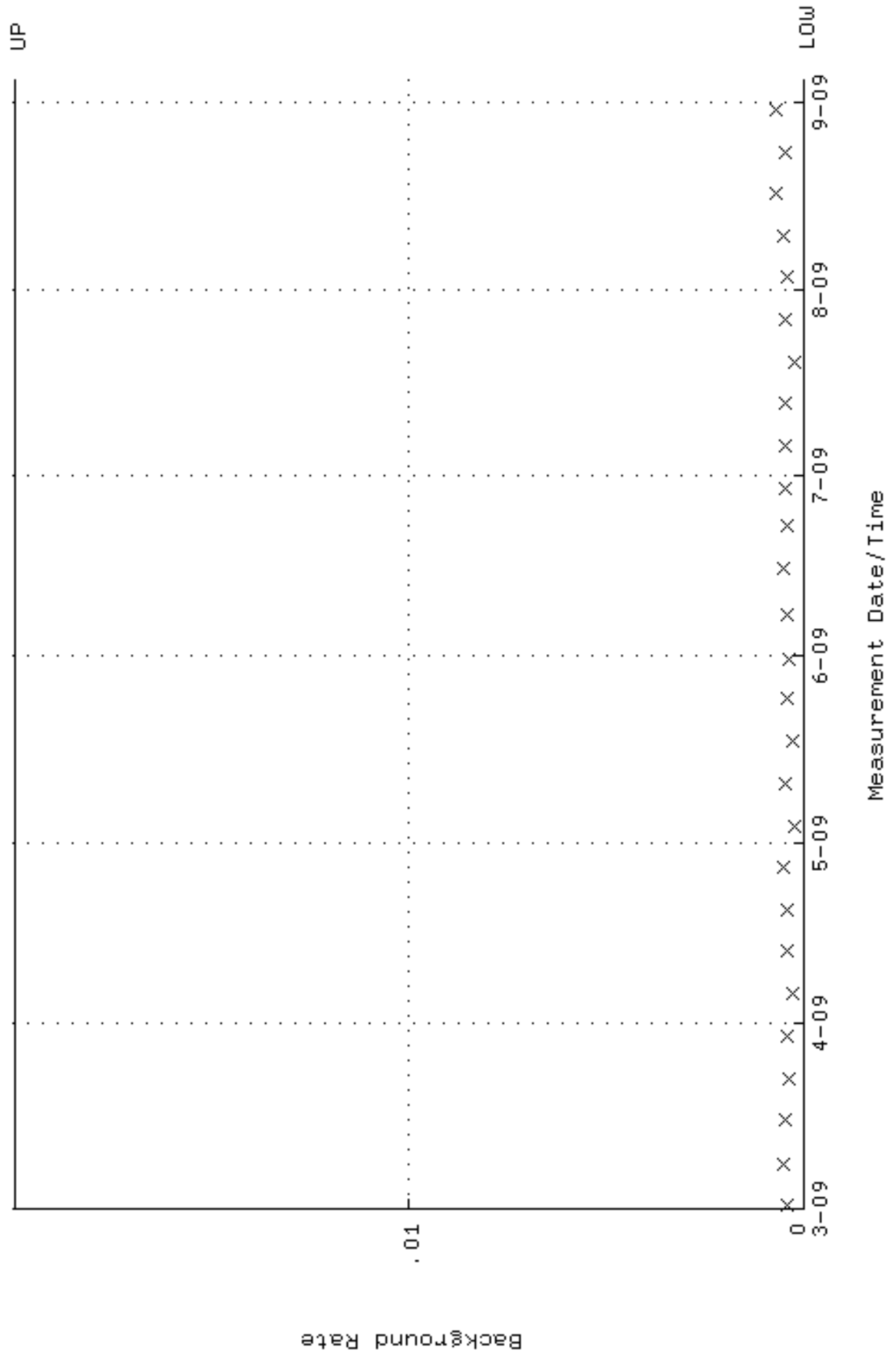
QA filename : DKA100:[ENV\_ALPHA.QA.W]W013.QAF;2  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 4-MAR-2009 06:58:08 through 4-SEP-2009 12:00:00  
 Lower/Upper Lmts: 0.331676 through 0.351676



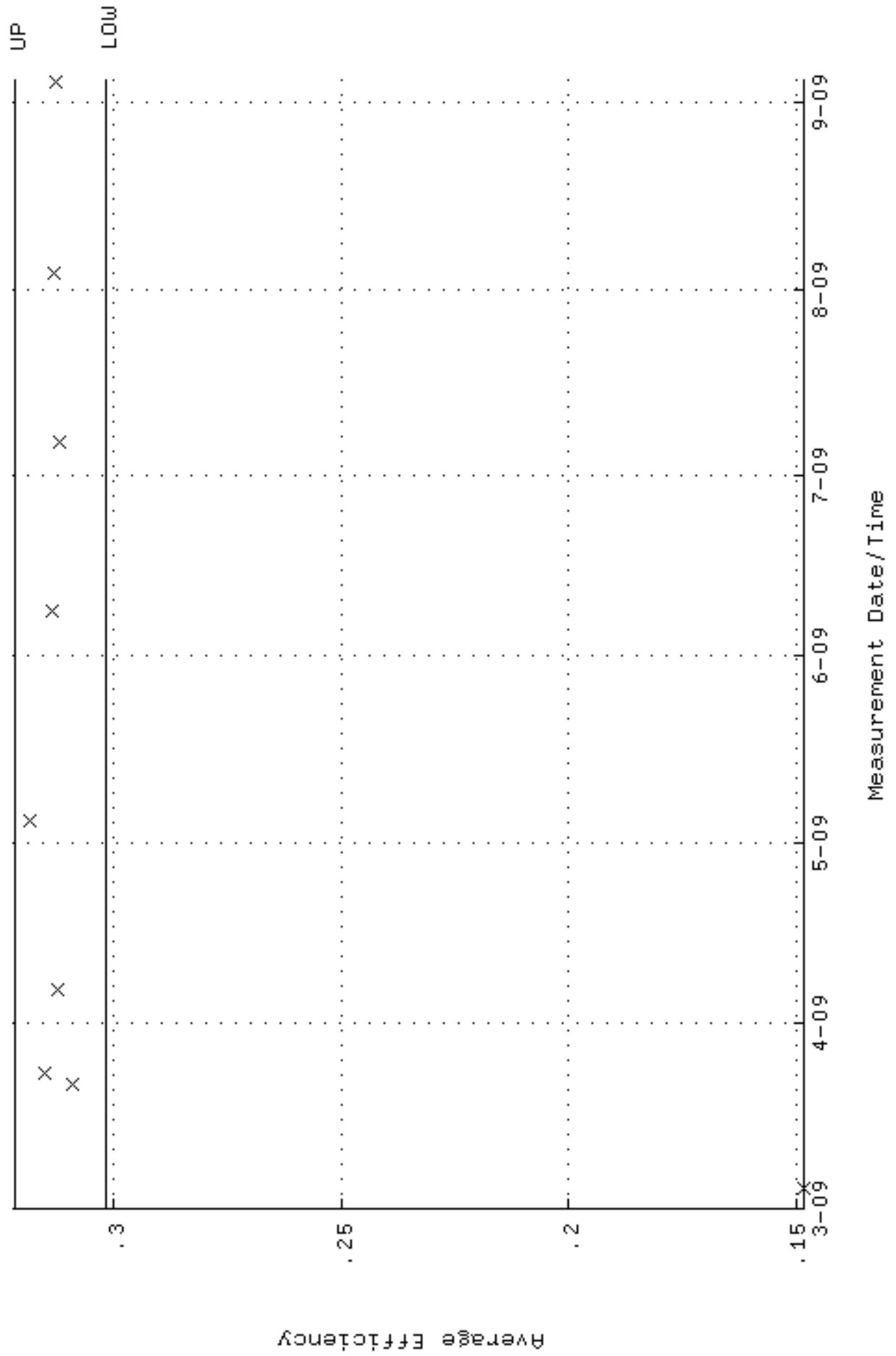
QA filename : DKA100:[ENV\_ALPHA.QA.W]W013.QAF;2  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 4-MAR-2009 06:58:08 through 4-SEP-2009 12:00:00  
 Lower/Upper Lmts: 87.7736 through 97.0130



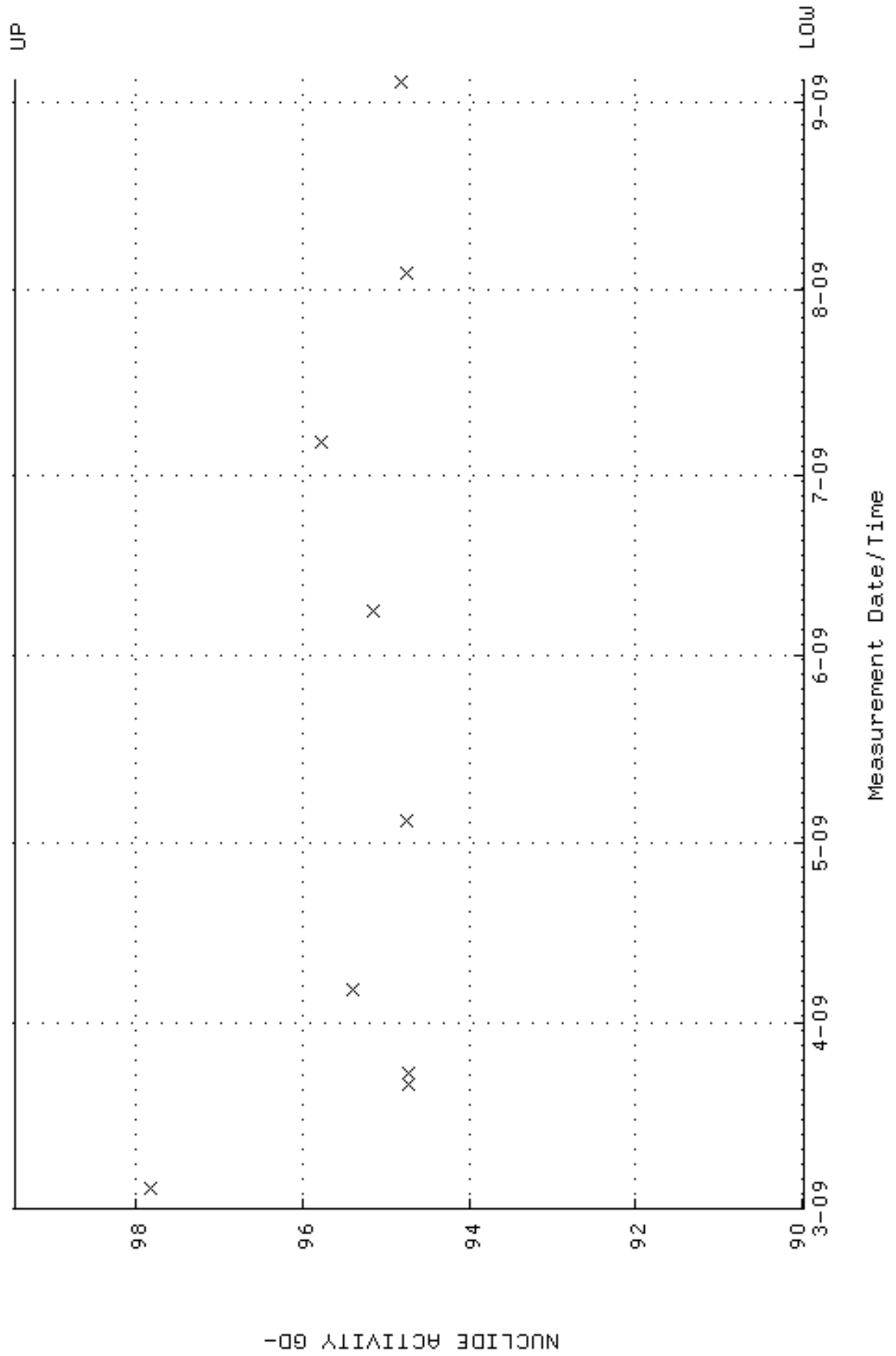
QA filename : DKA100:[ENV\_ALPHA.QA.B]B013.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-MAR-2009 17:17:22 through 4-SEP-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



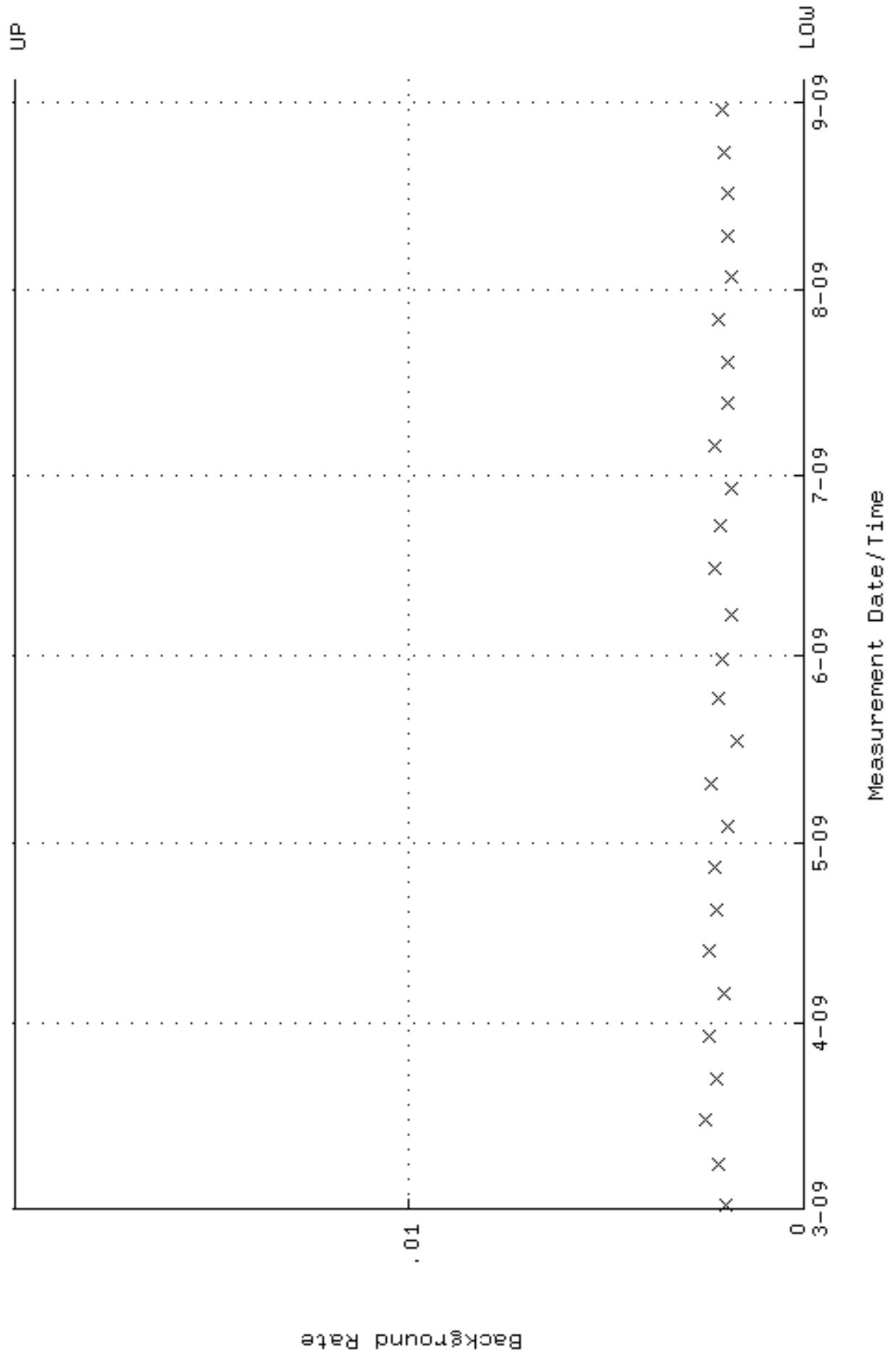
QA filename : DKA100:[ENV\_ALPHA.QA.W]W014.QAF;4  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 4-MAR-2009 06:58:08 through 4-SEP-2009 12:00:00  
 Lower/Upper Lmts: 0.301834 through 0.321834



QA filename : DKA100:[ENV\_ALPHA.QA.W]W014.QAF;4  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 4-MAR-2009 06:58:08 through 4-SEP-2009 12:00:00  
 Lower/Upper Lmts: 89.9790 through 99.4504

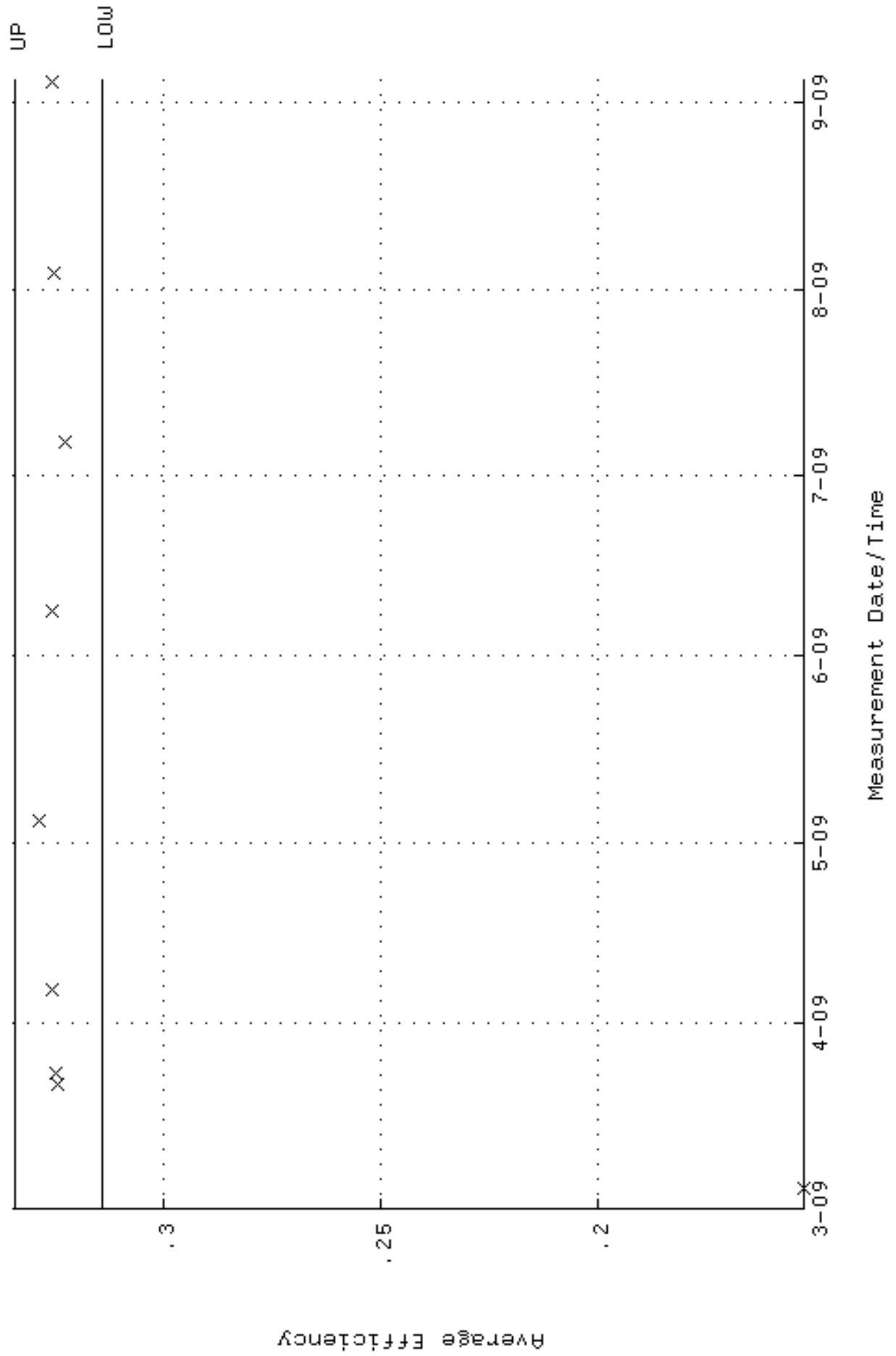


QA filename : DKA100:[ENV\_ALPHA.QA.B]B014.QAF;2  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-MAR-2009 17:17:22 through 4-SEP-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02

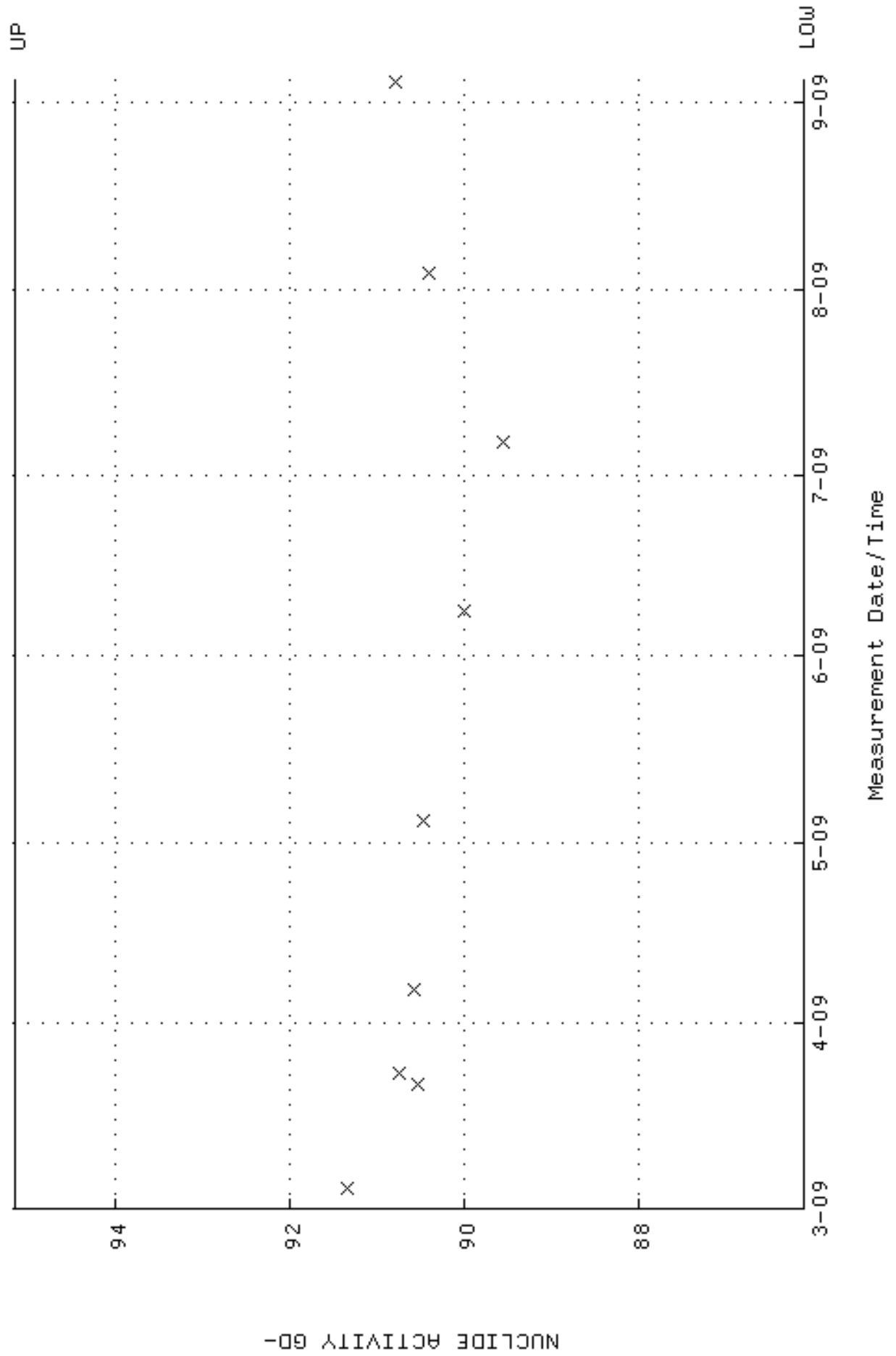




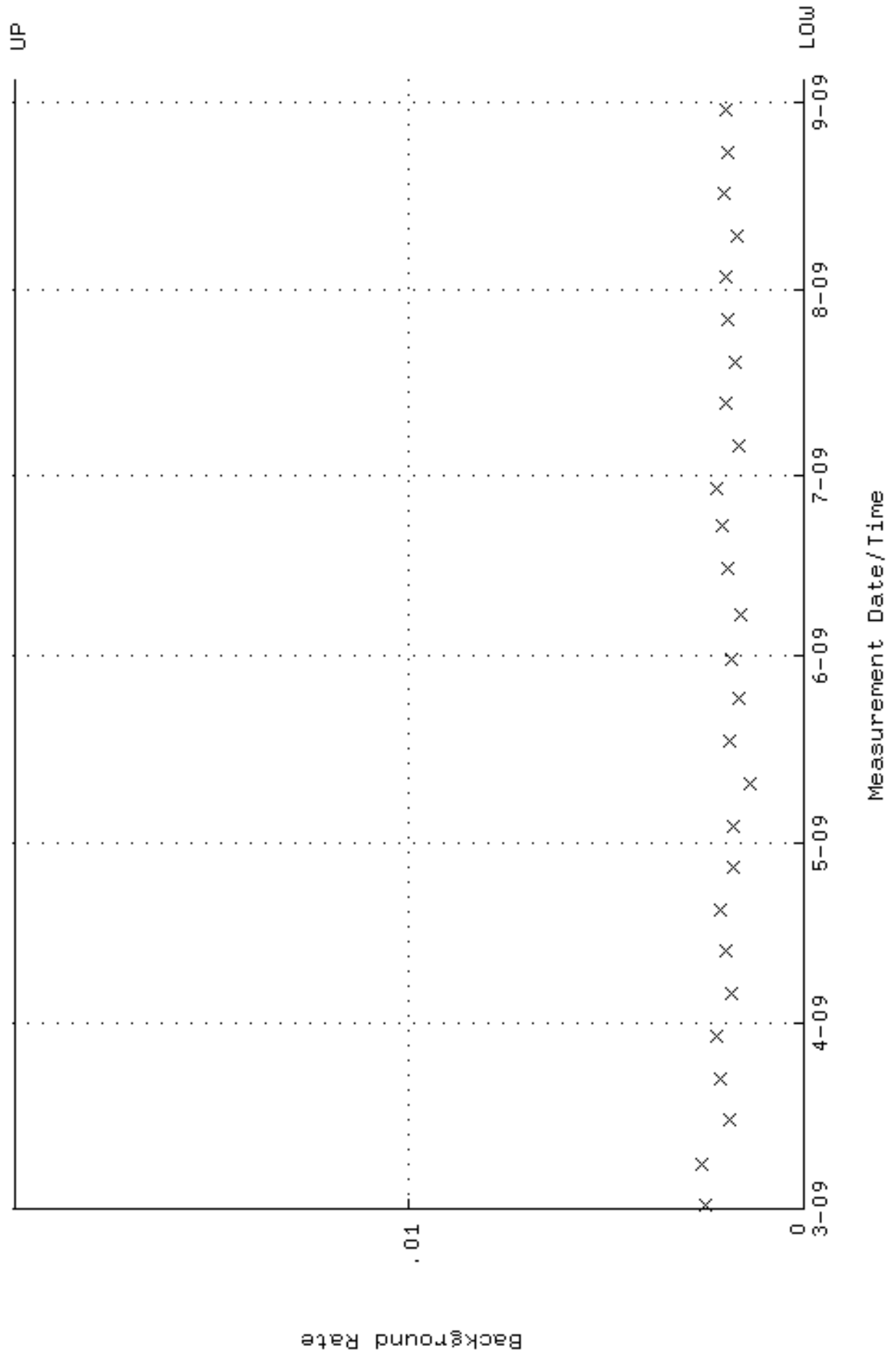
QA filename : DKA100:[ENV\_ALPHA.QA.W]W015.QAF;3  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 4-MAR-2009 06:58:08 through 4-SEP-2009 12:00:00  
 Lower/Upper Lmts: 0.314211 through 0.334211



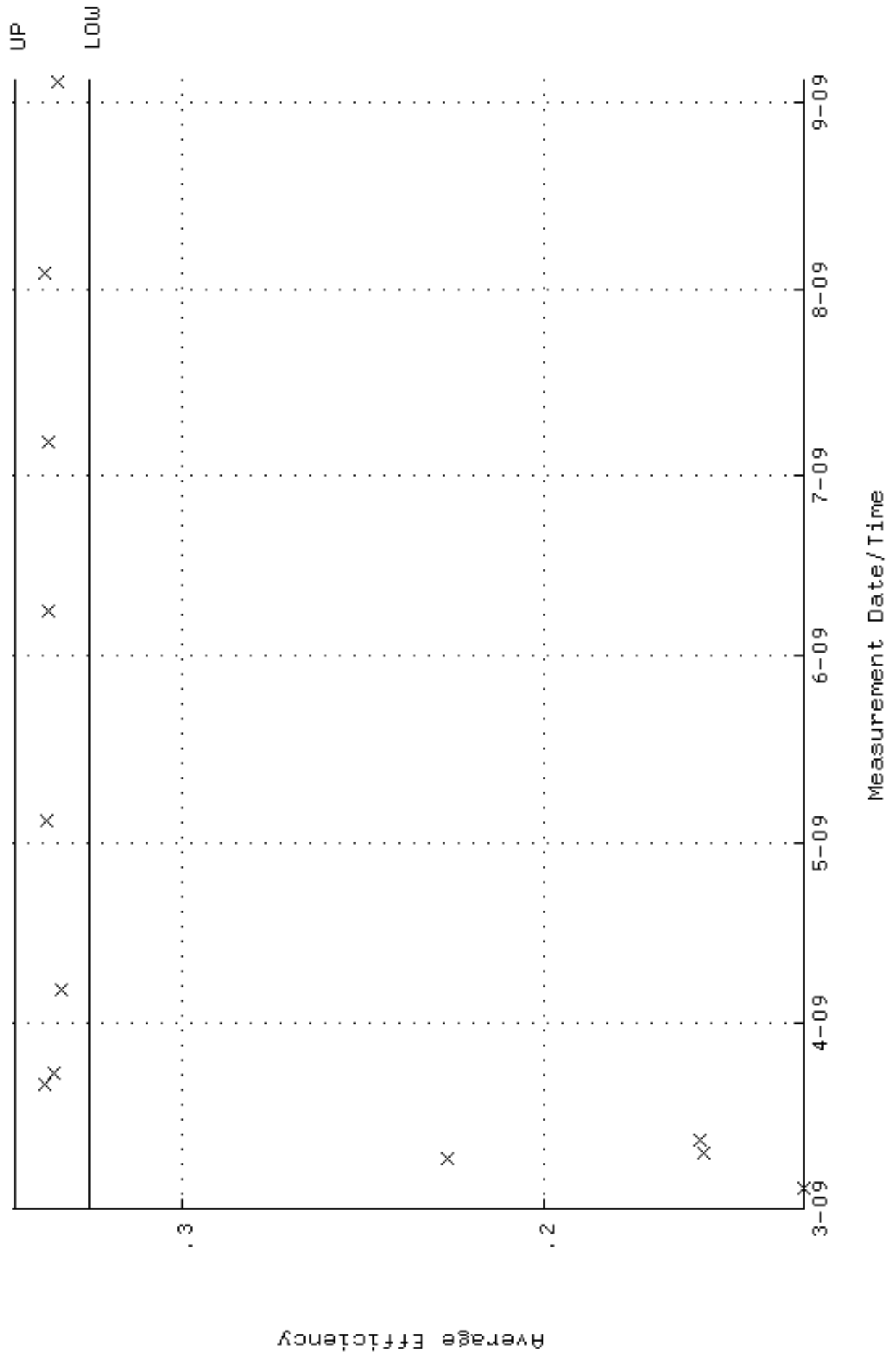
QA filename : DKA100:[ENV\_ALPHA.QA.W]W015.QAF;3  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 4-MAR-2009 06:58:08 through 4-SEP-2009 12:00:00  
 Lower/Upper Lmts: 86.0931 through 95.1555



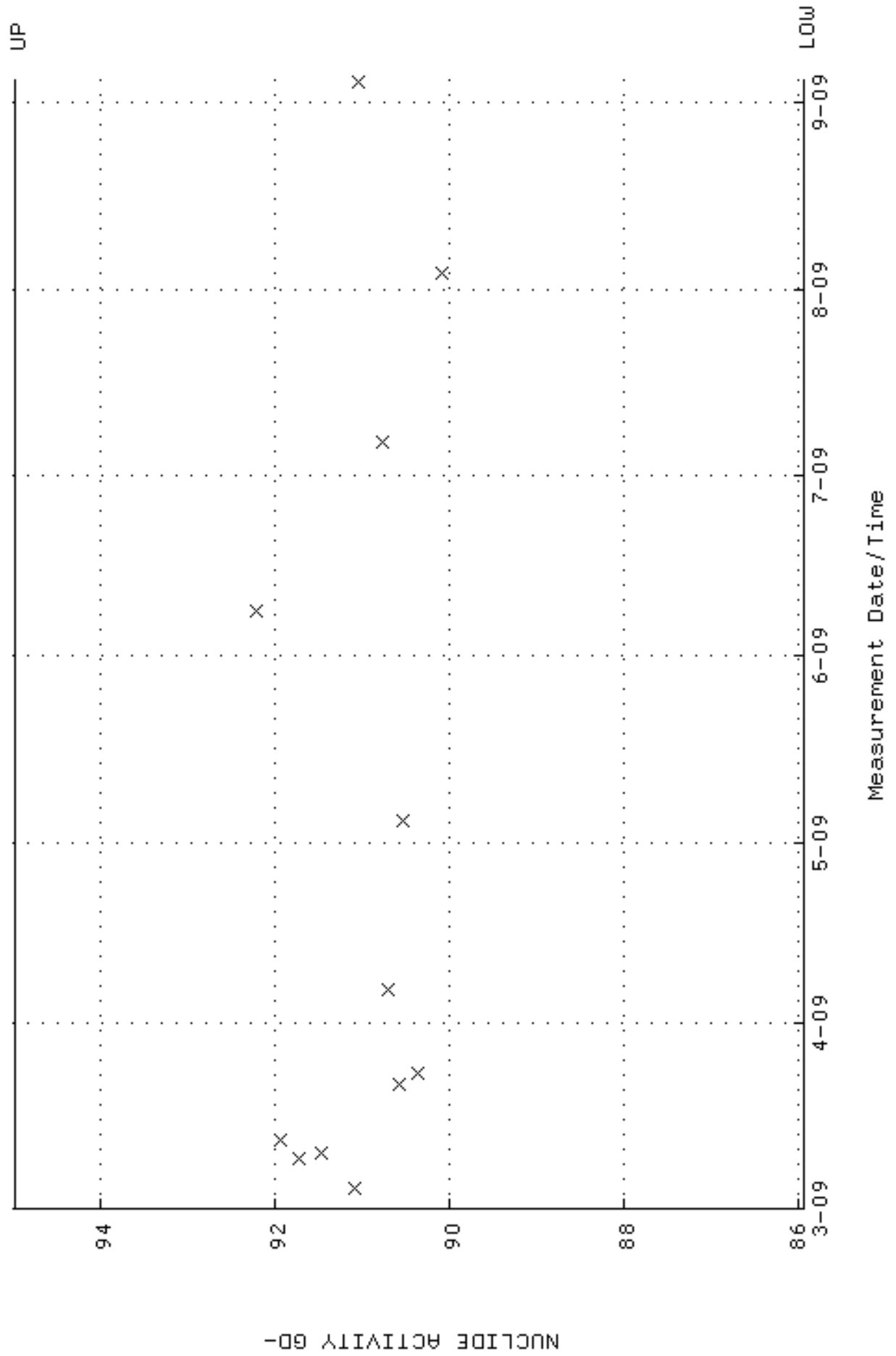
QA filename : DKA100:[ENV\_ALPHA.QA.B]B015.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-MAR-2009 17:17:22 through 4-SEP-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



QA filename : DKA100:[ENV\_ALPHA.QA.W]W016.QAF;3  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 4-MAR-2009 06:58:08 through 4-SEP-2009 12:00:00  
 Lower/Upper Lmts: 0.326058 through 0.346058

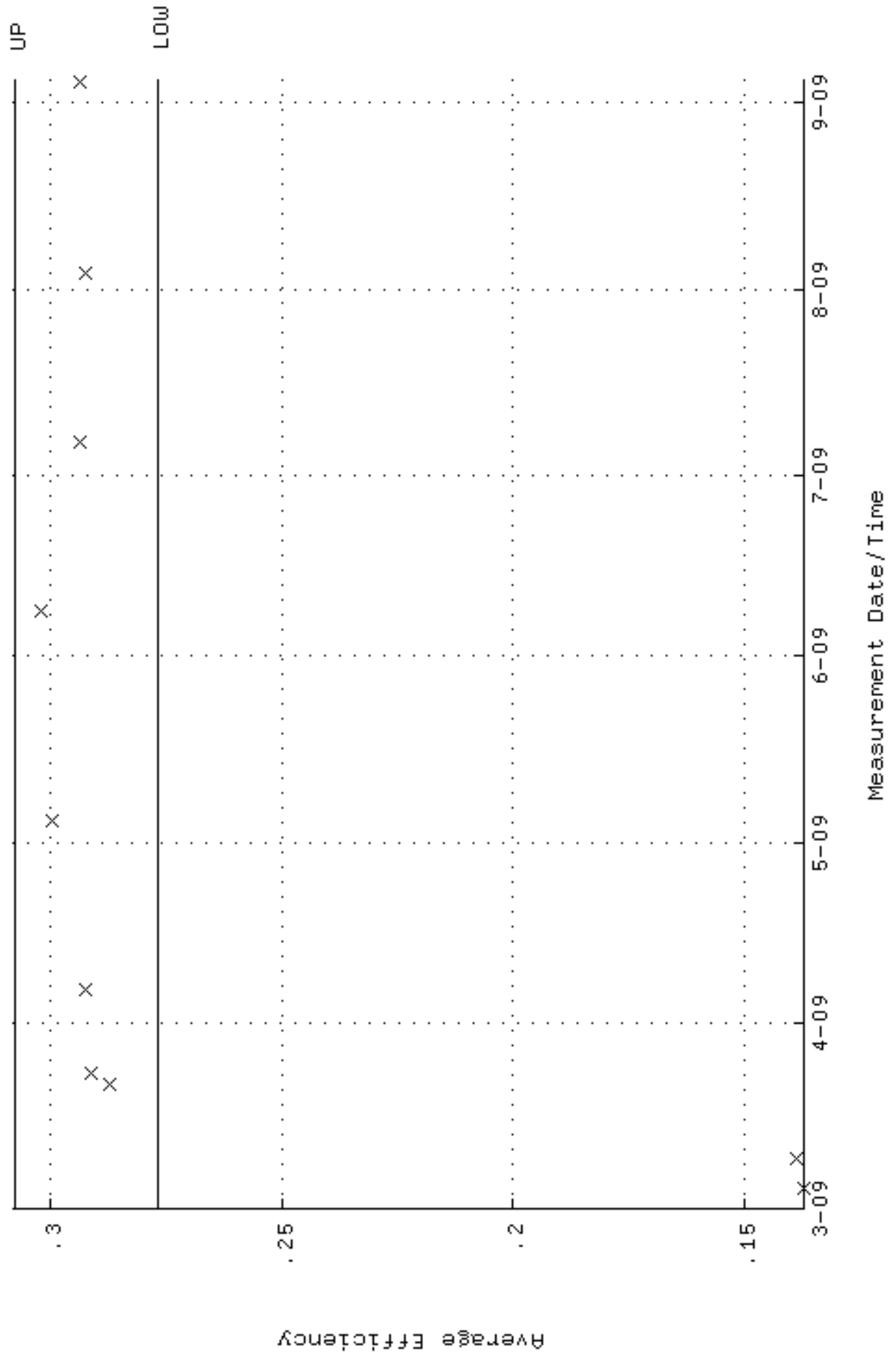


QA filename : DKA100:[ENV\_ALPHA.QA.W]W016.QAF;3  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 4-MAR-2009 06:58:08 through 4-SEP-2009 12:00:00  
 Lower/Upper Lmts: 85.9280 through 94.9730

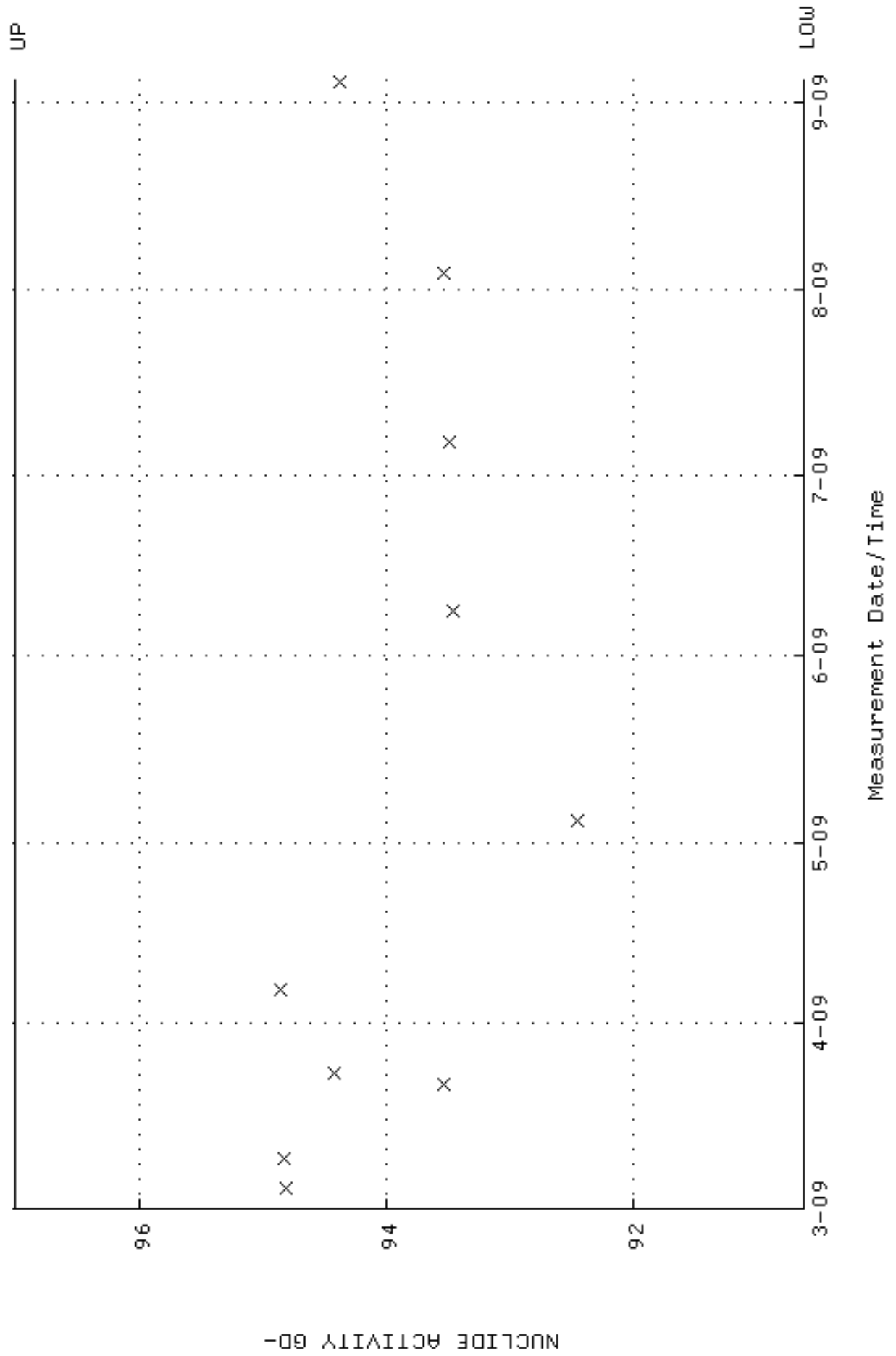




QA filename : DKA100:[ENV\_ALPHA.QA.W]W017.QAF;4  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 4-MAR-2009 06:58:08 through 4-SEP-2009 12:00:00  
 Lower/Upper Lmts: 0.276771 through 0.307557

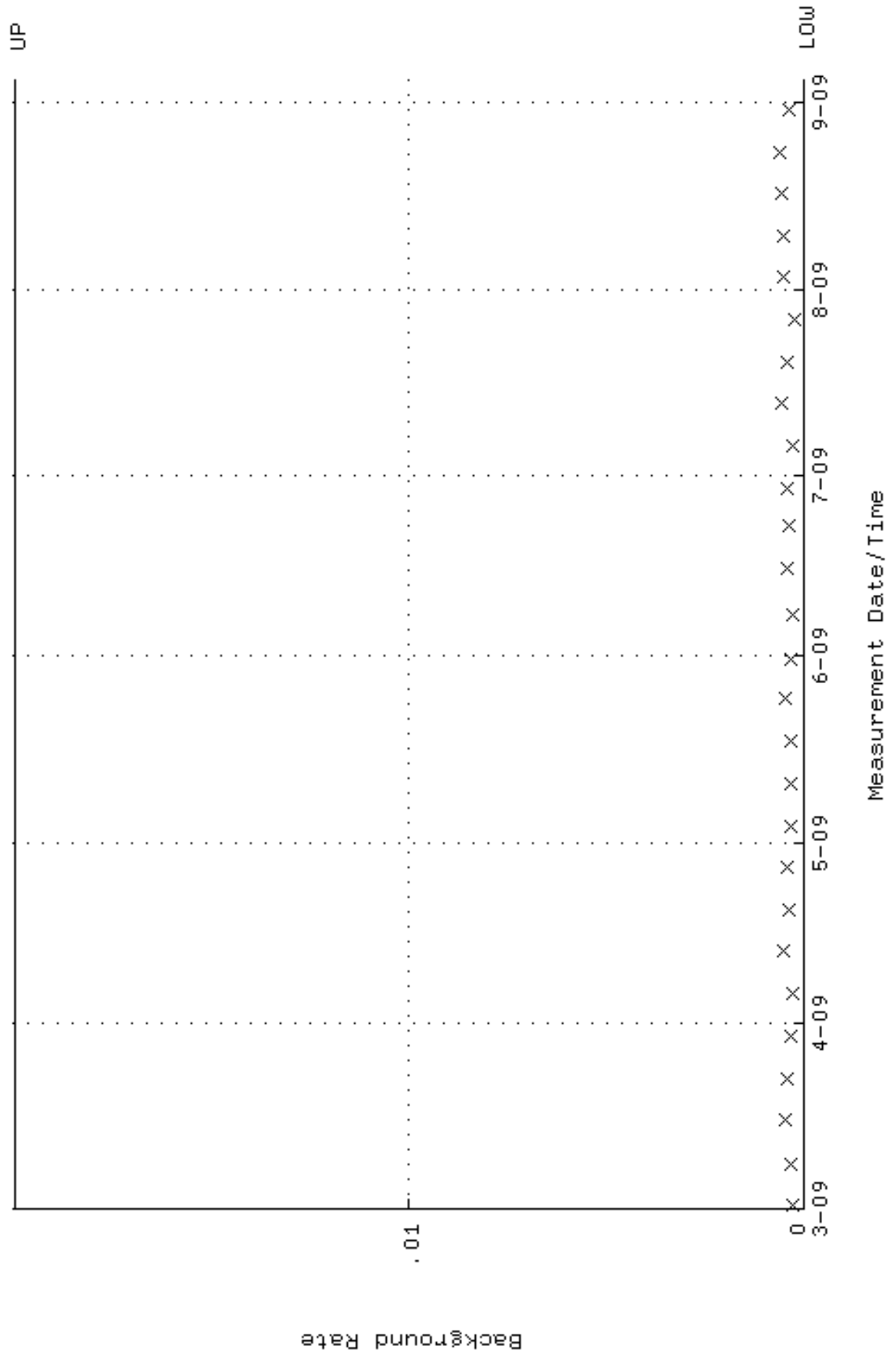


QA filename : DKA100:[ENV\_ALPHA.QA.W]W017.QAF;4  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 4-MAR-2009 06:58:08 through 4-SEP-2009 12:00:00  
 Lower/Upper Lmts: 90.6063 through 97.0149

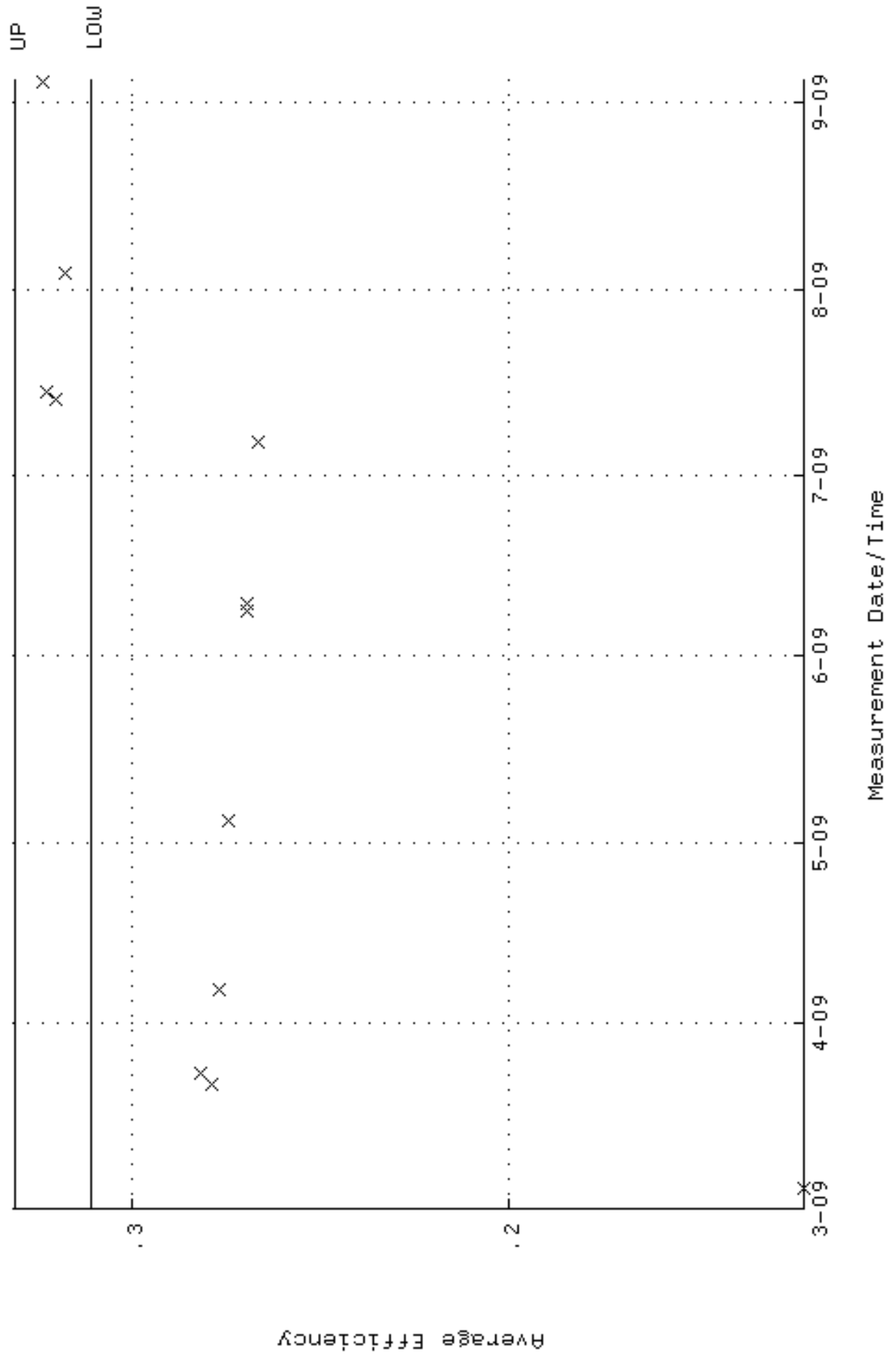




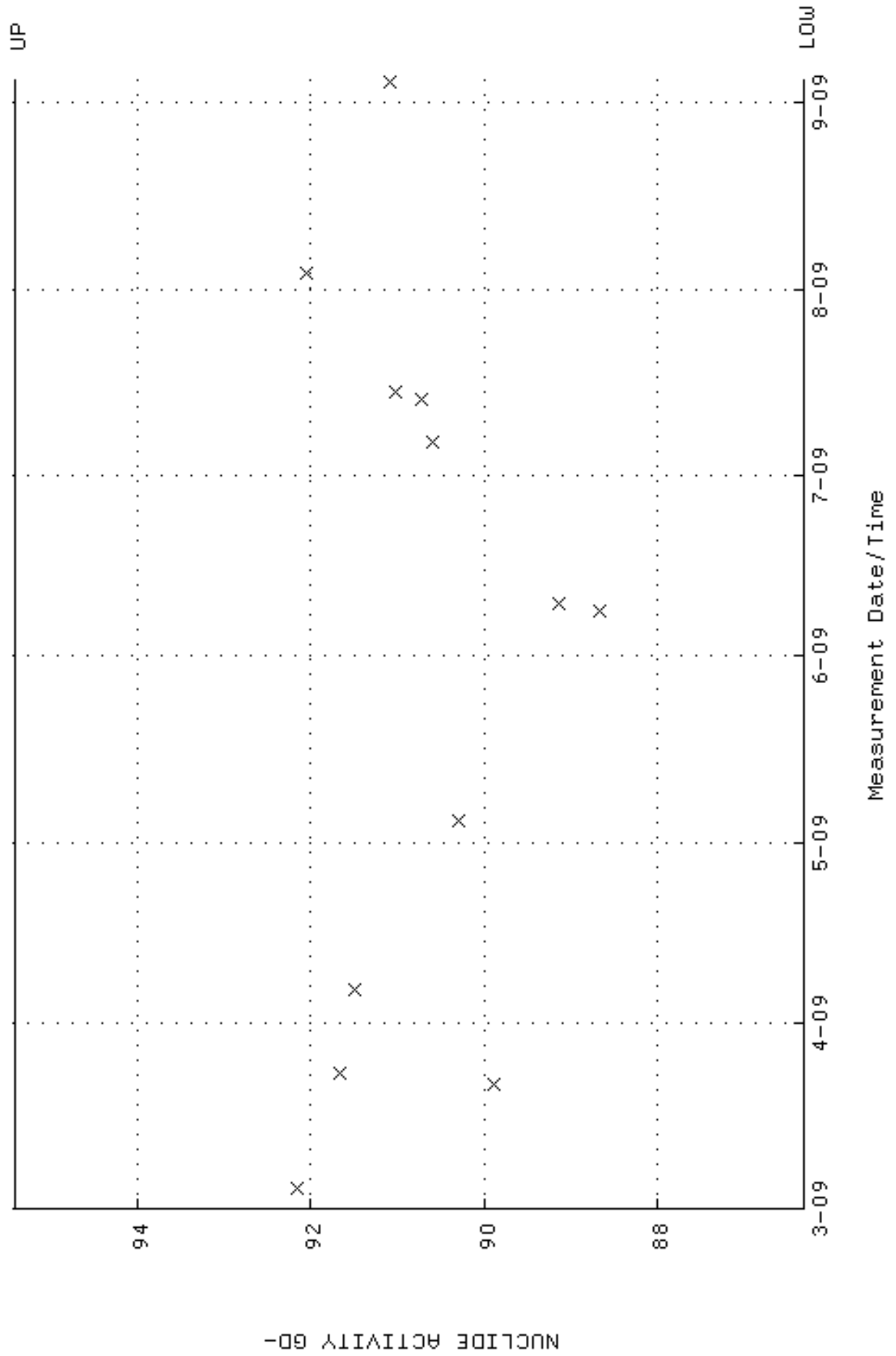
QA filename : DKA100:[ENV\_ALPHA.QA.B]B017.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-MAR-2009 17:17:22 through 4-SEP-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



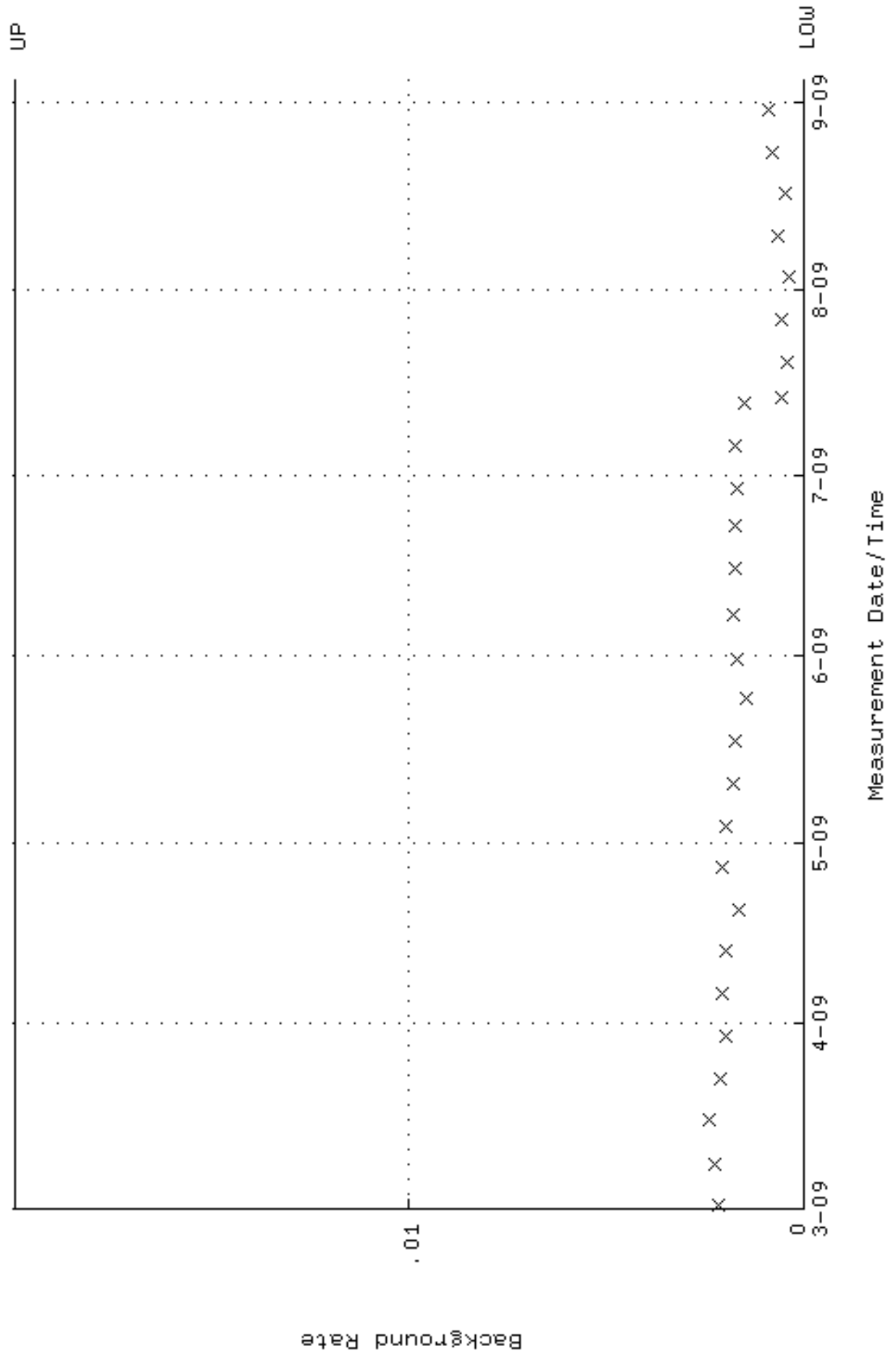
QA filename : DKA100:[ENV\_ALPHA.QA.W]W018.QAF;3  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 4-MAR-2009 06:58:08 through 4-SEP-2009 12:00:00  
 Lower/Upper Lmts: 0.310950 through 0.330950



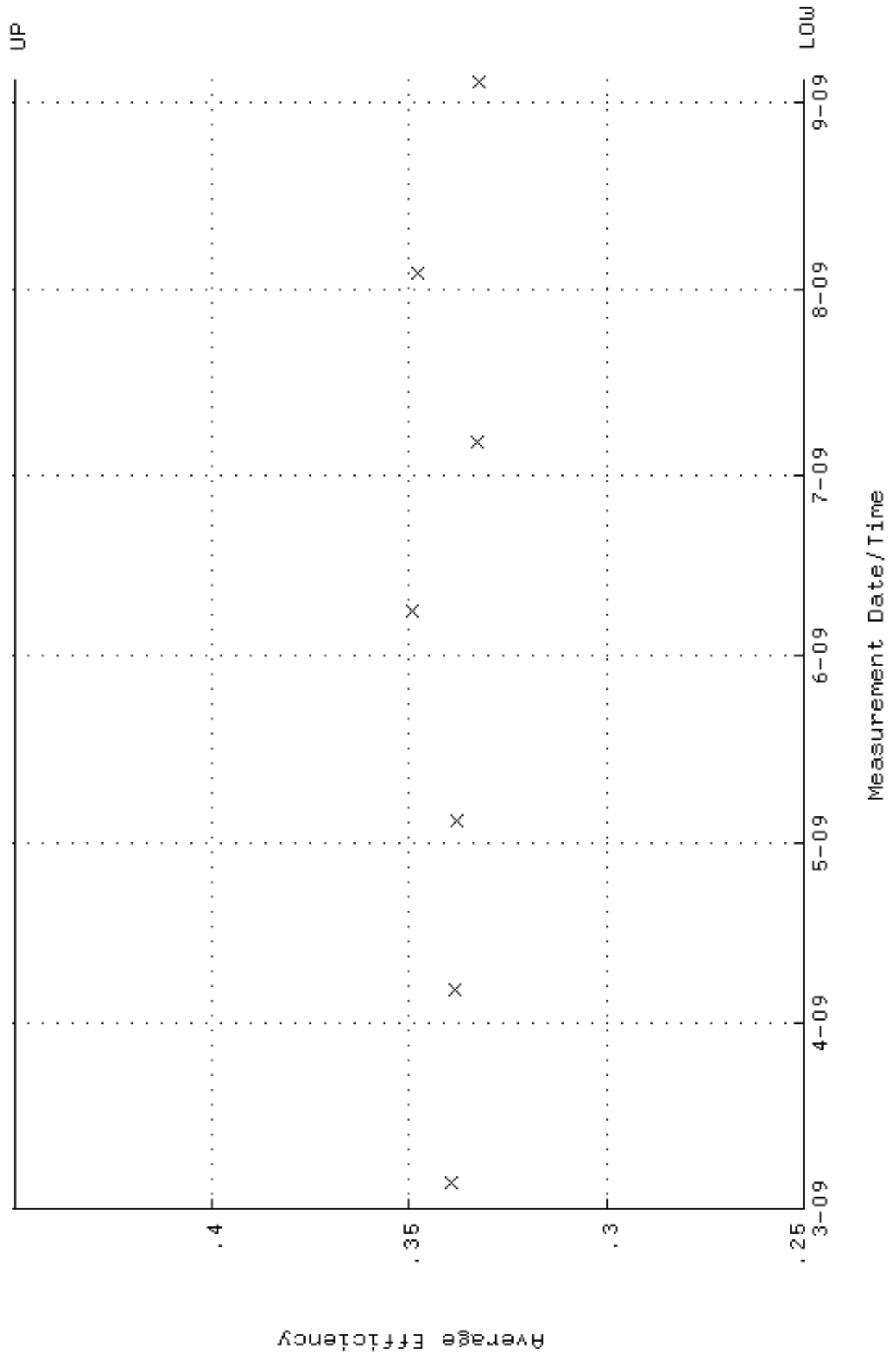
QA filename : DKA100:[ENV\_ALPHA.QA.W]W018.QAF;3  
Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
Start/End Dates : 4-MAR-2009 06:58:08 through 4-SEP-2009 12:00:00  
Lower/Upper Lmts: 86.3167 through 95.4027



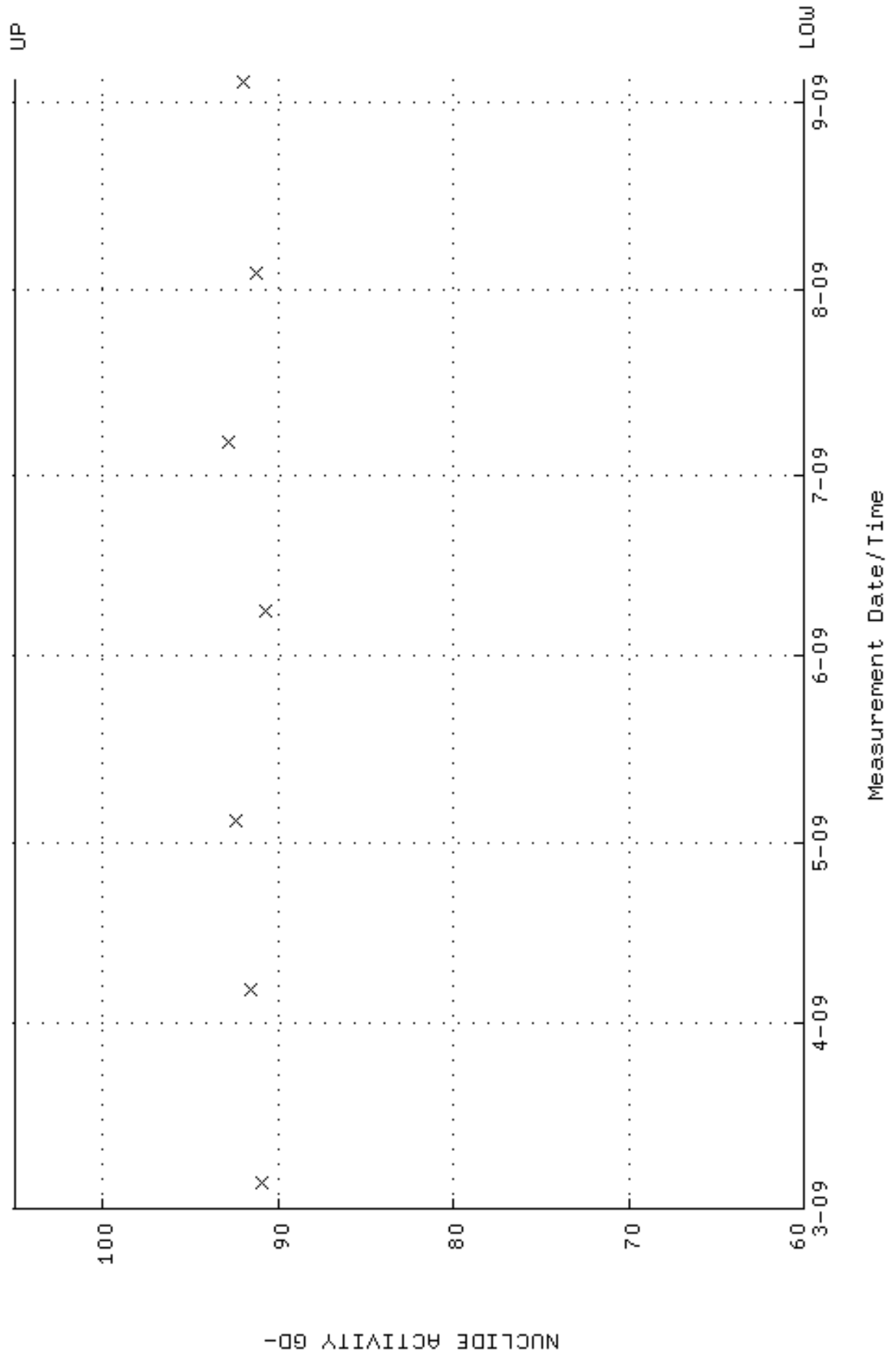
QA filename : DKA100:[ENV\_ALPHA.QA.B]B018.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-MAR-2009 17:17:22 through 4-SEP-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



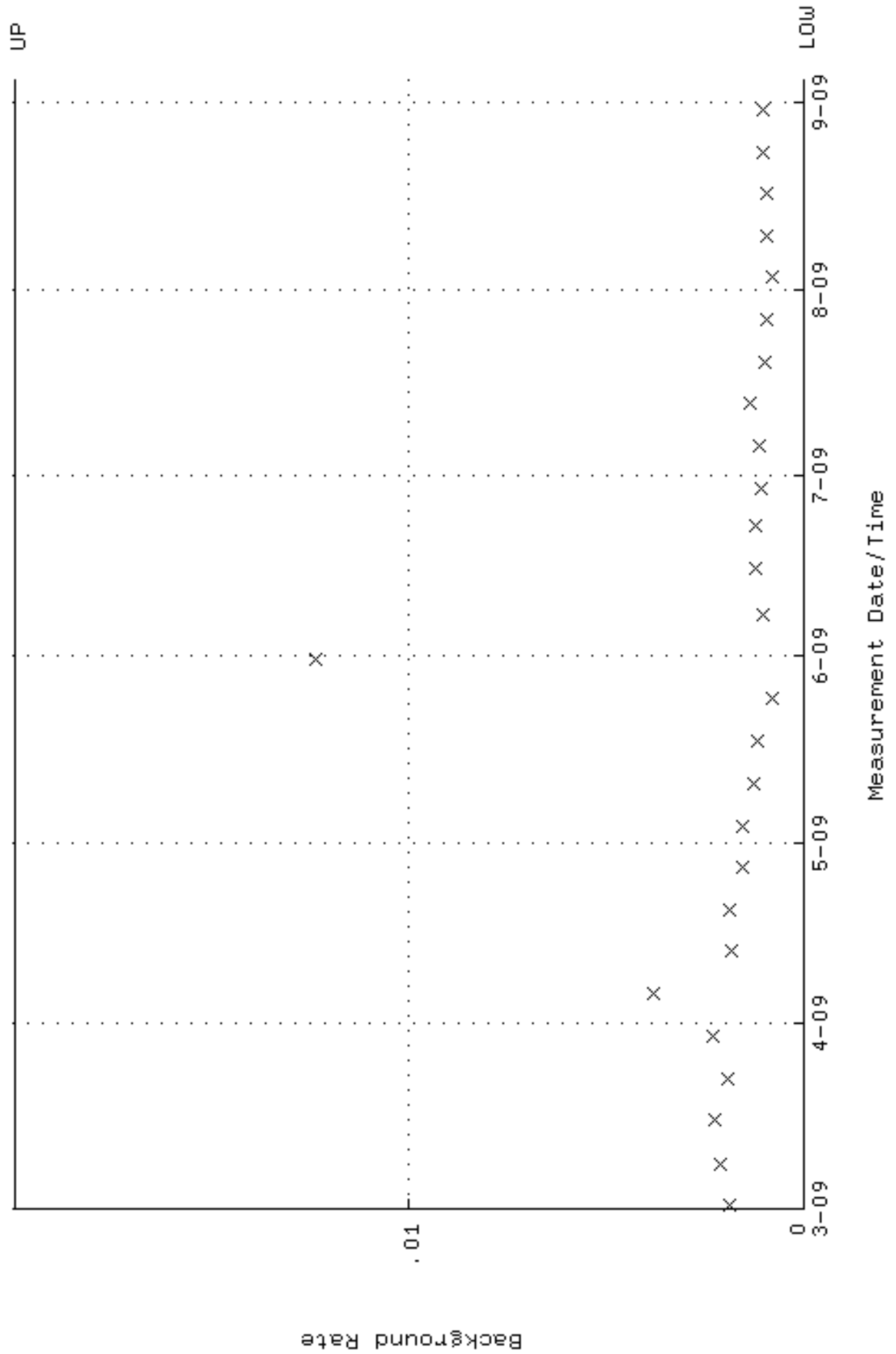
QA filename : DKA100:[ENV\_ALPHA.QA.W]W023.QAF;3  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 5-MAR-2009 07:45:19 through 4-SEP-2009 12:00:00  
 Lower/Upper Lmts: 0.250000 through 0.450000



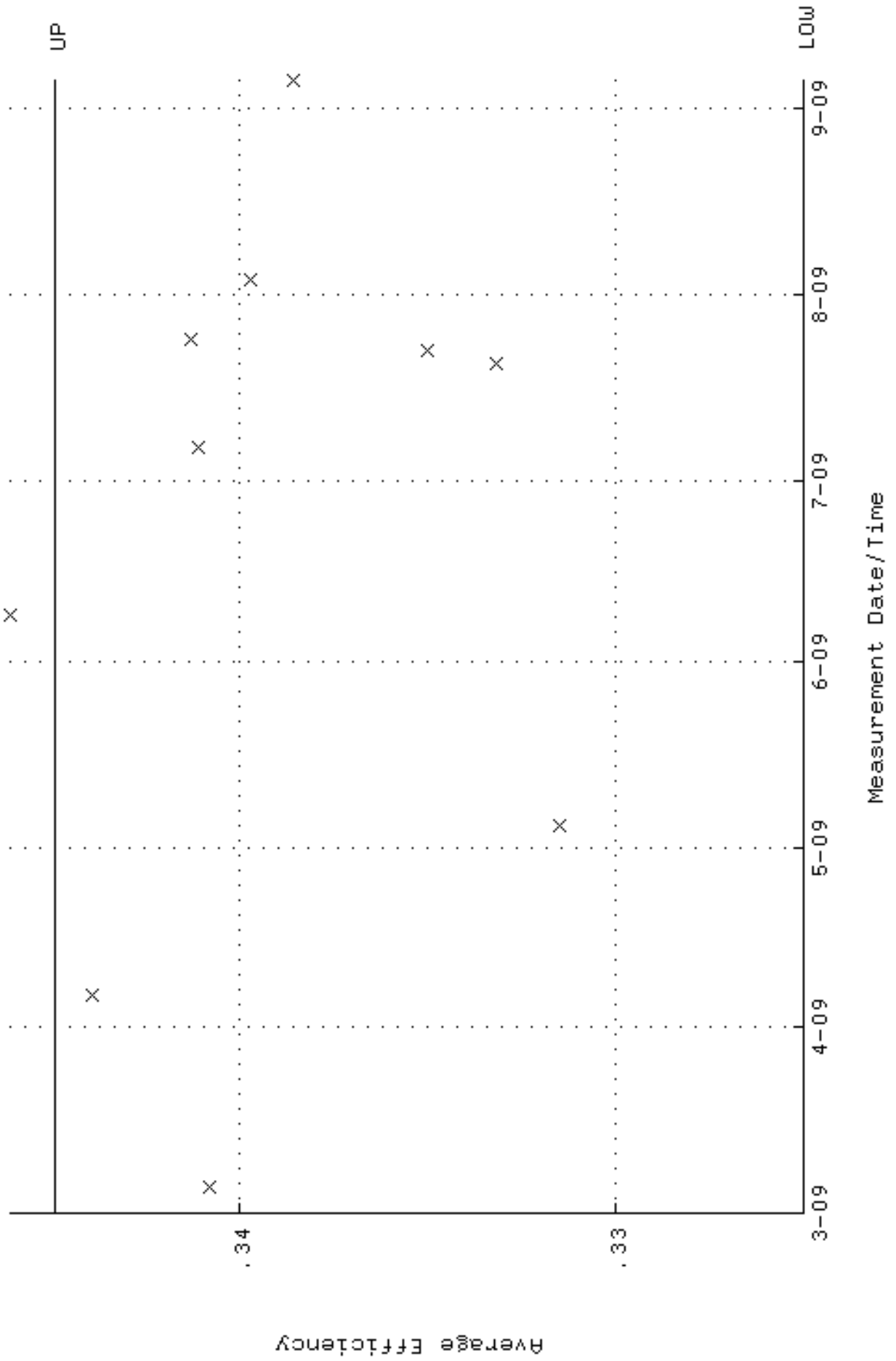
QA filename : DKA100:[ENV\_ALPHA.QA.W]W023.QAF;3  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 5-MAR-2009 07:45:19 through 4-SEP-2009 12:00:00  
 Lower/Upper Lmts: 60.0000 through 105.0000



QA filename : DKA100:[ENV\_ALPHA.QA.B]B023.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-MAR-2009 17:17:24 through 4-SEP-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02

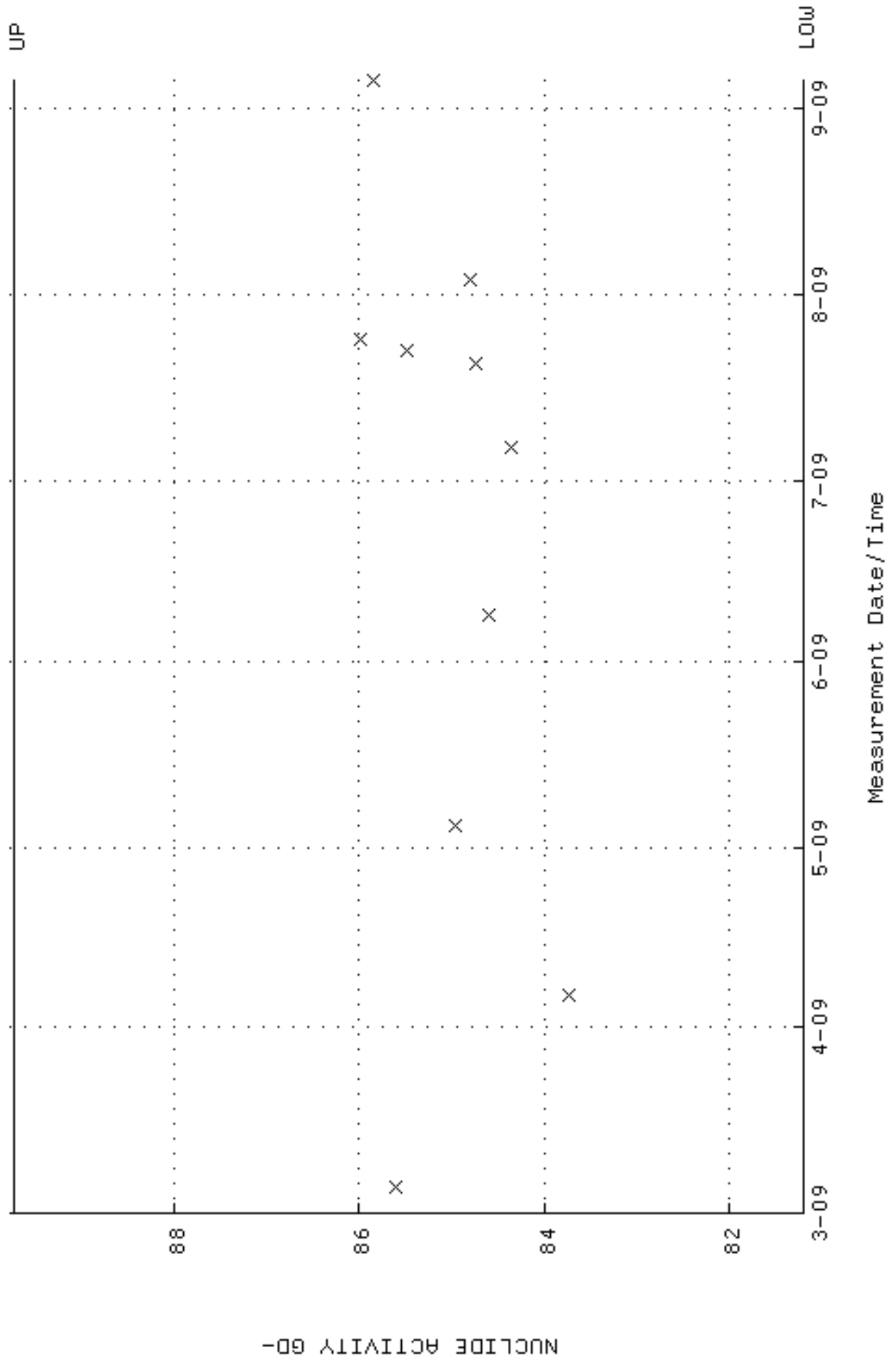


QA filename : DKA100:[ENV\_ALPHA.QA.W]W027.QAF;4  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 5-MAR-2009 07:45:20 through 5-SEP-2009 12:00:00  
 Lower/Upper Lmts: 0.324980 through 0.344980



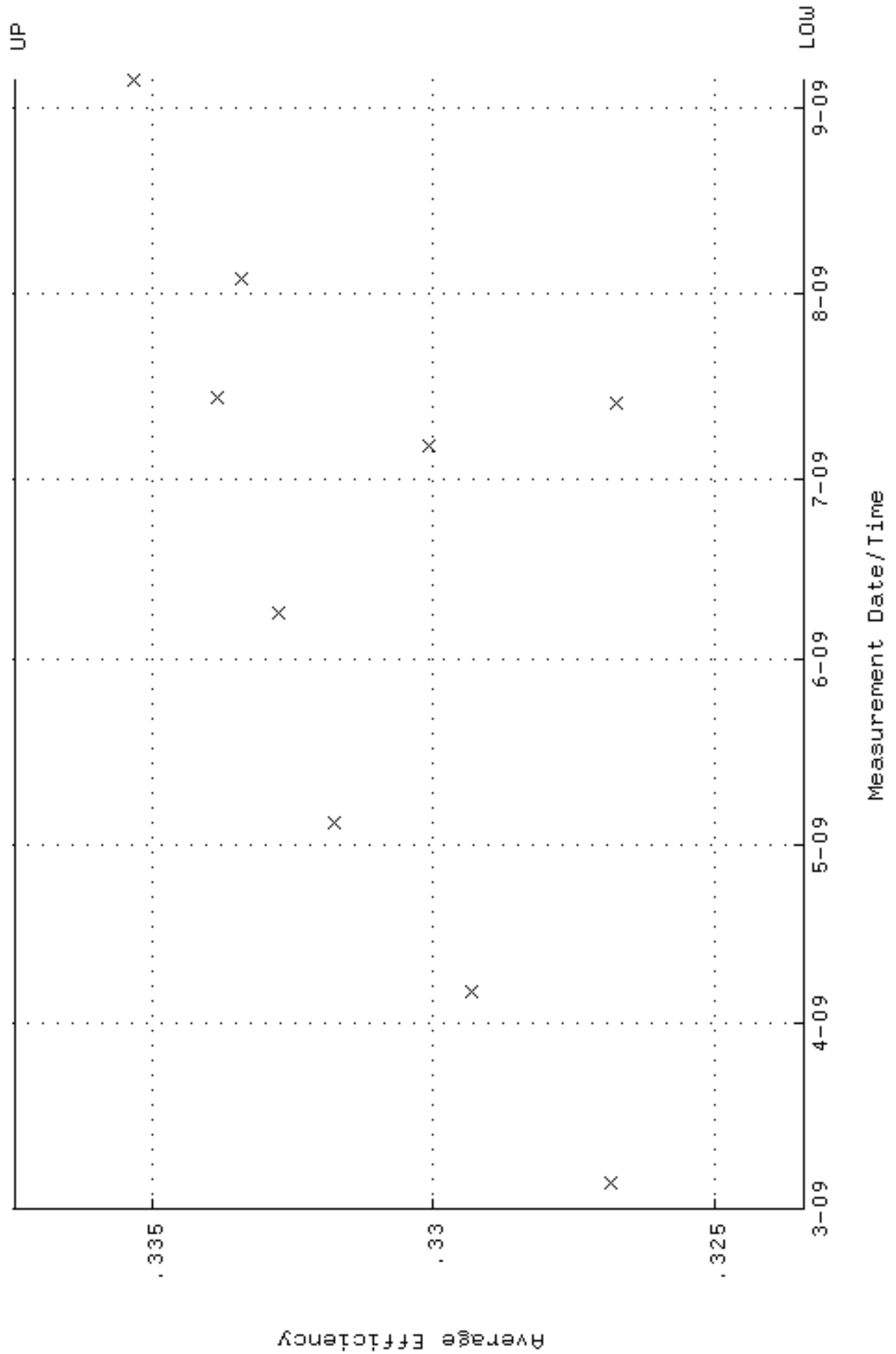


QA filename : DKA100:[ENV\_ALPHA.QA.W]W027.QAF;4  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 5-MAR-2009 07:45:20 through 5-SEP-2009 12:00:00  
 Lower/Upper Lmts: 81.2030 through 89.7506

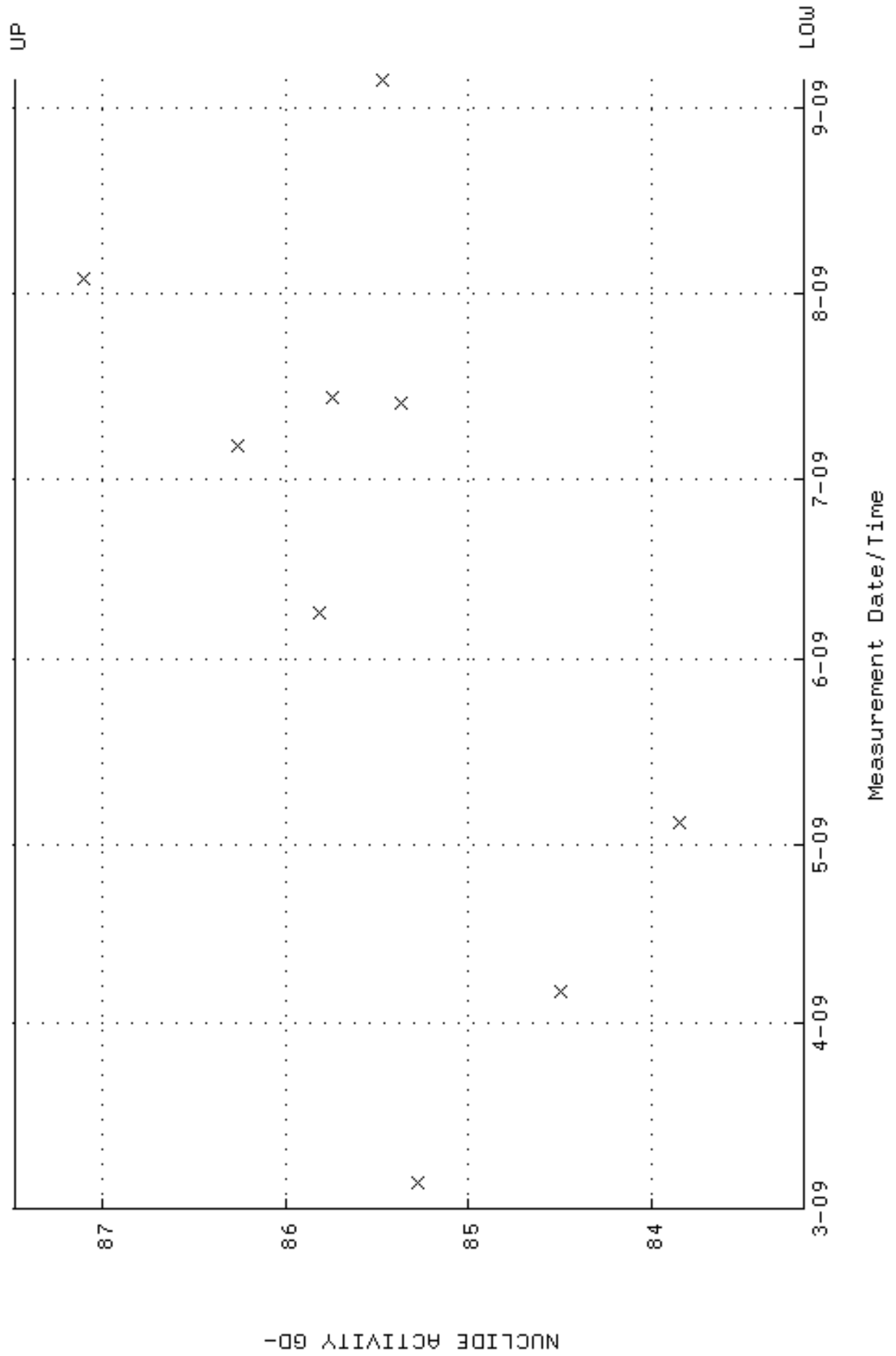




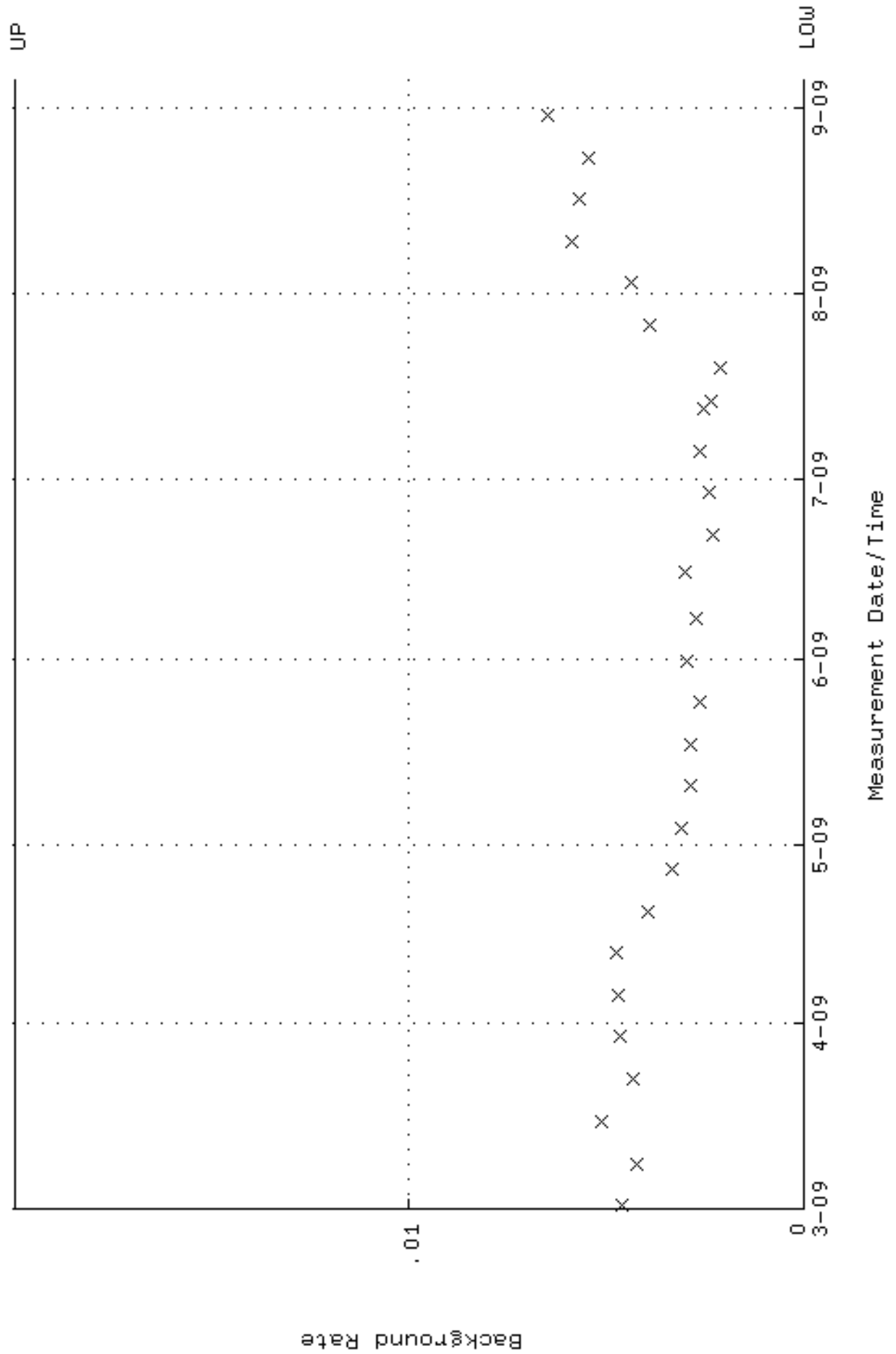
QA filename : DKA100:[ENV\_ALPHA.QA.W]W031.QAF;4  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 5-MAR-2009 07:45:21 through 5-SEP-2009 12:00:00  
 Lower/Upper Lmts: 0.323399 through 0.337447



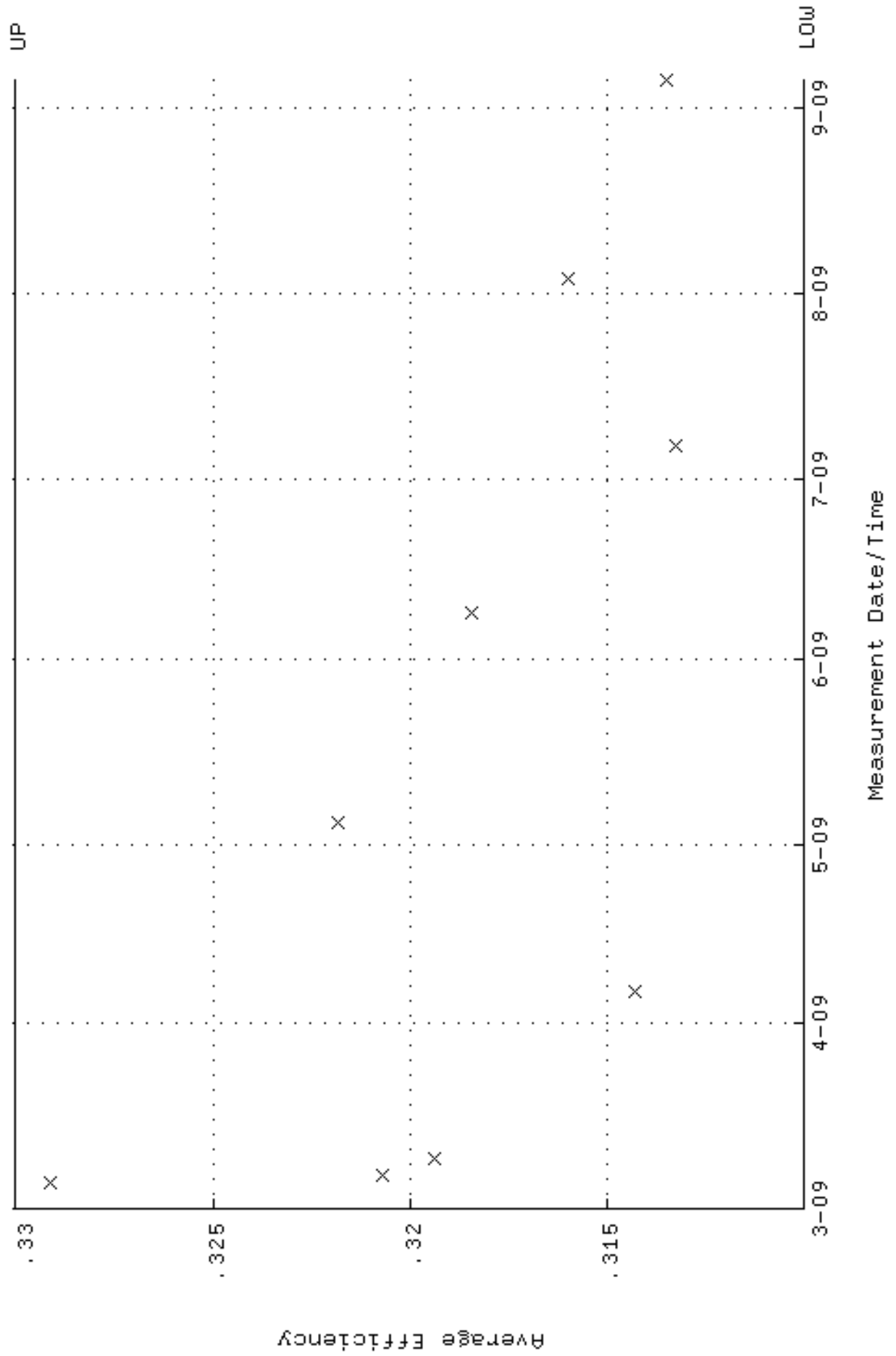
QA filename : DKA100:[ENV\_ALPHA.QA.W]W031.QAF;4  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 5-MAR-2009 07:45:21 through 5-SEP-2009 12:00:00  
 Lower/Upper Lmts: 83.1638 through 87.4767



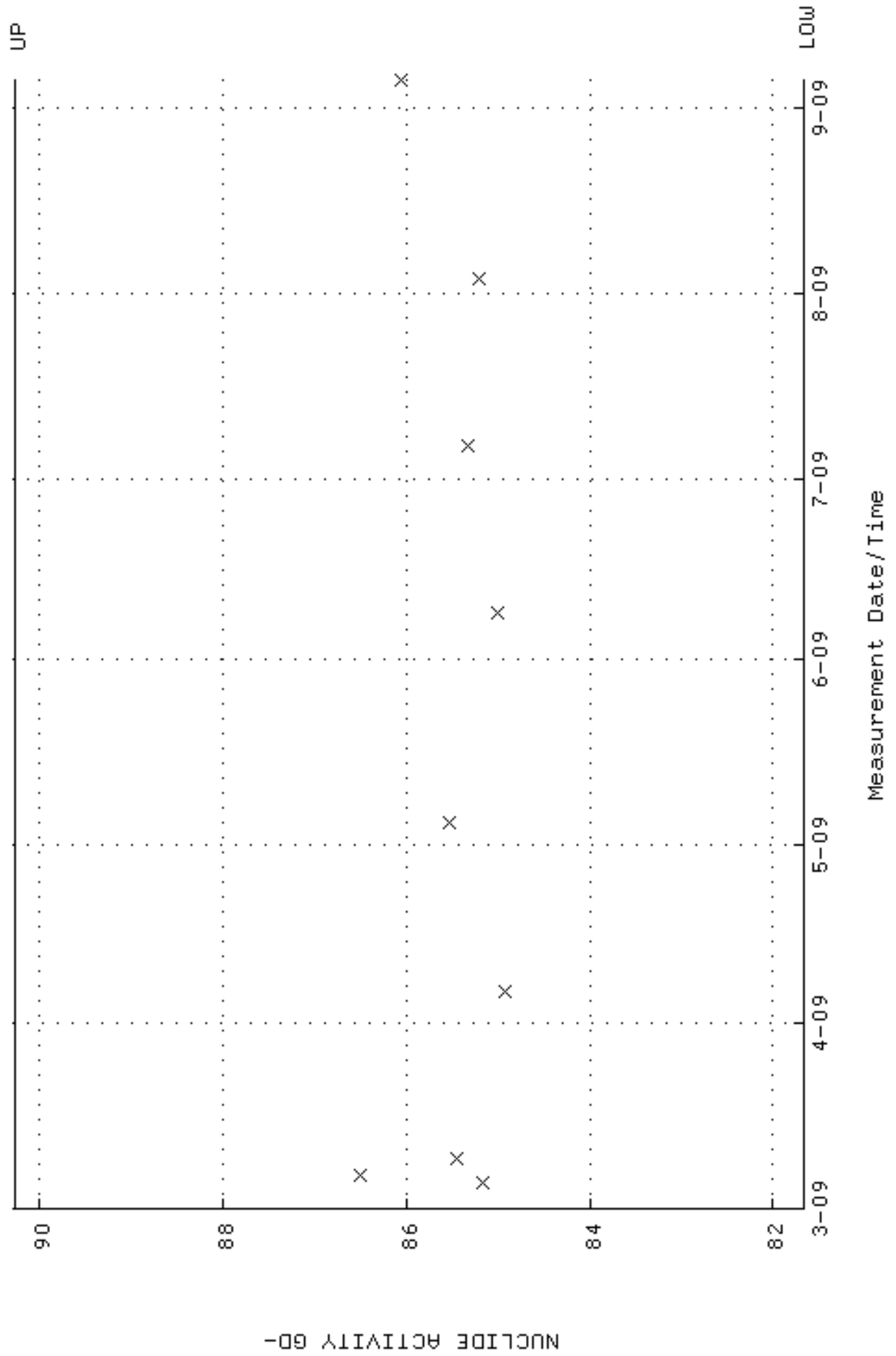
QA filename : DKA100:[ENV\_ALPHA.QA.B]B031.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-MAR-2009 17:17:26 through 5-SEP-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



QA filename : DKA100:[ENV\_ALPHA.QA.W]W033.QAF;3  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 5-MAR-2009 07:45:21 through 5-SEP-2009 12:00:00  
 Lower/Upper Lmts: 0.310023 through 0.330023



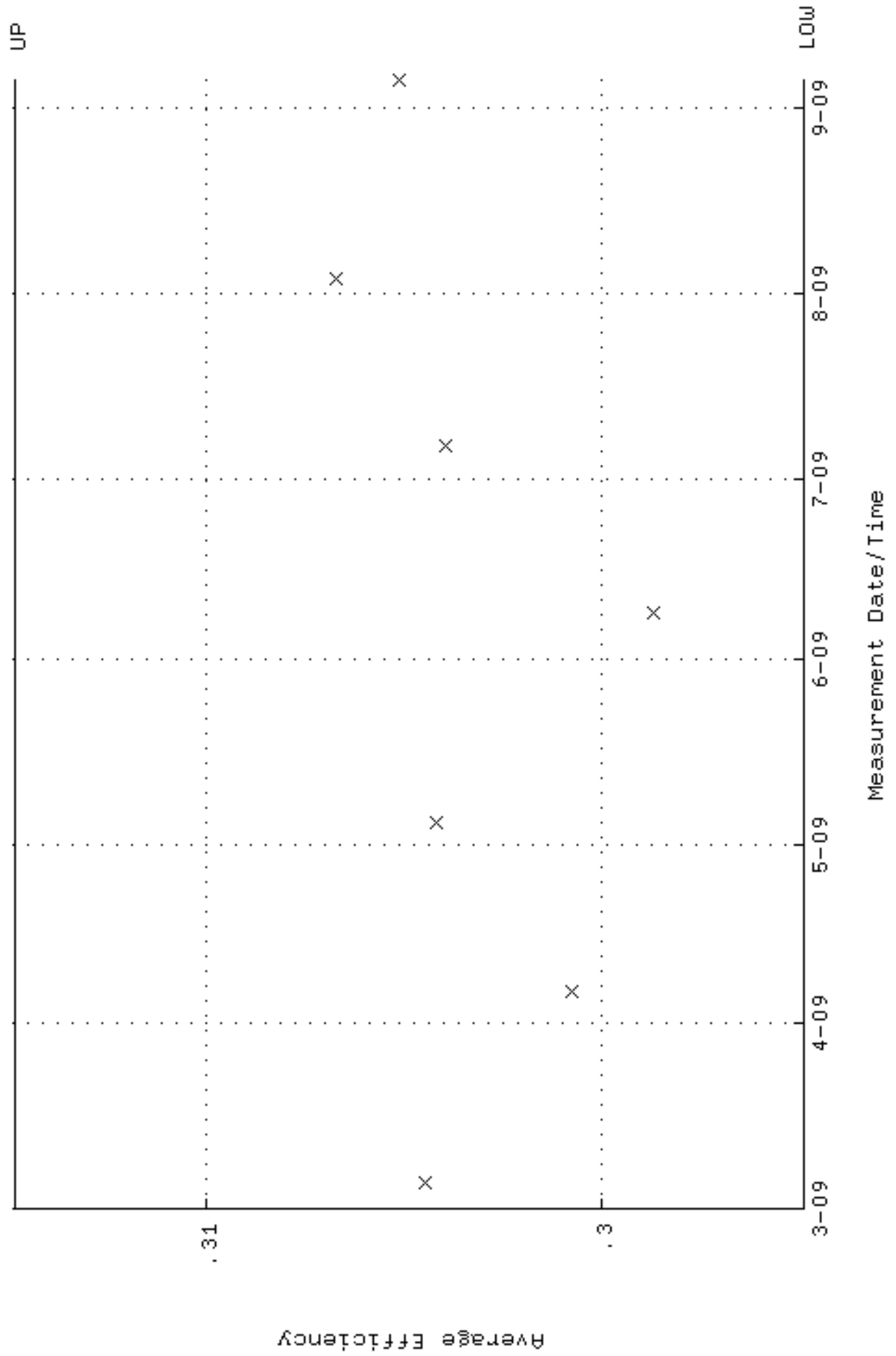
QA filename : DKA100:[ENV\_ALPHA.QA.W]W033.QAF;3  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 5-MAR-2009 07:45:21 through 5-SEP-2009 12:00:00  
 Lower/Upper Lmts: 81.6649 through 90.2613



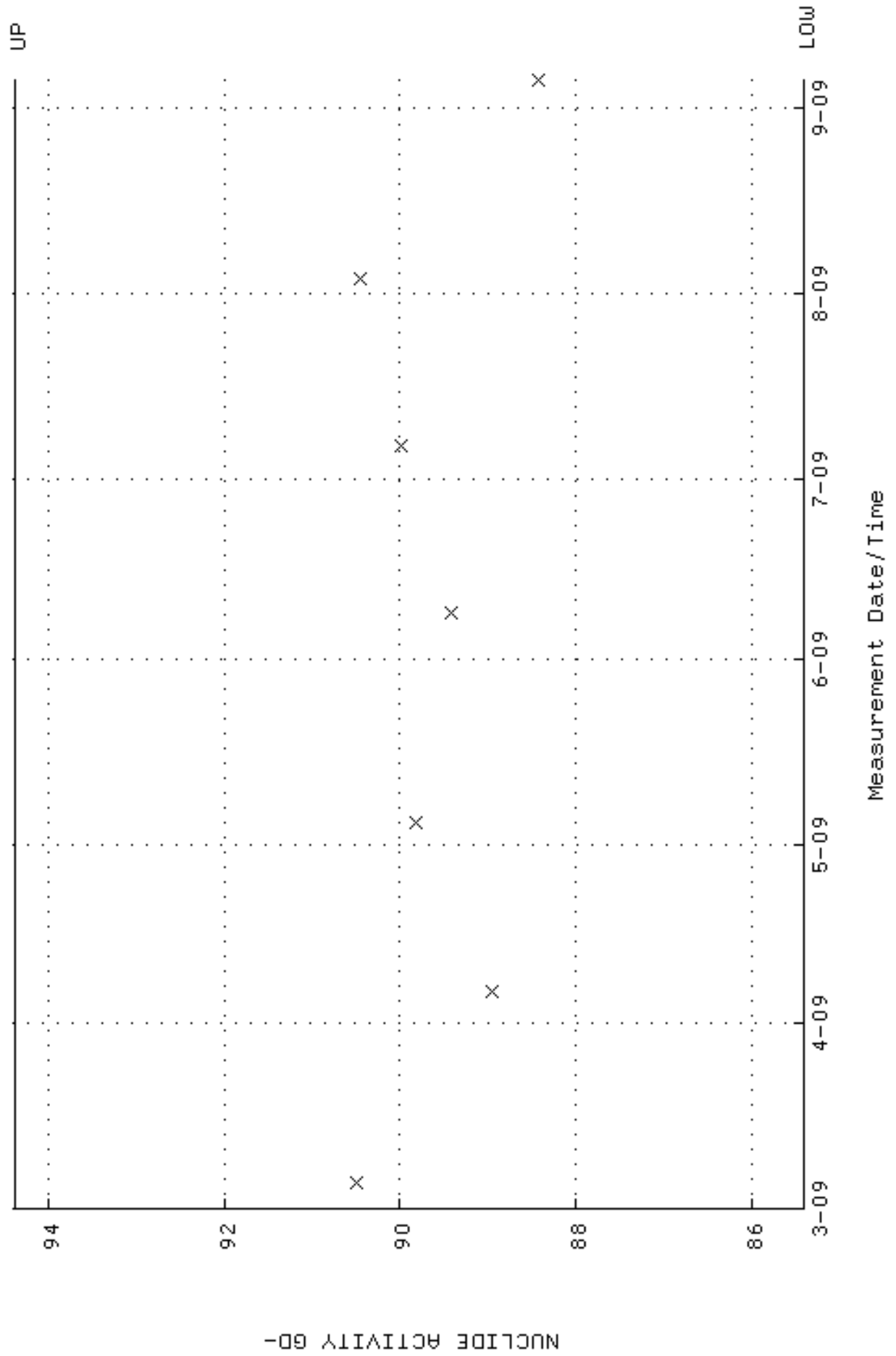




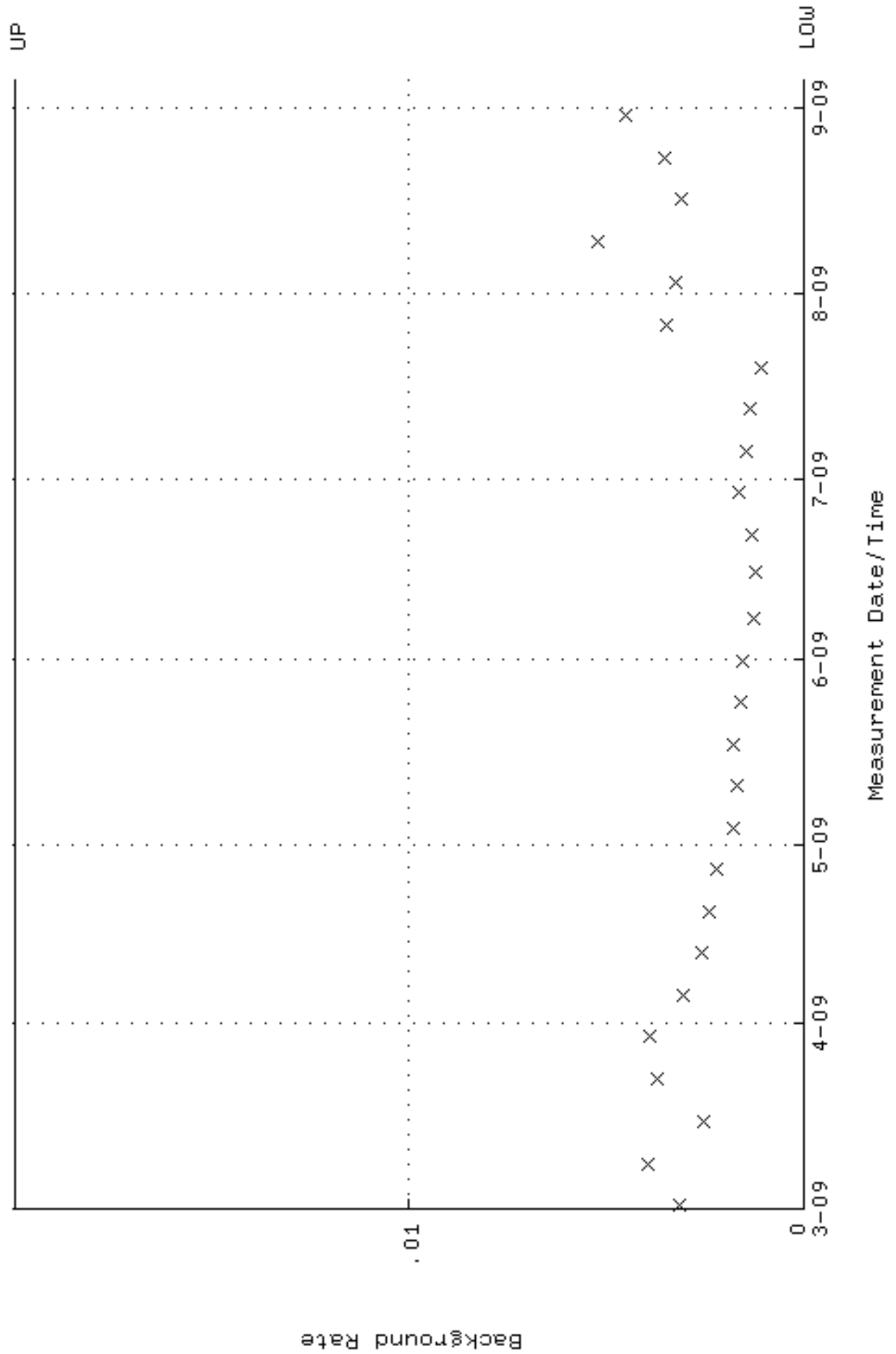
QA filename : DKA100:[ENV\_ALPHA.QA.W]W035.QAF;3  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 5-MAR-2009 07:45:21 through 5-SEP-2009 12:00:00  
 Lower/Upper Lmts: 0.294859 through 0.314859



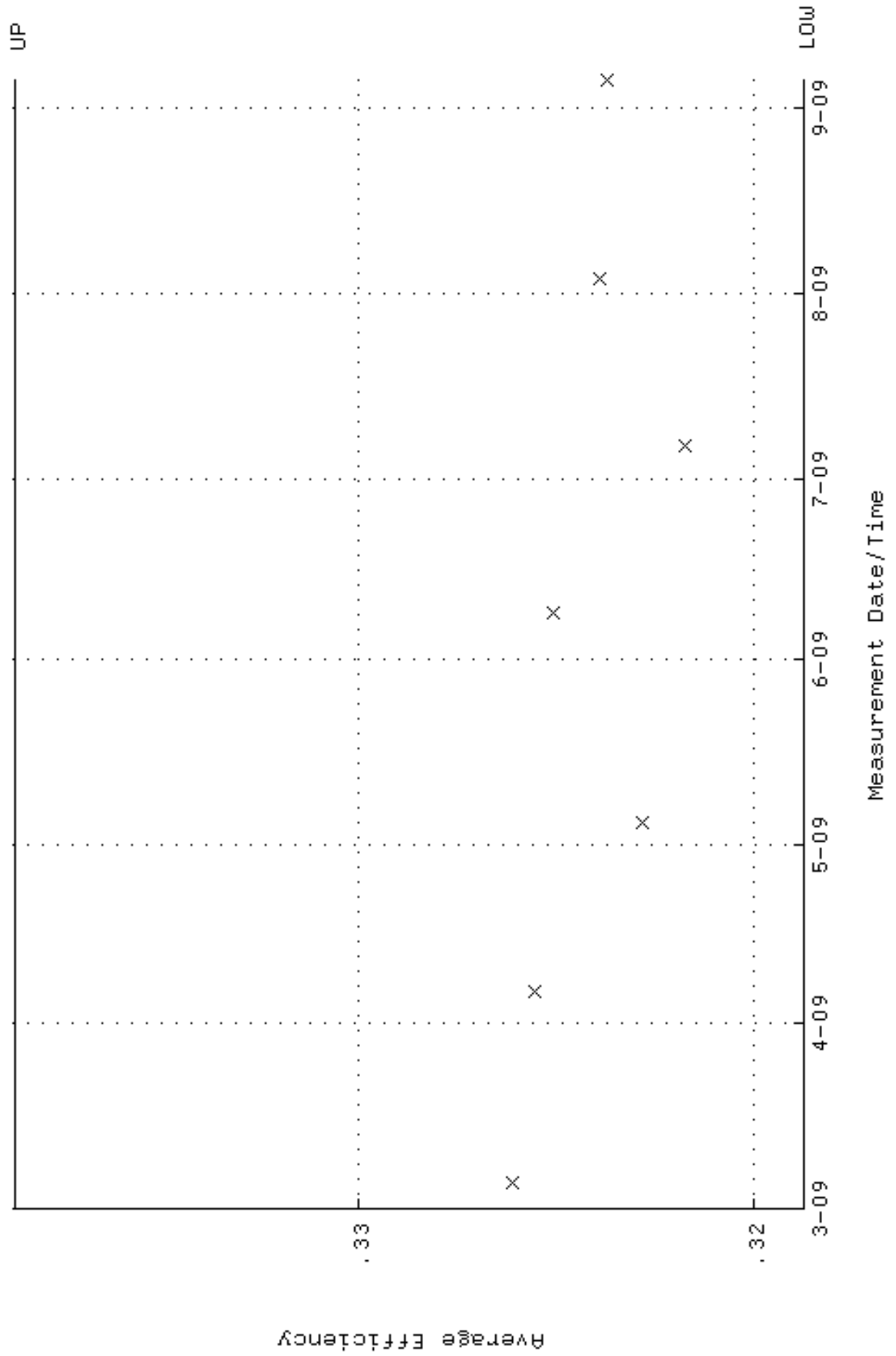
QA filename : DKA100:[ENV\_ALPHA.QA.W]W035.QAF;3  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 5-MAR-2009 07:45:21 through 5-SEP-2009 12:00:00  
 Lower/Upper Lmts: 85.3984 through 94.3878



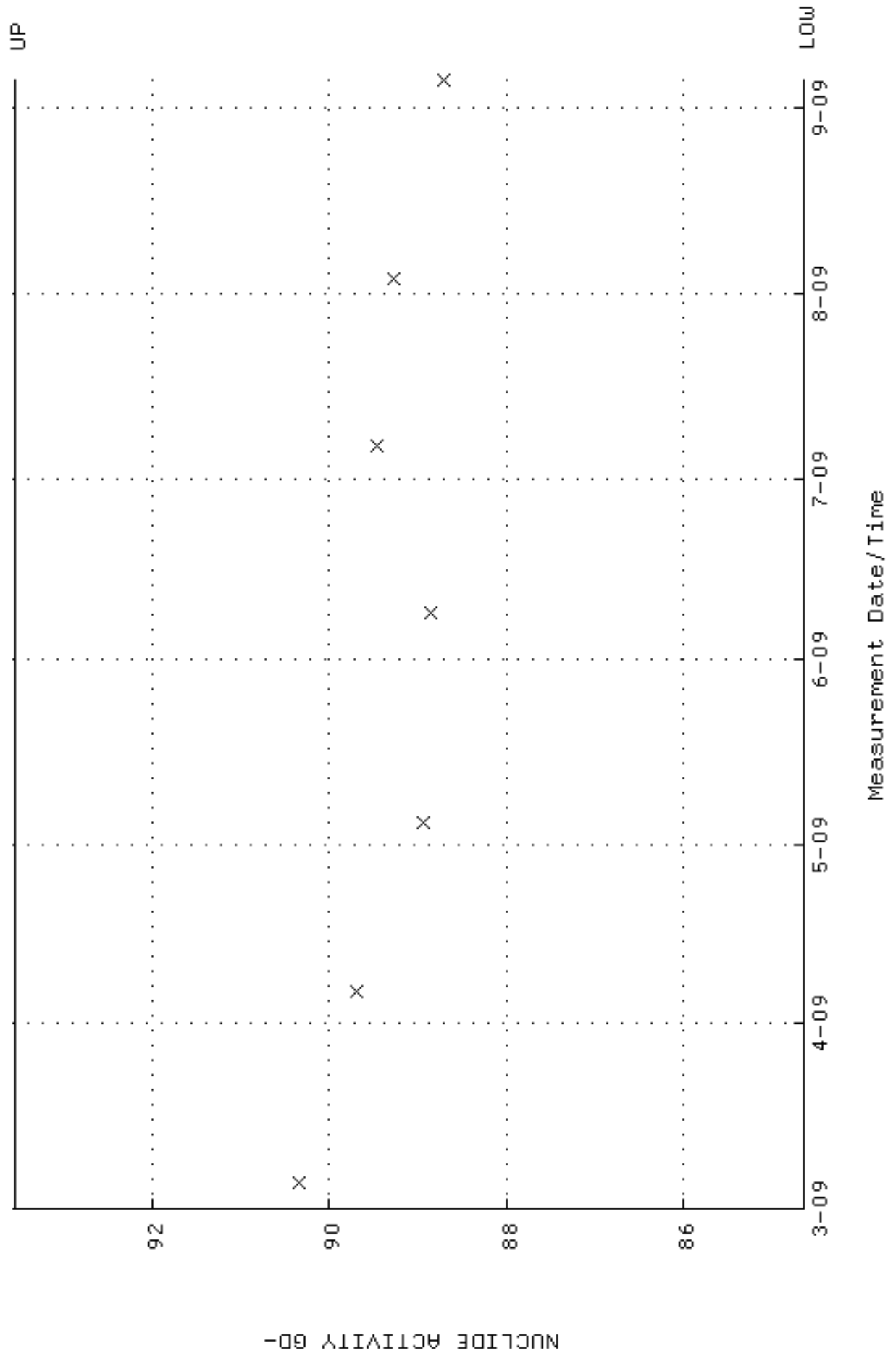
QA filename : DKA100:[ENV\_ALPHA.QA.B]B035.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-MAR-2009 17:17:26 through 5-SEP-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



QA filename : DKA100:[ENV\_ALPHA.QA.W]W036.QAF;2  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 5-MAR-2009 07:45:21 through 5-SEP-2009 12:00:00  
 Lower/Upper Lmts: 0.318717 through 0.338717

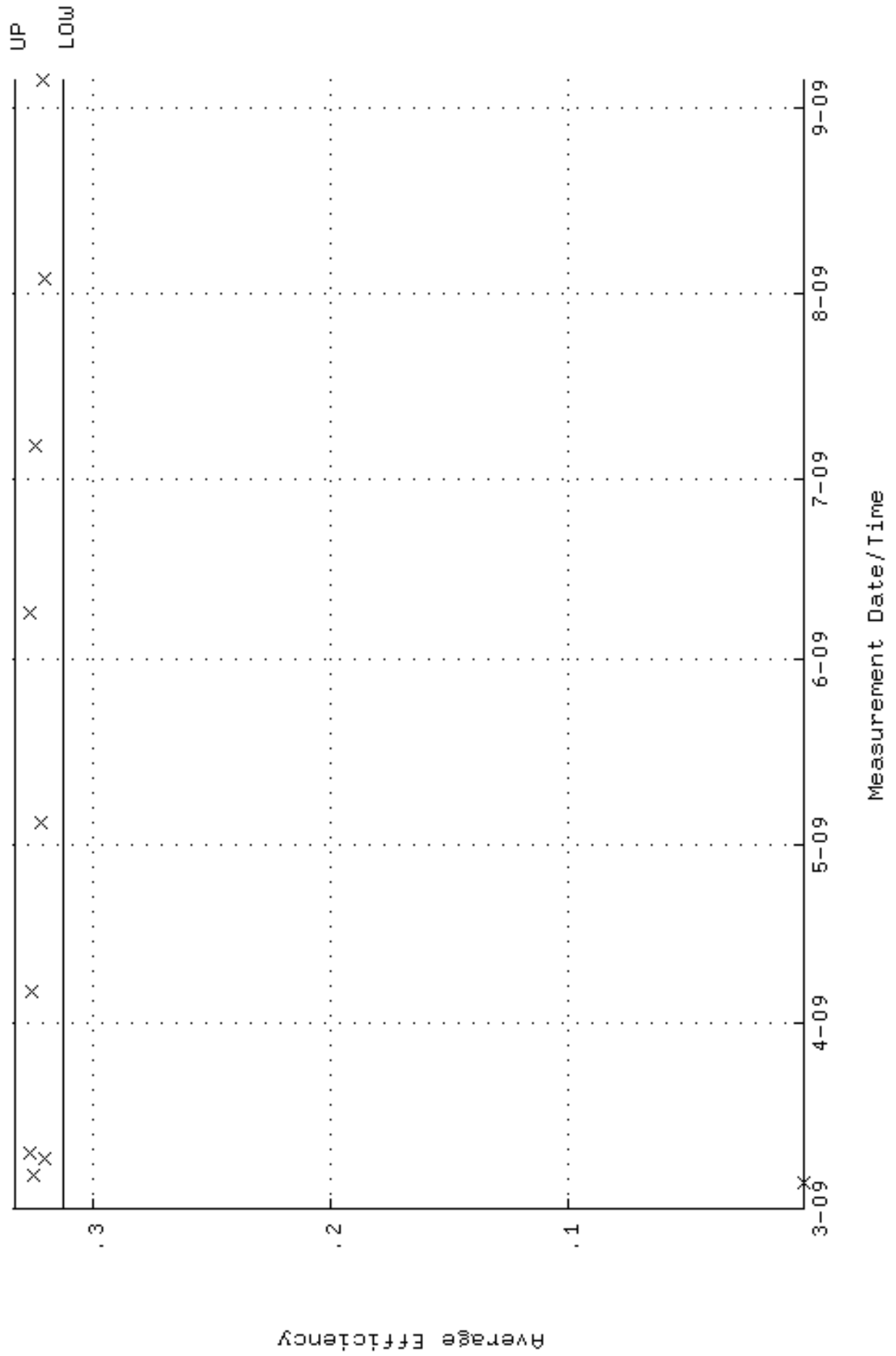


QA filename : DKA100:[ENV\_ALPHA.QA.W]W036.QAF;2  
Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
Start/End Dates : 5-MAR-2009 07:45:21 through 5-SEP-2009 12:00:00  
Lower/Upper Lmts: 84.6422 through 93.5518

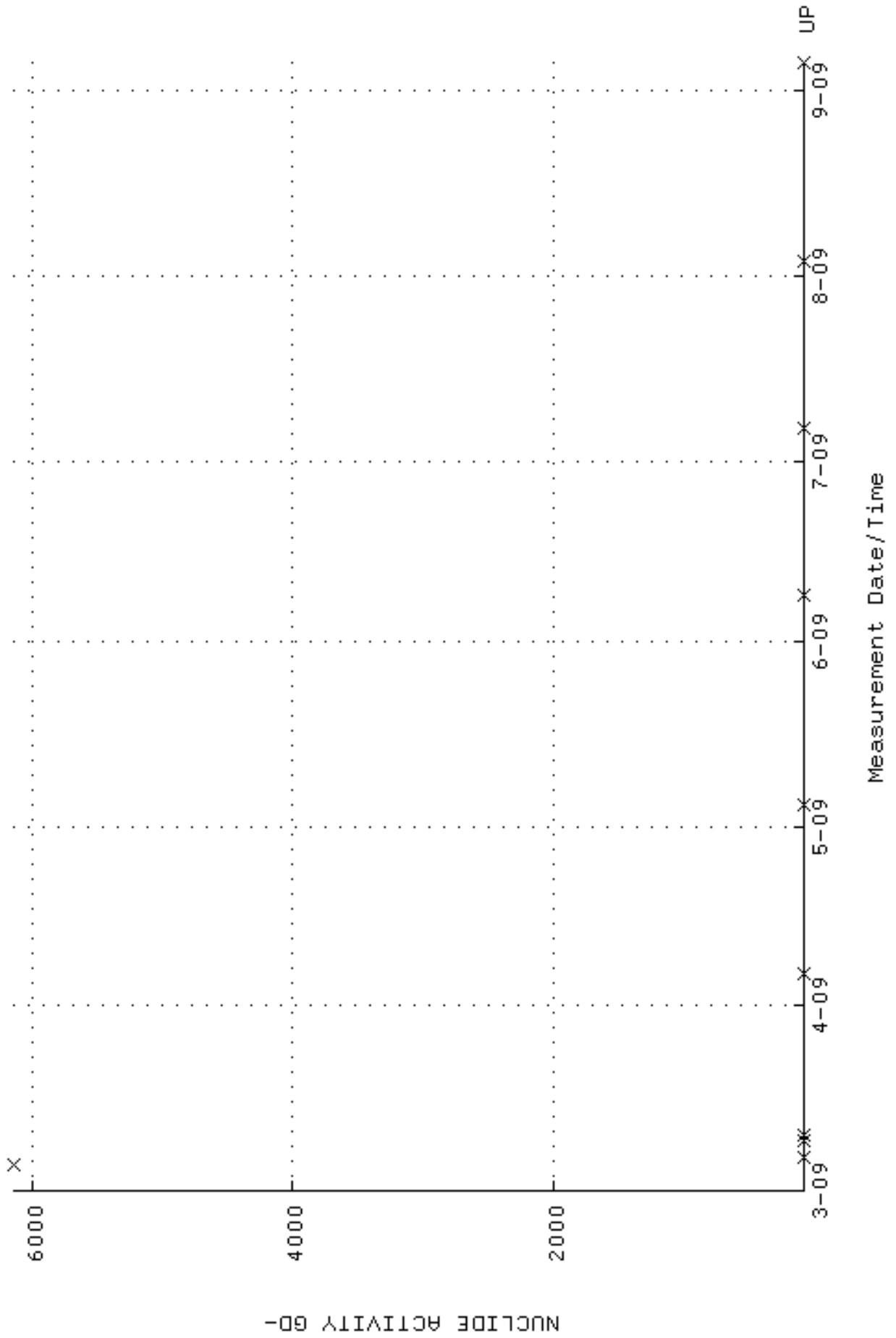




QA filename : DKA100:[ENV\_ALPHA.QA.W]W040.QAF;3  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 5-MAR-2009 07:45:22 through 5-SEP-2009 12:00:00  
 Lower/Upper Lmts: 0.313016 through 0.333016

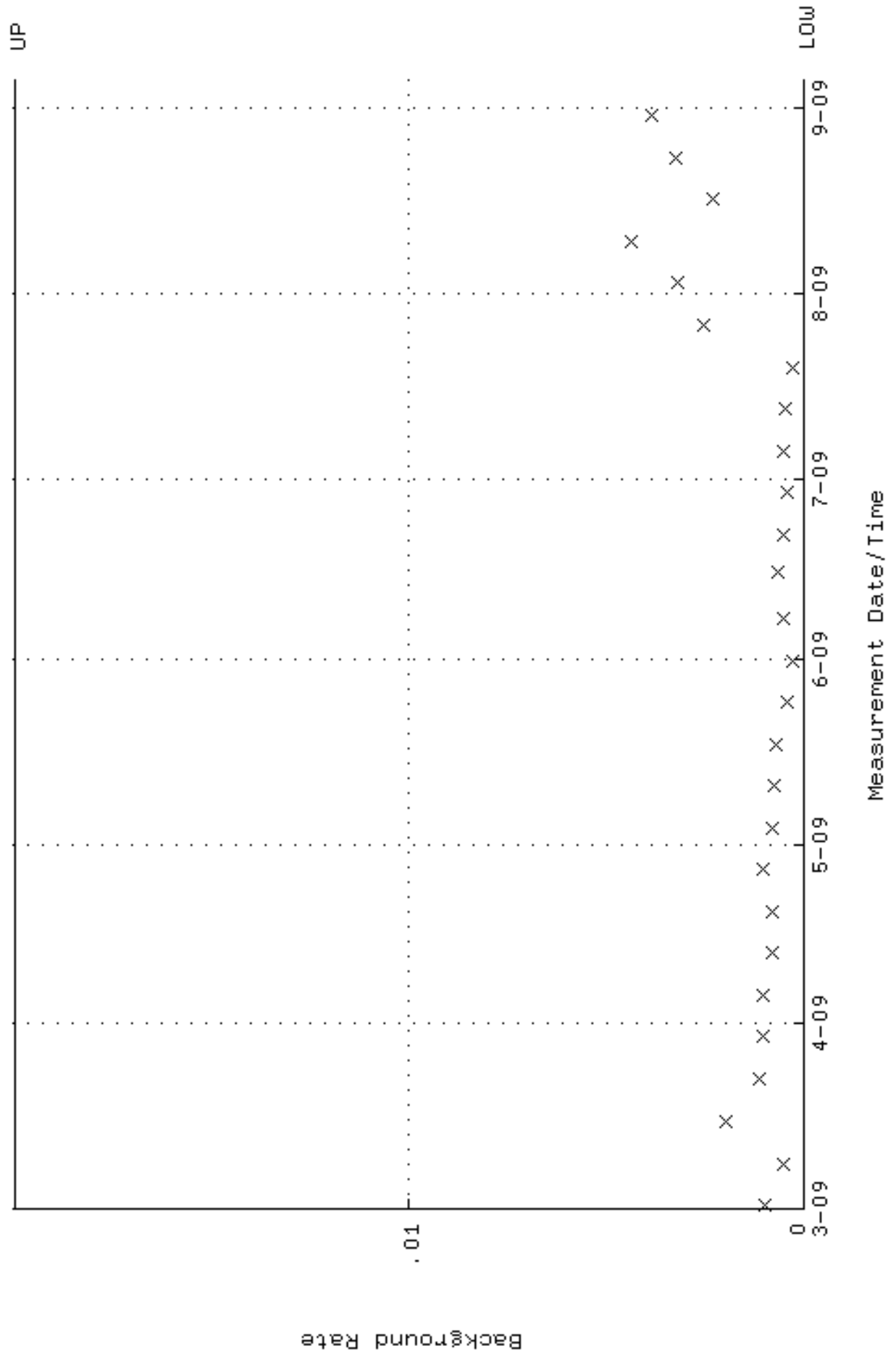


QA filename : DKA100:[ENV\_ALPHA.QA.W]W040.QAF;3  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 5-MAR-2009 07:45:22 through 5-SEP-2009 12:00:00  
 Lower/Upper Lmts: 82.8065 through 91.5229

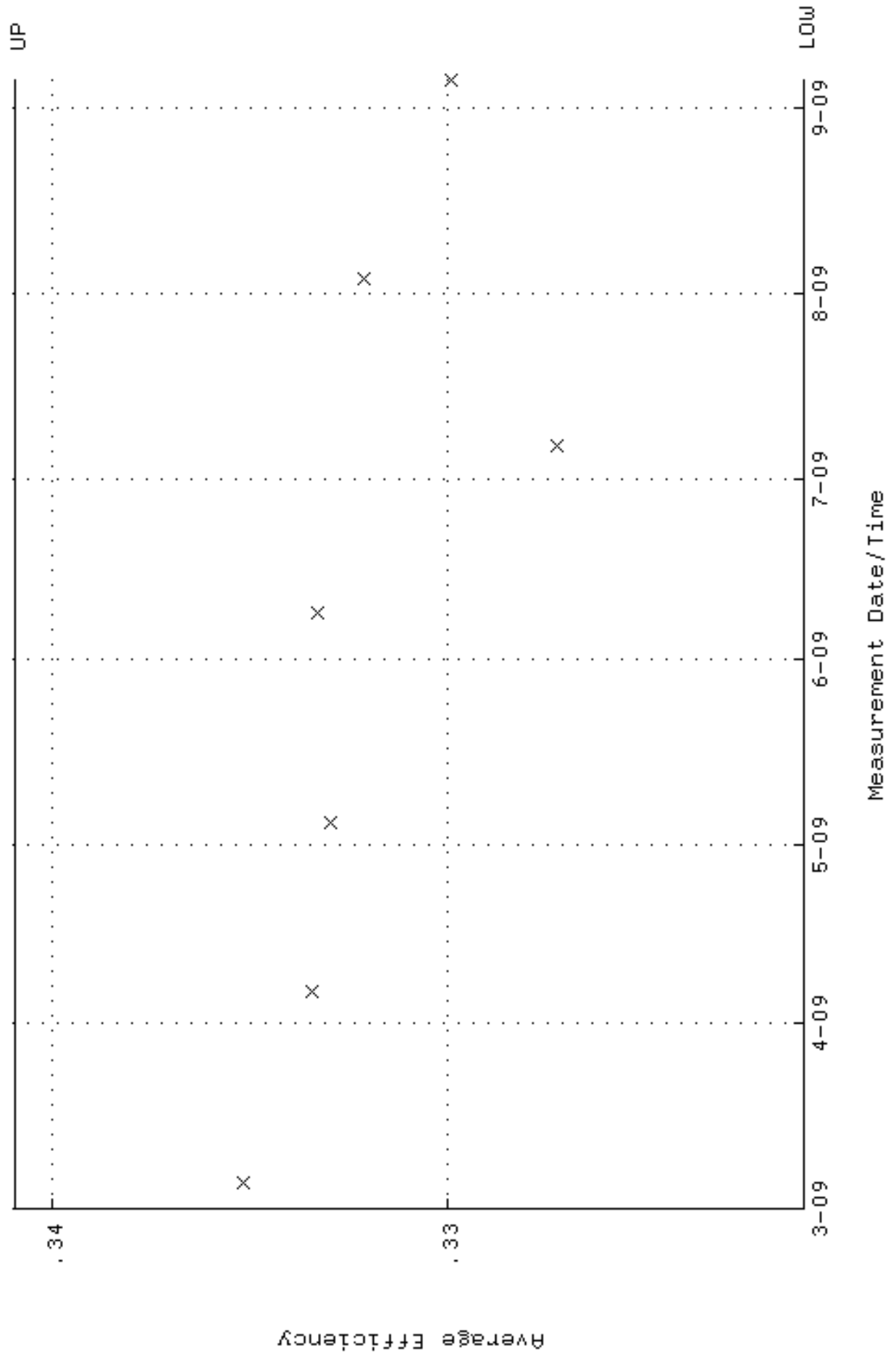




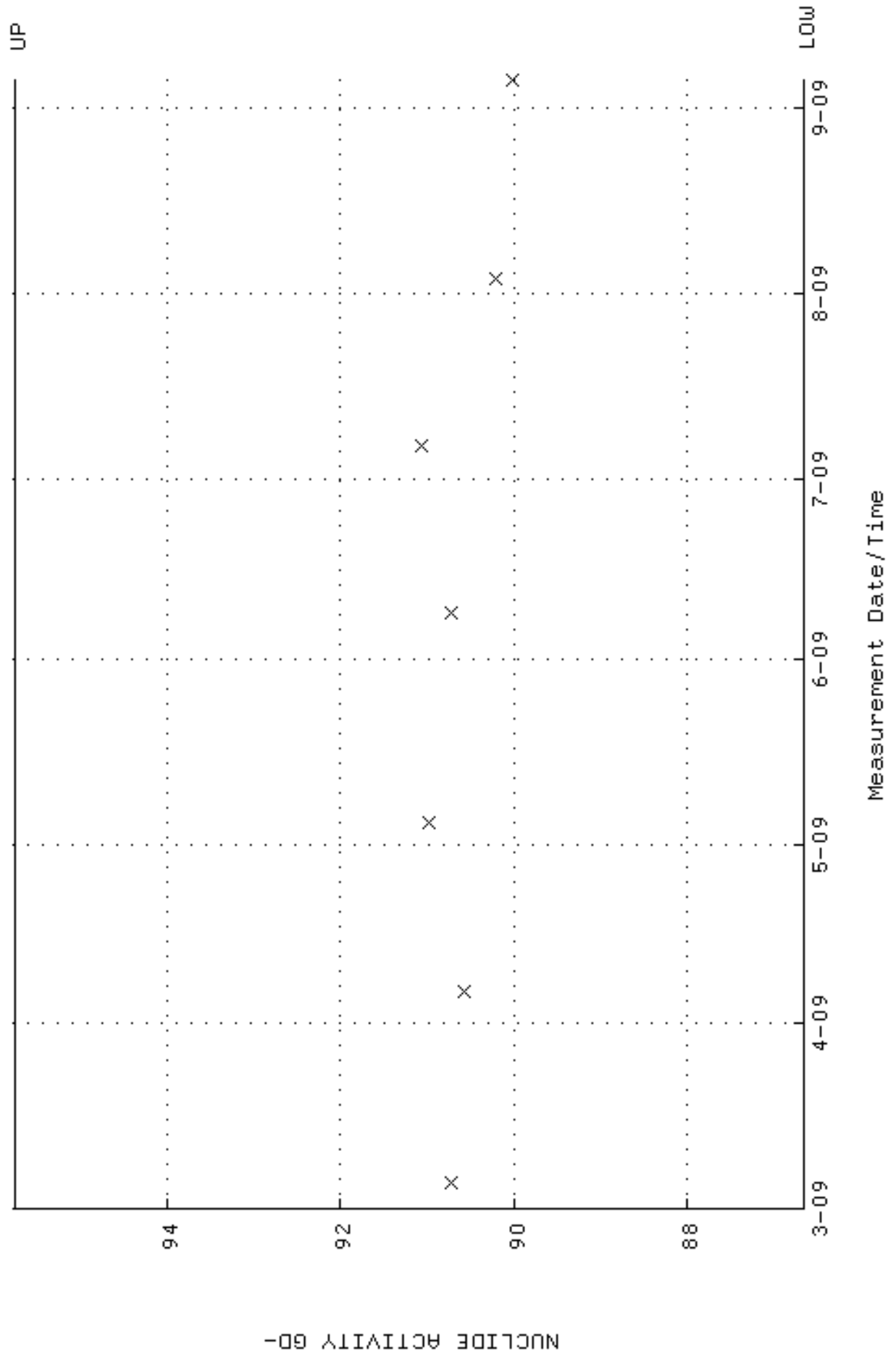
QA filename : DKA100:[ENV\_ALPHA.QA.B]B040.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
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 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



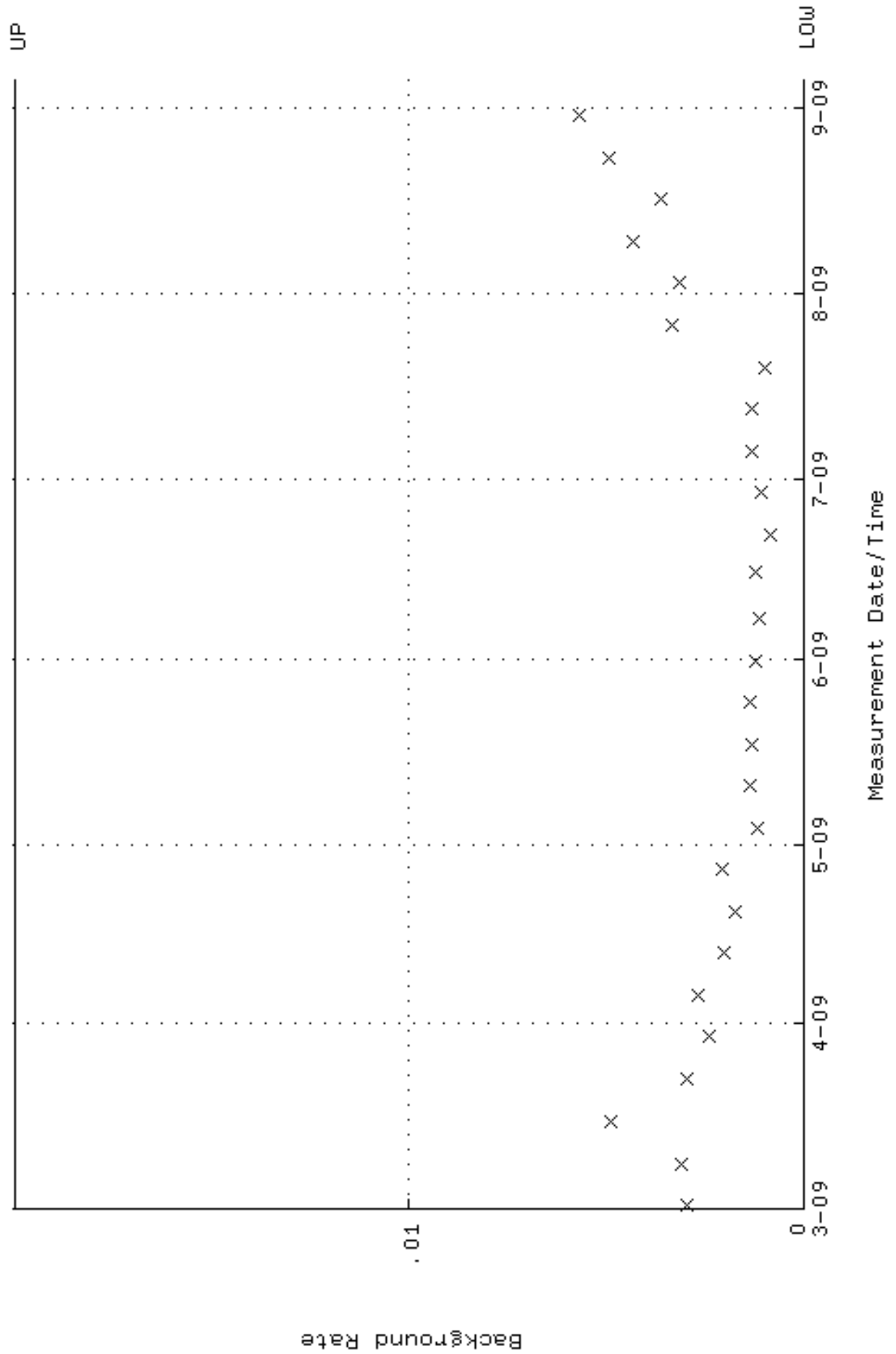
QA filename : DKA100:[ENV\_ALPHA.QA.W]W041.QAF;5  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 5-MAR-2009 07:45:22 through 5-SEP-2009 12:00:00  
 Lower/Upper Lmts: 0.320943 through 0.340943



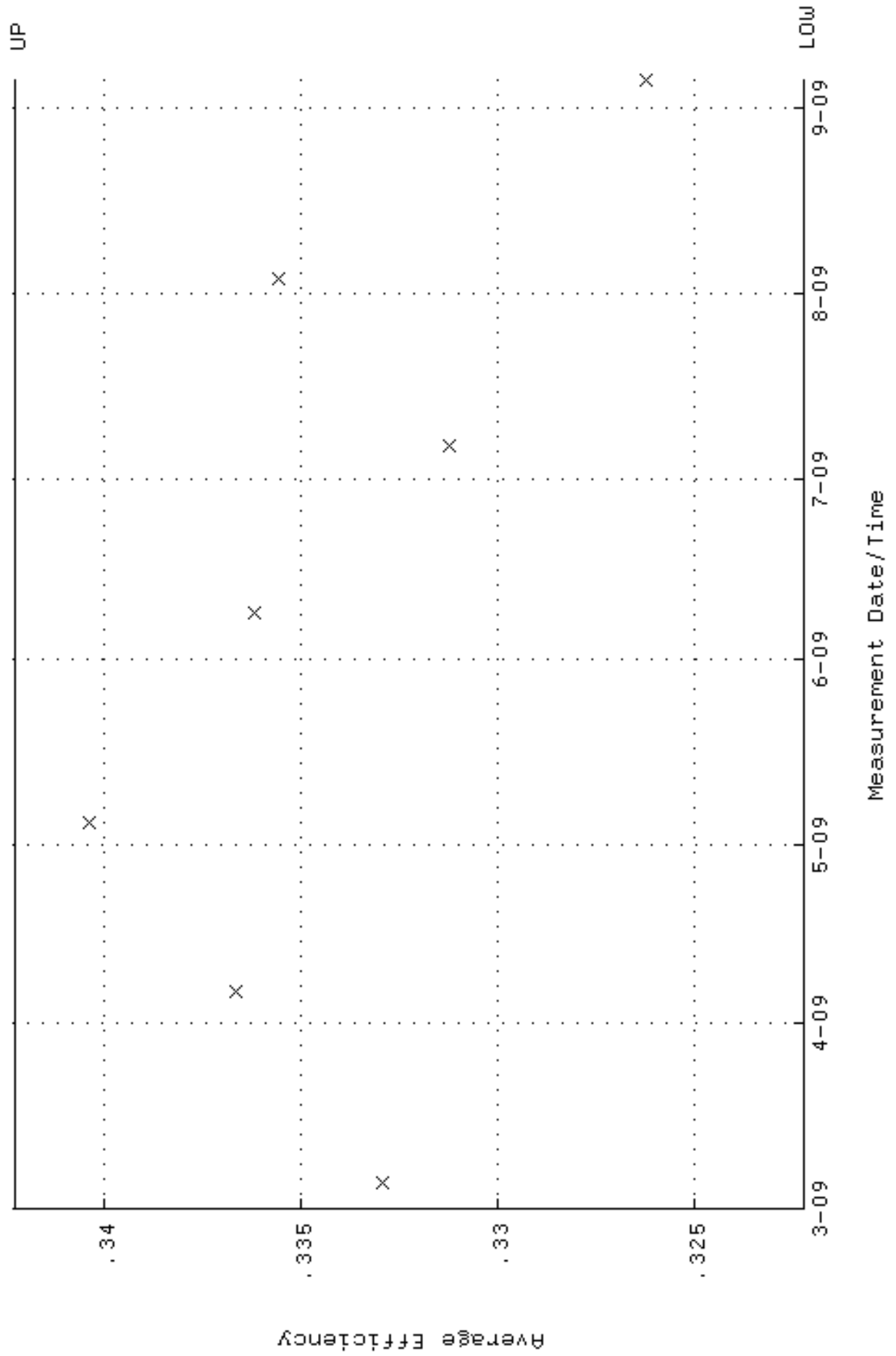
QA filename : DKA100:[ENV\_ALPHA.QA.W]W041.QAF;5  
Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
Start/End Dates : 5-MAR-2009 07:45:22 through 5-SEP-2009 12:00:00  
Lower/Upper Lmts: 86.6435 through 95.7639



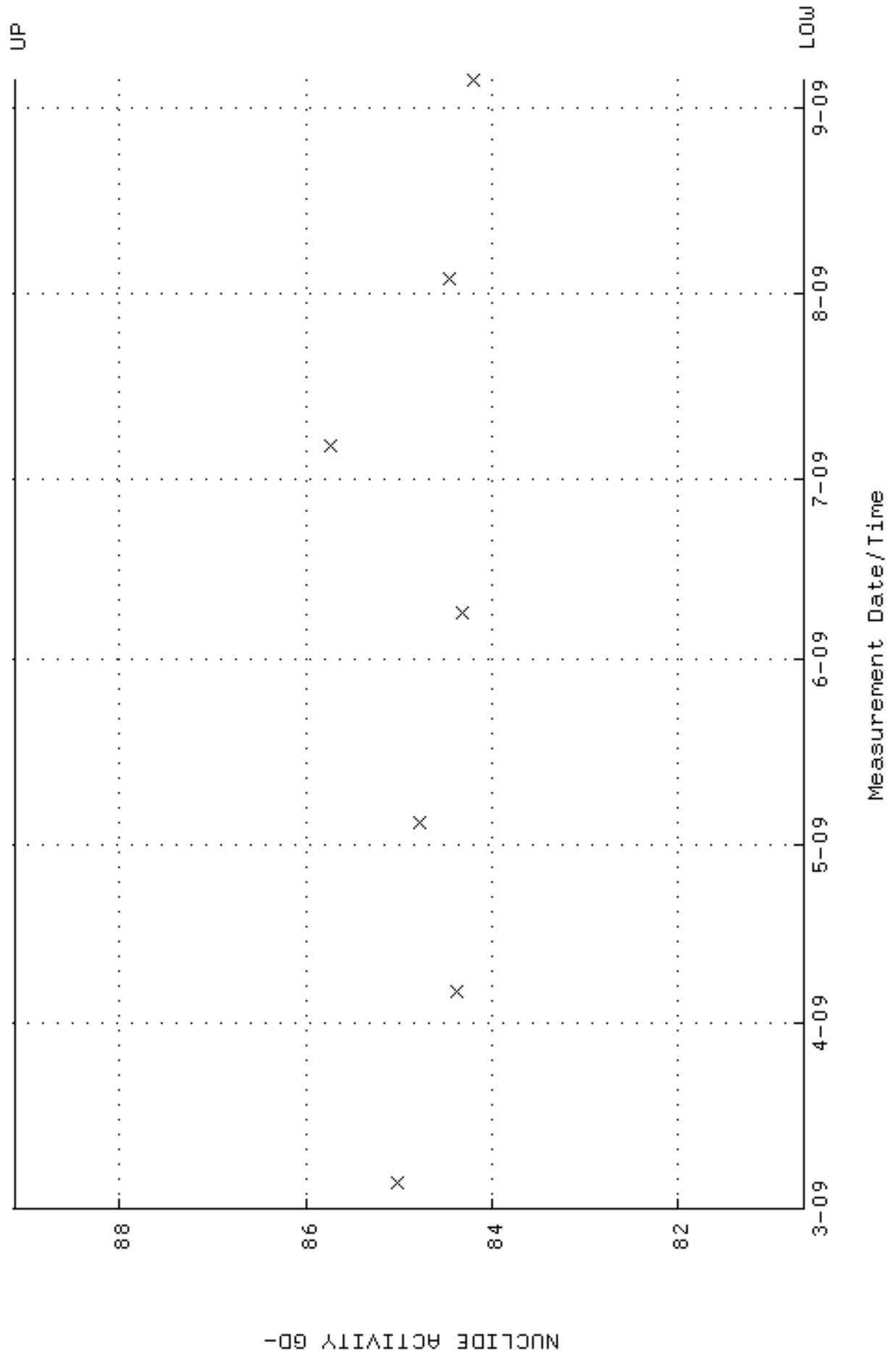
QA filename : DKA100:[ENV\_ALPHA.QA.B]B041.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-MAR-2009 17:17:27 through 5-SEP-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



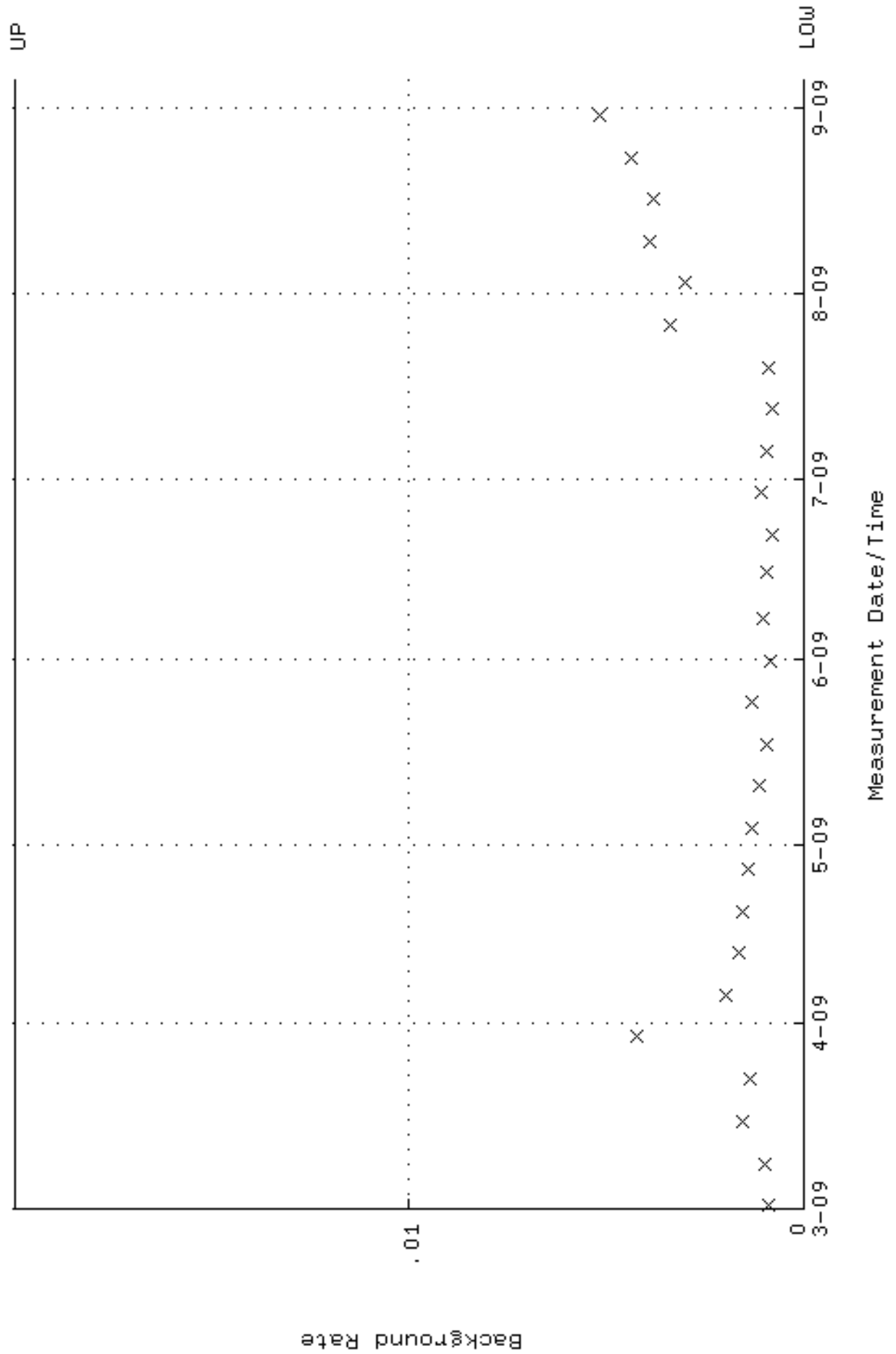
QA filename : DKA100:[ENV\_ALPHA.QA.W]W042.QAF;3  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 5-MAR-2009 07:45:22 through 5-SEP-2009 12:00:00  
 Lower/Upper Lmts: 0.322243 through 0.342243



QA filename : DKA100:[ENV\_ALPHA.QA.W]W042.QAF;3  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 5-MAR-2009 07:45:22 through 5-SEP-2009 12:00:00  
 Lower/Upper Lmts: 80.6389 through 89.1273



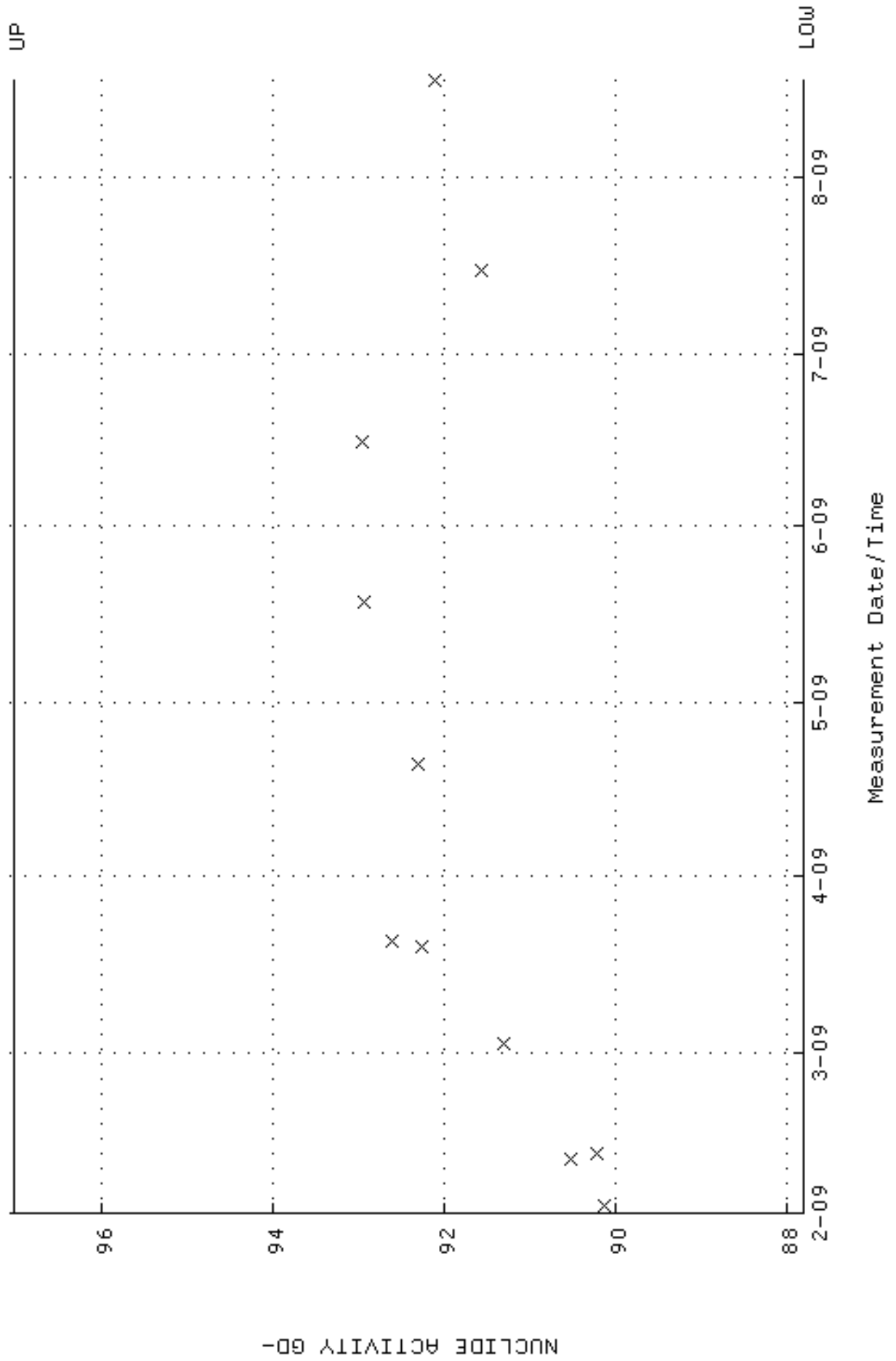
QA filename : DKA100:[ENV\_ALPHA.QA.B]B042.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-MAR-2009 17:17:27 through 5-SEP-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



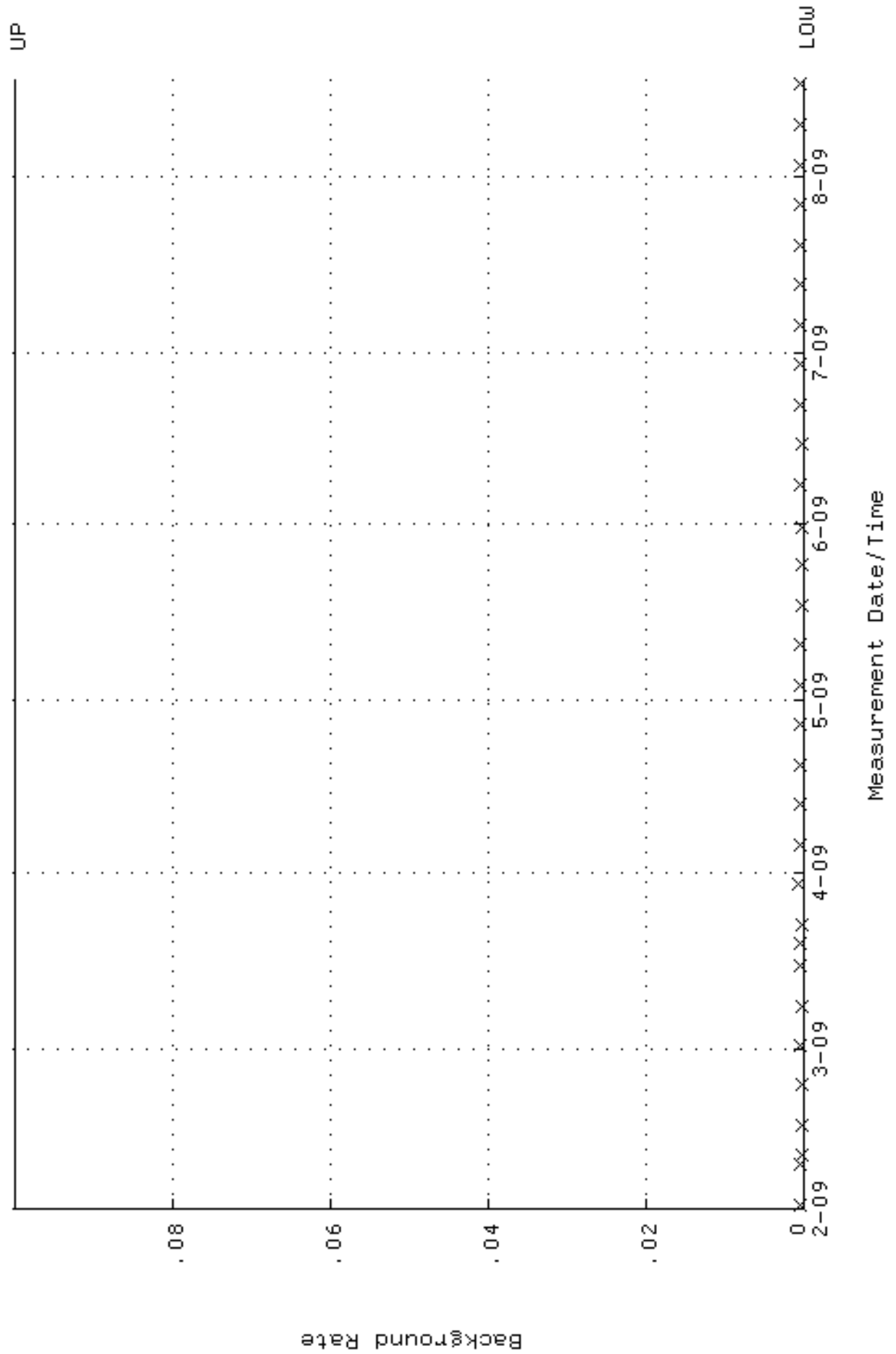




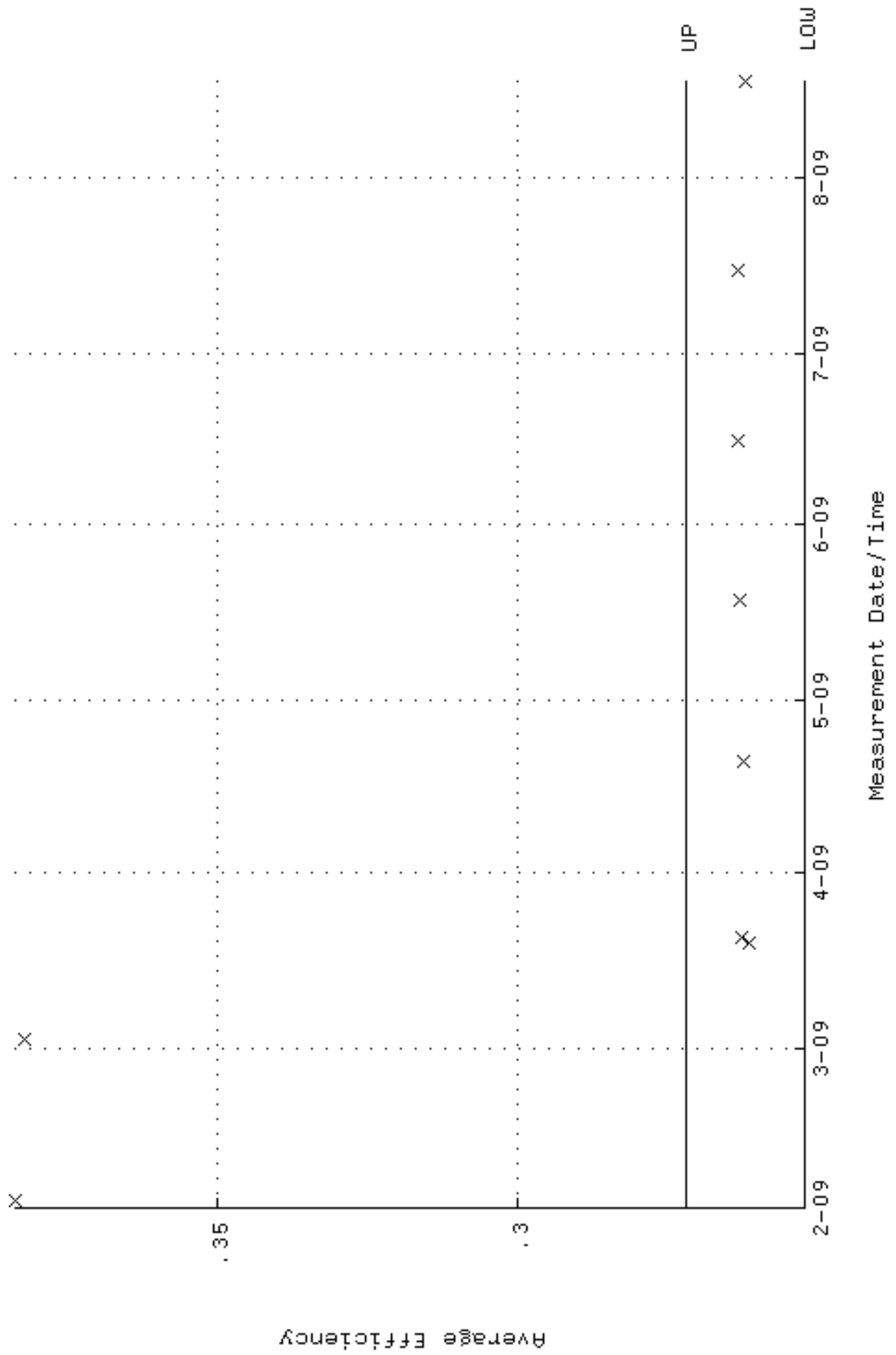
QA filename : DKA100:[ENV\_ALPHA.QA.W]w114.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 2-FEB-2009 10:31:11 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 87.8108 through 97.0540



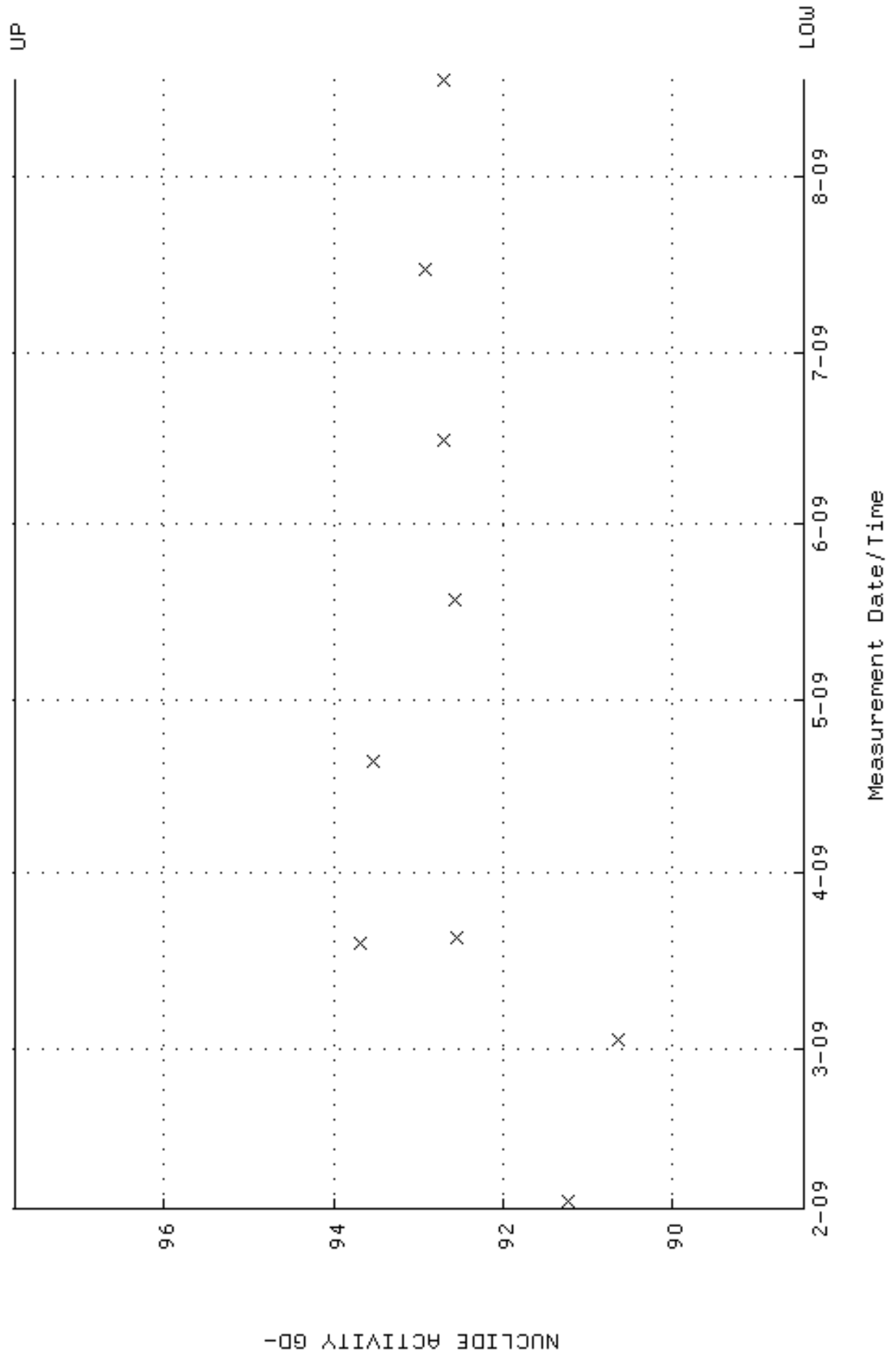
QA filename : DKA100:[ENV\_ALPHA.QA.B]B114.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-FEB-2009 17:00:32 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



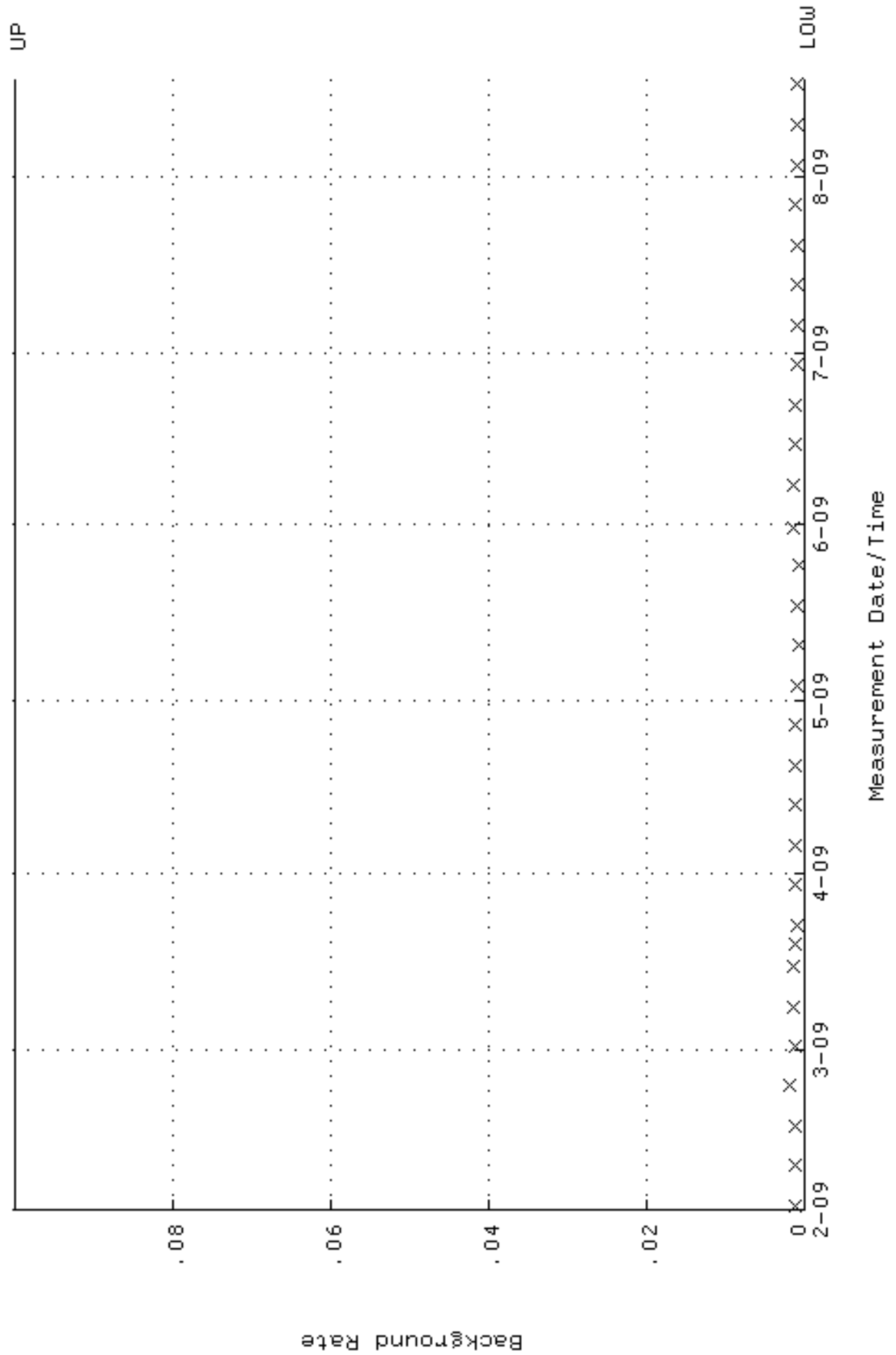
QA filename : DKA100:[ENV\_ALPHA.QA.W]W116.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 2-FEB-2009 10:31:25 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.251950 through 0.271950



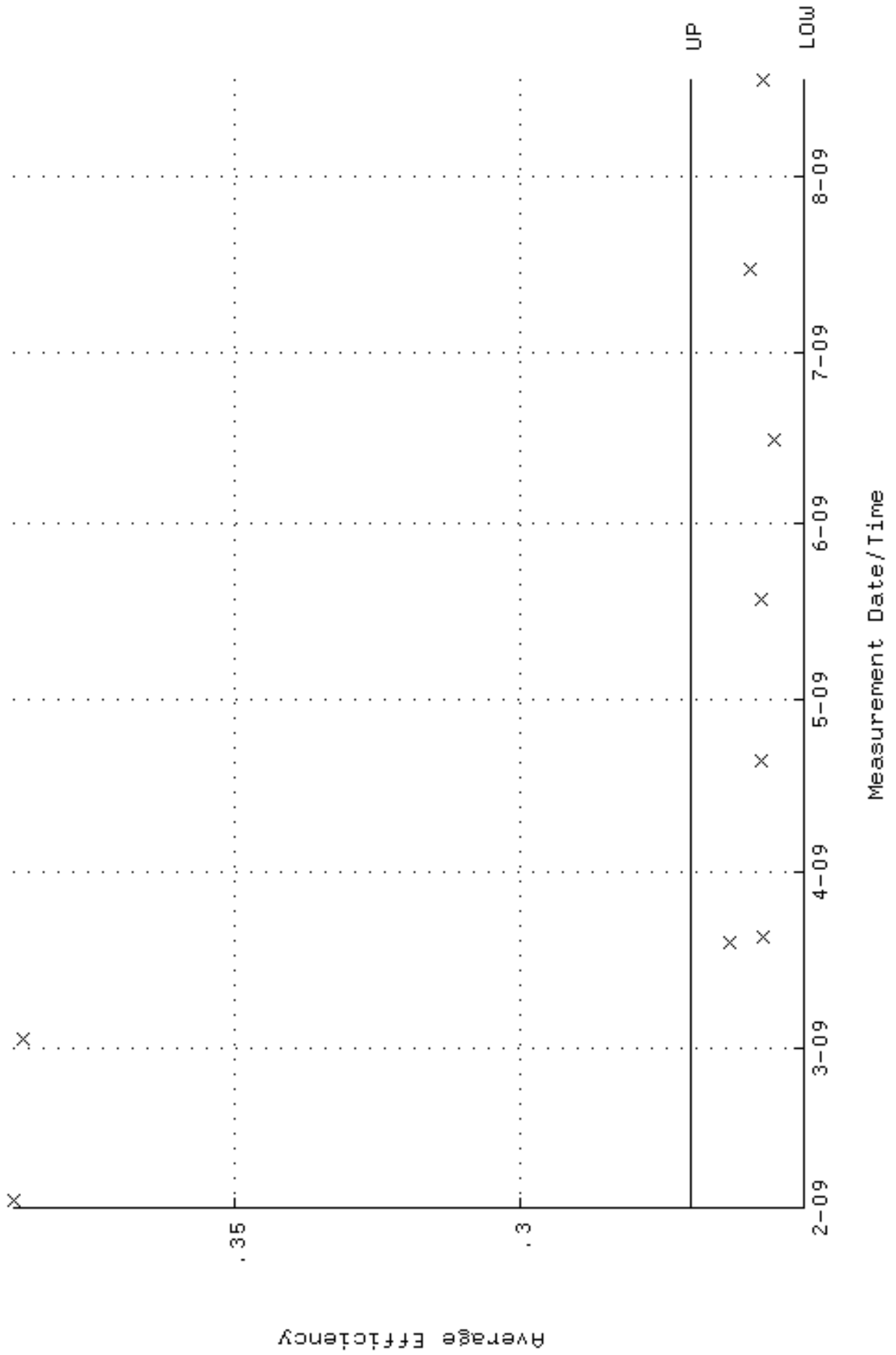
QA filename : DKA100:[ENV\_ALPHA.QA.W]w116.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 2-FEB-2009 10:31:25 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 88.4515 through 97.7621



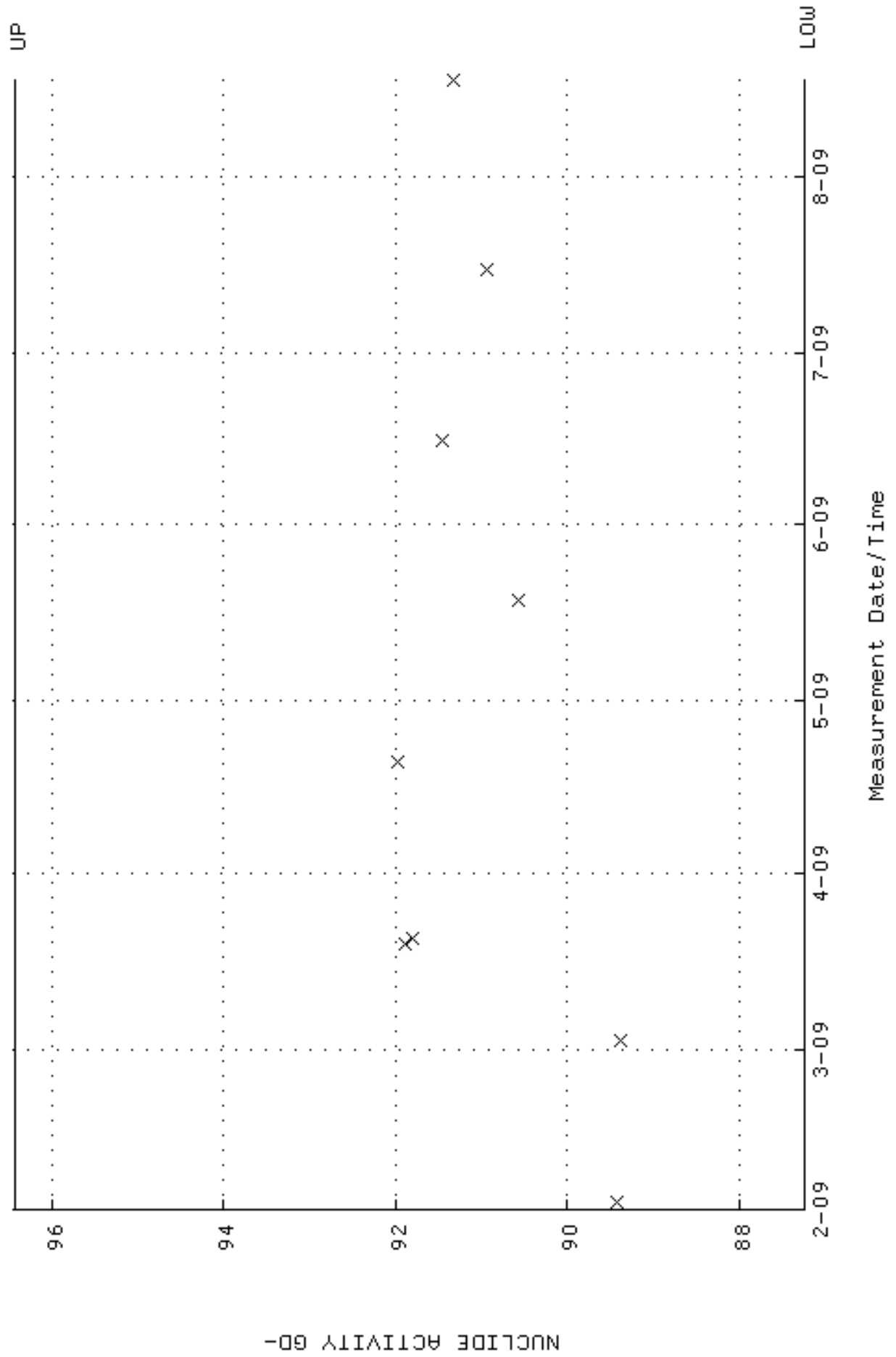
QA filename : DKA100:[ENV\_ALPHA.QA.B]B116.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-FEB-2009 17:01:01 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



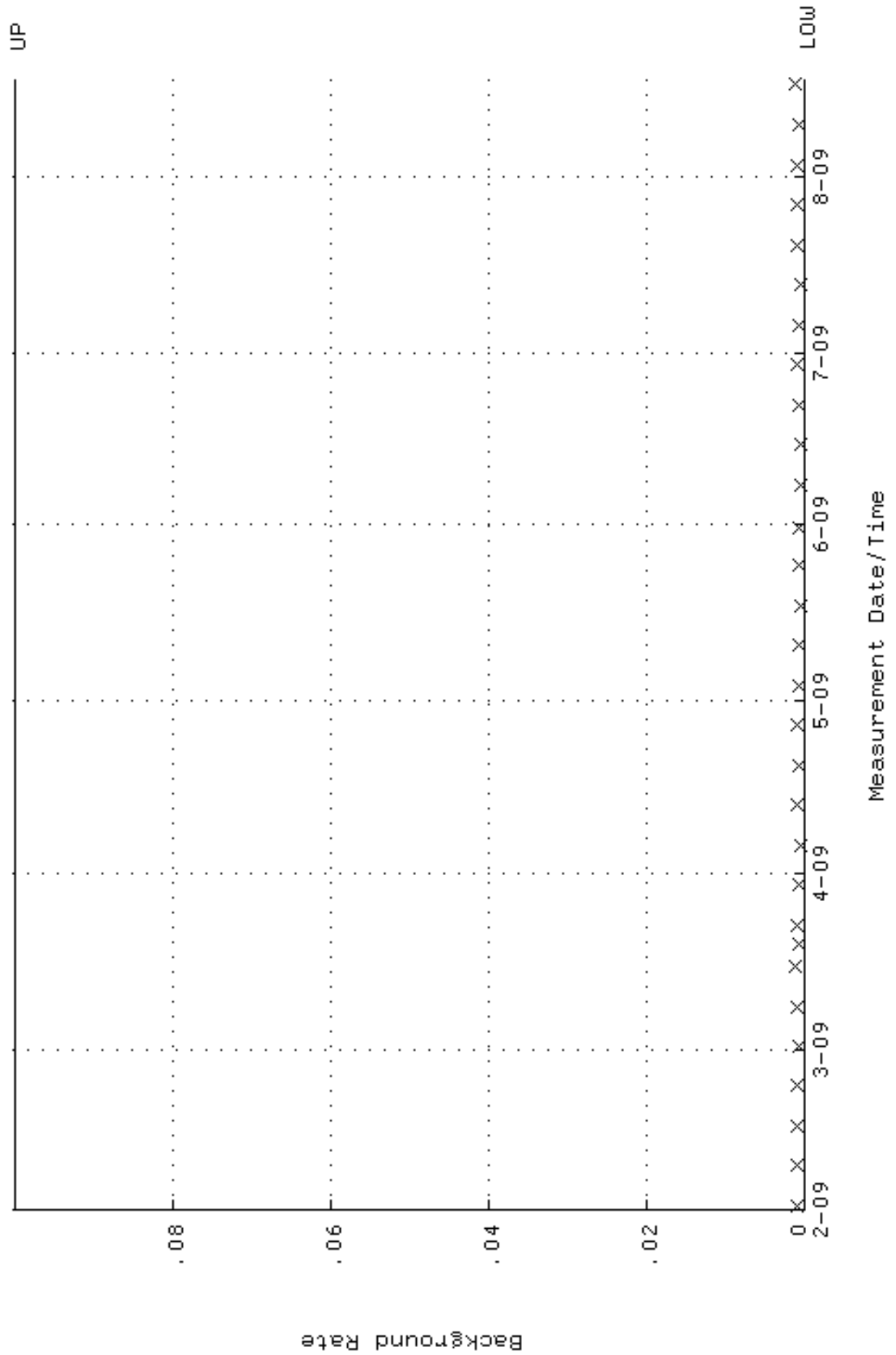
QA filename : DKA100:[ENV\_ALPHA.QA.W]W118.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 2-FEB-2009 10:31:40 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.250490 through 0.270490



QA filename : DKA100:[ENV\_ALPHA.QA.W]w118.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 2-FEB-2009 10:31:40 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 87.2440 through 96.4276

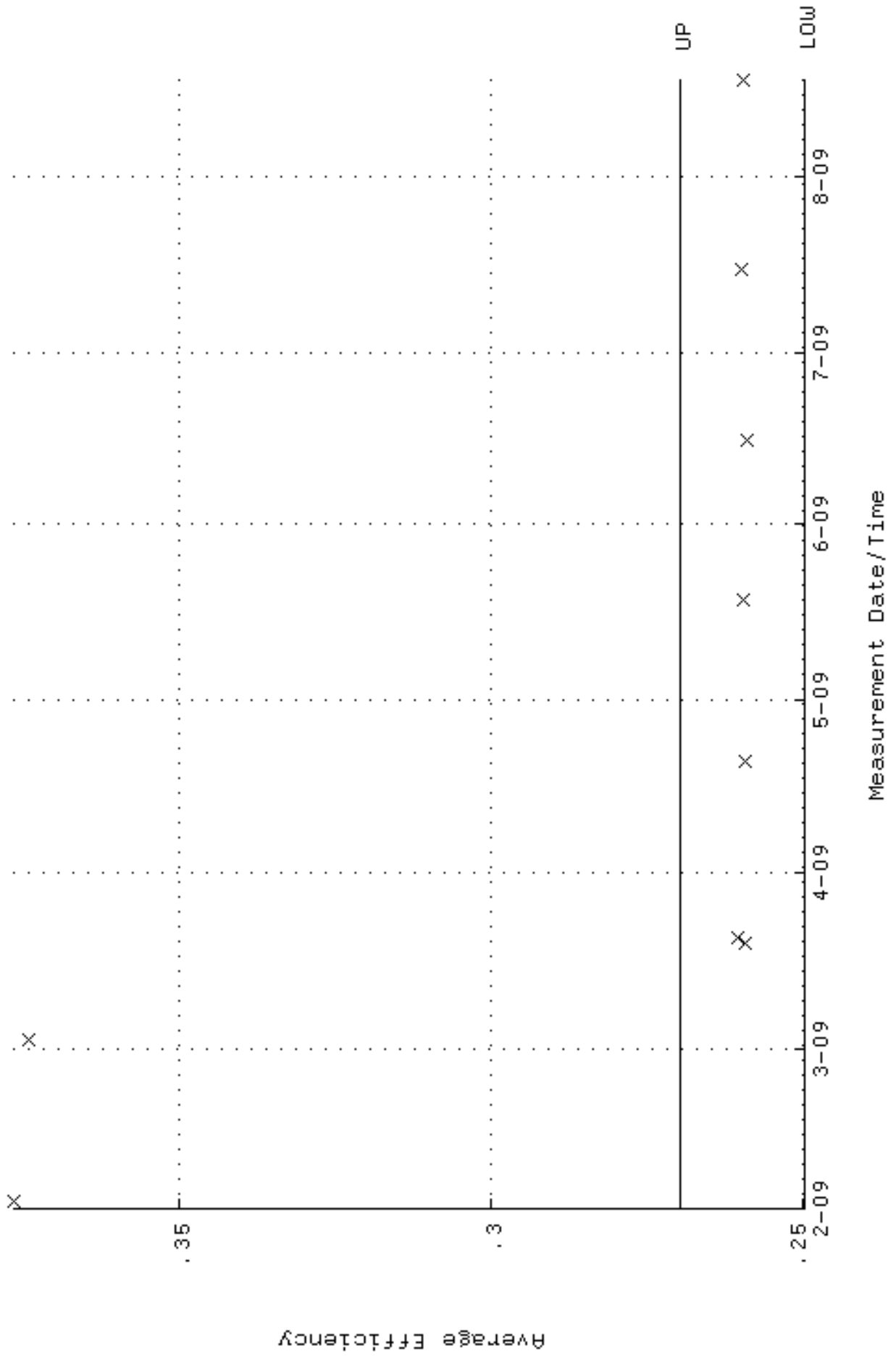


QA filename : DKA100:[ENV\_ALPHA.QA.B]B118.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-FEB-2009 17:01:36 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000

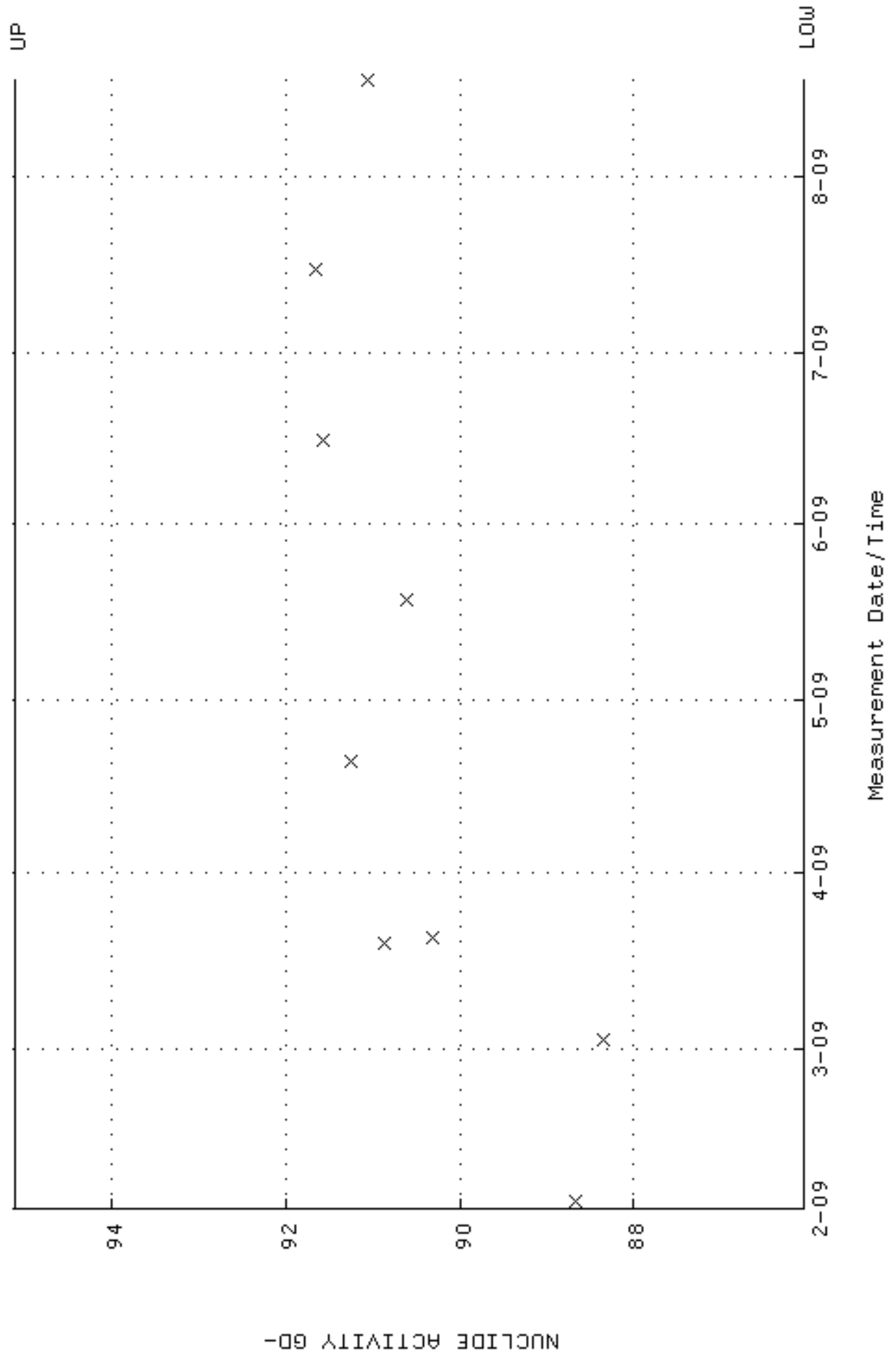




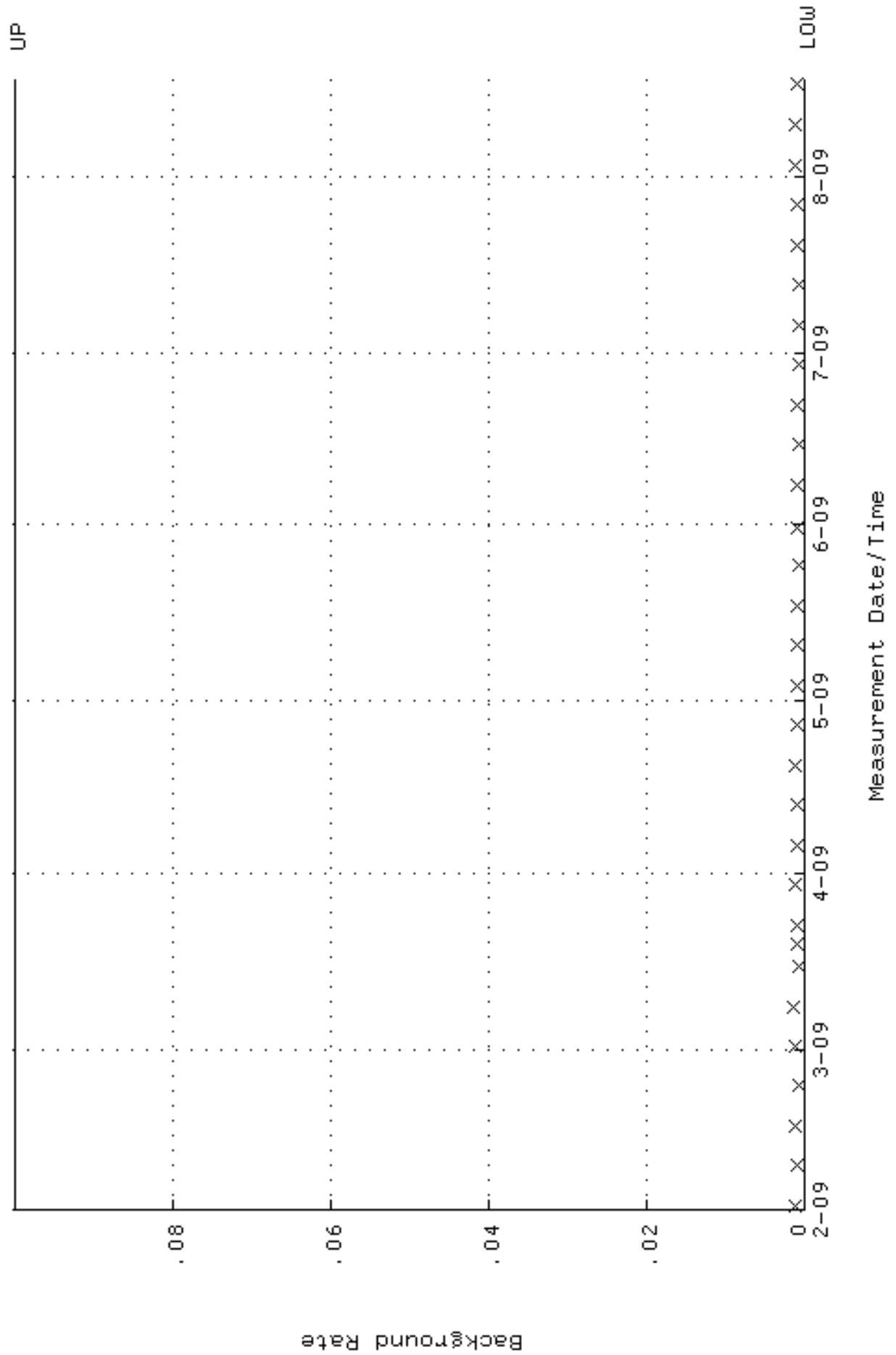
QA filename : DKA100:[ENV\_ALPHA.QA.W]W123.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 2-FEB-2009 10:32:16 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.249752 through 0.269752



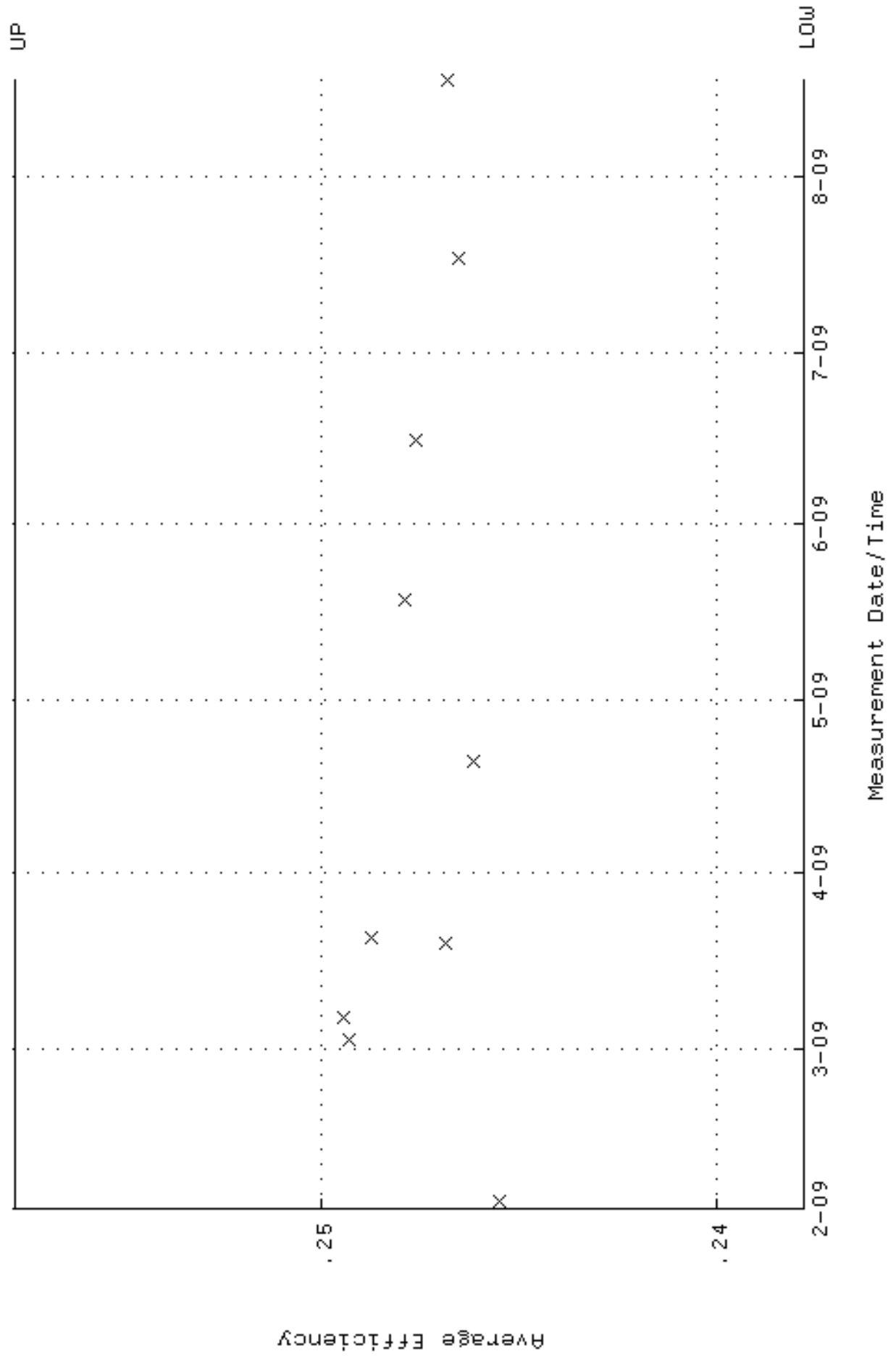
QA filename : DKA100:[ENV\_ALPHA.QA.W]W123.QAF;1  
Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
Start/End Dates : 2-FEB-2009 10:32:16 through 17-AUG-2009 12:00:00  
Lower/Upper Lmts: 86.0496 through 95.1074



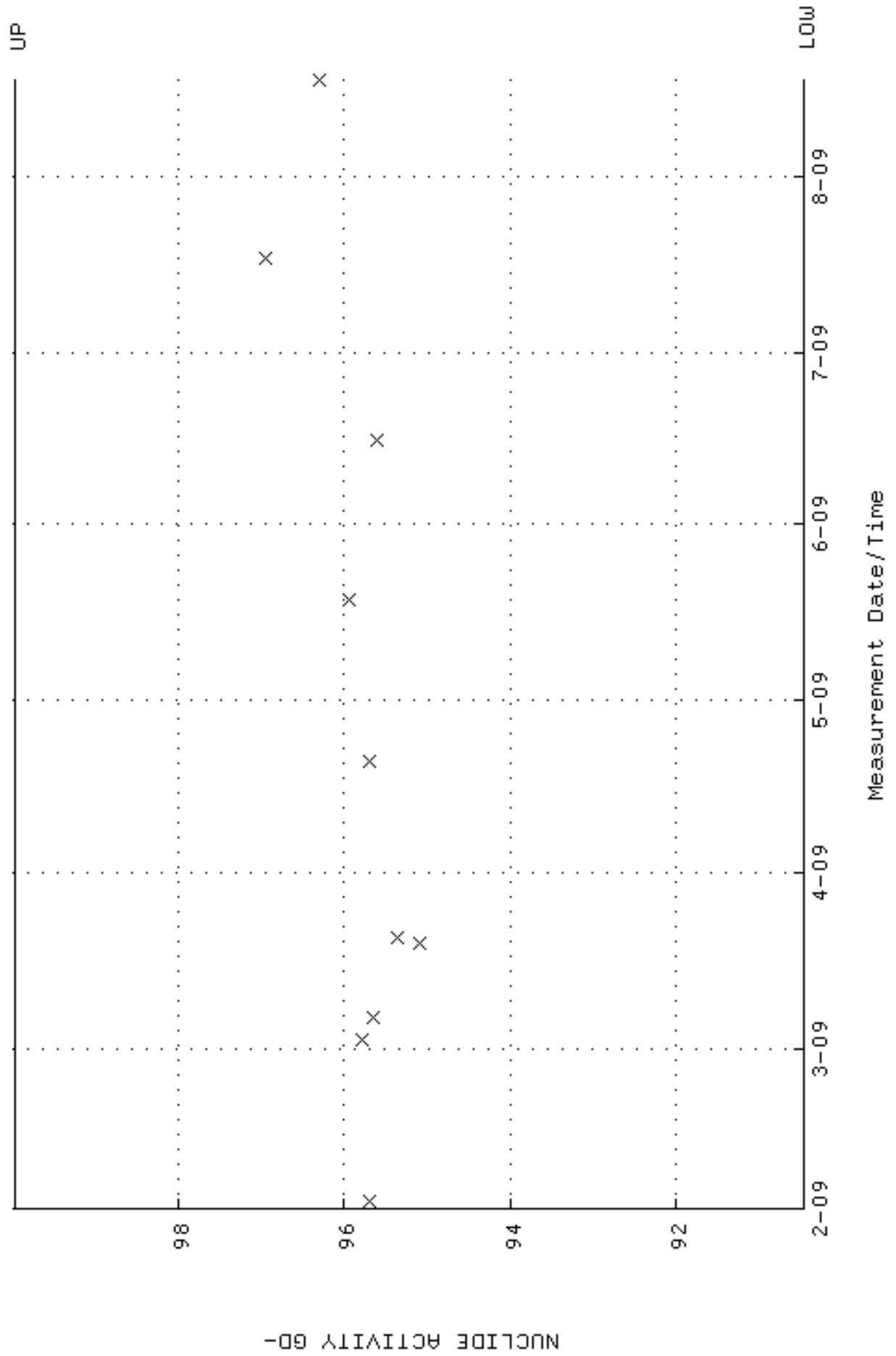
QA filename : DKA100:[ENV\_ALPHA.QA.B]B123.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-FEB-2009 17:02:47 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



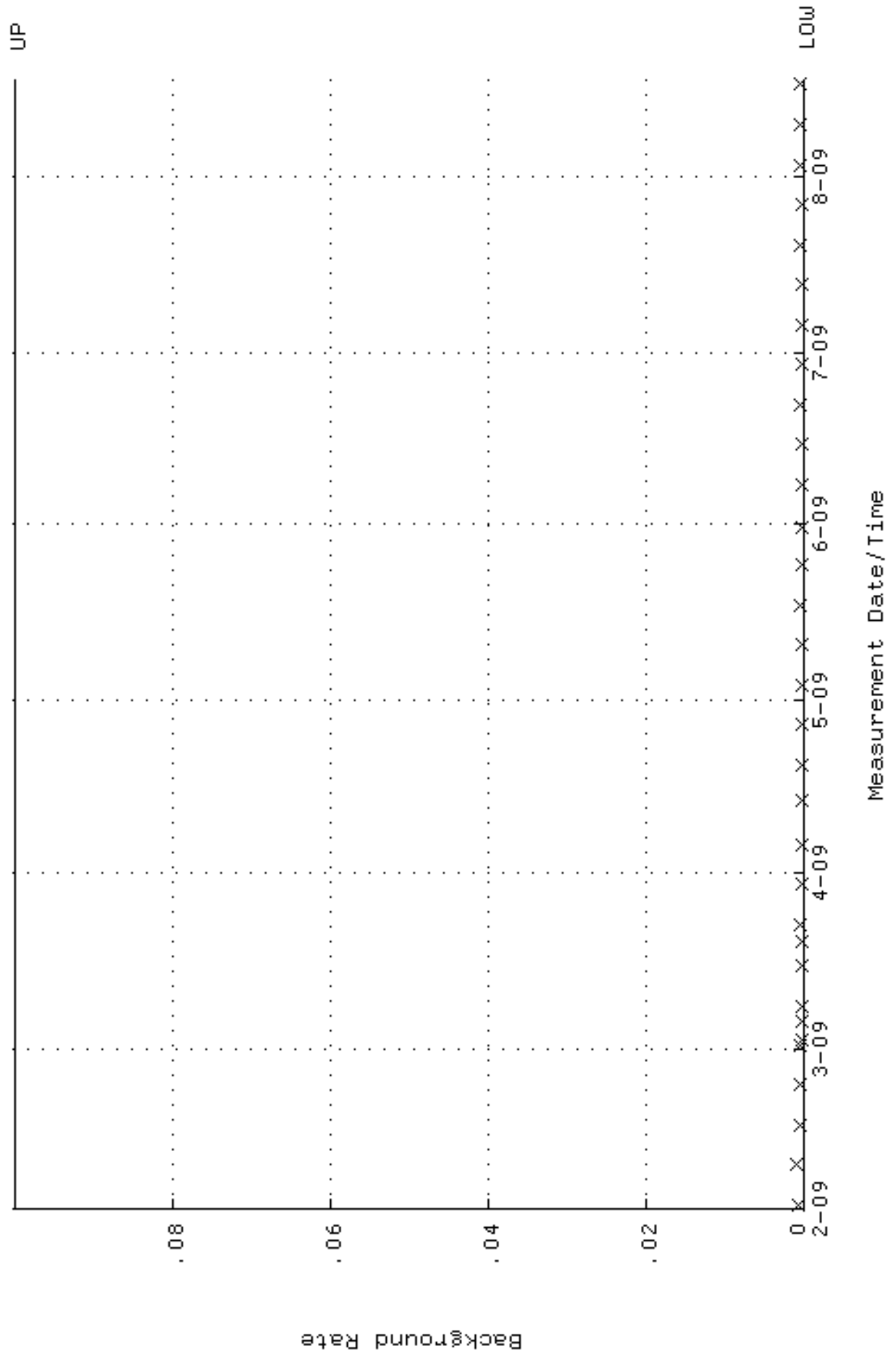
QA filename : DKA100:[ENV\_ALPHA.QA.W]W127.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 2-FEB-2009 10:32:45 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.237773 through 0.257773



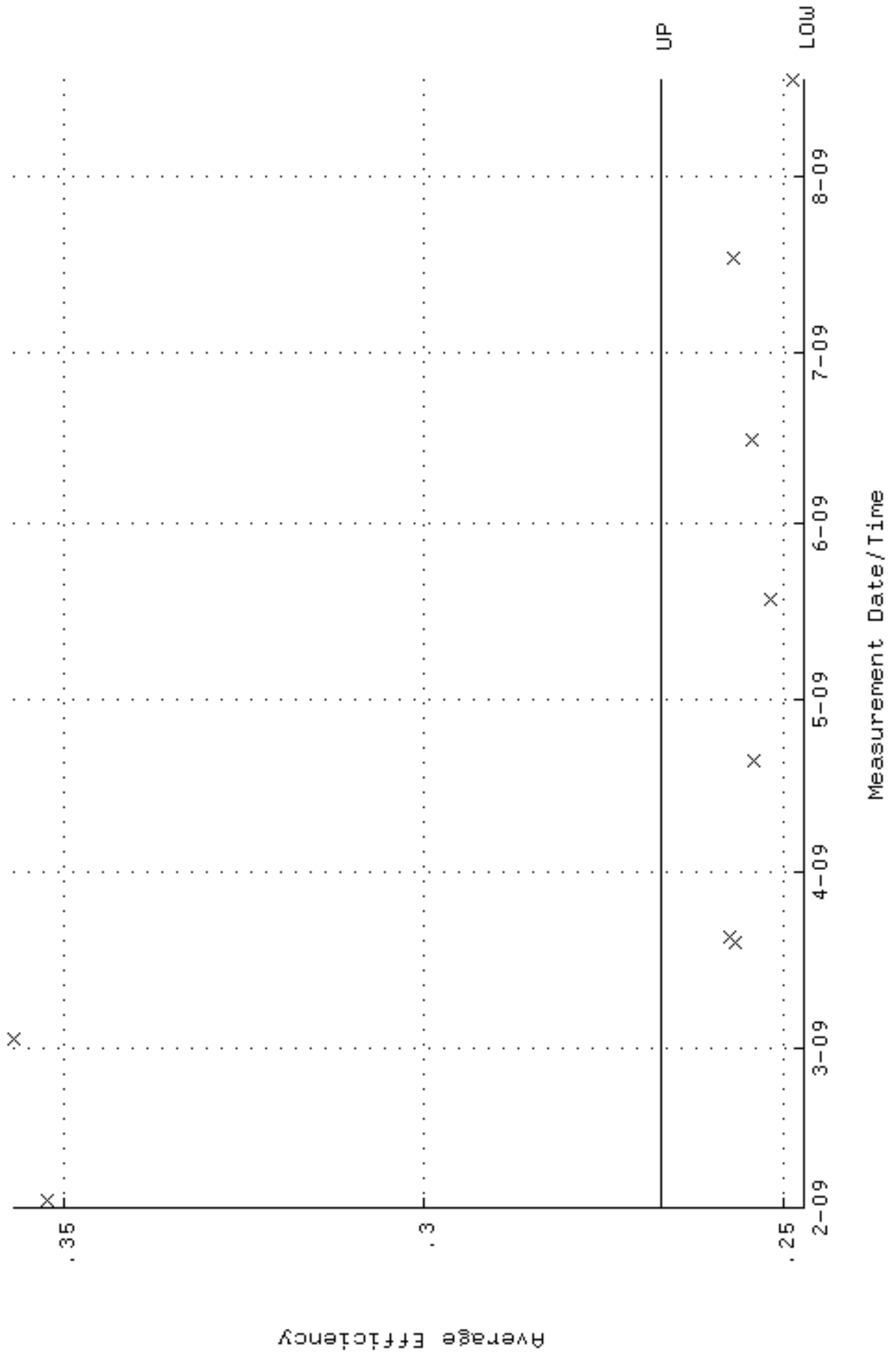
QA filename : DKA100:[ENV\_ALPHA.QA.W]W127.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 2-FEB-2009 10:32:45 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 90.4503 through 99.9713



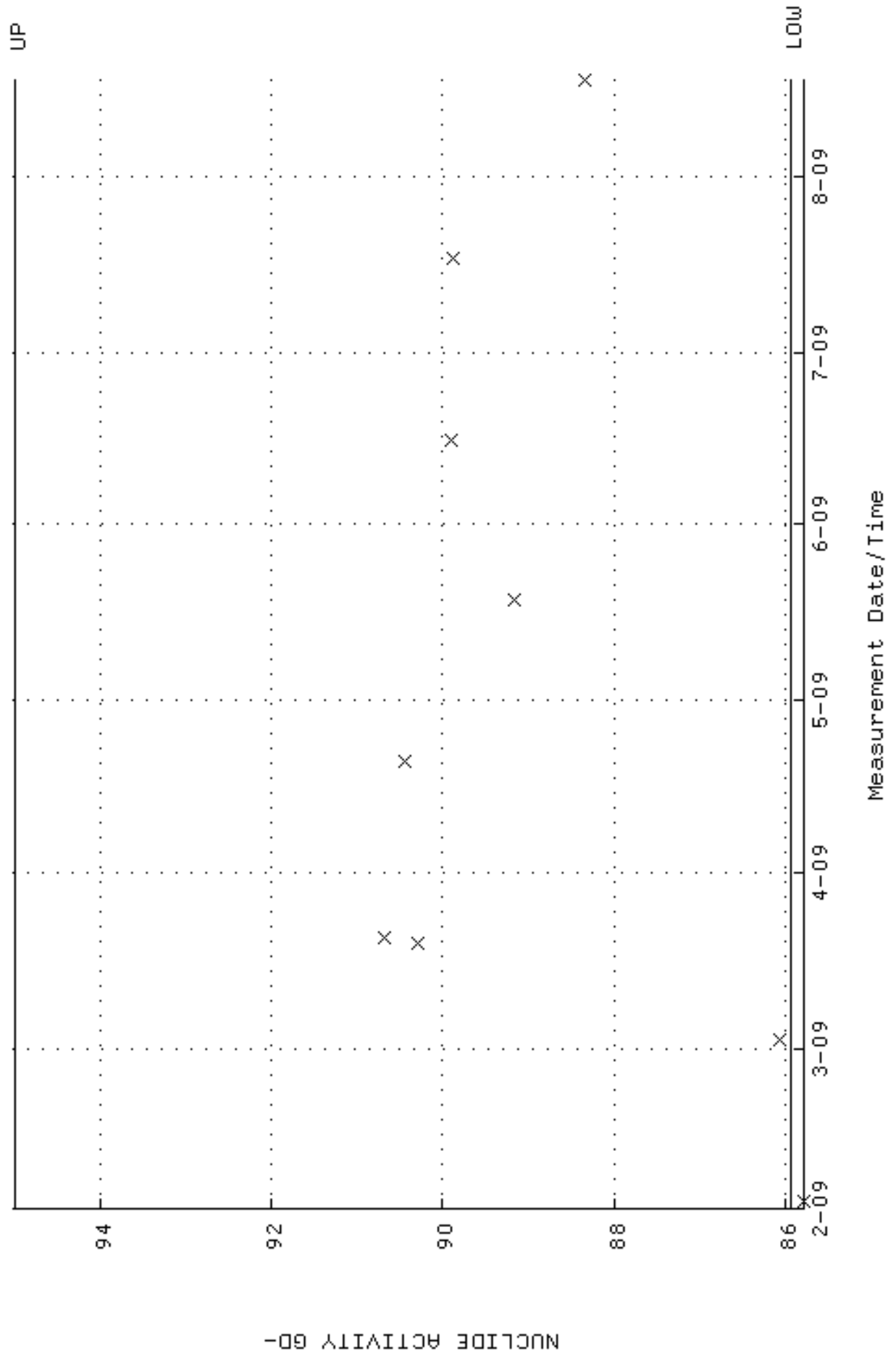
QA filename : DKA100:[ENV\_ALPHA.QA.B]B127.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-FEB-2009 17:03:45 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



QA filename : DKA100:[ENV\_ALPHA.QA.W]W131.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 2-FEB-2009 10:33:13 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.247185 through 0.267185

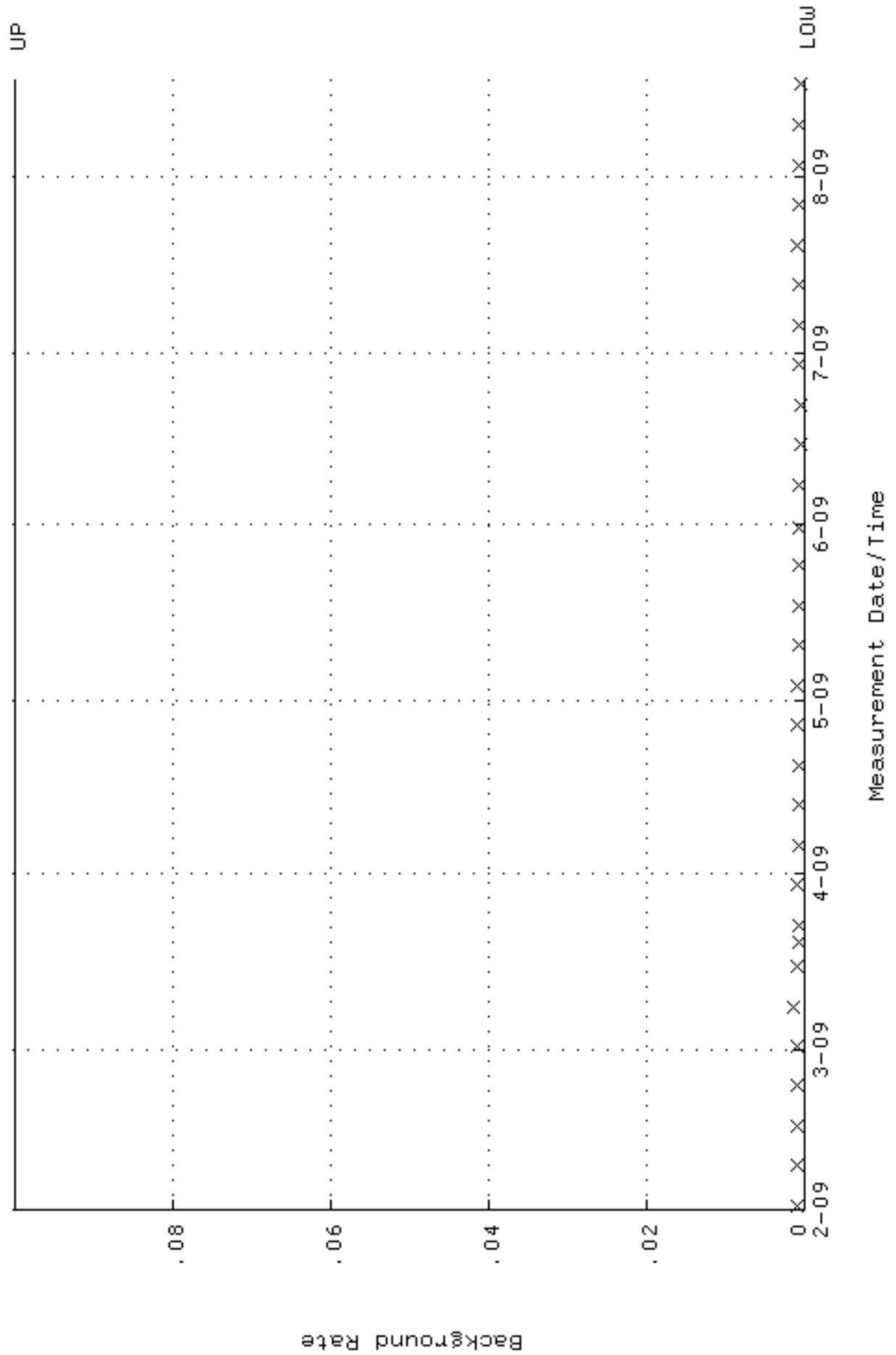


QA filename : DKA100:[ENV\_ALPHA.QA.W]w131.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 2-FEB-2009 10:33:13 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 85.9407 through 94.9871

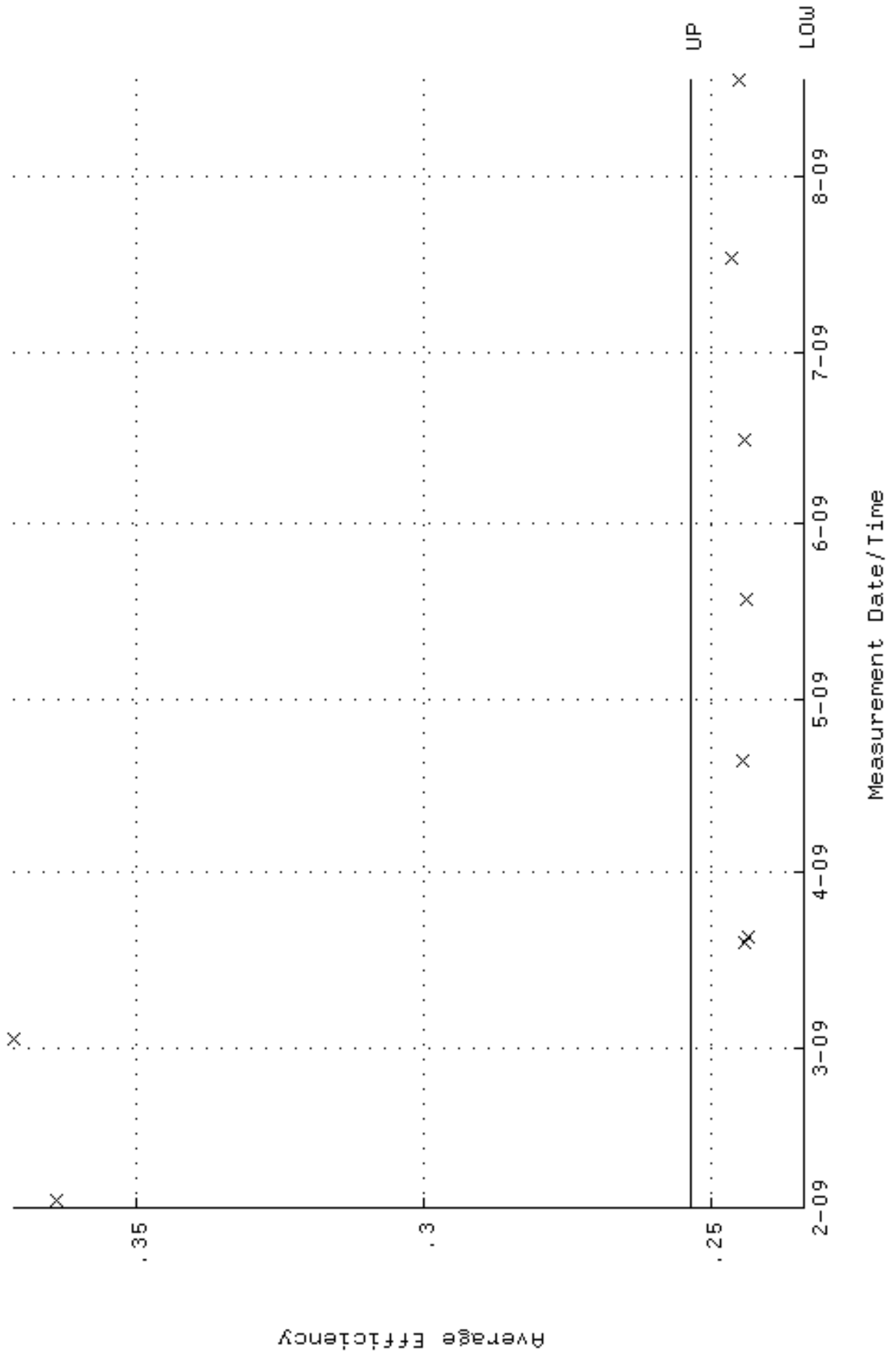




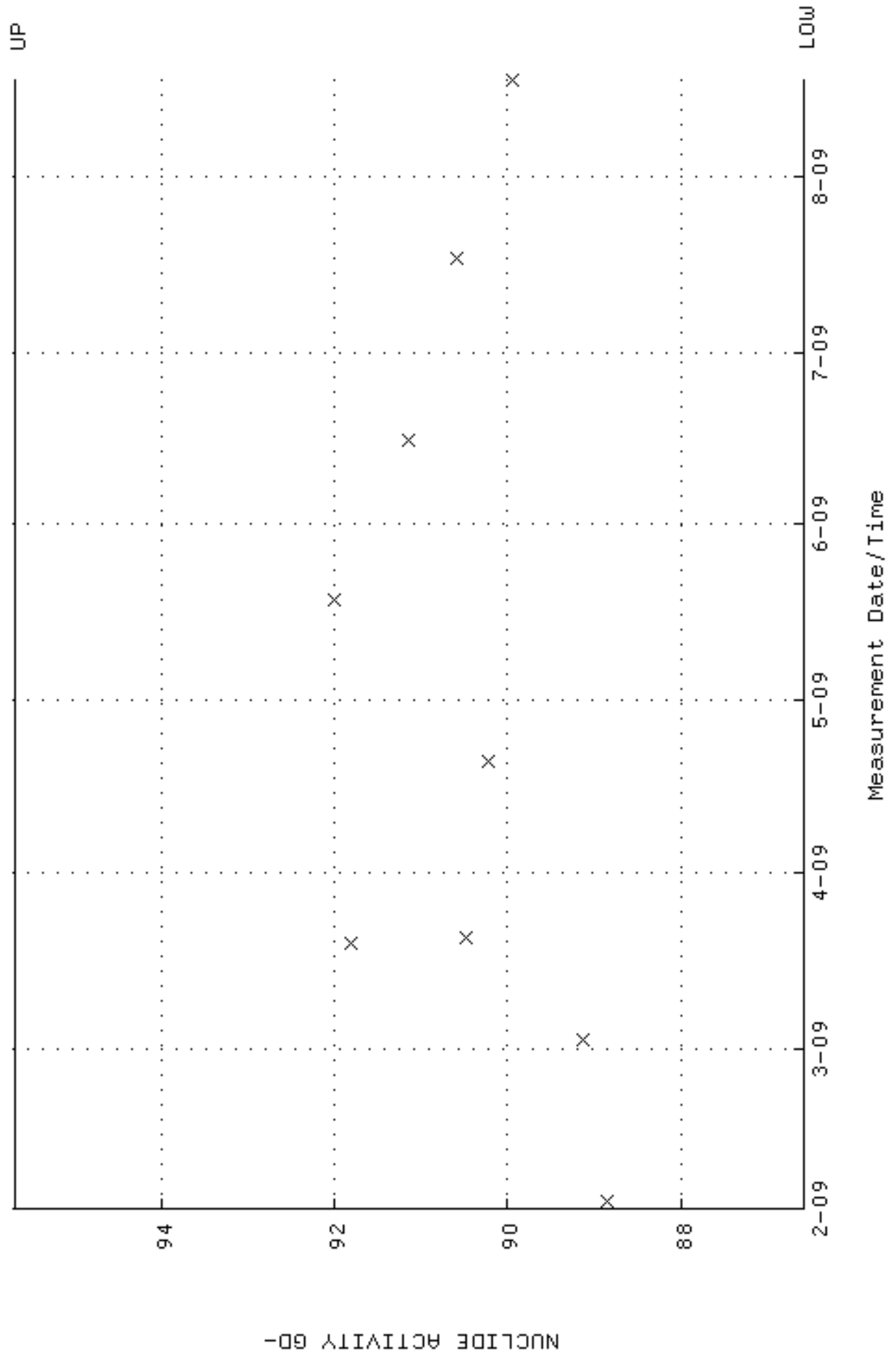
QA filename : DKA100:[ENV\_ALPHA.QA.B]B131.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-FEB-2009 17:04:43 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



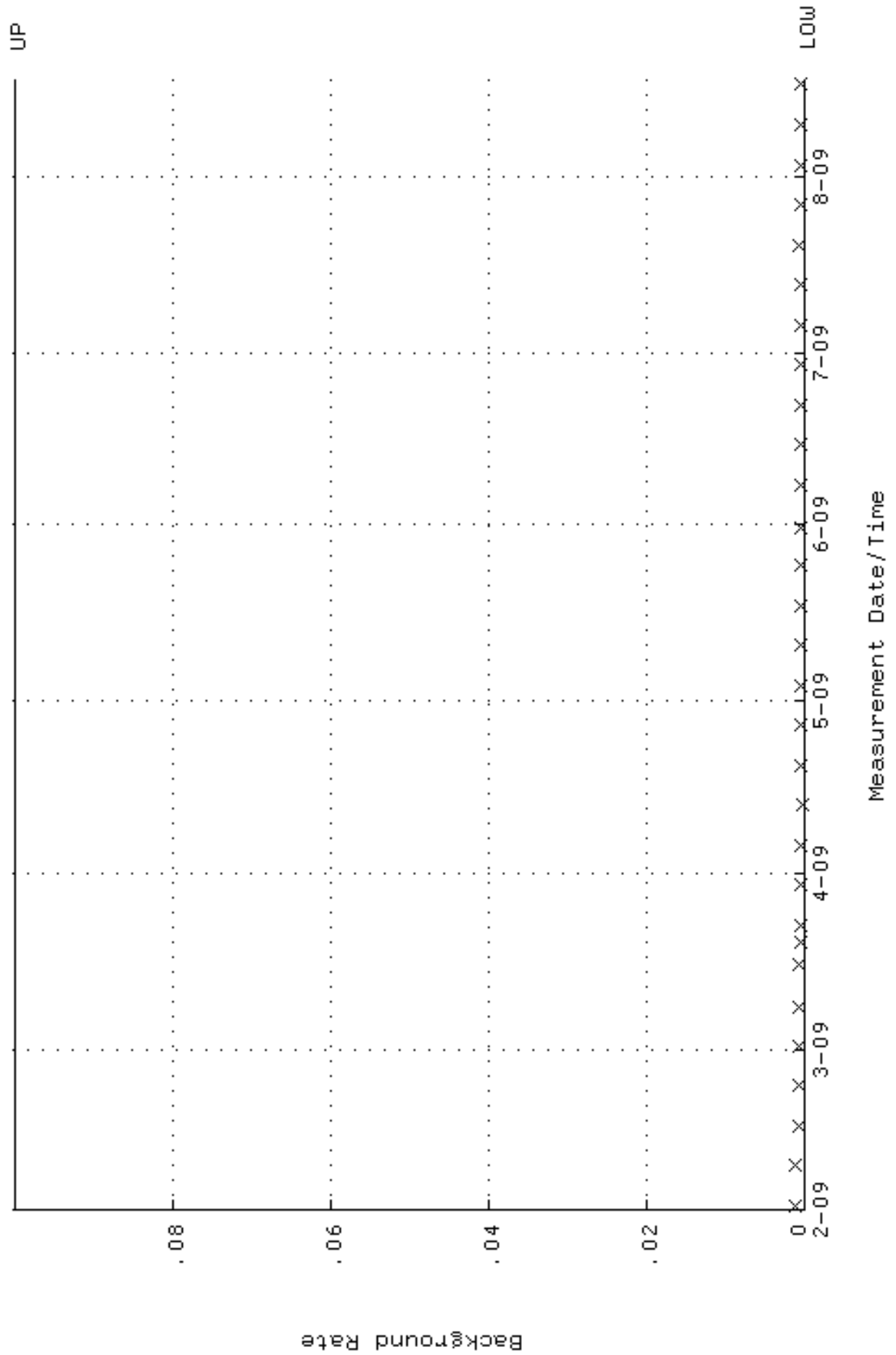
QA filename : DKA100:[ENV\_ALPHA.QA.W]W151.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 2-FEB-2009 10:35:32 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.233693 through 0.253693



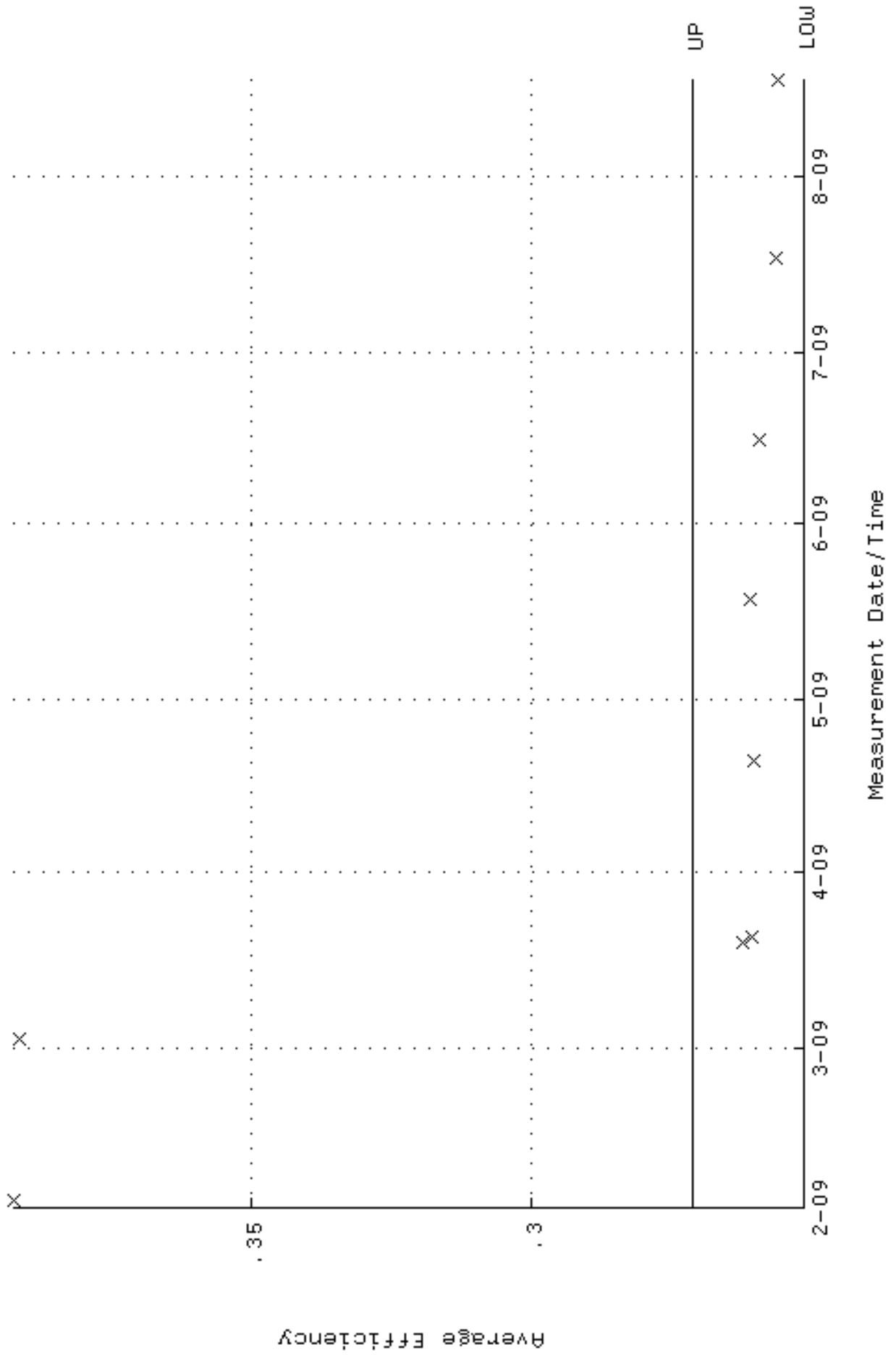
QA filename : DKA100:[ENV\_ALPHA.QA.W]w151.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 2-FEB-2009 10:35:32 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 86.5749 through 95.6881



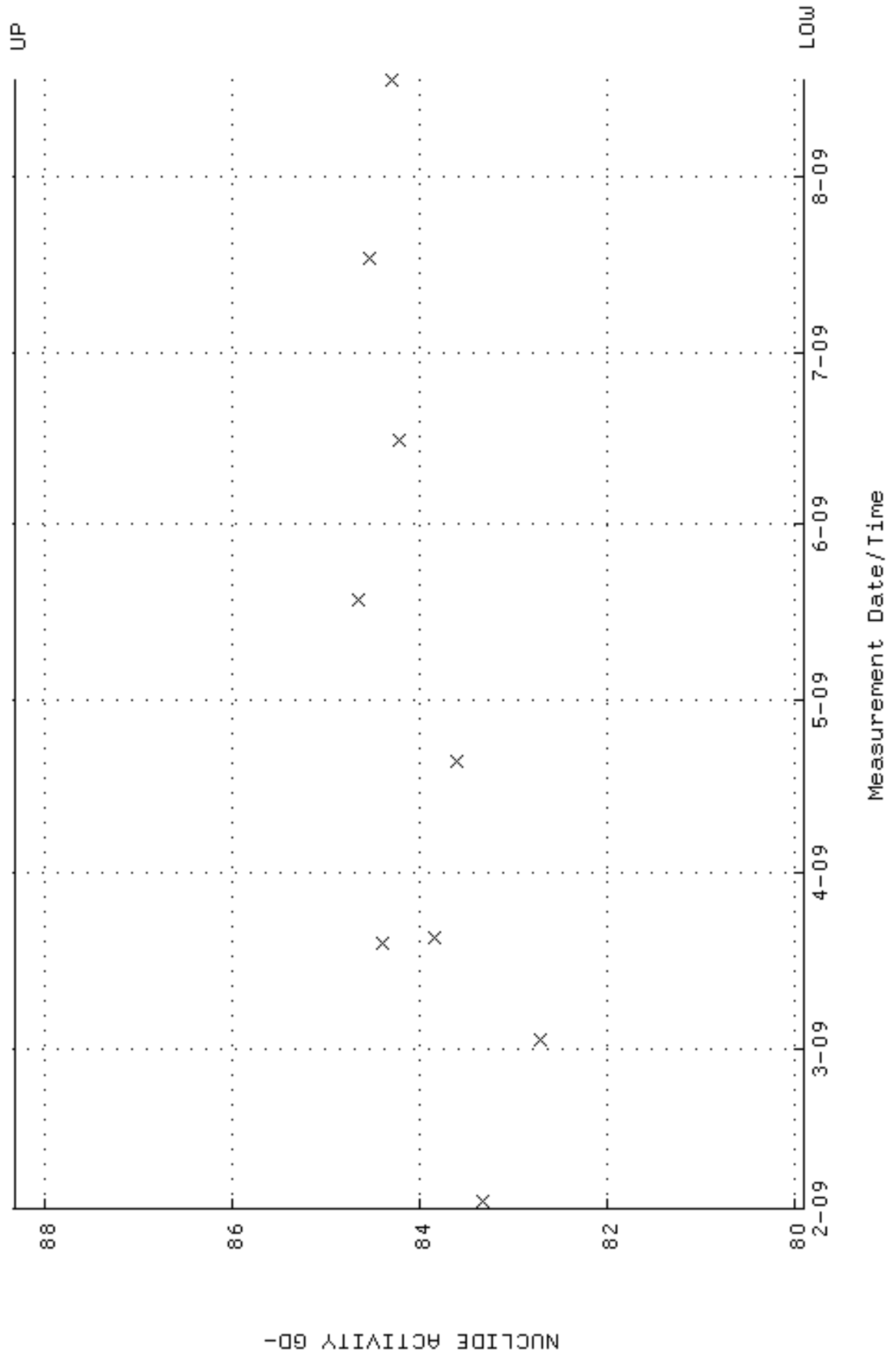
QA filename : DKA100:[ENV\_ALPHA.QA.B]B151.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-FEB-2009 17:09:32 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



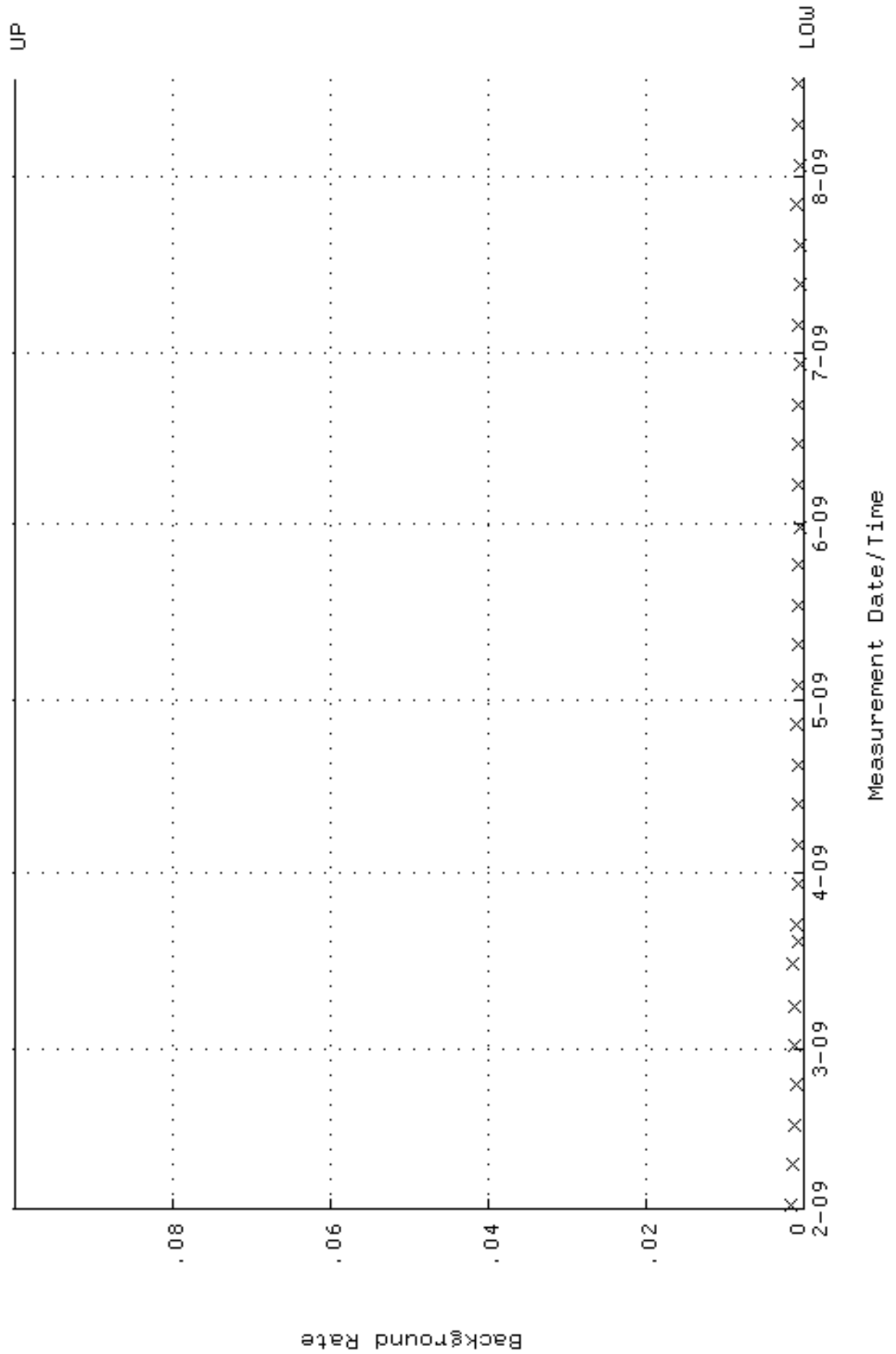
QA filename : DKA100:[ENV\_ALPHA.QA.W]W154.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 2-FEB-2009 10:35:49 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.251386 through 0.271386



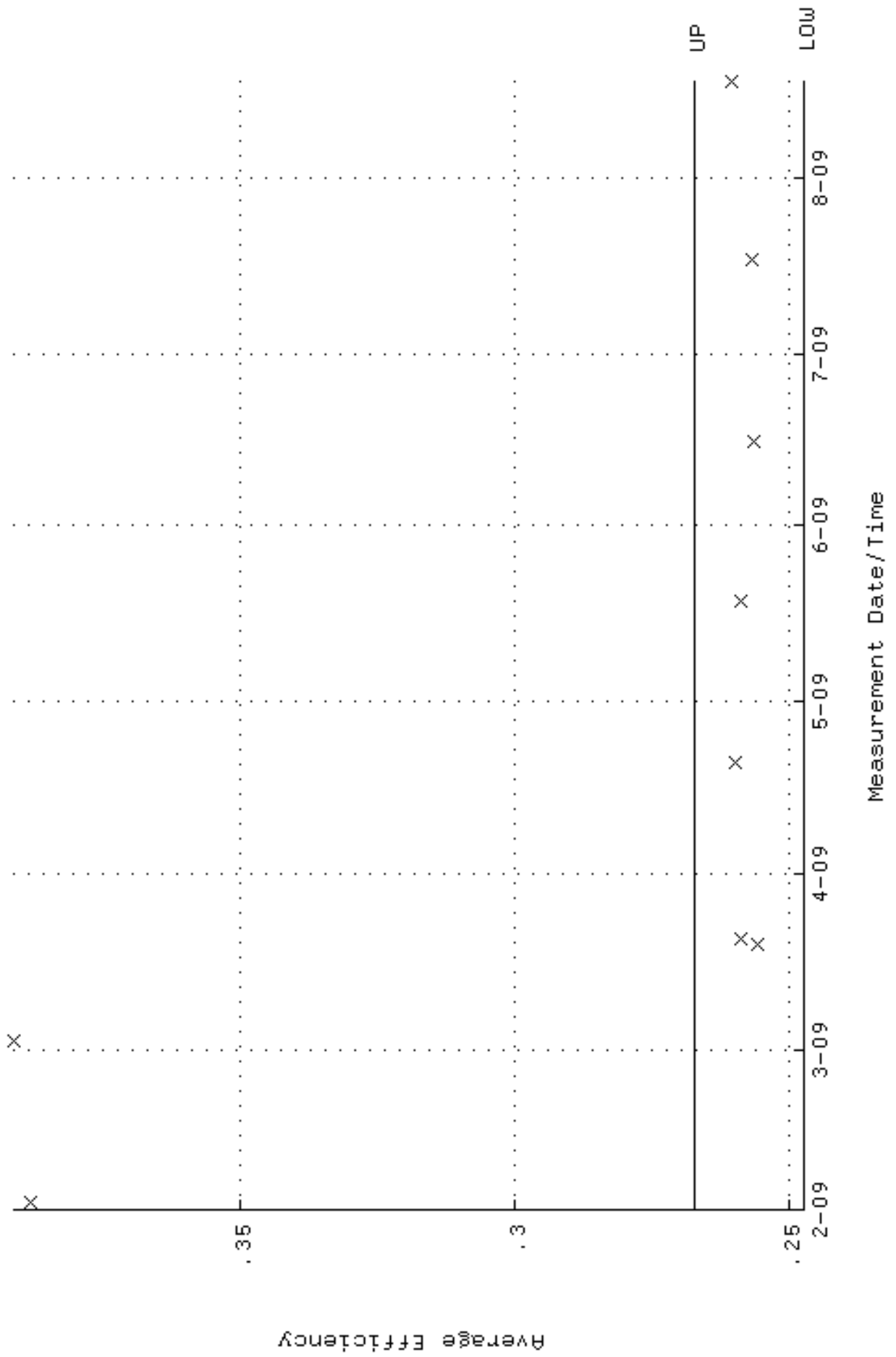
QA filename : DKA100:[ENV\_ALPHA.QA.W]w154.QAF;1  
Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
Start/End Dates : 2-FEB-2009 10:35:49 through 17-AUG-2009 12:00:00  
Lower/Upper Lmts: 79.9003 through 88.3109



QA filename : DKA100:[ENV\_ALPHA.QA.B]B154.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-FEB-2009 17:10:23 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000

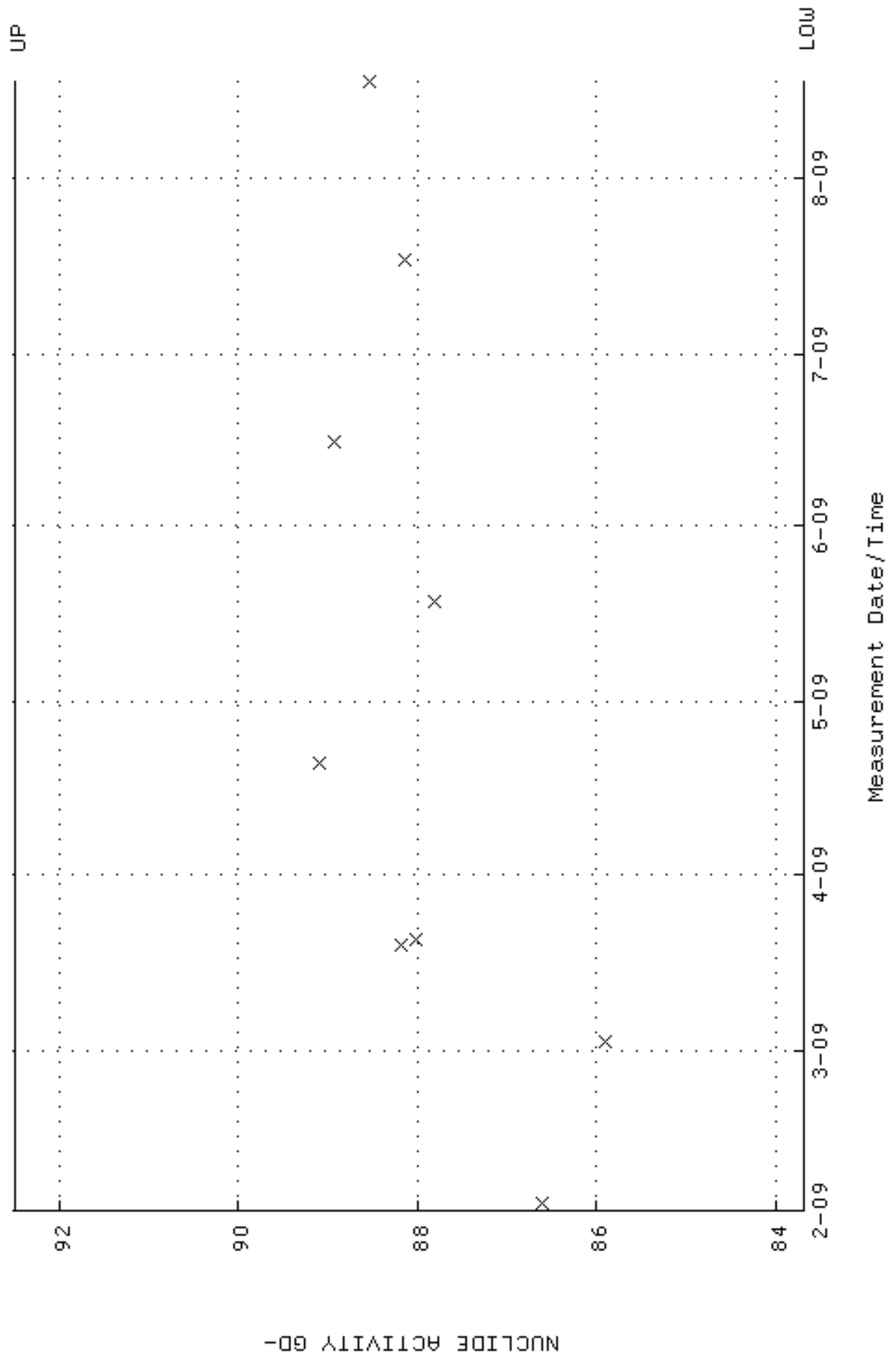


QA filename : DKA100:[ENV\_ALPHA.QA.W]W155.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 2-FEB-2009 10:35:54 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.247241 through 0.267241

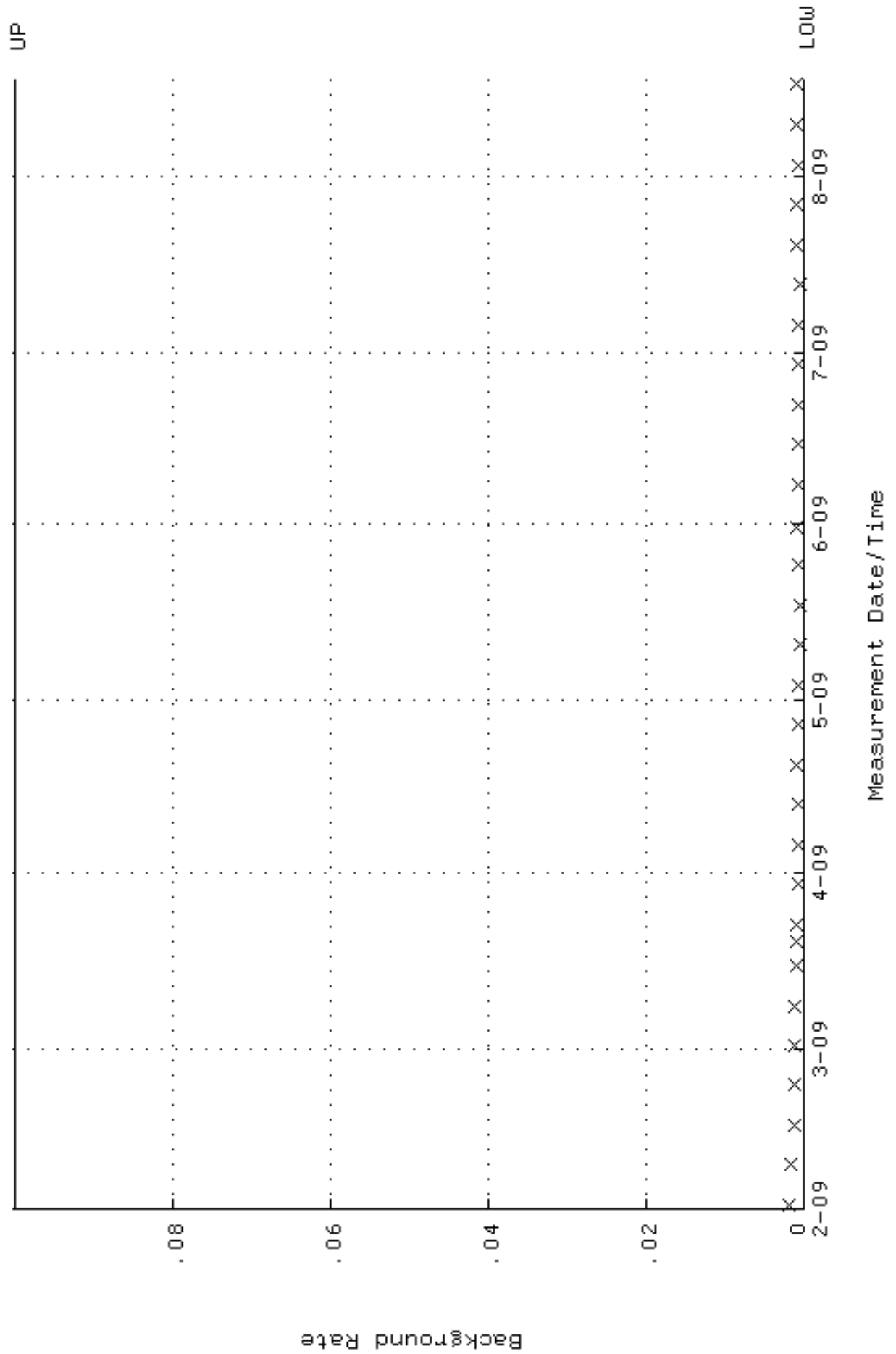




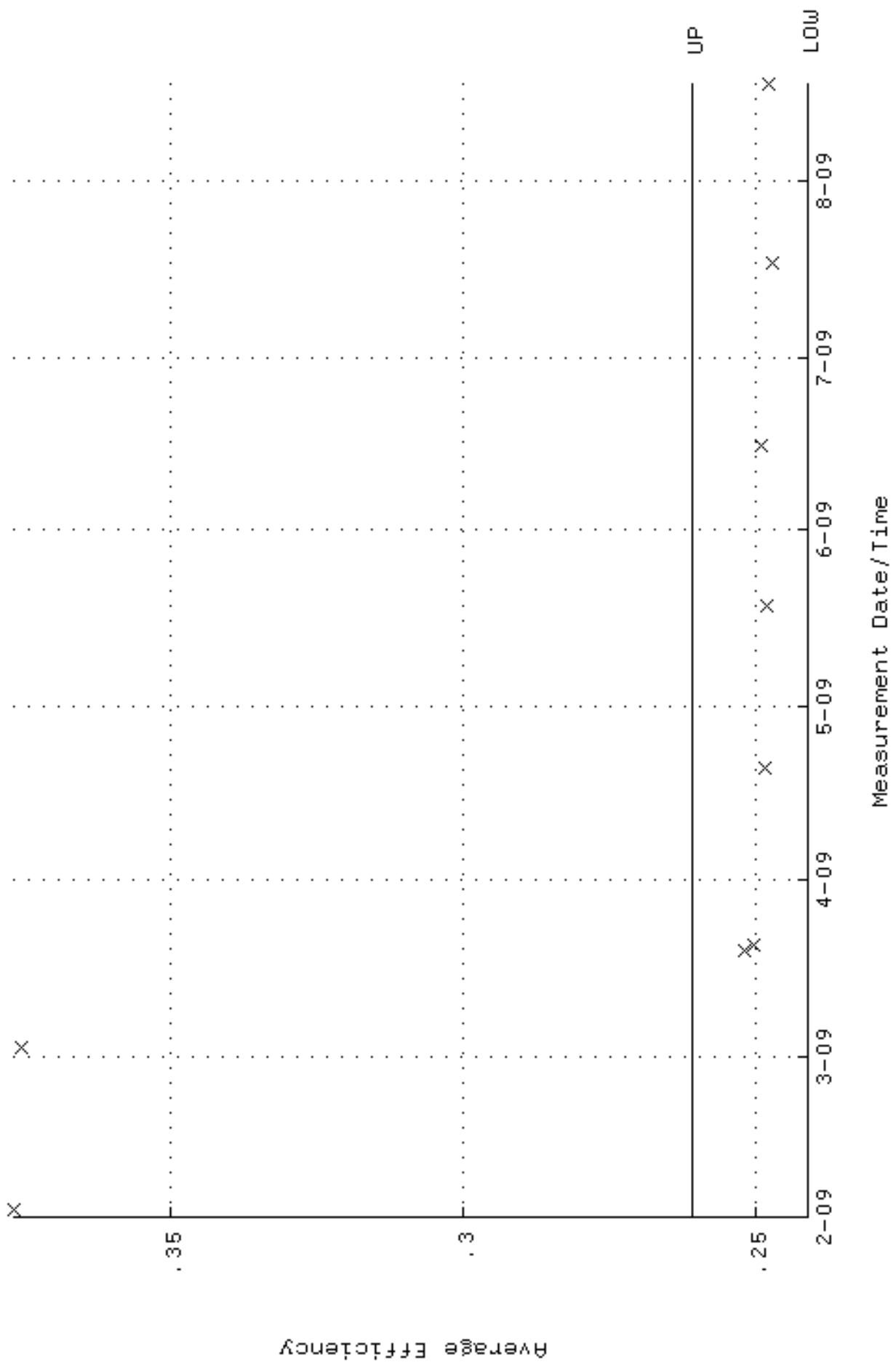
QA filename : DKA100:[ENV\_ALPHA.QA.W]w155.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 2-FEB-2009 10:35:54 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 83.6873 through 92.4965



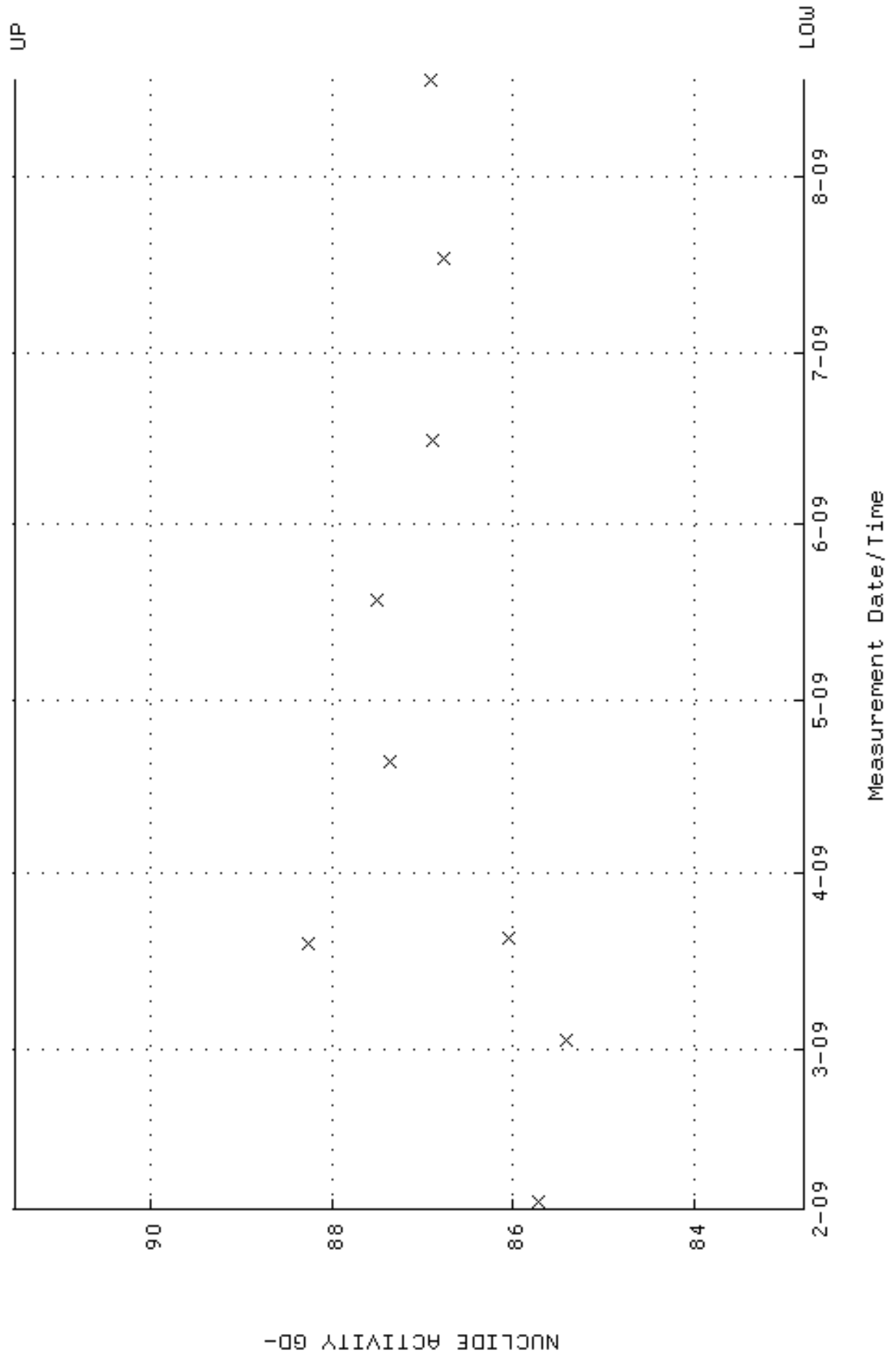
QA filename : DKA100:[ENV\_ALPHA.QA.B]B155.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-FEB-2009 17:10:33 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



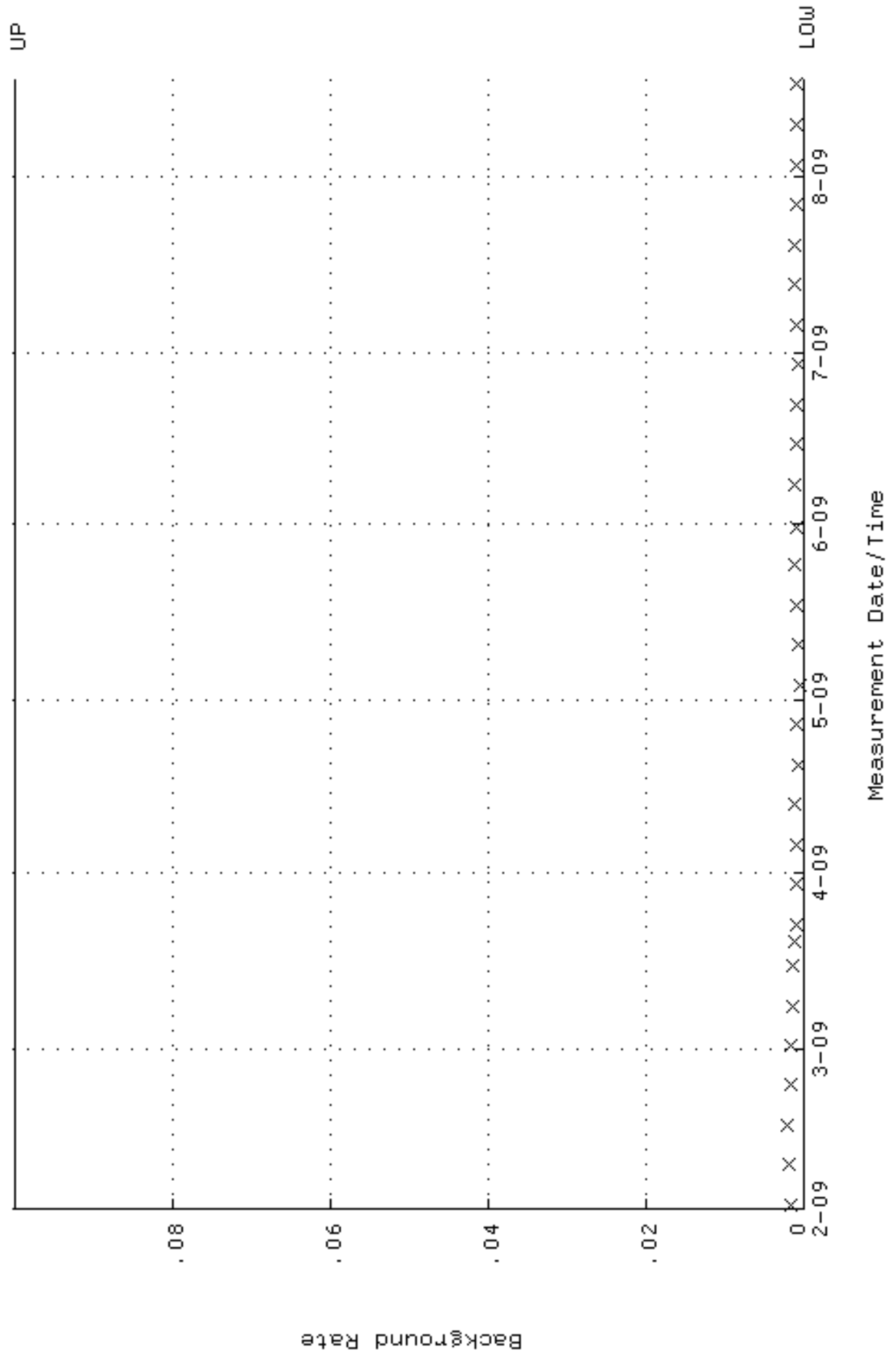
QA filename : DKA100:[ENV\_ALPHA.QA.W]W156.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 2-FEB-2009 10:36:02 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.241250 through 0.261250



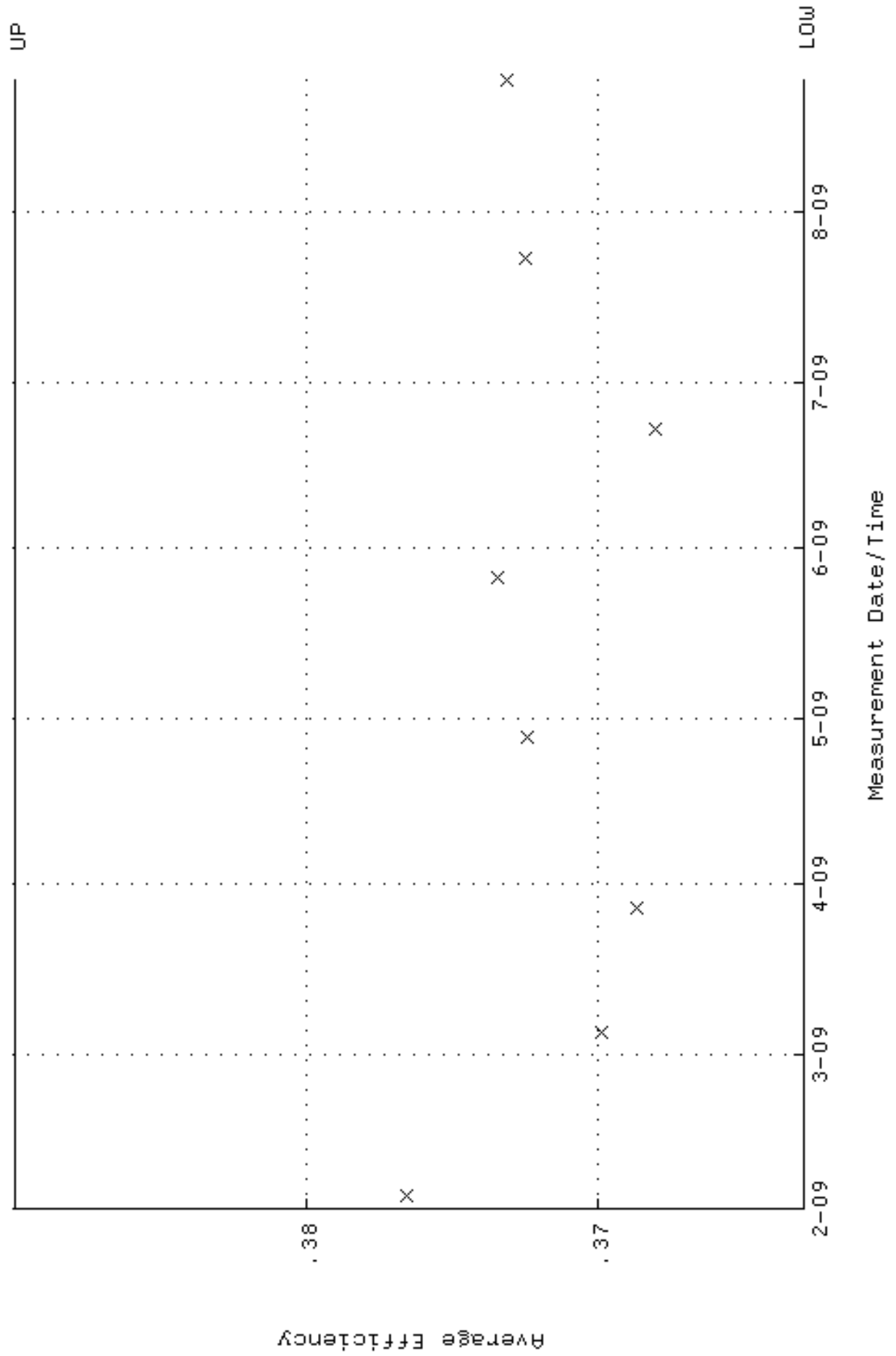
QA filename : DKA100:[ENV\_ALPHA.QA.W]w156.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 2-FEB-2009 10:36:02 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 82.7847 through 91.4989



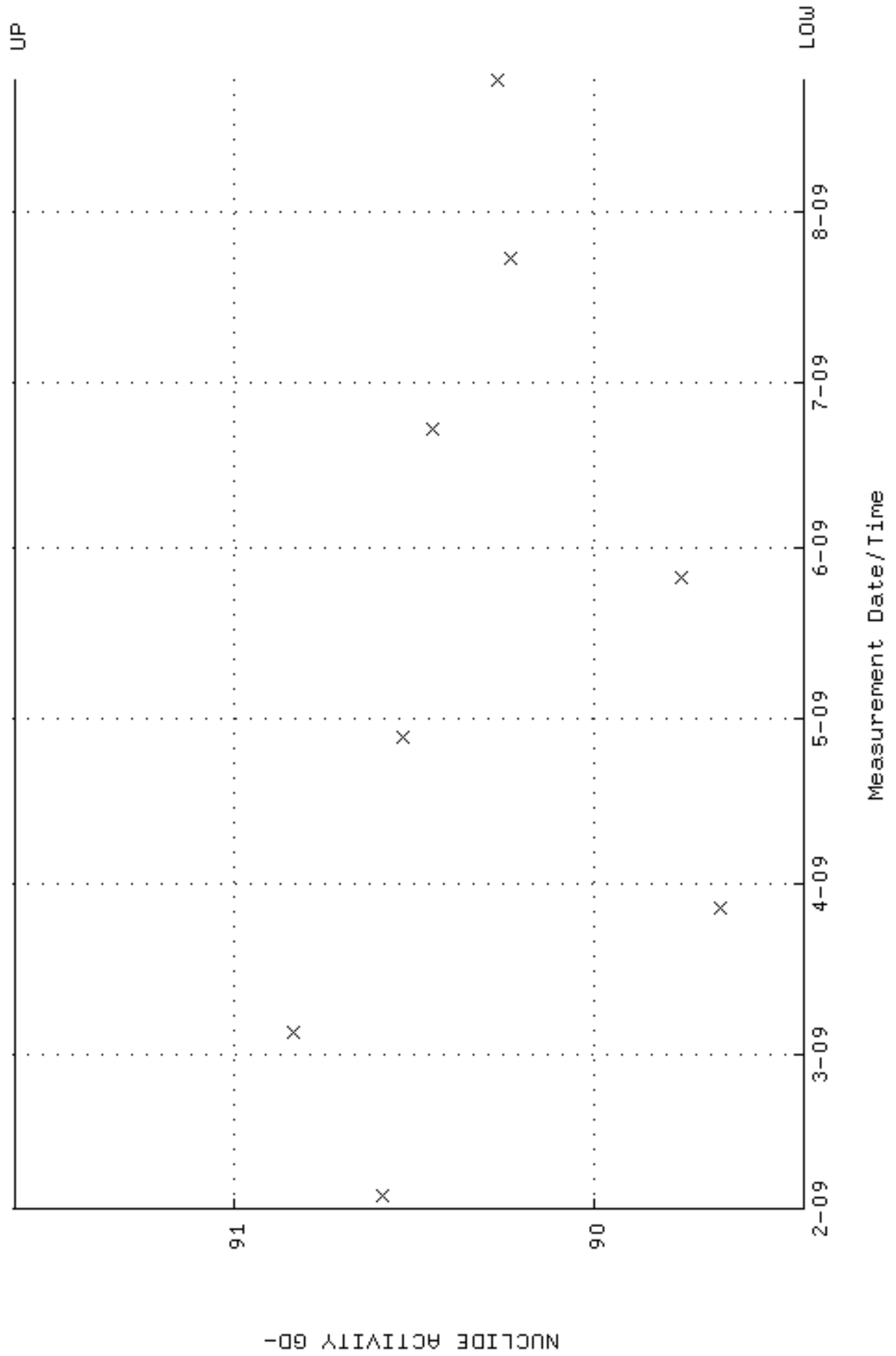
QA filename : DKA100:[ENV\_ALPHA.QA.B]B156.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-FEB-2009 17:10:49 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



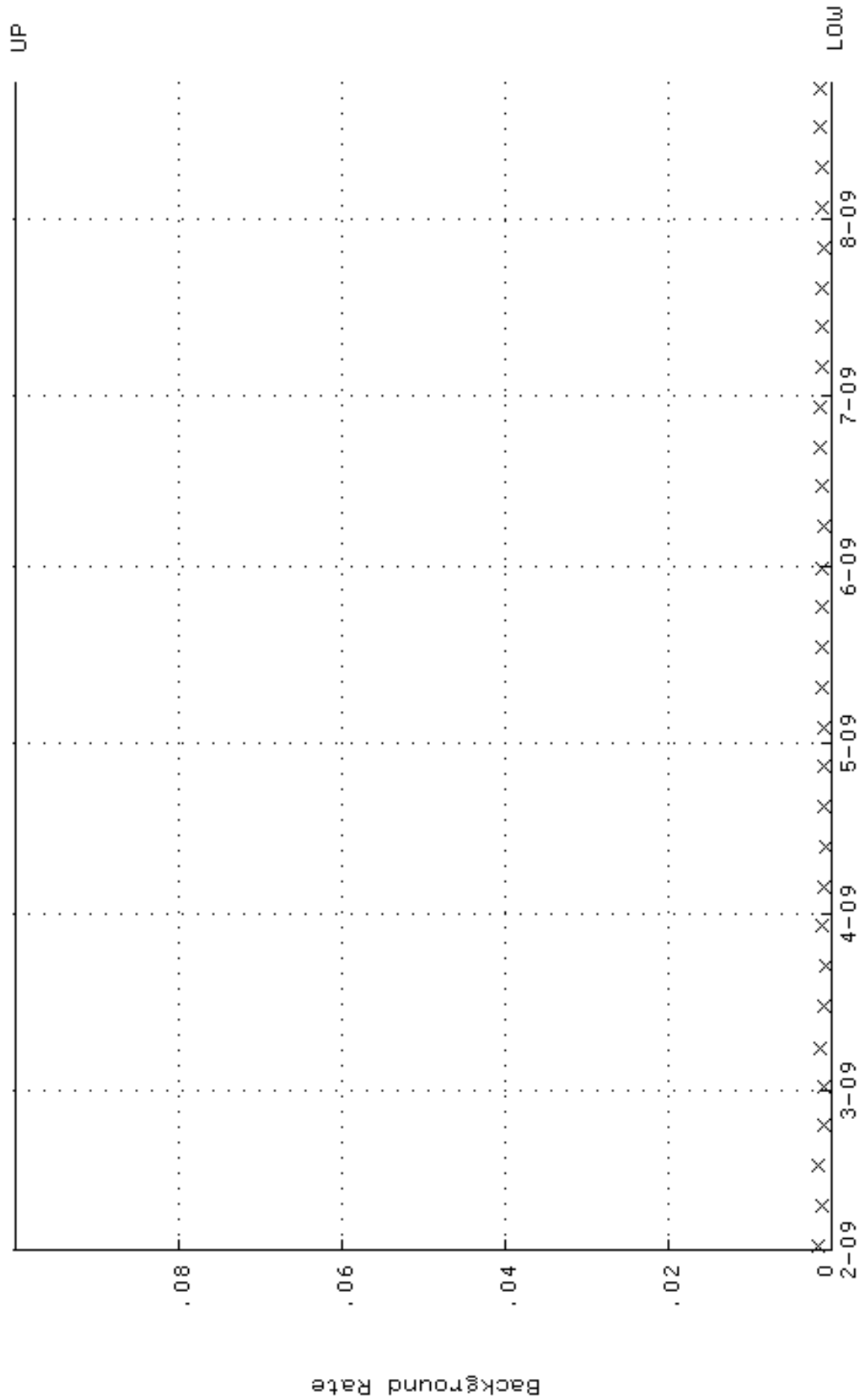
QA filename : DKA100:[ENV\_ALPHA.QA.W]W161.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 3-FEB-2009 07:29:38 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.362982 through 0.389932



QA filename : DKA100:[ENV\_ALPHA.QA.W]W161.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 3-FEB-2009 07:29:38 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 89.4216 through 91.6054

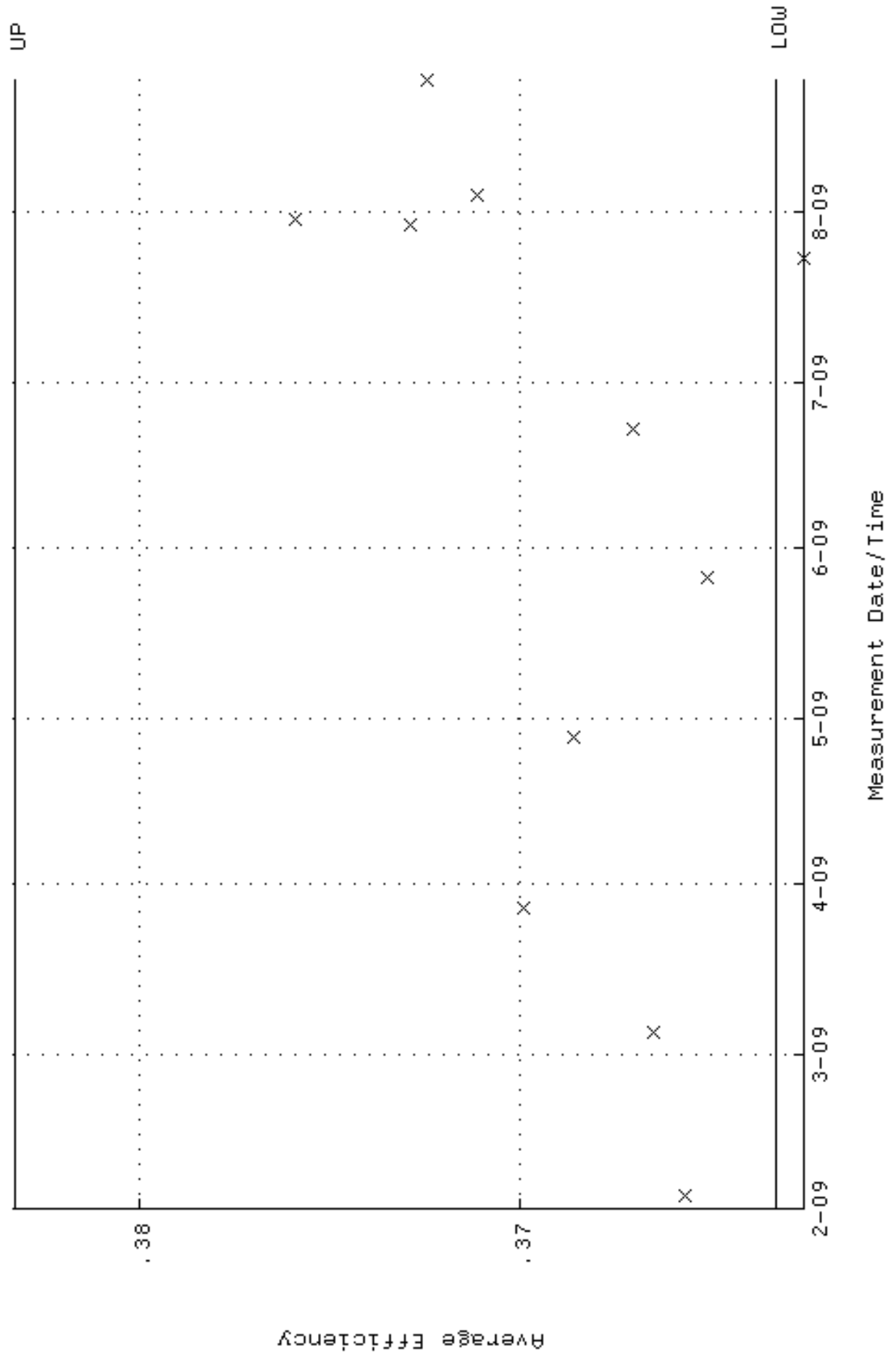


QA filename : DKA100:[ENV\_ALPHA.QA.B]B161.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-FEB-2009 17:12:04 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000

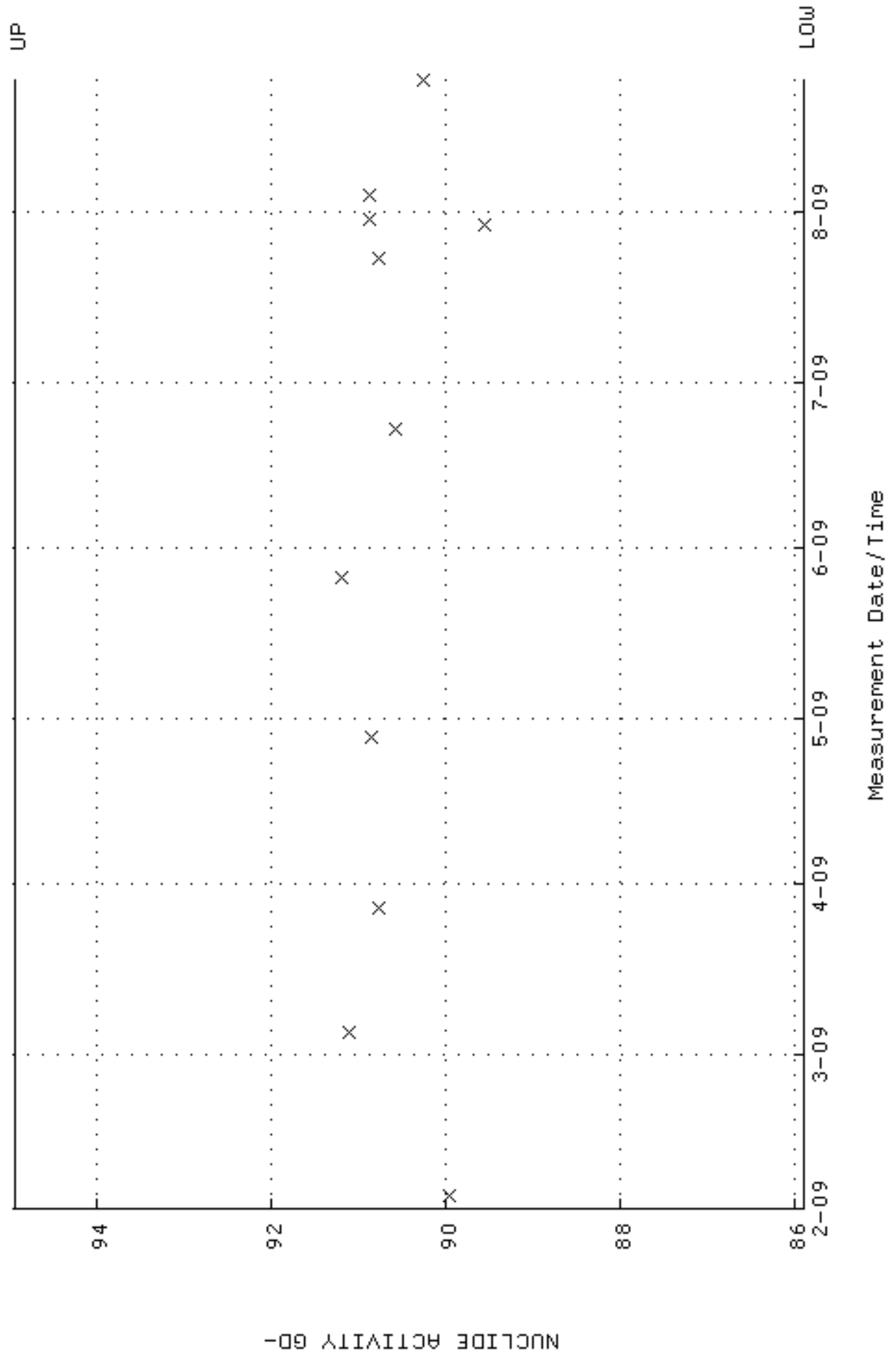




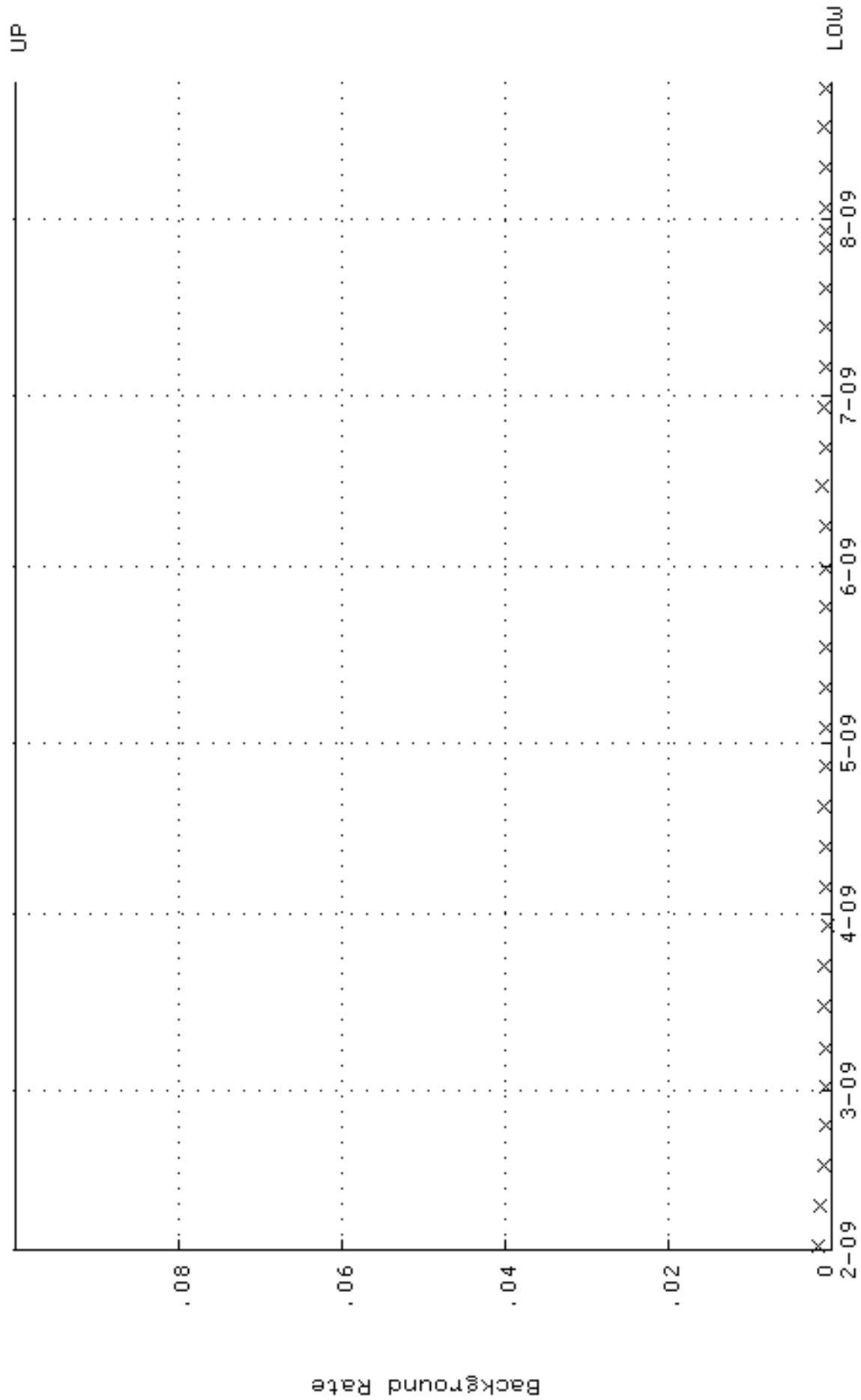
QA filename : DKA100:[ENV\_ALPHA.QA.W]W162.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 3-FEB-2009 07:29:45 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.363287 through 0.383287



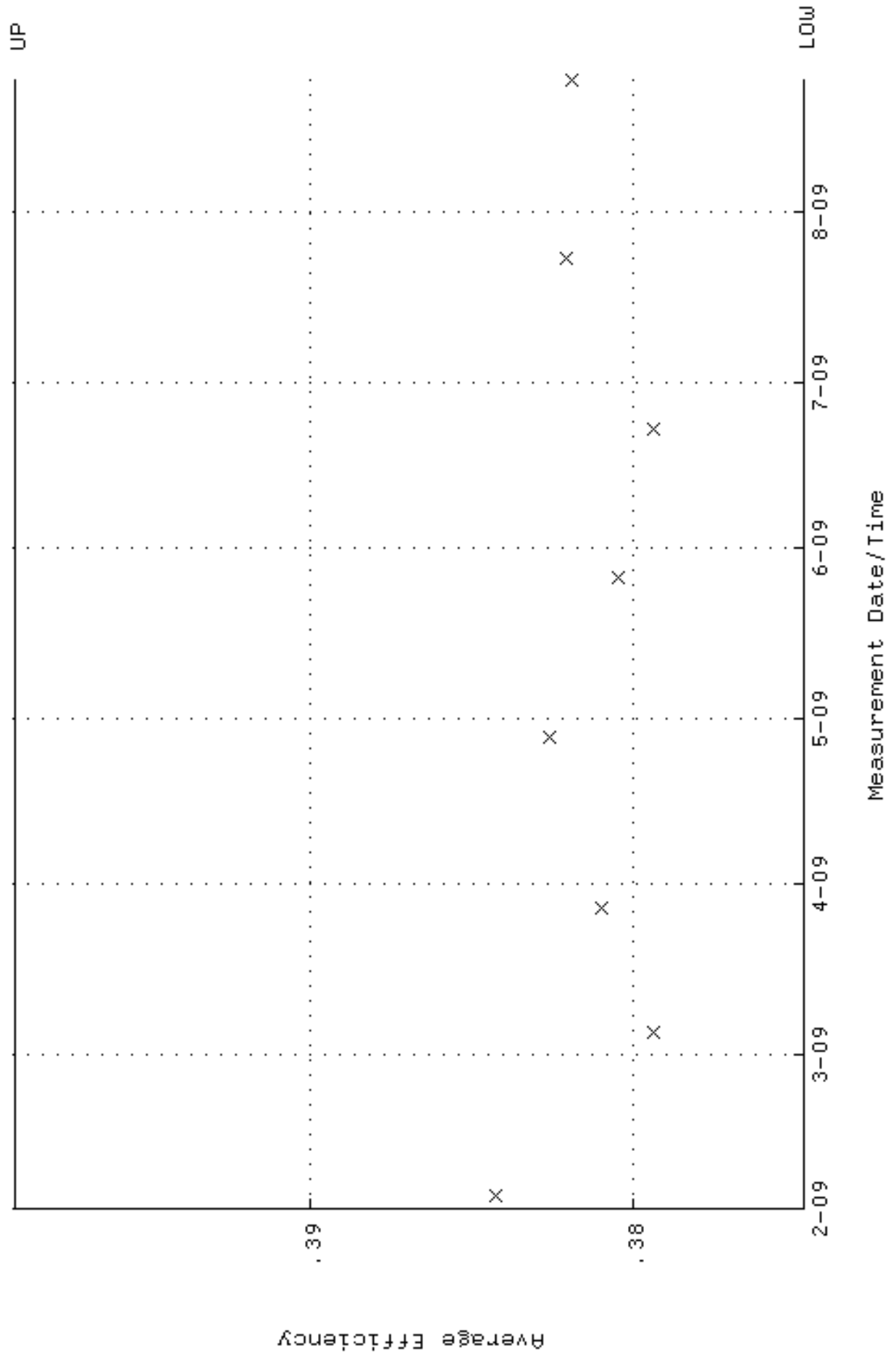
QA filename : DKA100:[ENV\_ALPHA.QA.W]W162.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 3-FEB-2009 07:29:45 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 85.8969 through 94.9387



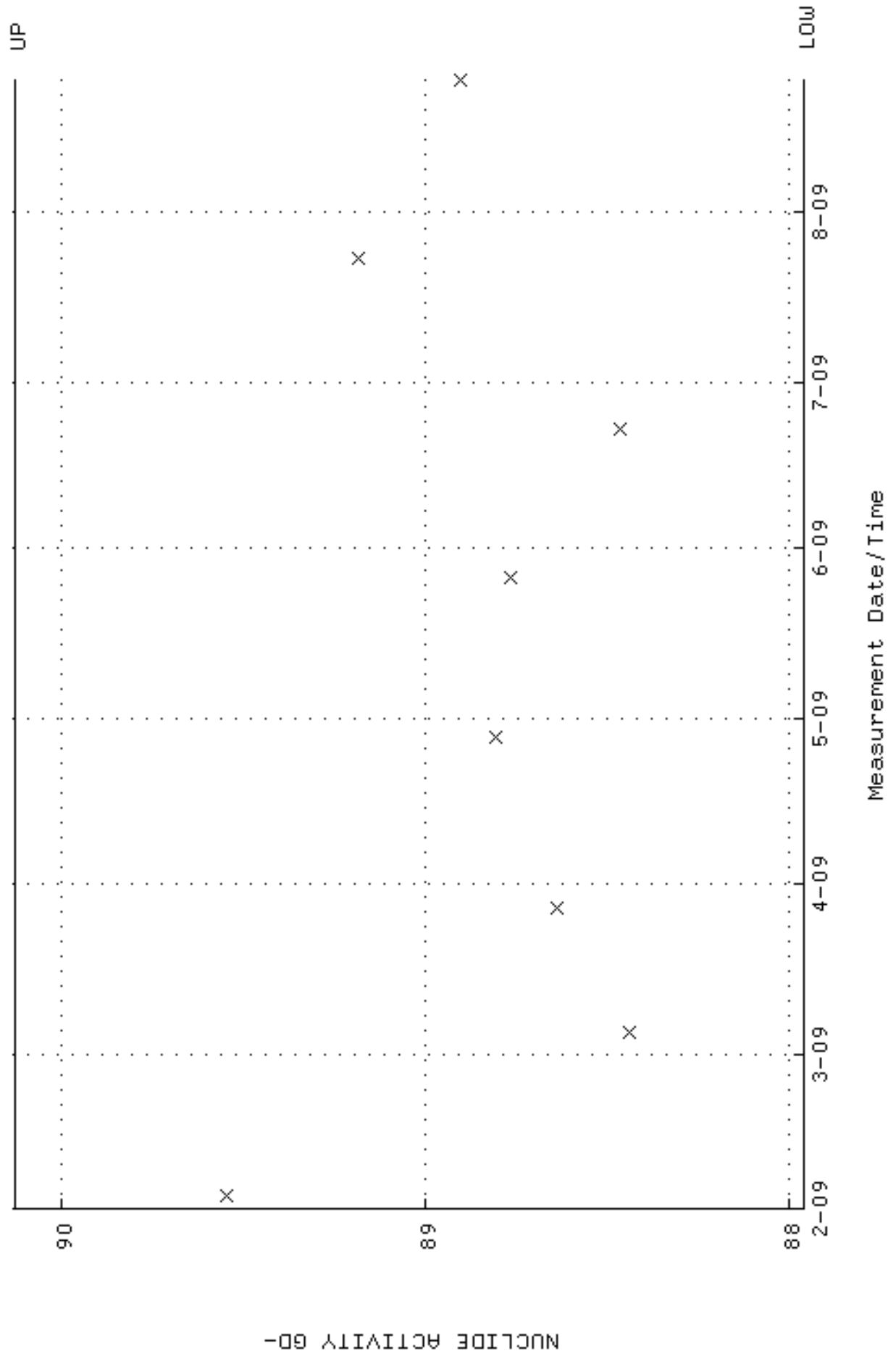
QA filename : DKA100:[ENV\_ALPHA.QA.B]B162.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-FEB-2009 17:12:19 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



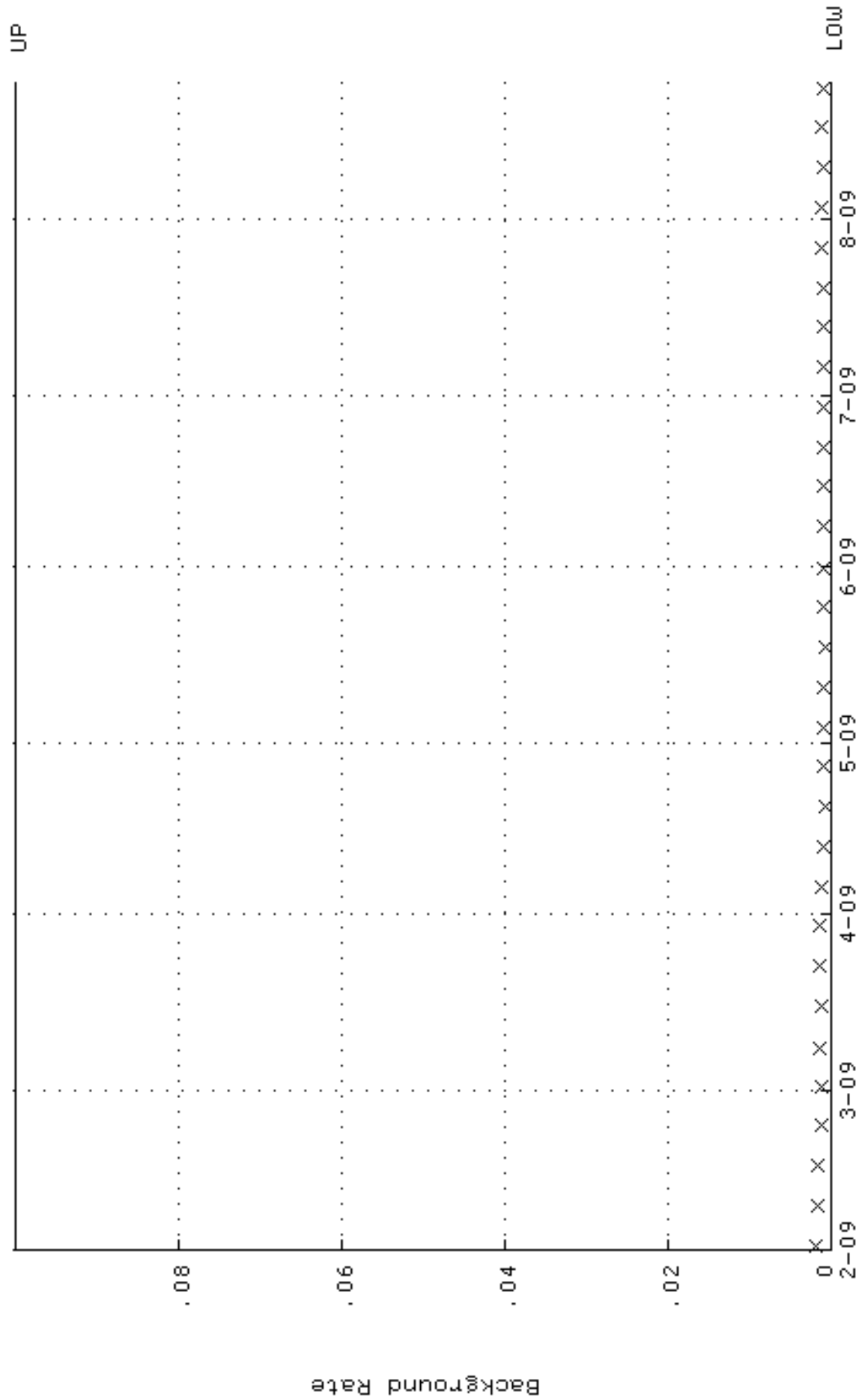
QA filename : DKA100:[ENV\_ALPHA.QA.W]W165.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 3-FEB-2009 07:30:06 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.374689 through 0.399127



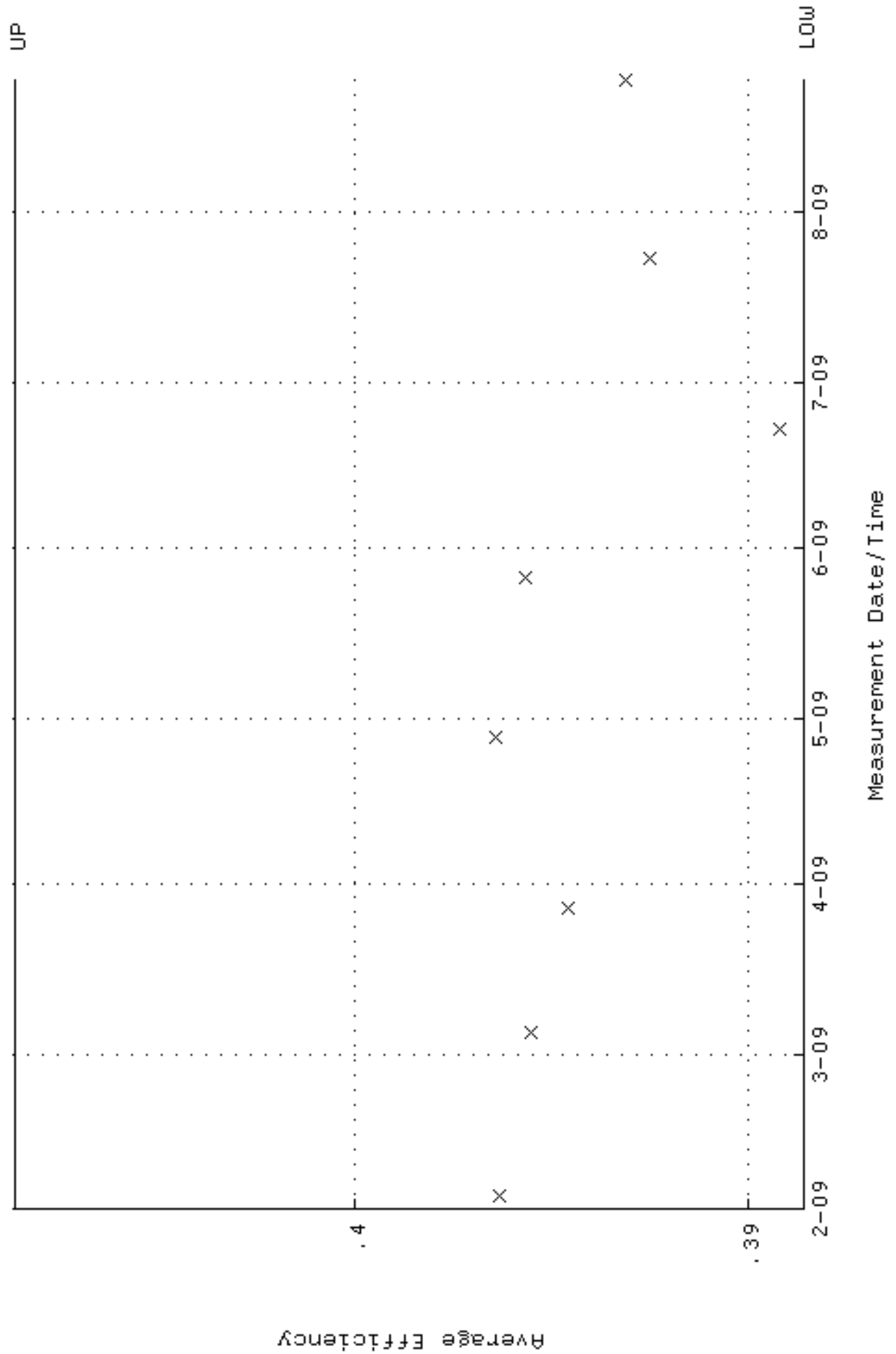
QA filename : DKA100:[ENV\_ALPHA.QA.W]W165.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 3-FEB-2009 07:30:06 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 87.9613 through 90.1269



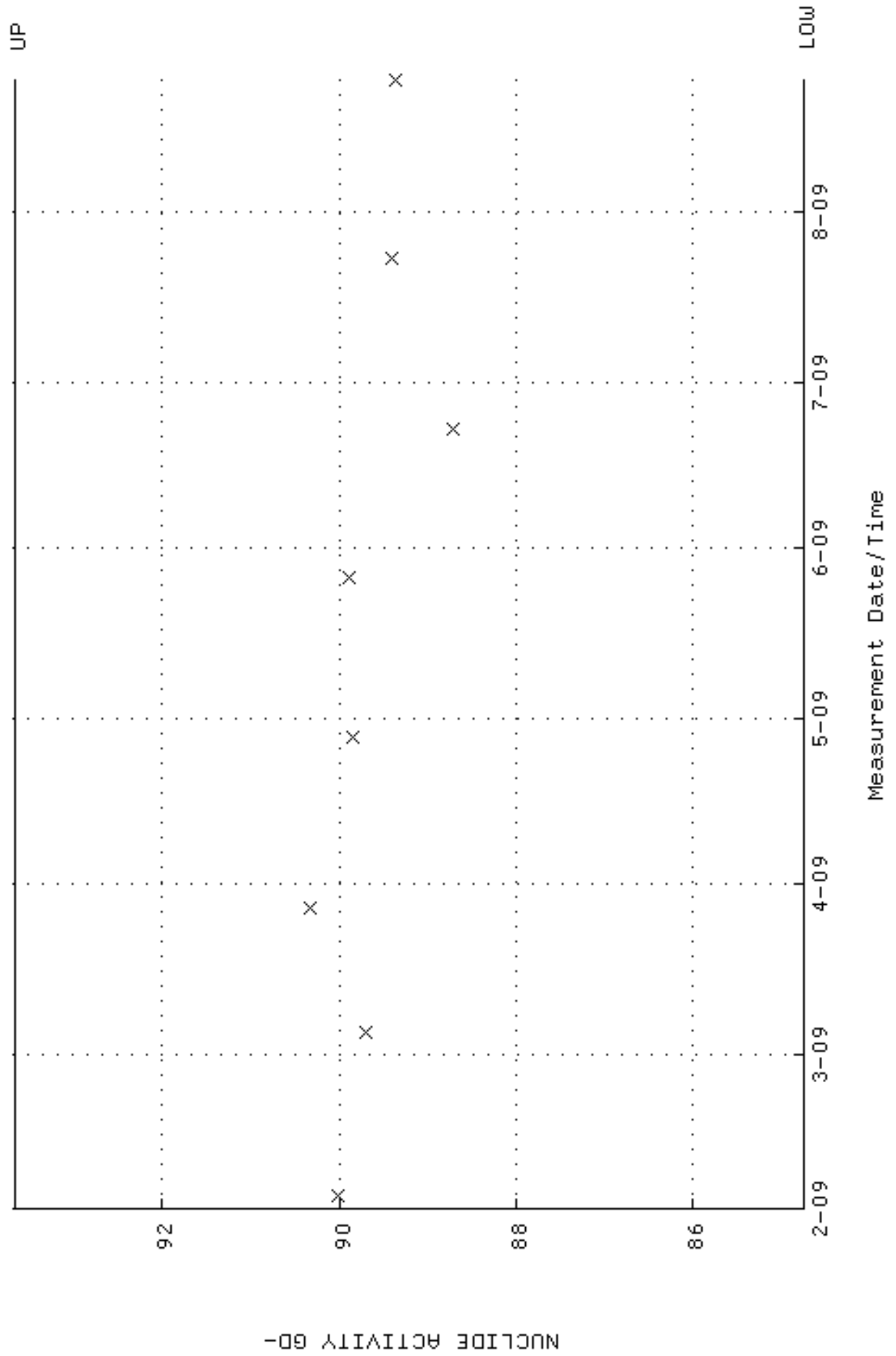
QA filename : DKA100:[ENV\_ALPHA.QA.B]B165.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-FEB-2009 17:12:52 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



QA filename : DKA100:[ENV\_ALPHA.QA.W]W166.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 3-FEB-2009 07:30:12 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.388604 through 0.408604

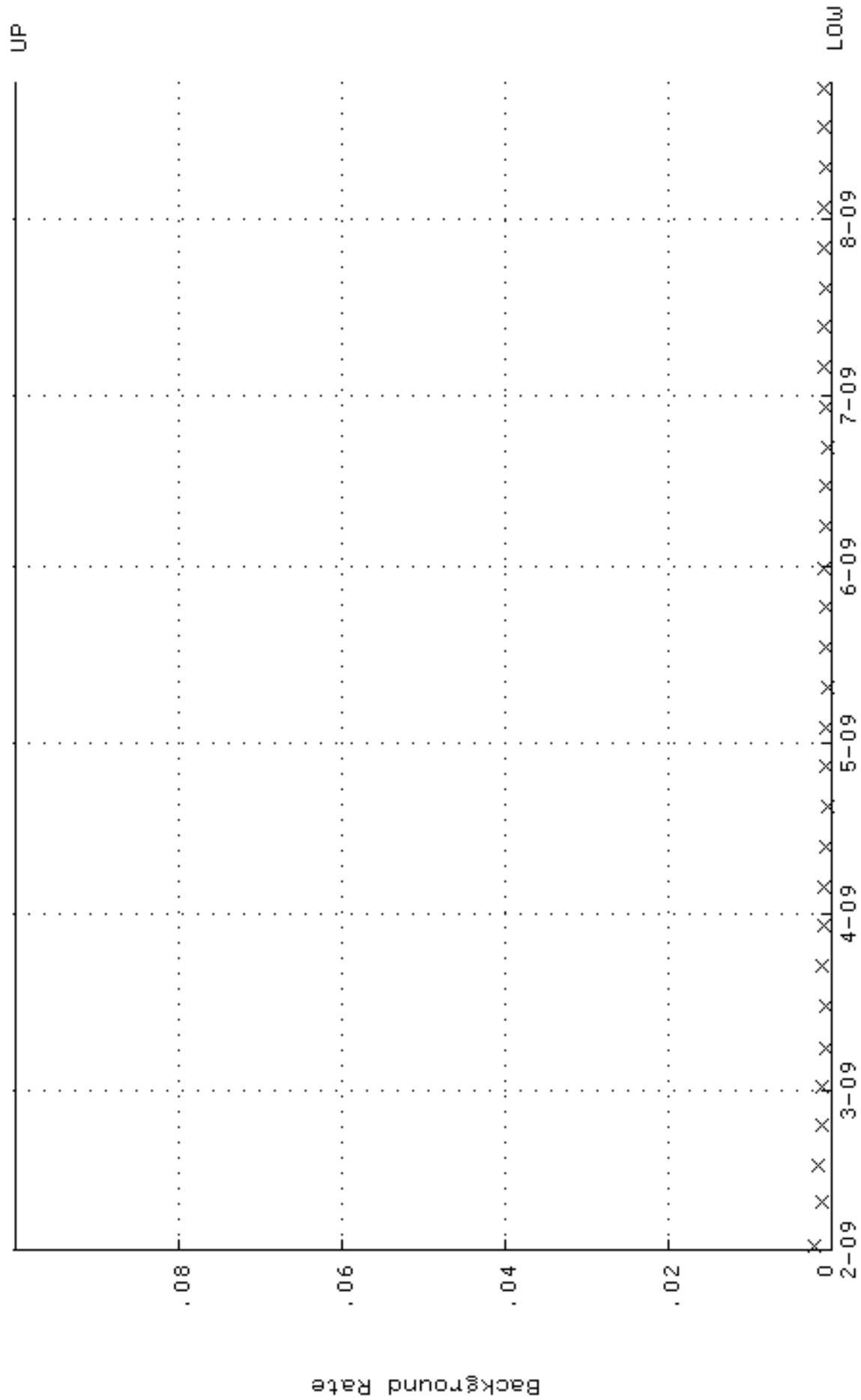


QA filename : DKA100:[ENV\_ALPHA.QA.W]W166.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 3-FEB-2009 07:30:12 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 84.7448 through 93.6654

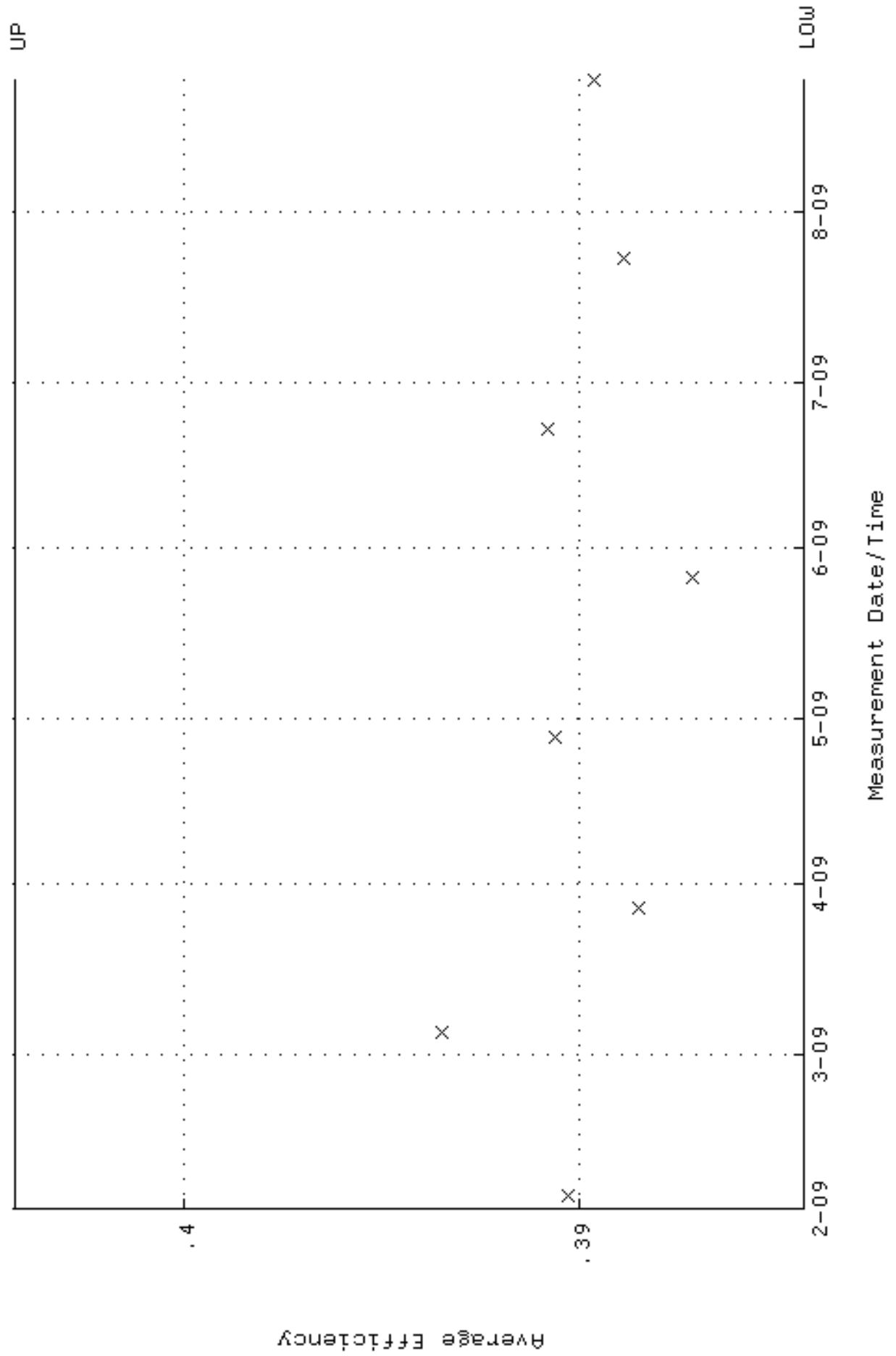




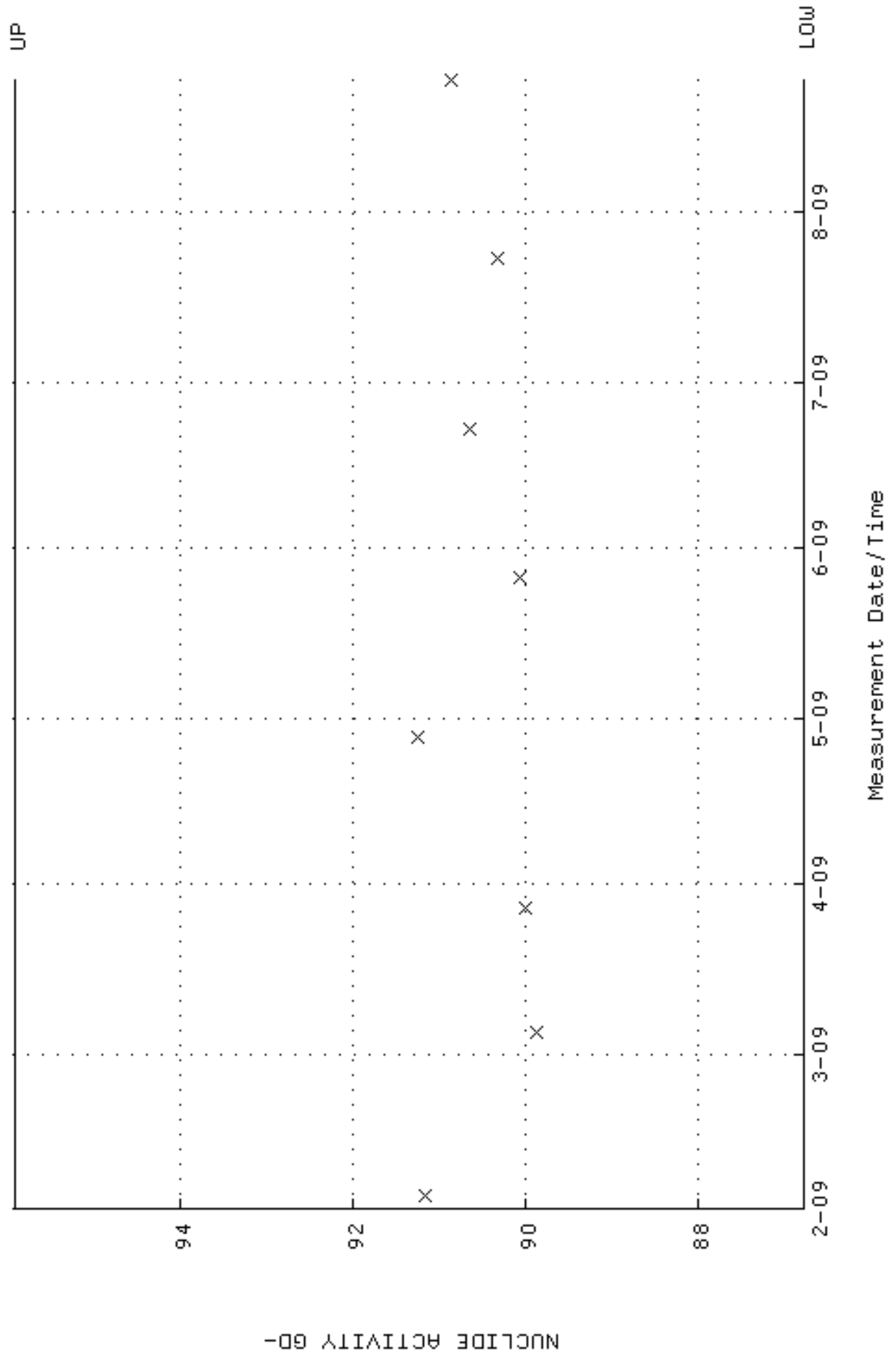
QA filename : DKA100:[ENV\_ALPHA.QA.B]B166.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-FEB-2009 17:13:07 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



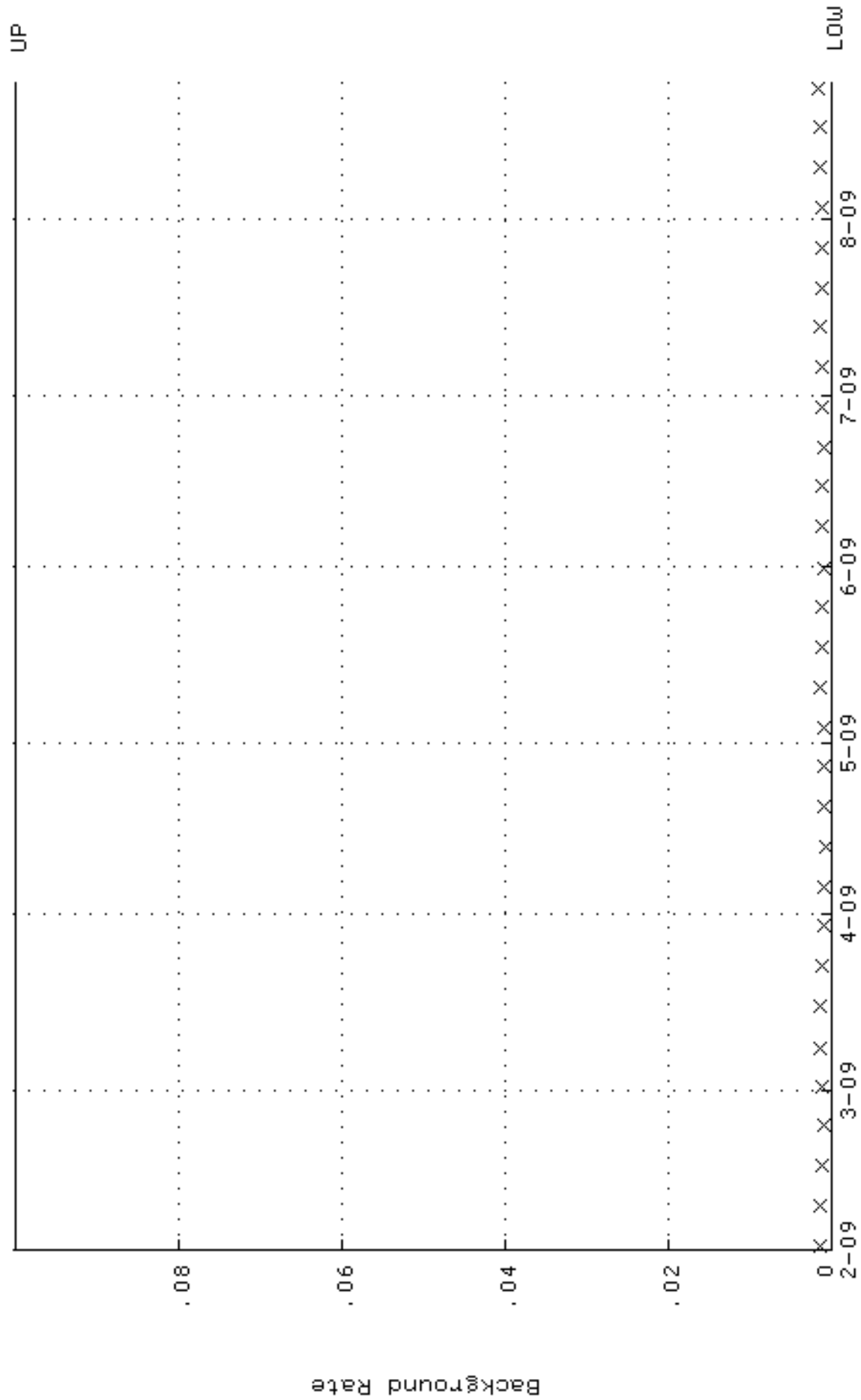
QA filename : DKA100:[ENV\_ALPHA.QA.W]W167.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 3-FEB-2009 07:30:19 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.384285 through 0.404285



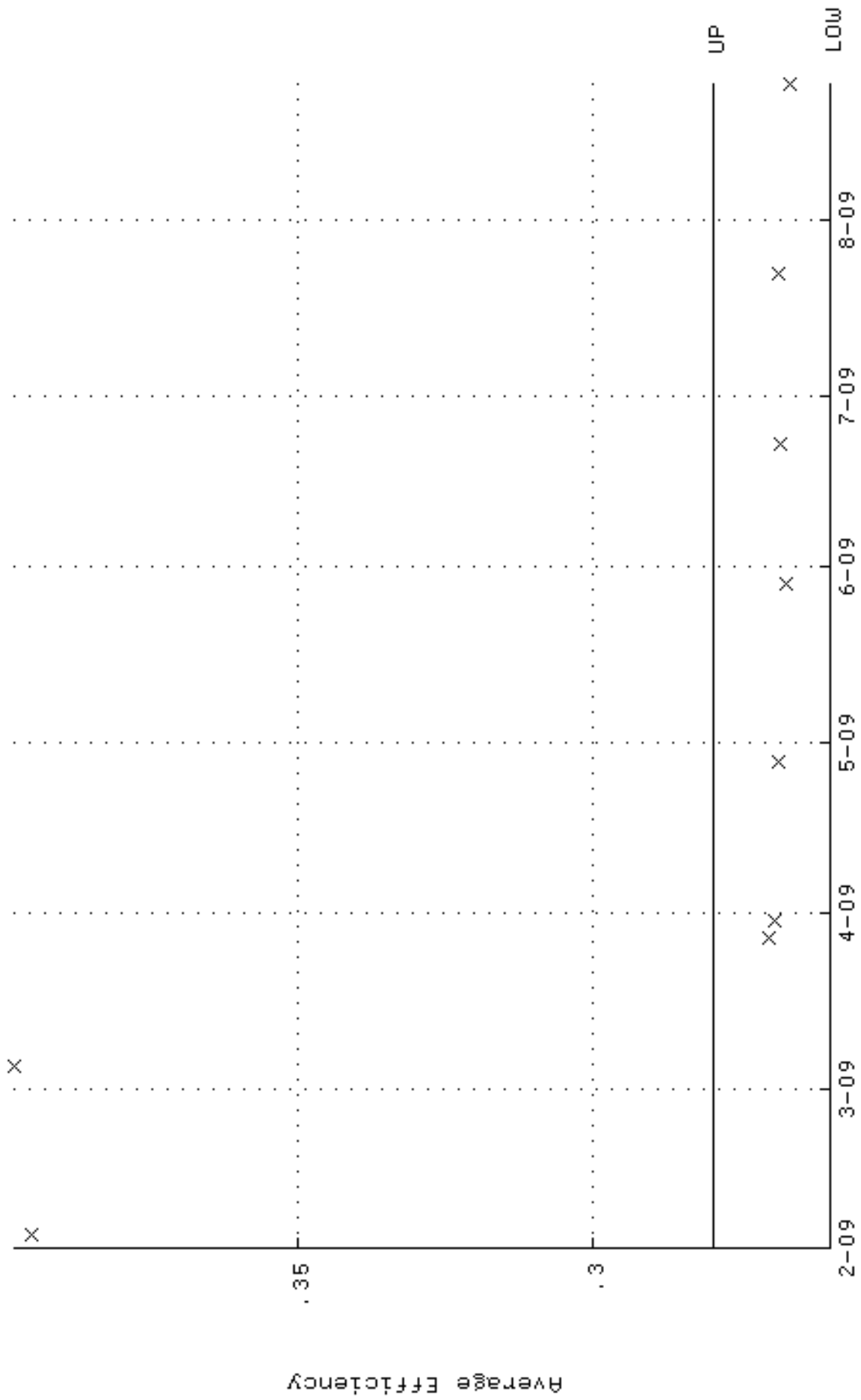
QA filename : DKA100:[ENV\_ALPHA.QA.W]W167.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 3-FEB-2009 07:30:19 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 86.7740 through 95.9082



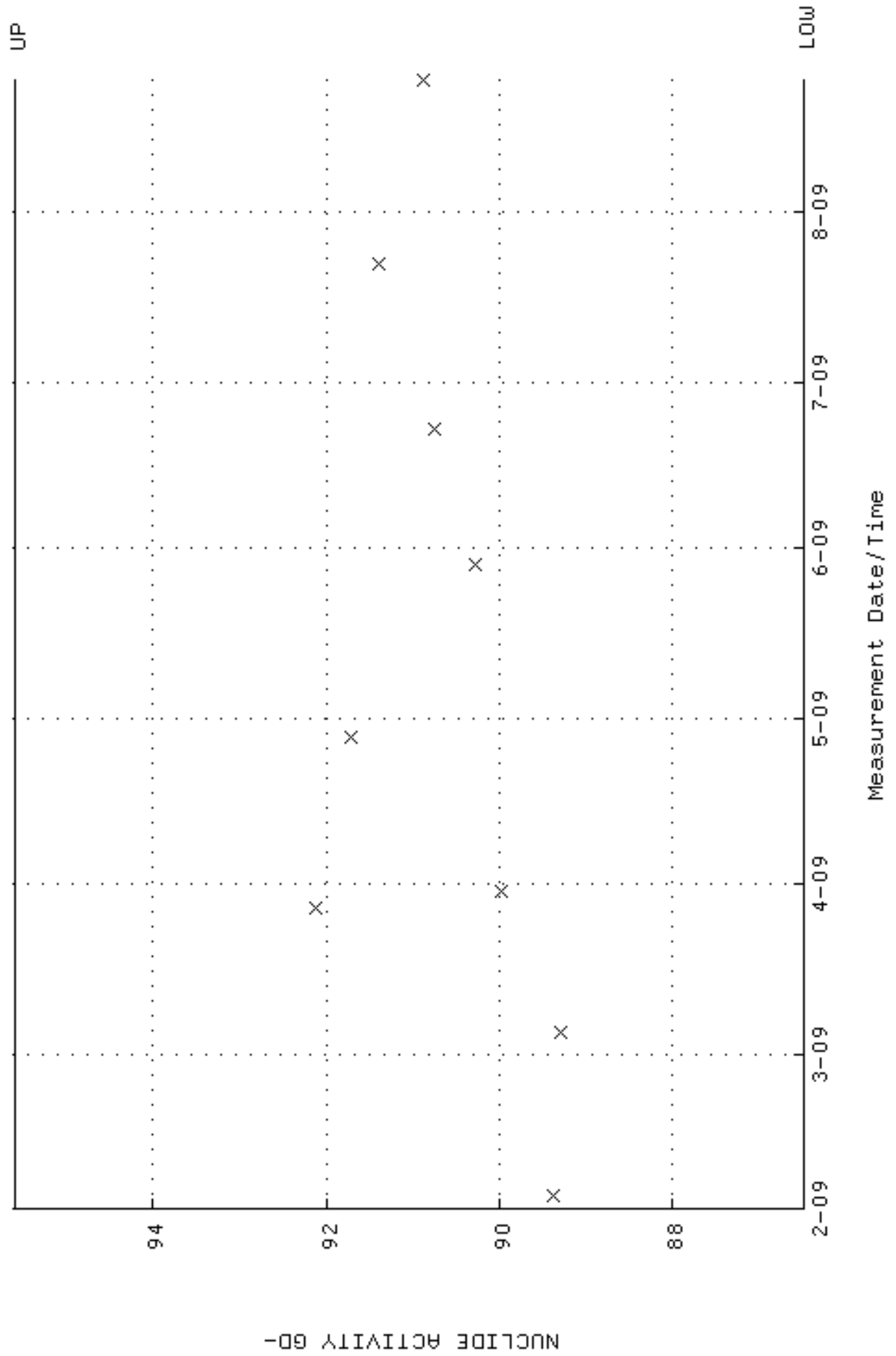
QA filename : DKA100:[ENV\_ALPHA.QA.B]B167.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-FEB-2009 17:13:22 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



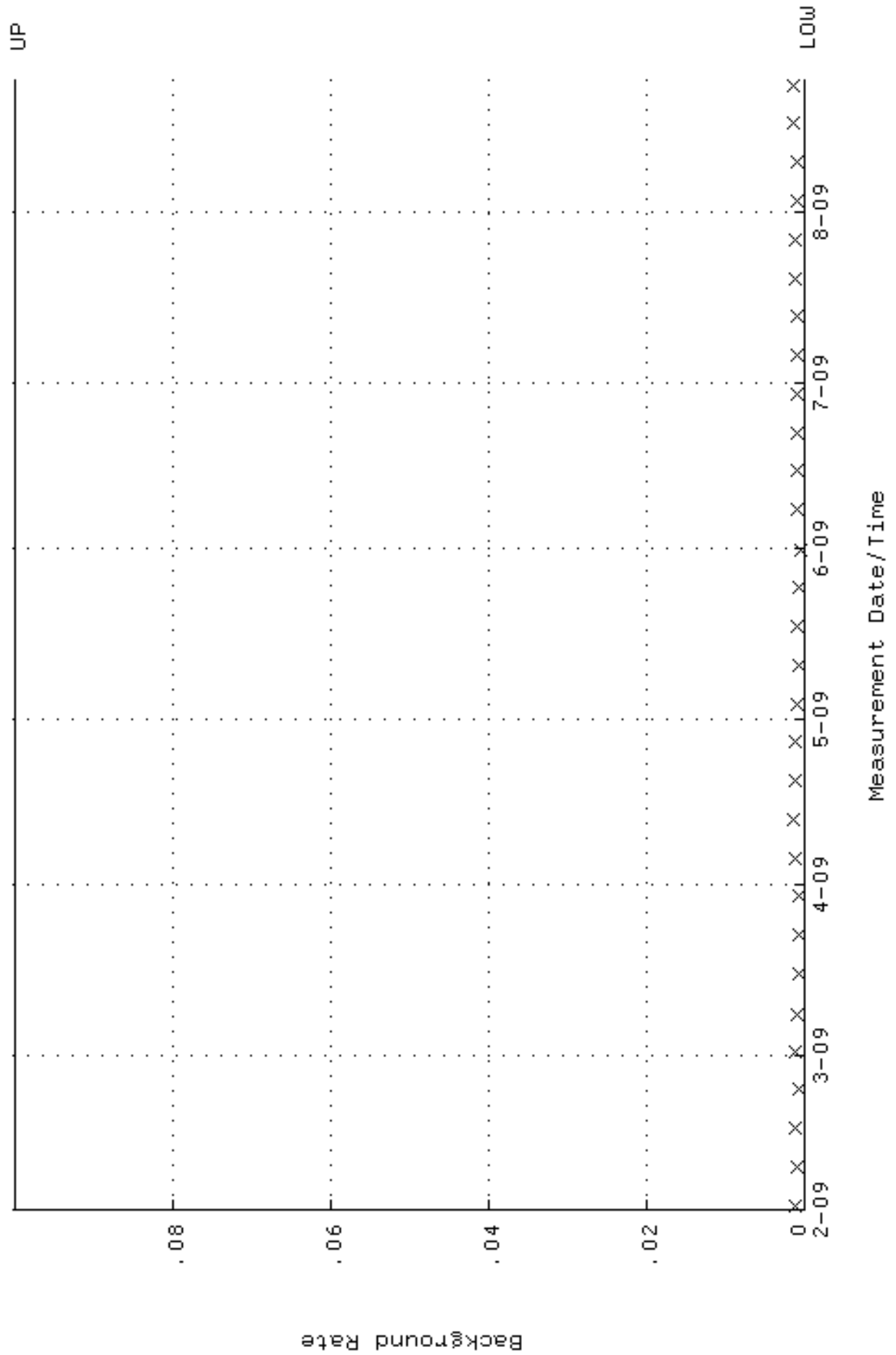
QA filename : DKA100:[ENV\_ALPHA.QA.W]W177.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 3-FEB-2009 12:08:31 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.259935 through 0.279935



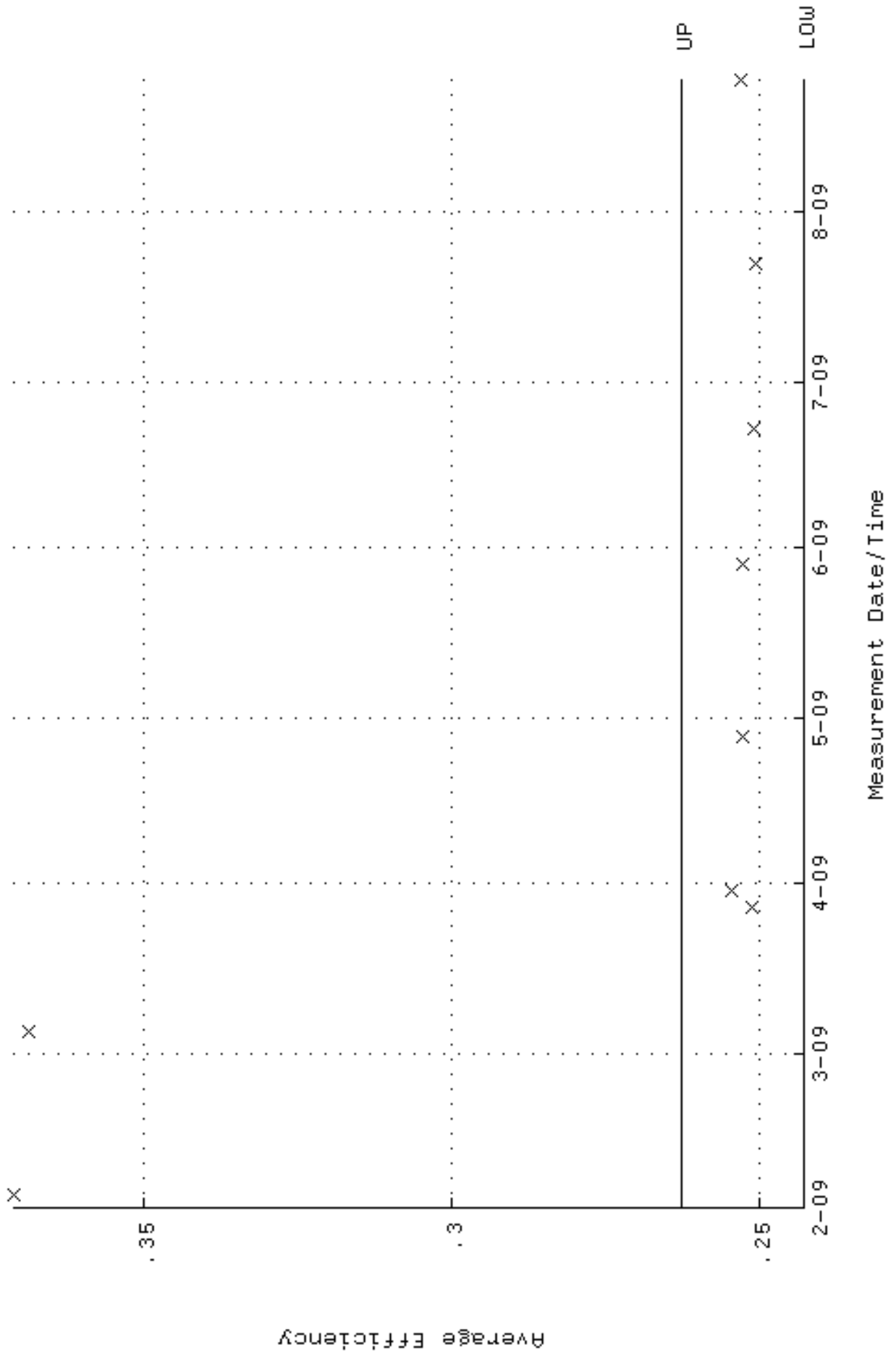
QA filename : DKA100:[ENV\_ALPHA.QA.W]W177.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 3-FEB-2009 12:08:31 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 86.4857 through 95.5895



QA filename : DKA100:[ENV\_ALPHA.QA.B]B177.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-FEB-2009 17:15:46 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000

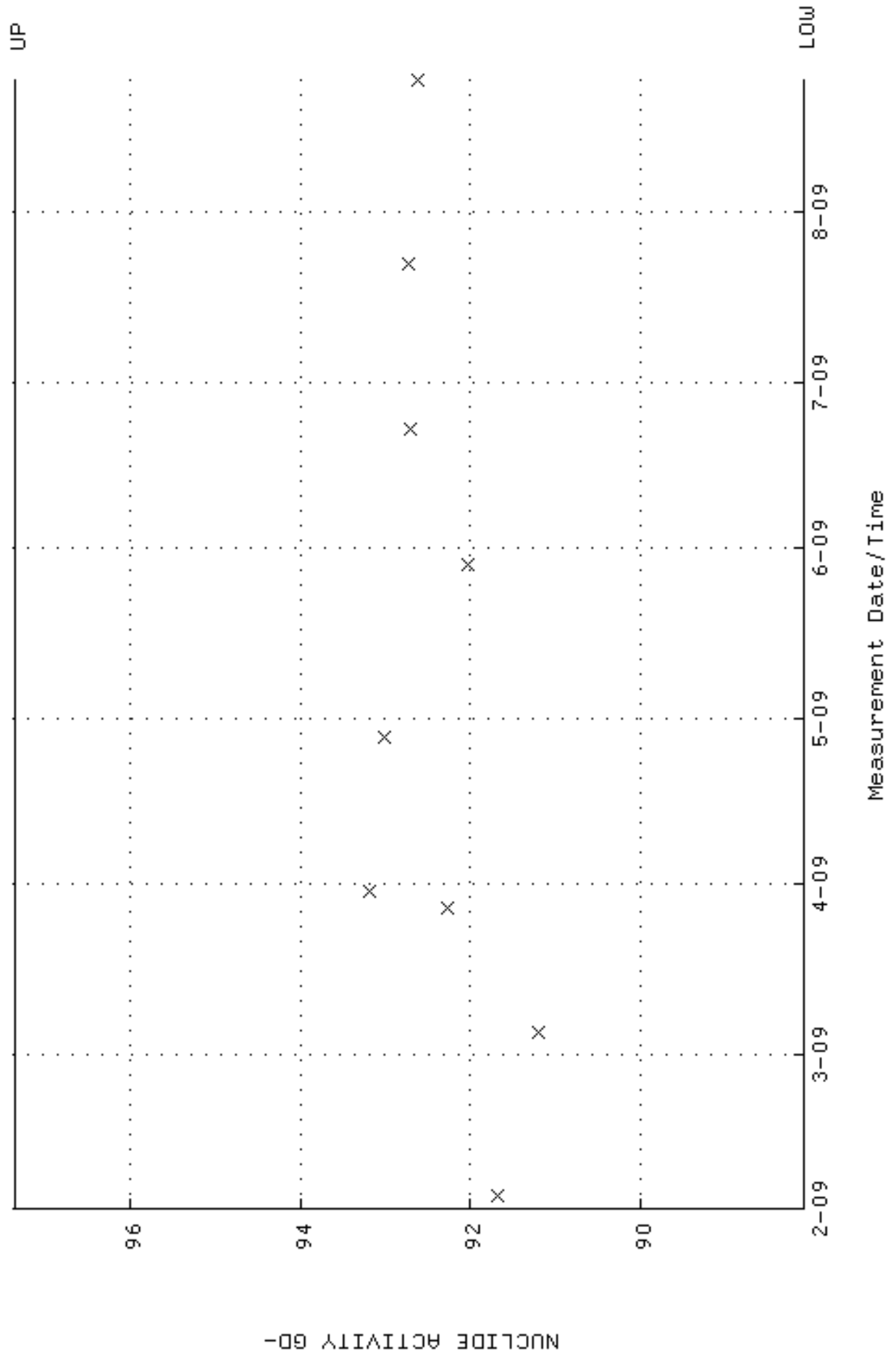


QA filename : DKA100:[ENV\_ALPHA.QA.W]W180.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 3-FEB-2009 12:08:50 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.242633 through 0.262633

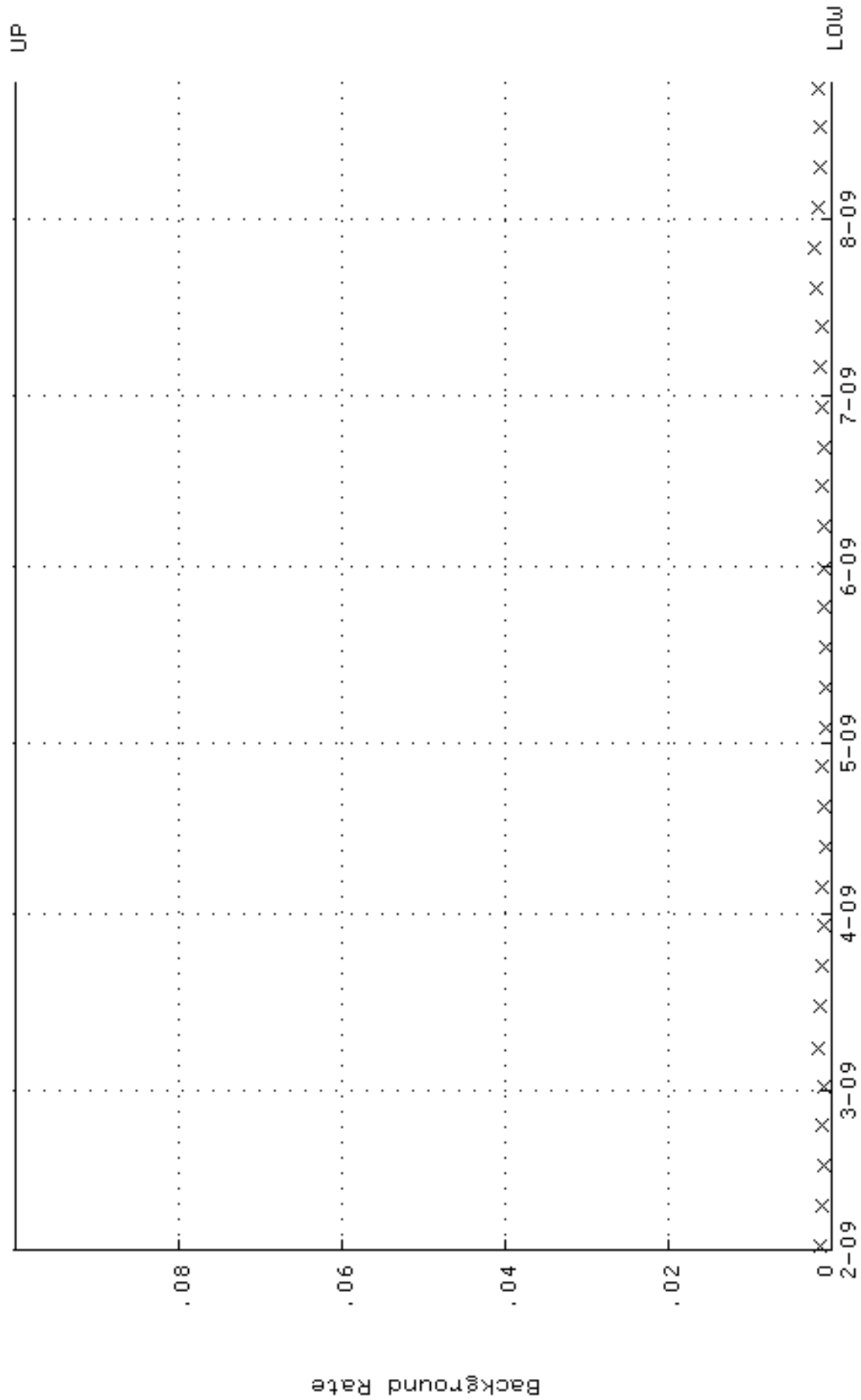




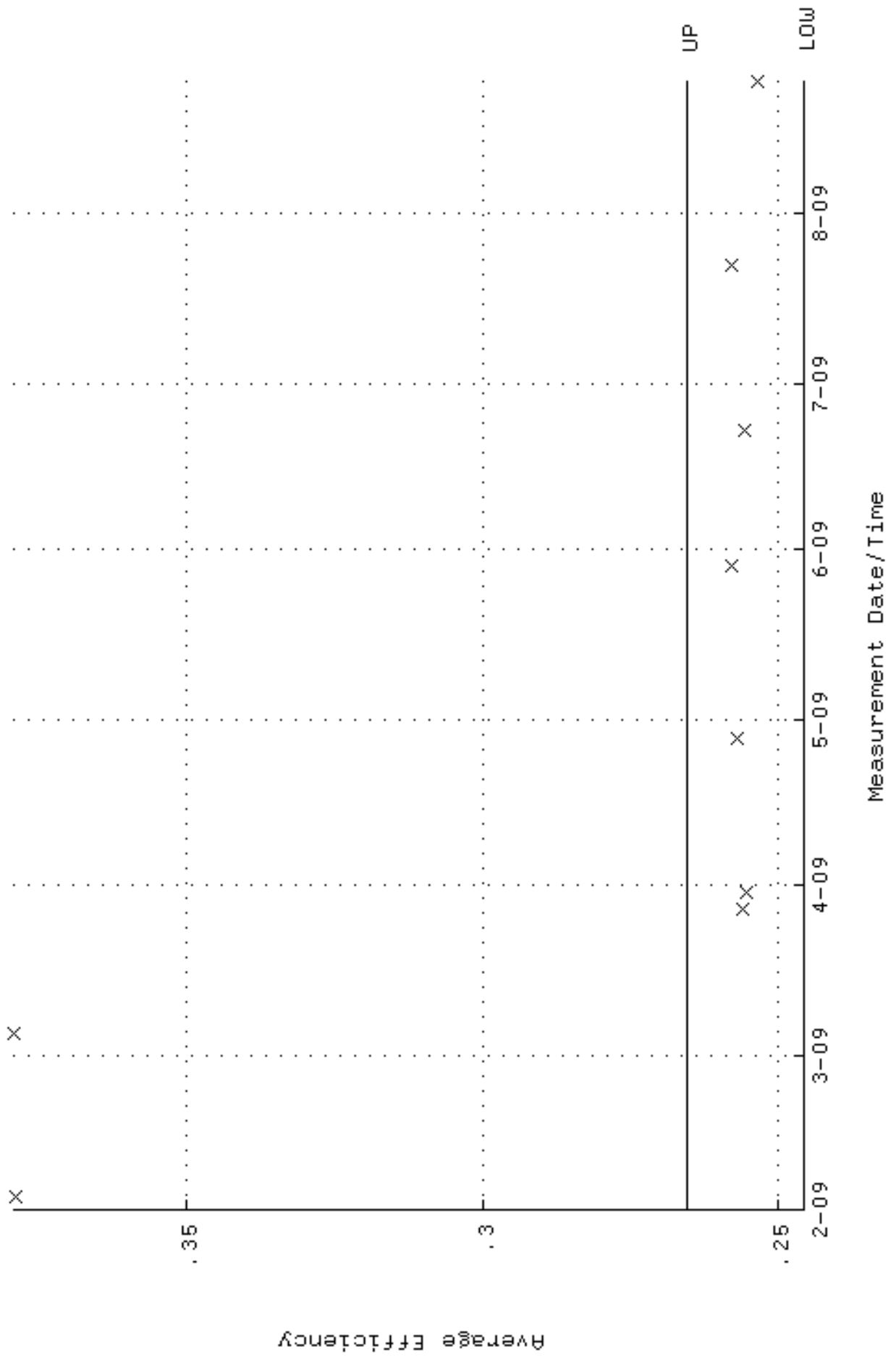
QA filename : DKA100:[ENV\_ALPHA.QA.W]W180.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 3-FEB-2009 12:08:50 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 88.0803 through 97.3519



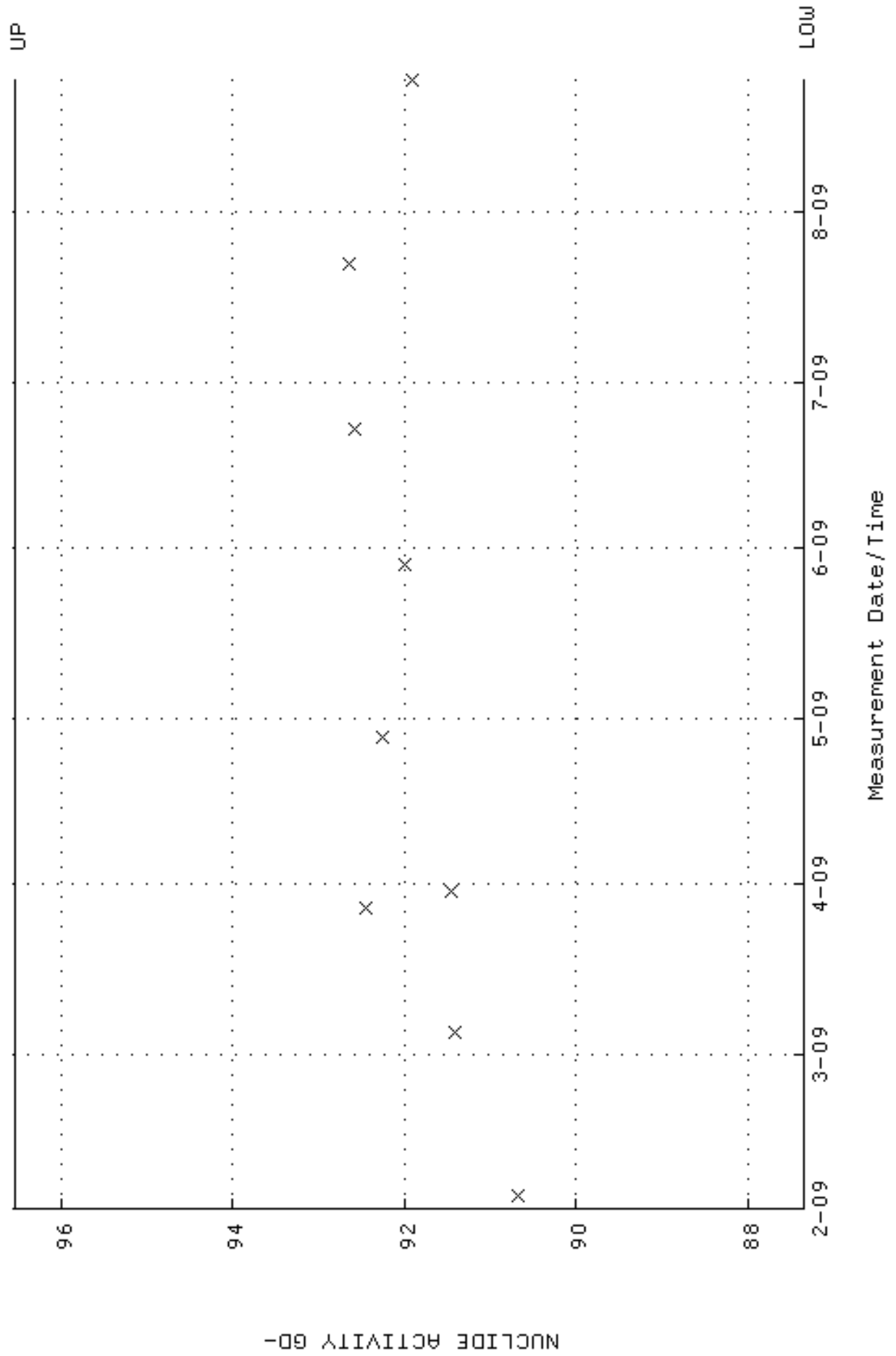
QA filename : DKA100:[ENV\_ALPHA.QA.B]B180.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-FEB-2009 17:16:32 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



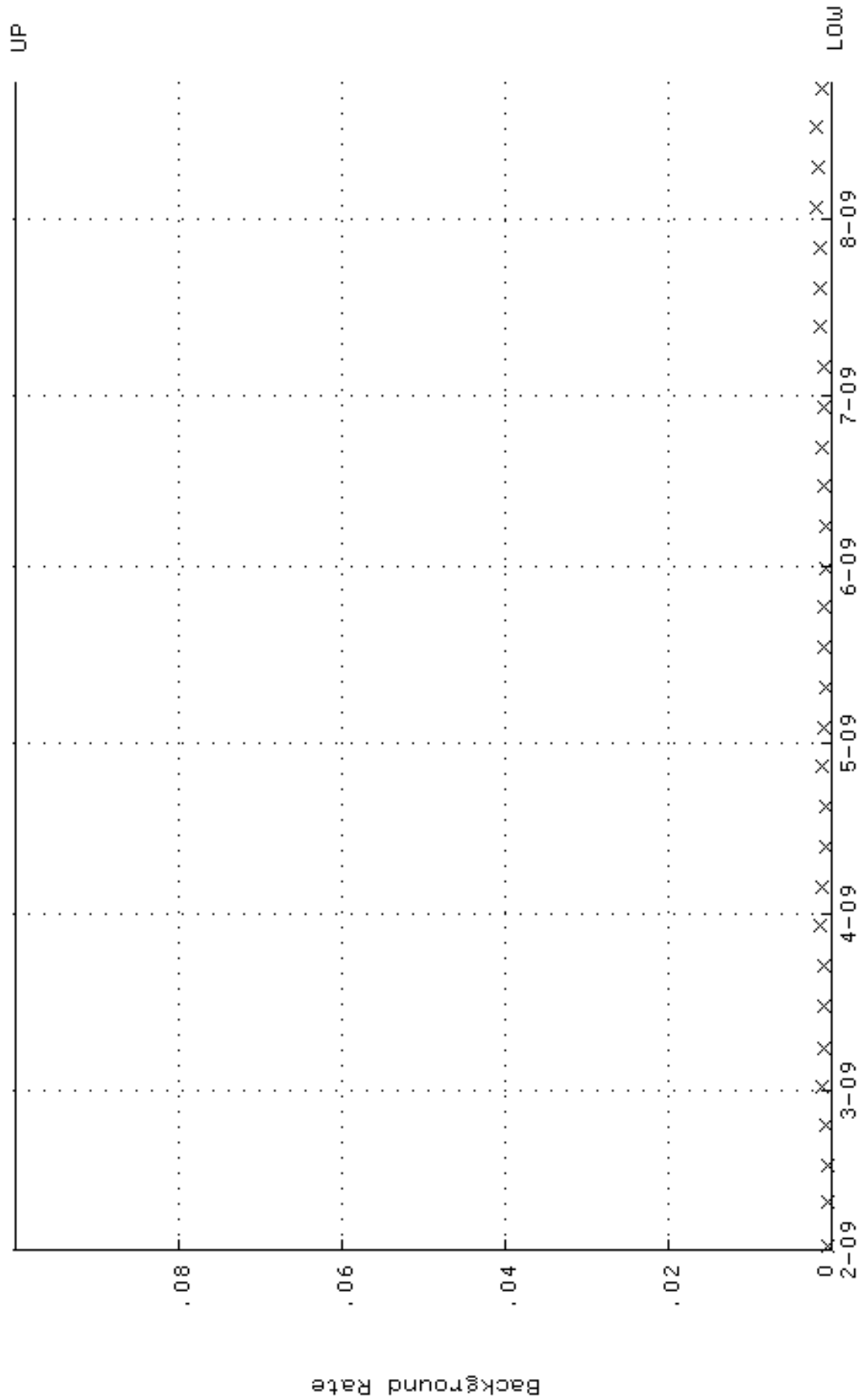
QA filename : DKA100:[ENV\_ALPHA.QA.W]W182.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 3-FEB-2009 12:09:03 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.245707 through 0.265707



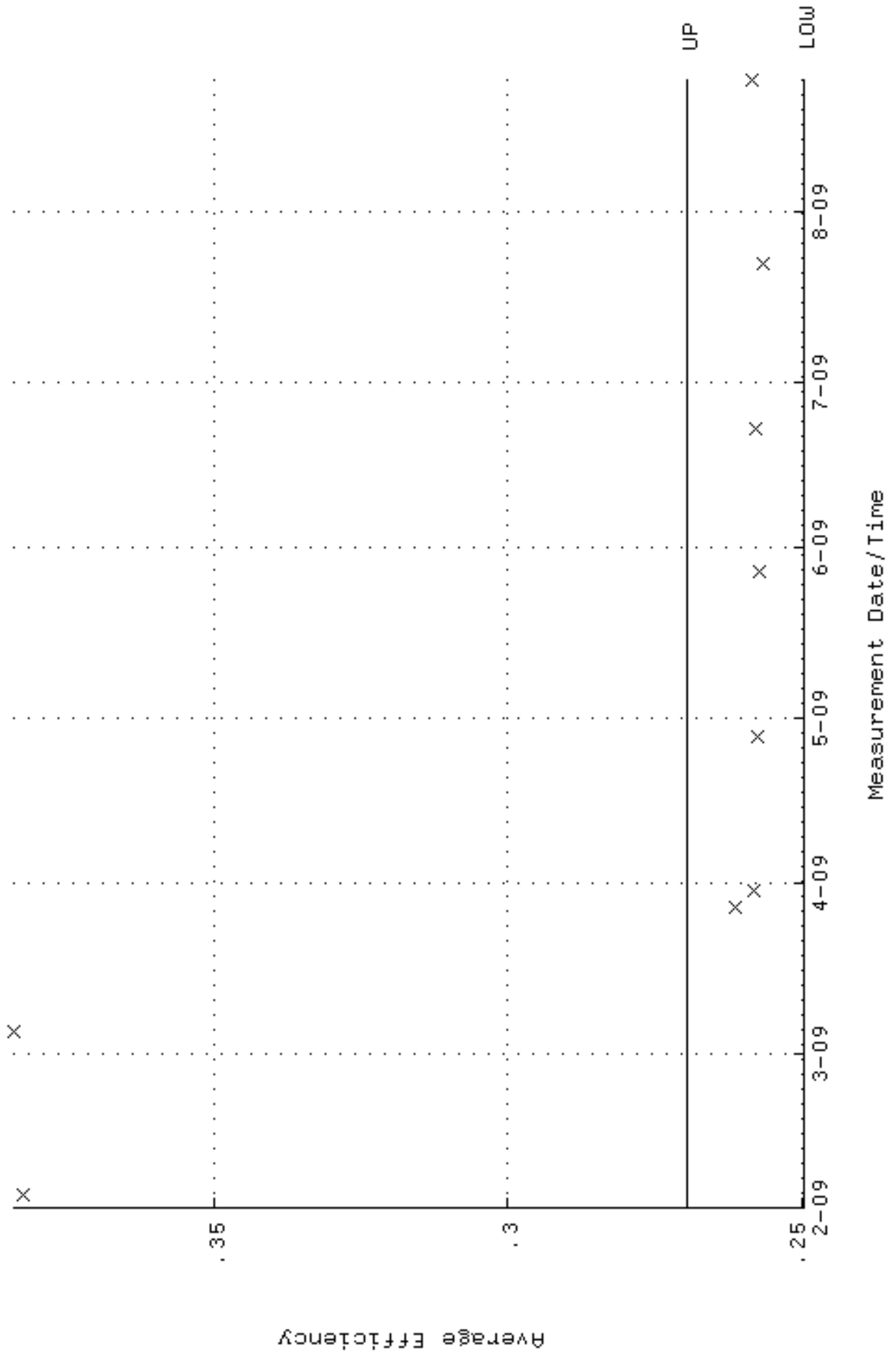
QA filename : DKA100:[ENV\_ALPHA.QA.W]W182.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 3-FEB-2009 12:09:03 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 87.3454 through 96.5396



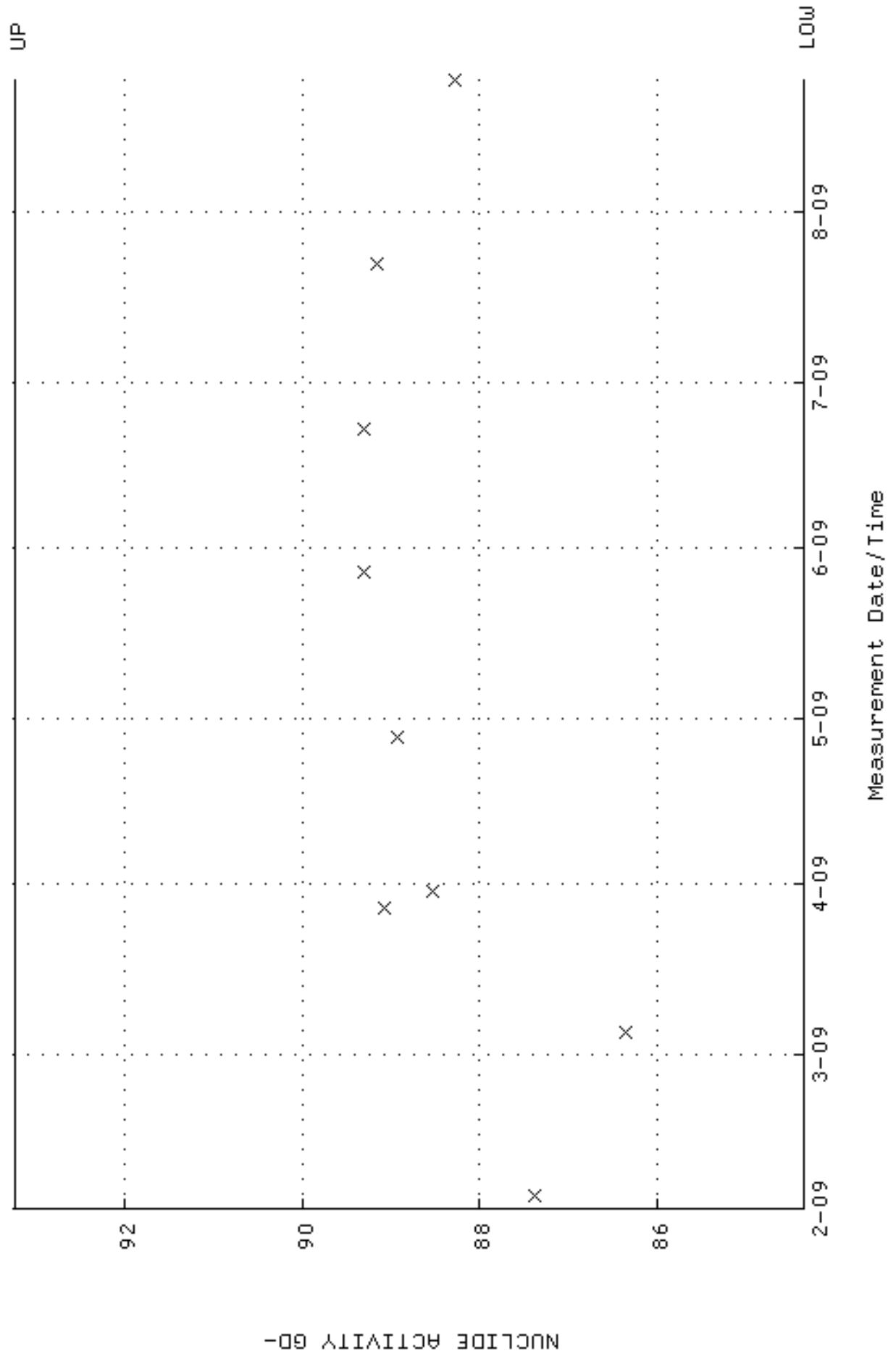
QA filename : DKA100:[ENV\_ALPHA.QA.B]B182.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-FEB-2009 17:17:02 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



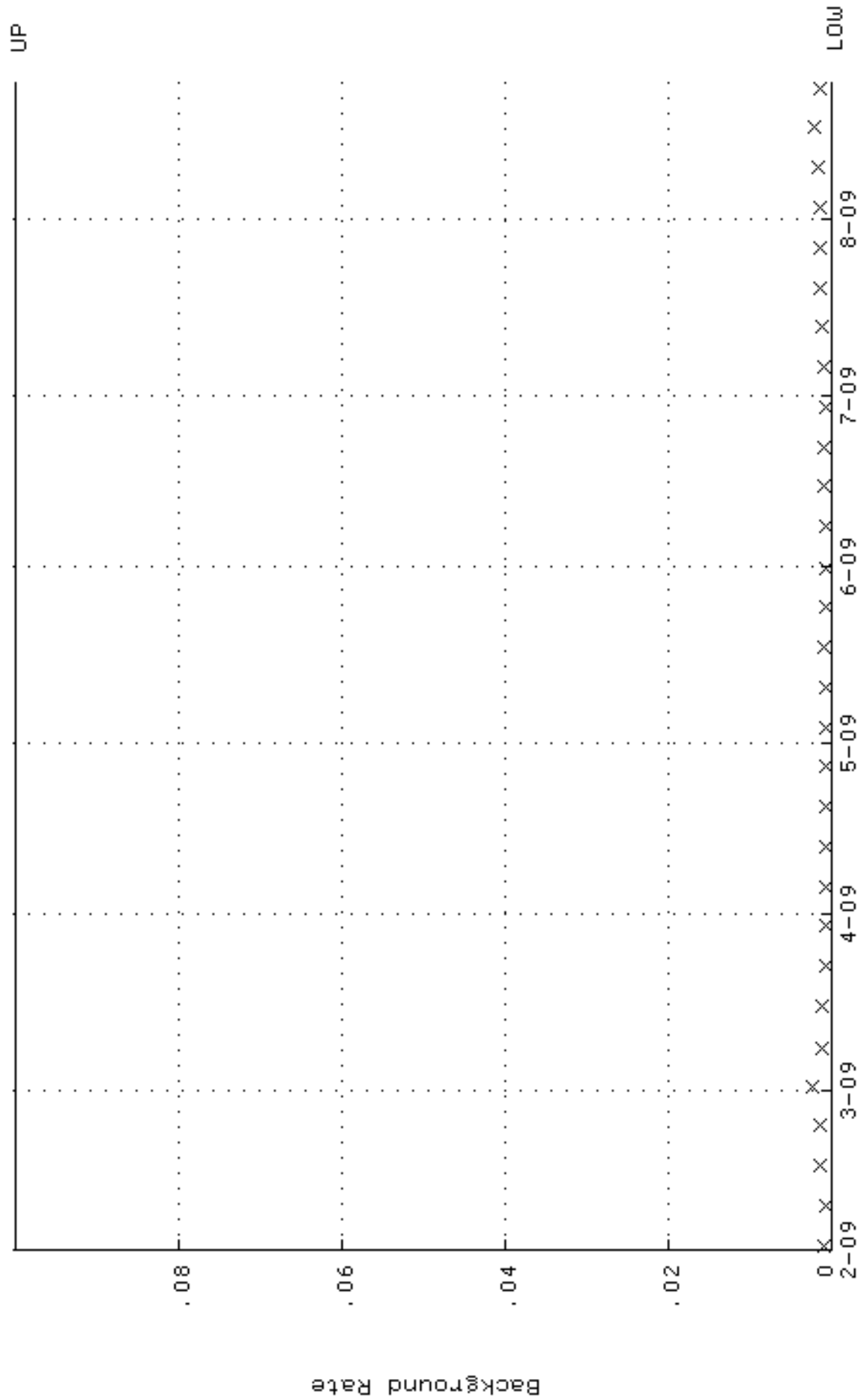
QA filename : DKA100:[ENV\_ALPHA.QA.W]W185.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 3-FEB-2009 12:09:23 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.249628 through 0.269628



QA filename : DKA100:[ENV\_ALPHA.QA.W]W185.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 3-FEB-2009 12:09:23 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 84.3502 through 93.2292

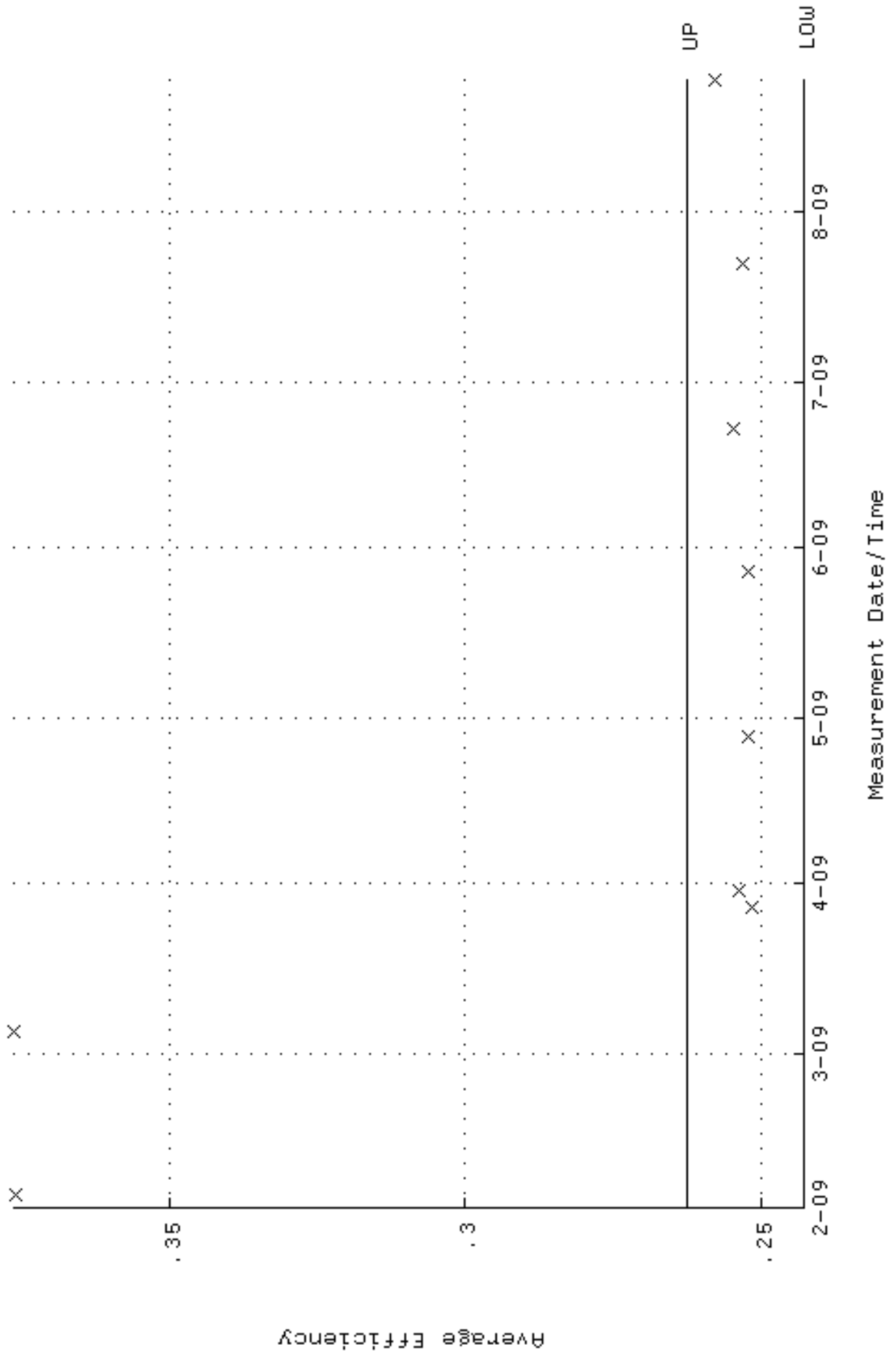


QA filename : DKA100:[ENV\_ALPHA.QA.B]B185.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-FEB-2009 17:17:47 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000

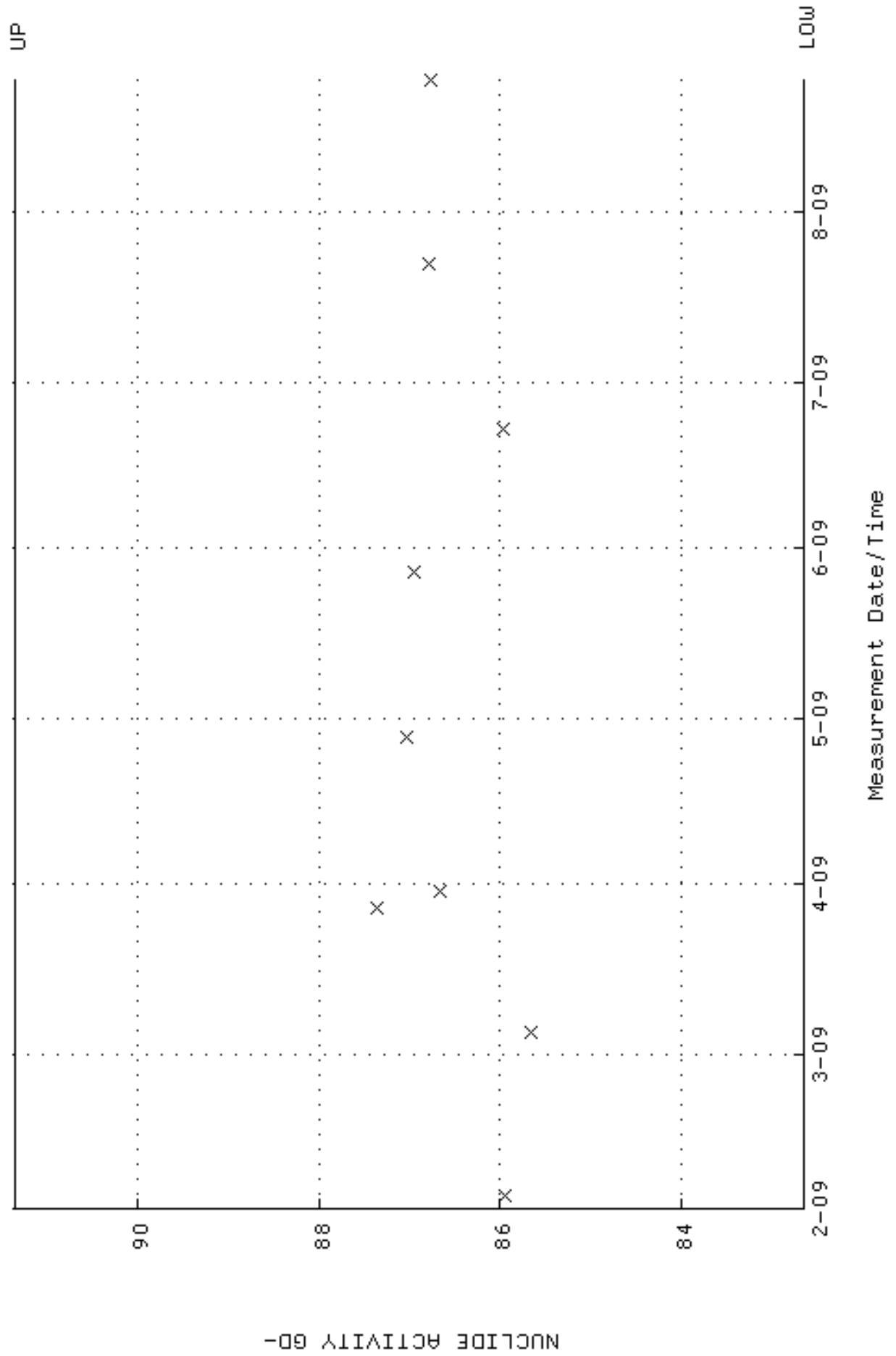




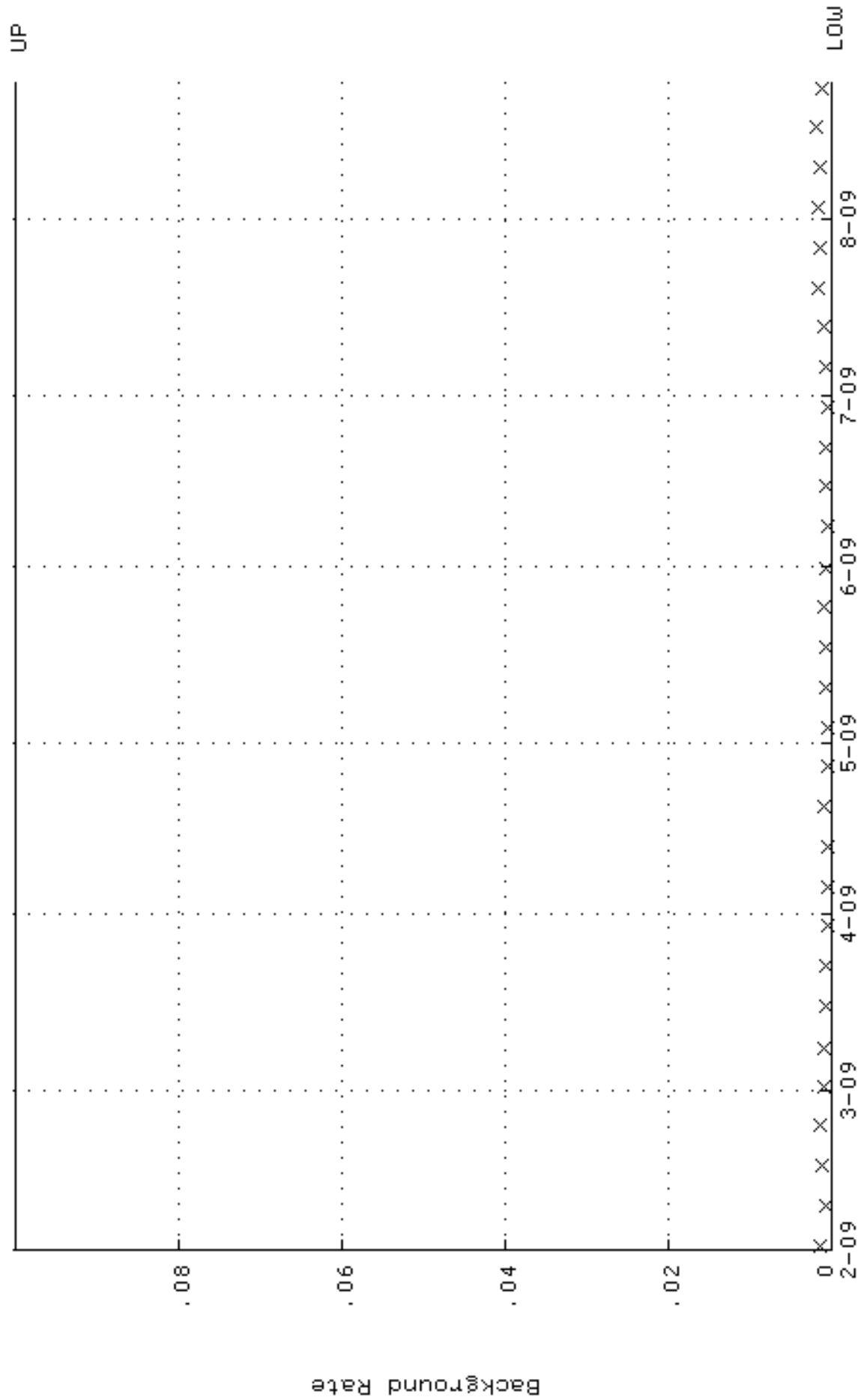
QA filename : DKA100:[ENV\_ALPHA.QA.W]W186.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 3-FEB-2009 12:09:29 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.242649 through 0.262649



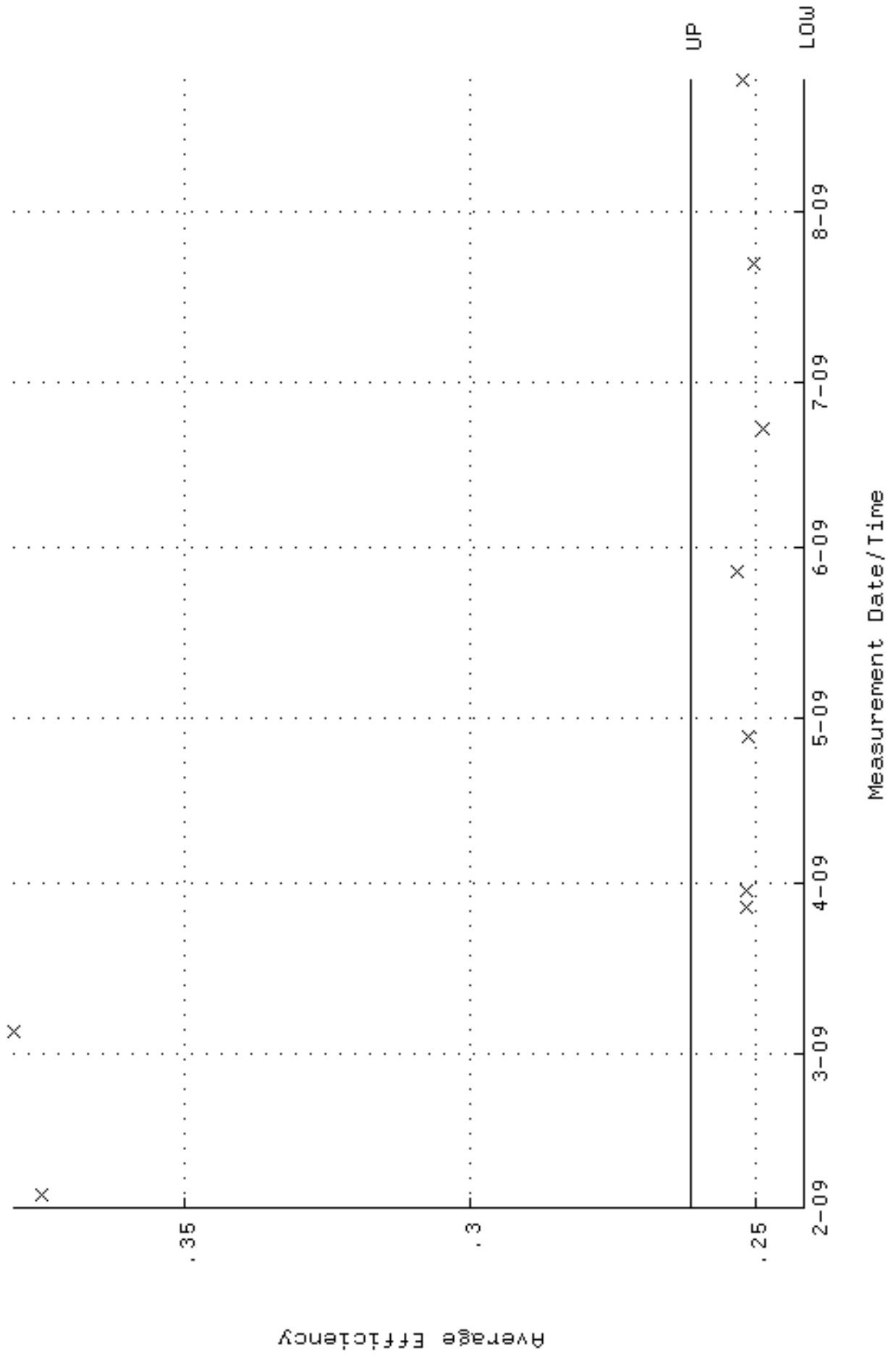
QA filename : DKA100:[ENV\_ALPHA.QA.W]W186.QAF;1  
Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
Start/End Dates : 3-FEB-2009 12:09:29 through 24-AUG-2009 12:00:00  
Lower/Upper Lmts: 82.6495 through 91.3495



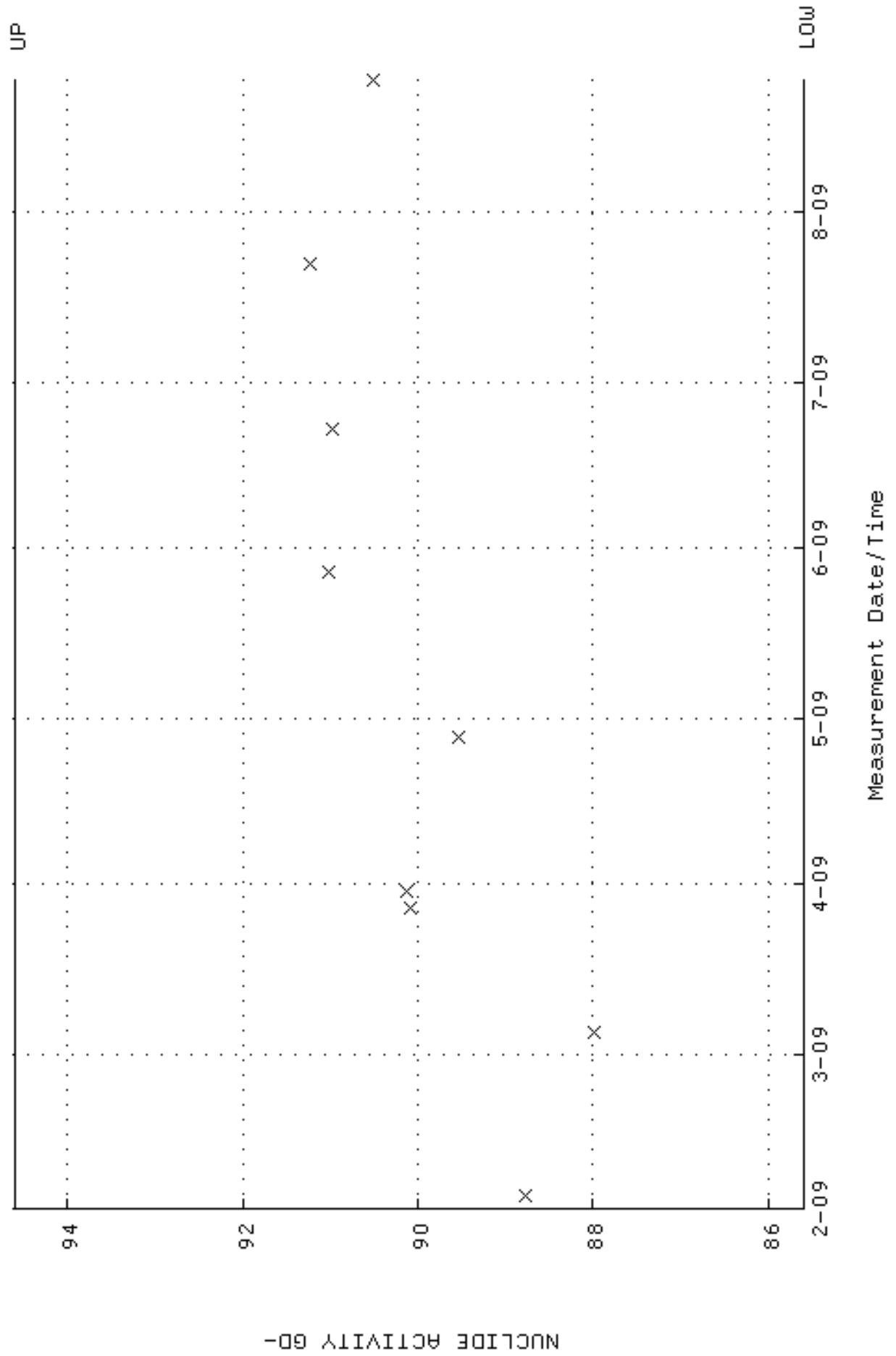
QA filename : DKA100:[ENV\_ALPHA.QA.B]B186.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-FEB-2009 17:18:02 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



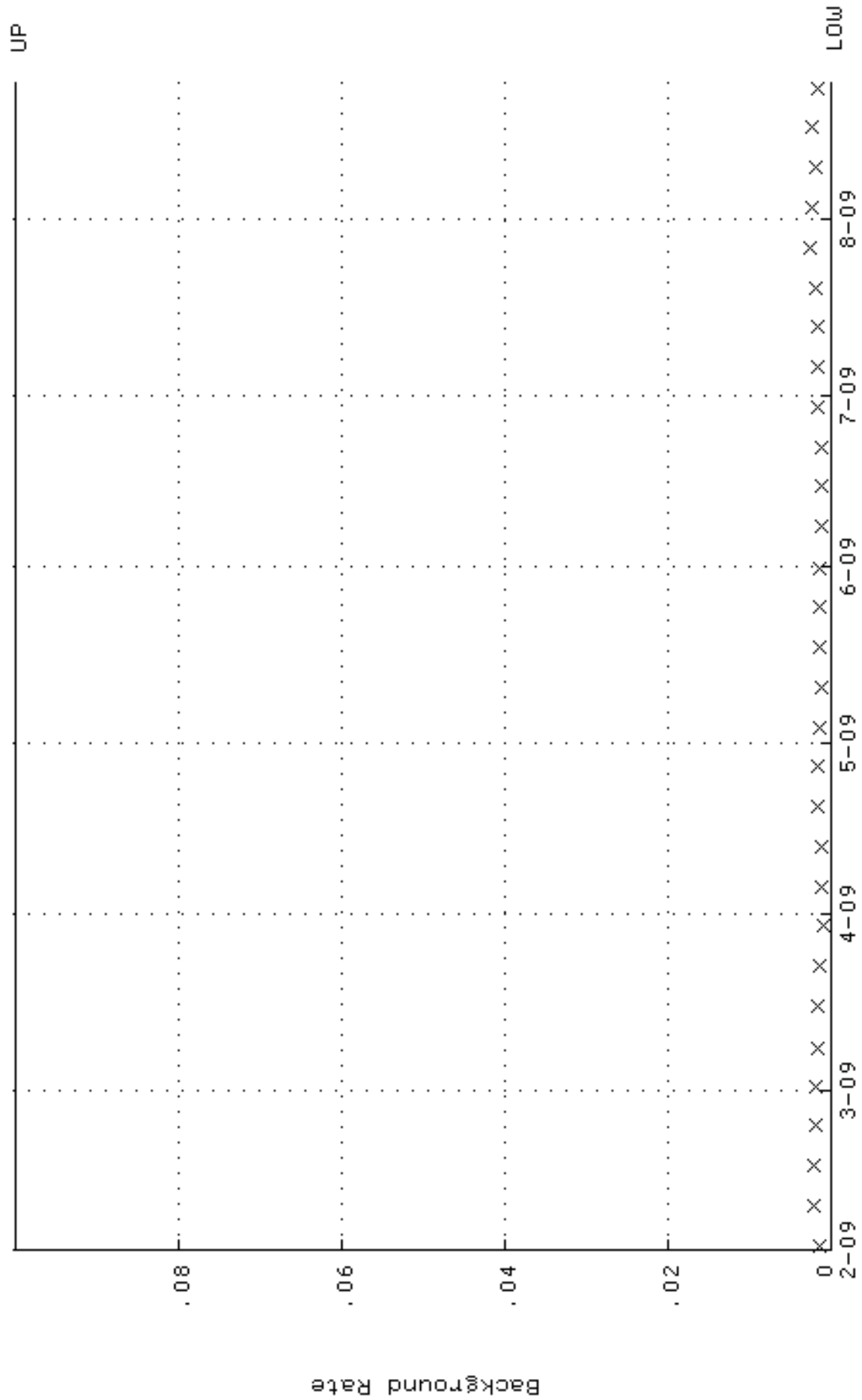
QA filename : DKA100:[ENV\_ALPHA.QA.W]W187.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 3-FEB-2009 12:09:35 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.241464 through 0.261464



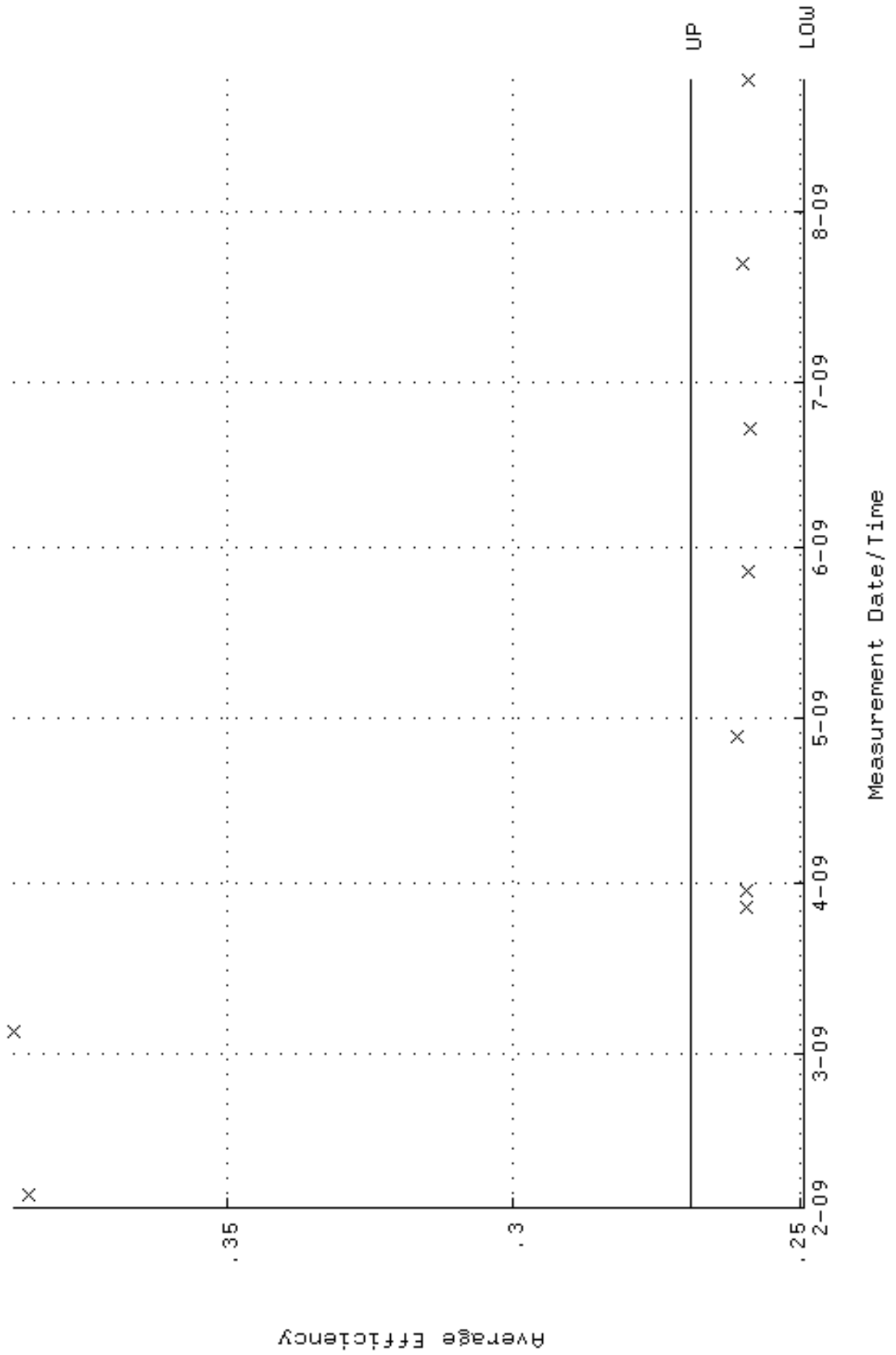
QA filename : DKA100:[ENV\_ALPHA.QA.W]w187.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 3-FEB-2009 12:09:35 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 85.5888 through 94.5982



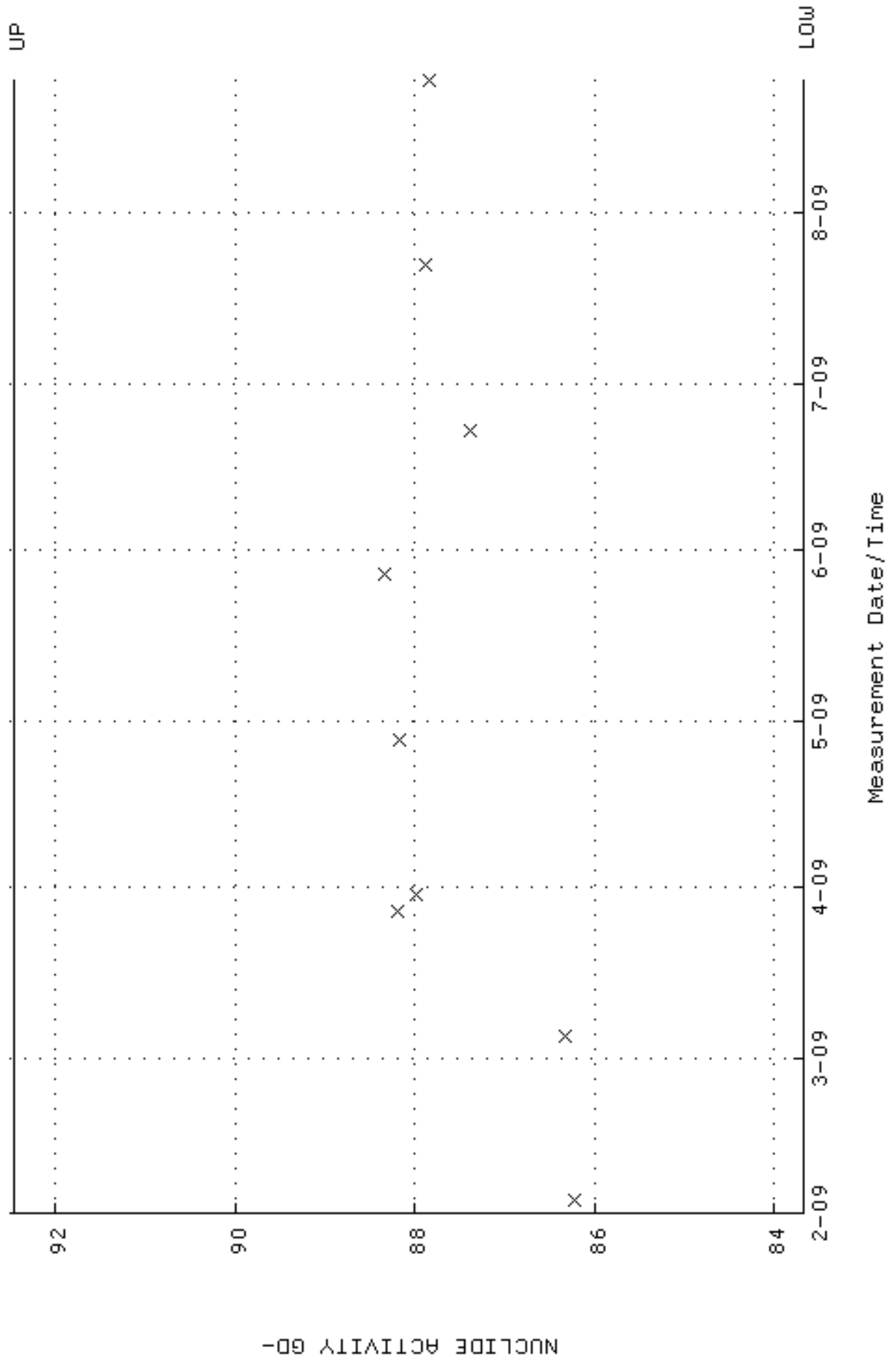
QA filename : DKA100:[ENV\_ALPHA.QA.B]B187.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-FEB-2009 17:18:17 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



QA filename : DKA100:[ENV\_ALPHA.QA.W]W188.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 3-FEB-2009 12:09:43 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.249341 through 0.269341

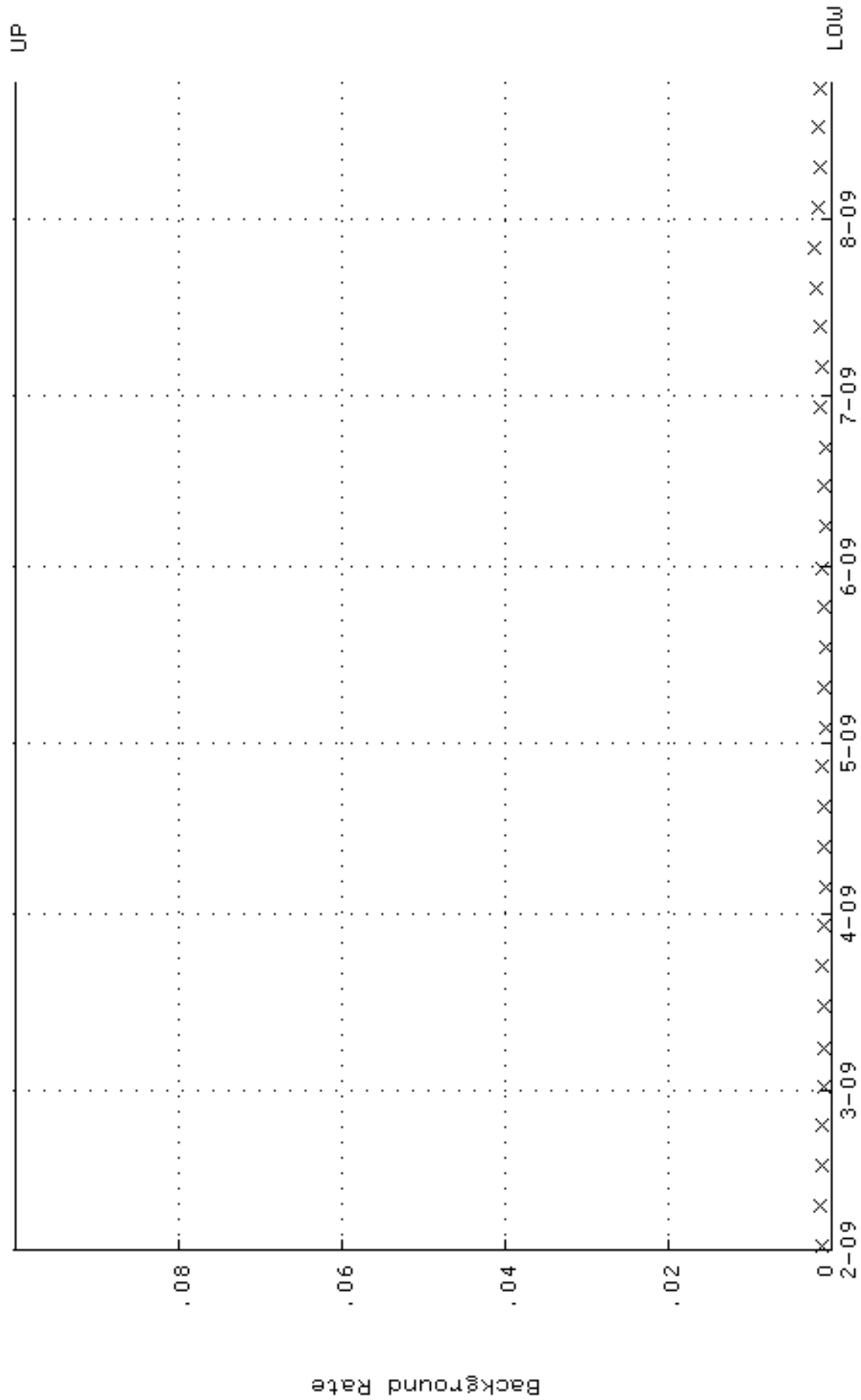


QA filename : DKA100:[ENV\_ALPHA.QA.W]W188.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 3-FEB-2009 12:09:43 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 83.6747 through 92.4825

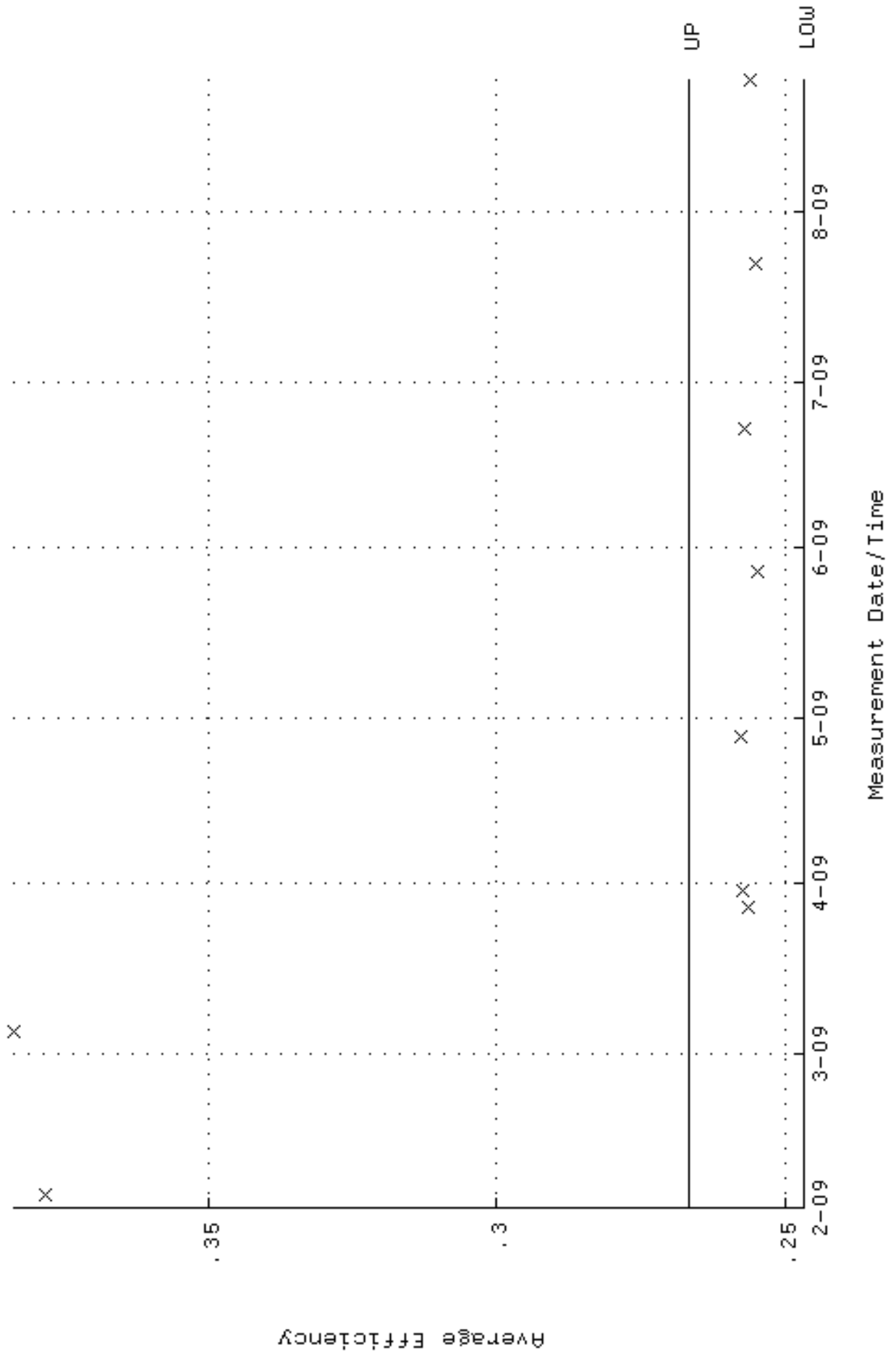




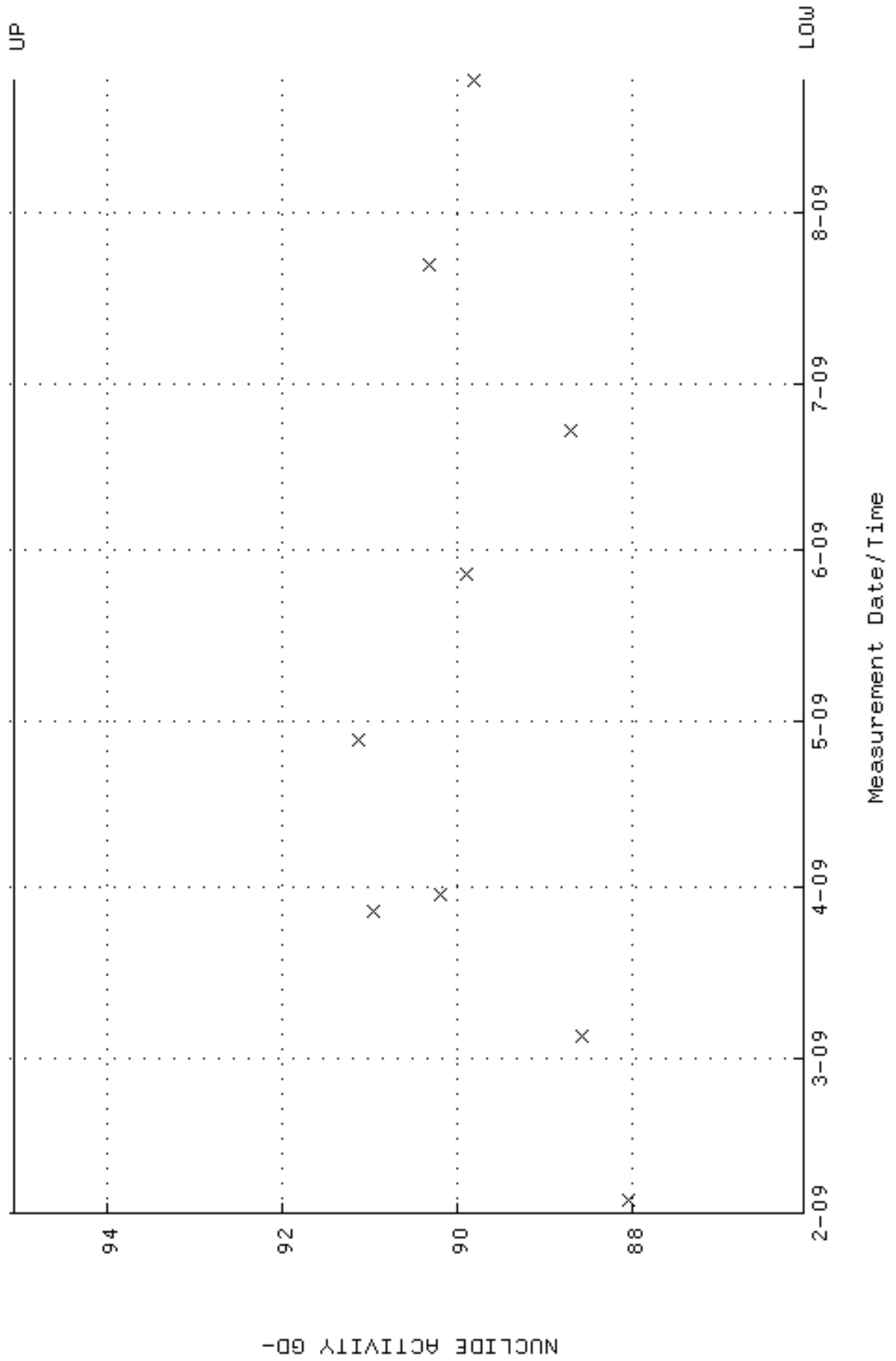
QA filename : DKA100:[ENV\_ALPHA.QA.B]B188.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-FEB-2009 17:18:33 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



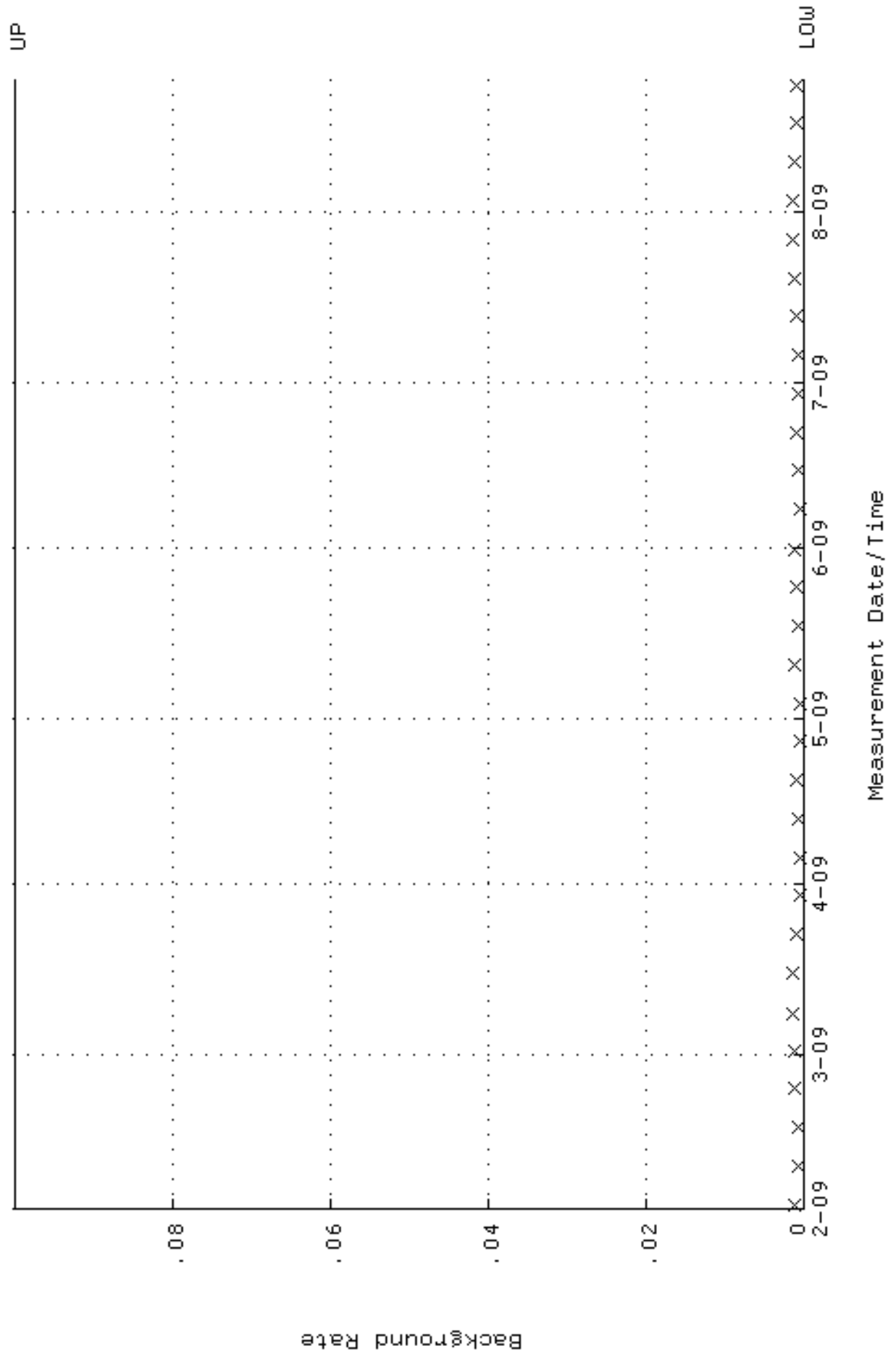
QA filename : DKA100:[ENV\_ALPHA.QA.W]W194.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 3-FEB-2009 12:10:12 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.246760 through 0.266760



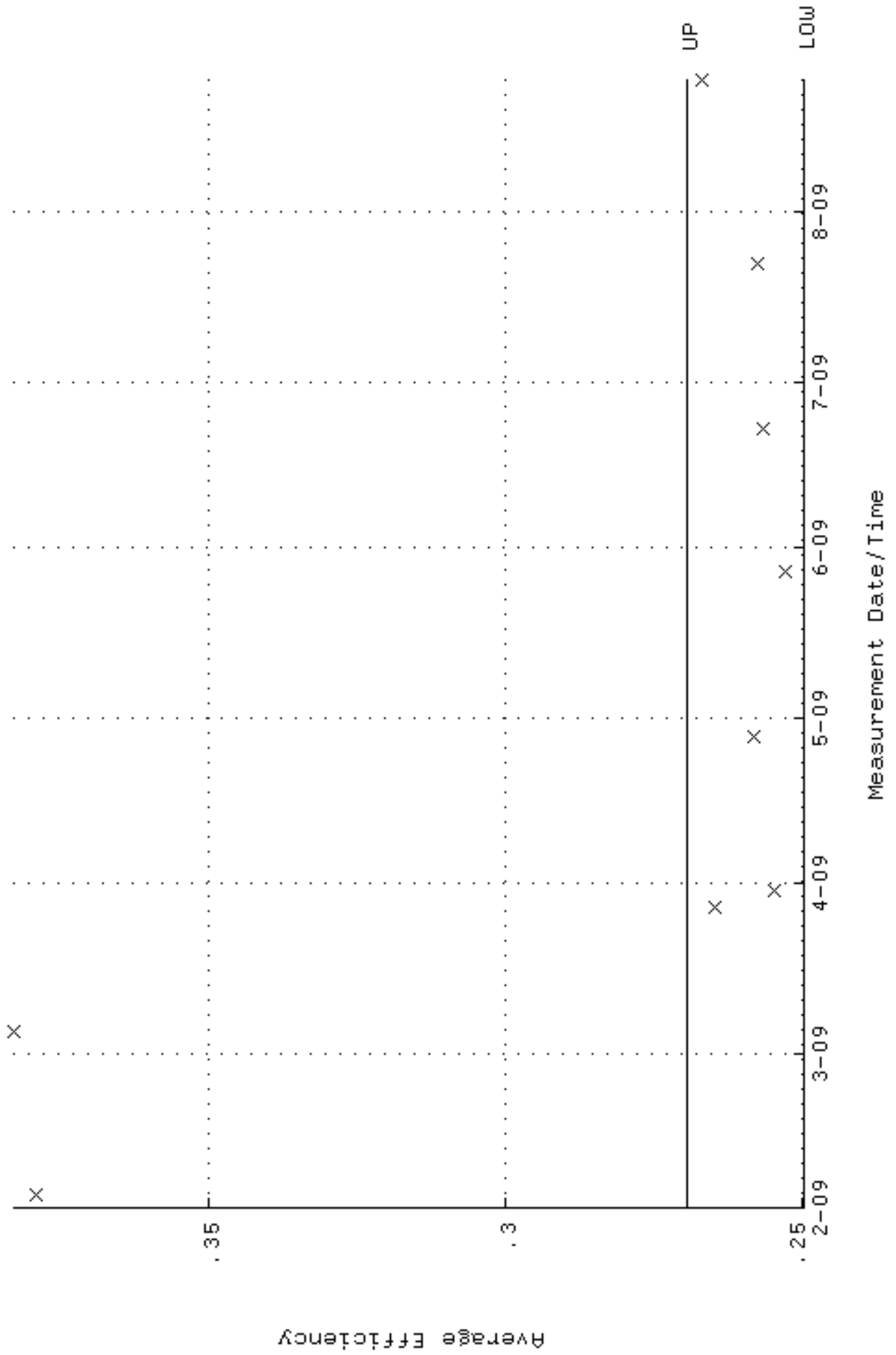
QA filename : DKA100:[ENV\_ALPHA.QA.W]W194.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 3-FEB-2009 12:10:12 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 86.0376 through 95.0942



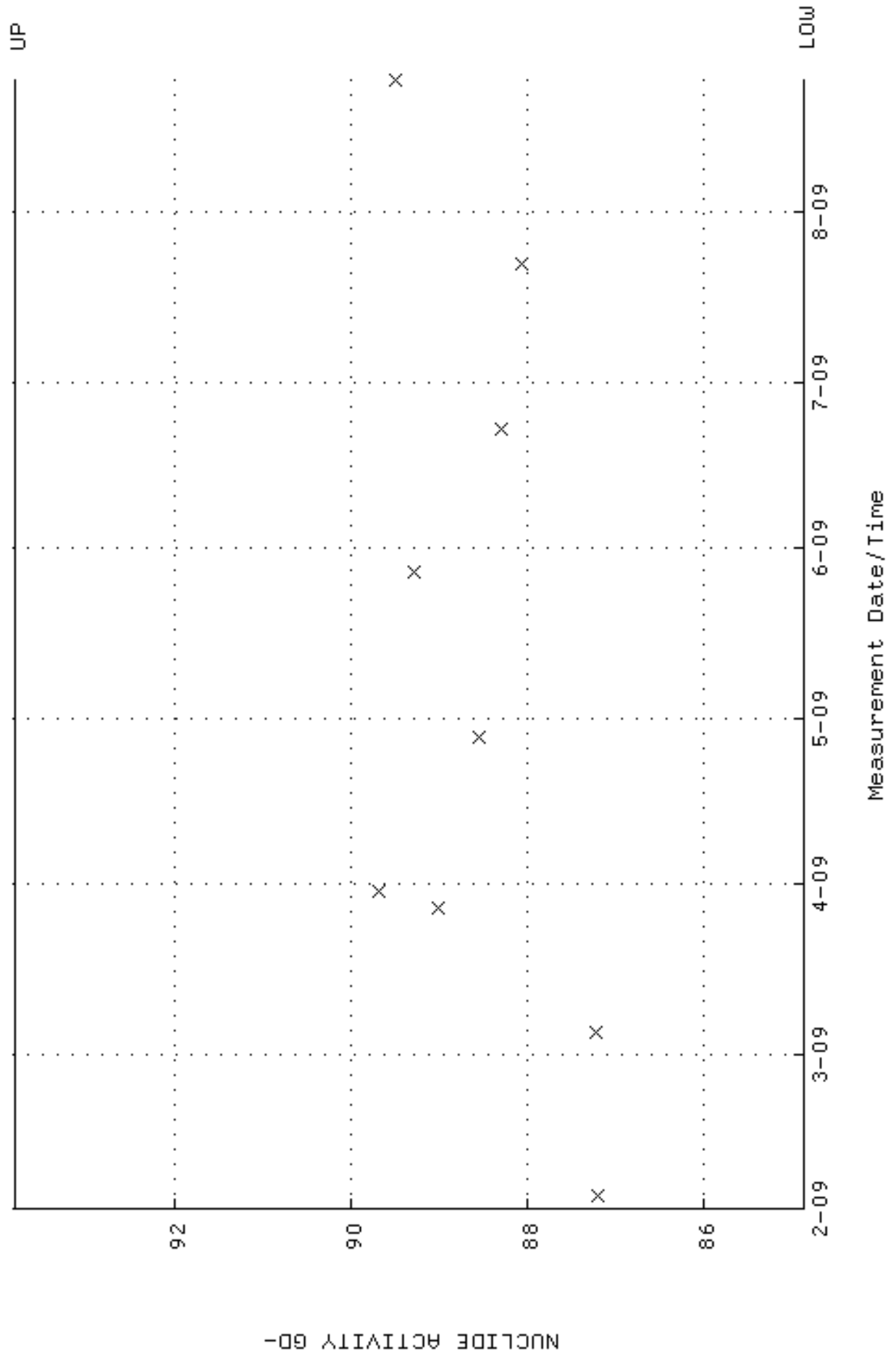
QA filename : DKA100:[ENV\_ALPHA.QA.B]B194.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-FEB-2009 17:20:07 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



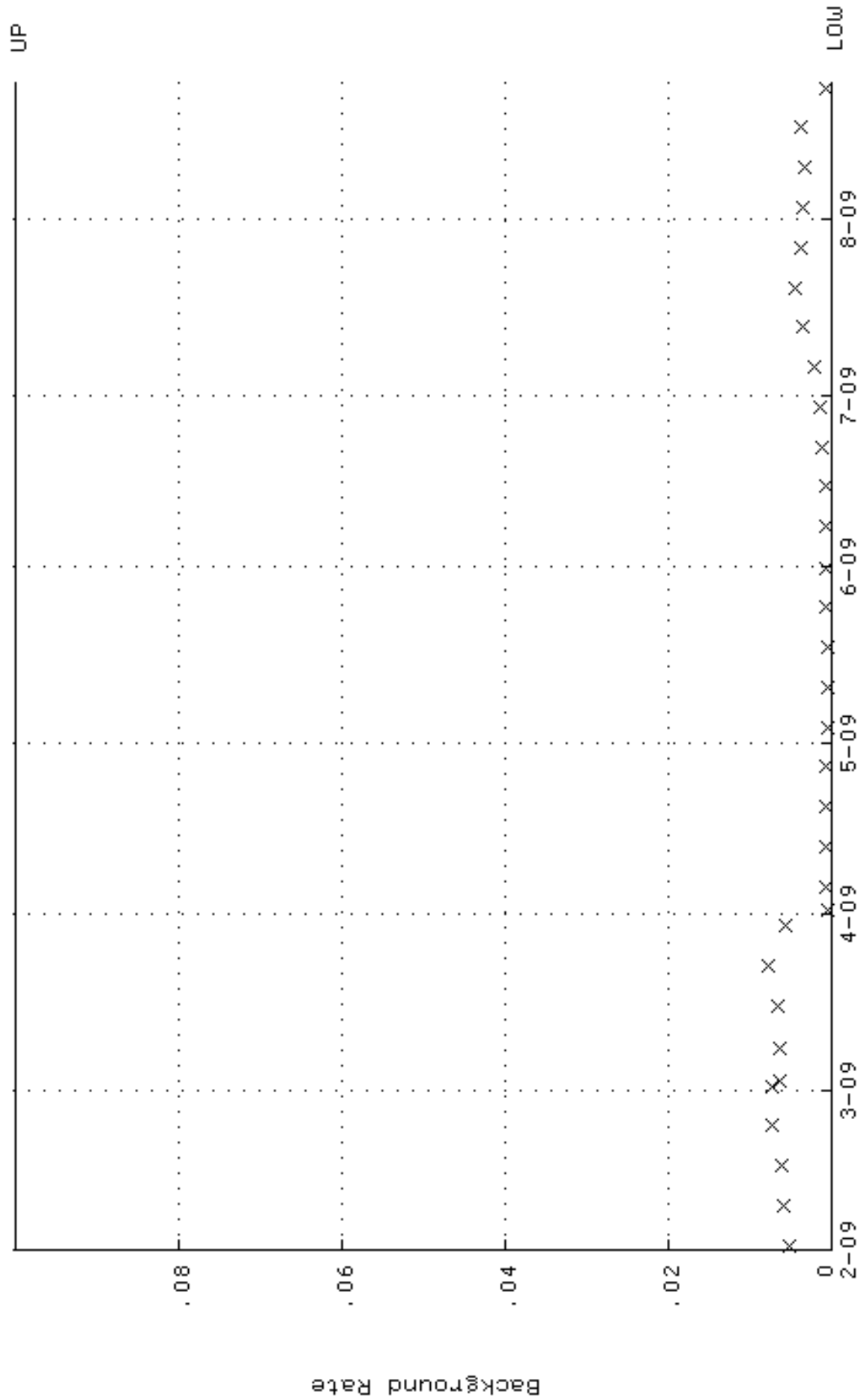
QA filename : DKA100:[ENV\_ALPHA.QA.W]W195.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 3-FEB-2009 12:10:17 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.249622 through 0.269622



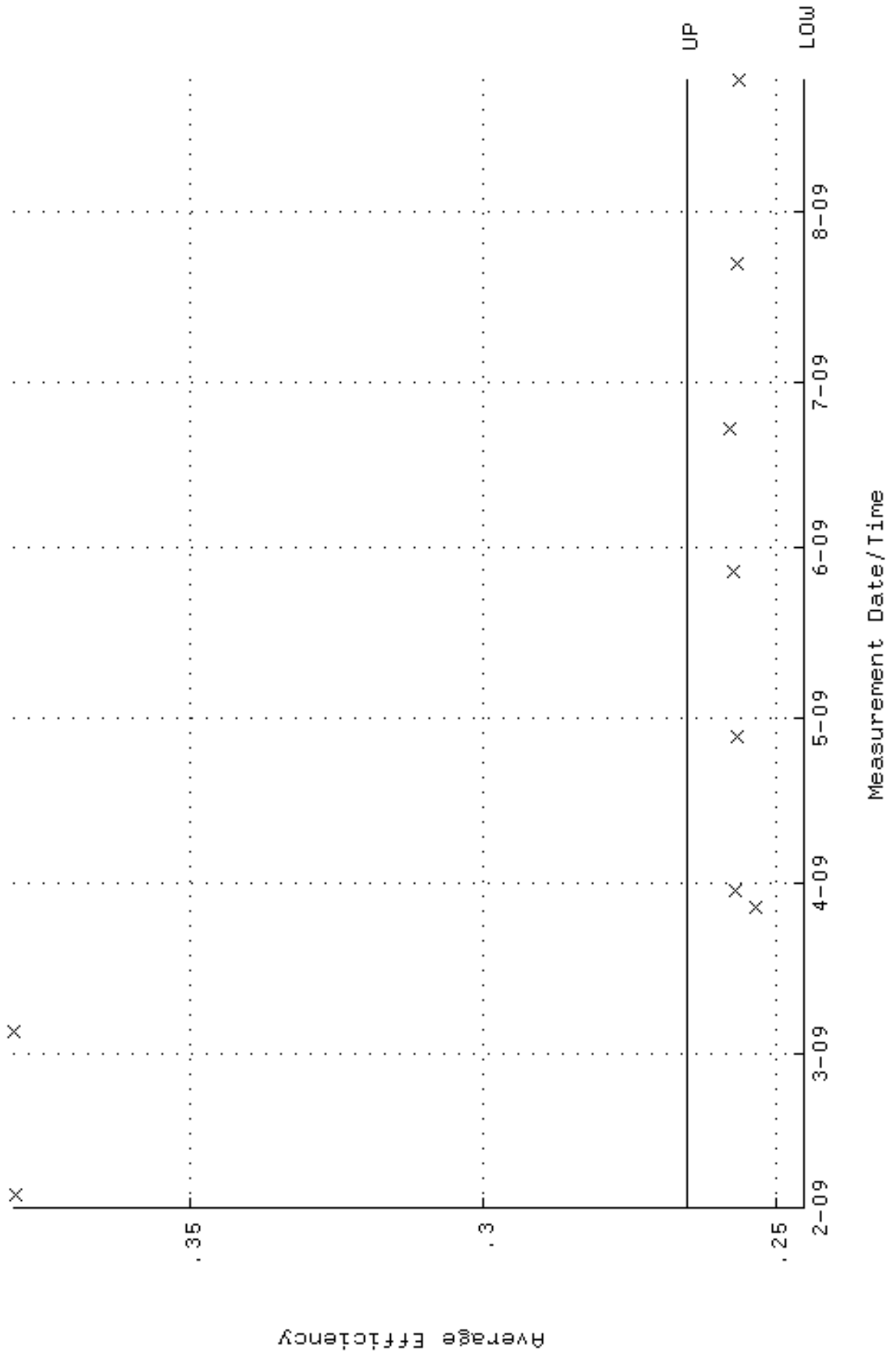
QA filename : DKA100:[ENV\_ALPHA.QA.W]W195.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 3-FEB-2009 12:10:17 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 84.8653 through 93.7985



QA filename : DKA100:[ENV\_ALPHA.QA.B]B195.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-FEB-2009 17:20:20 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000

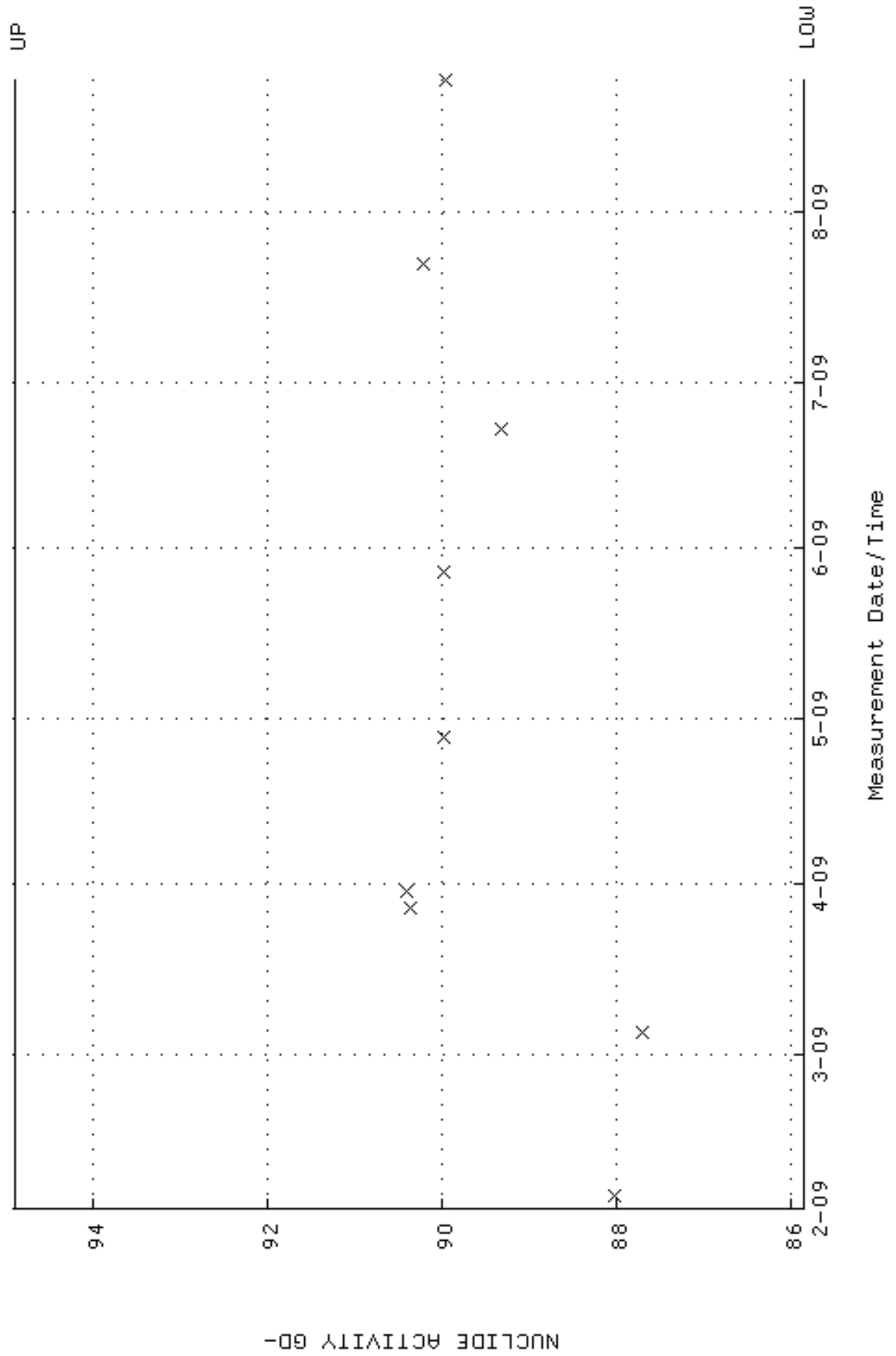


QA filename : DKA100:[ENV\_ALPHA.QA.W]W196.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 3-FEB-2009 12:10:22 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.245168 through 0.265168

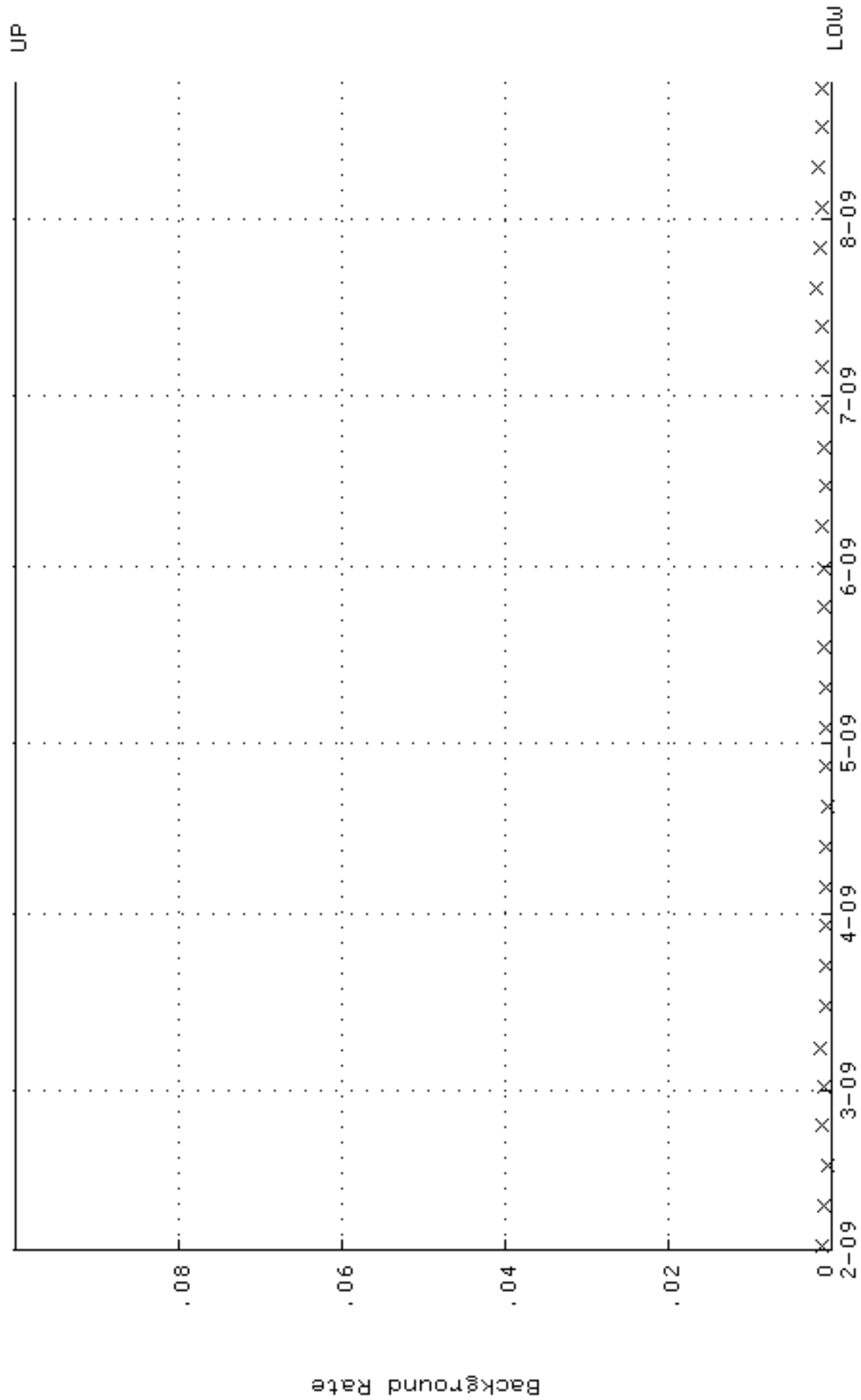




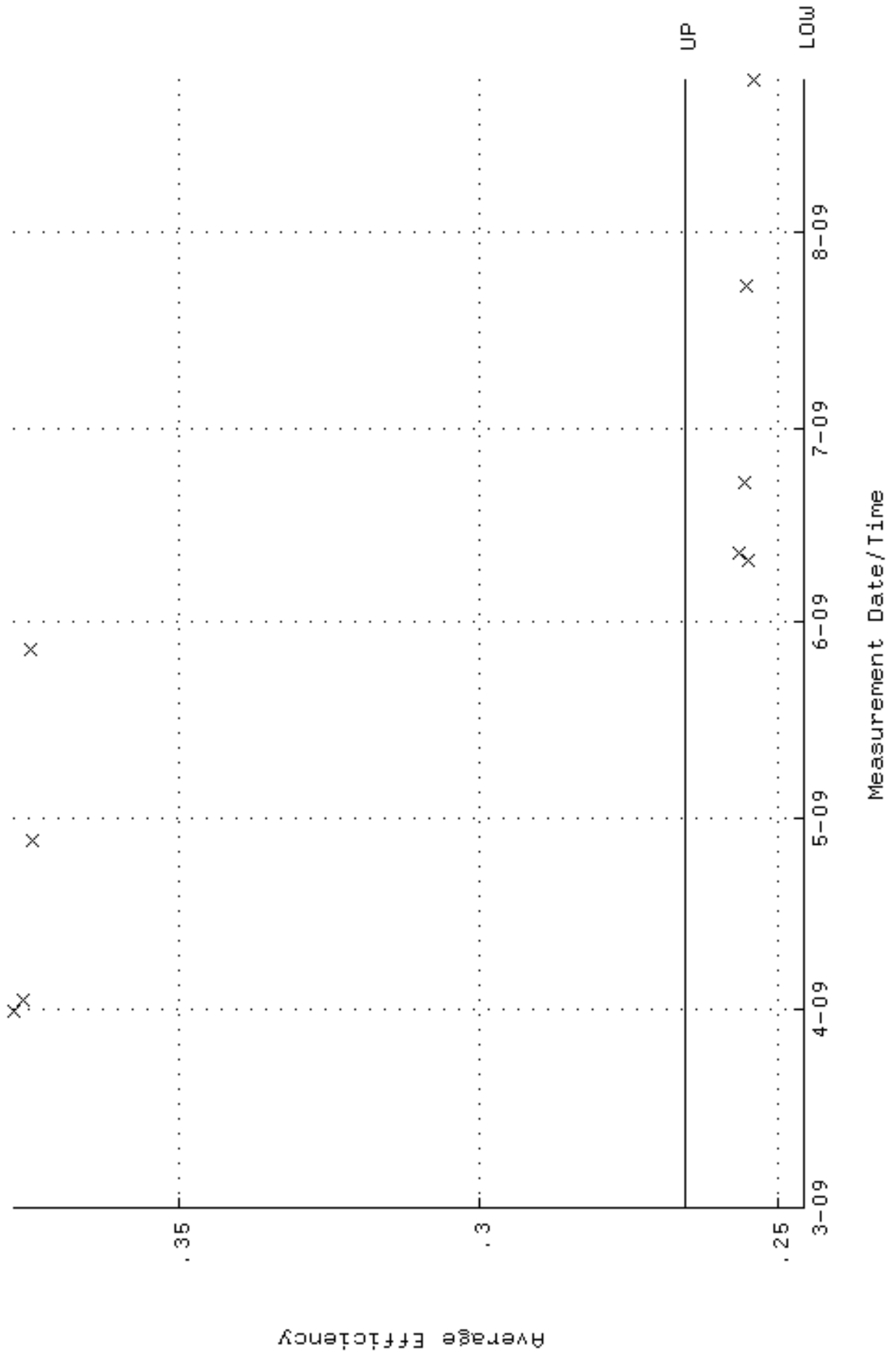
QA filename : DKA100:[ENV\_ALPHA.QA.W]W196.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 3-FEB-2009 12:10:22 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 85.8592 through 94.8970



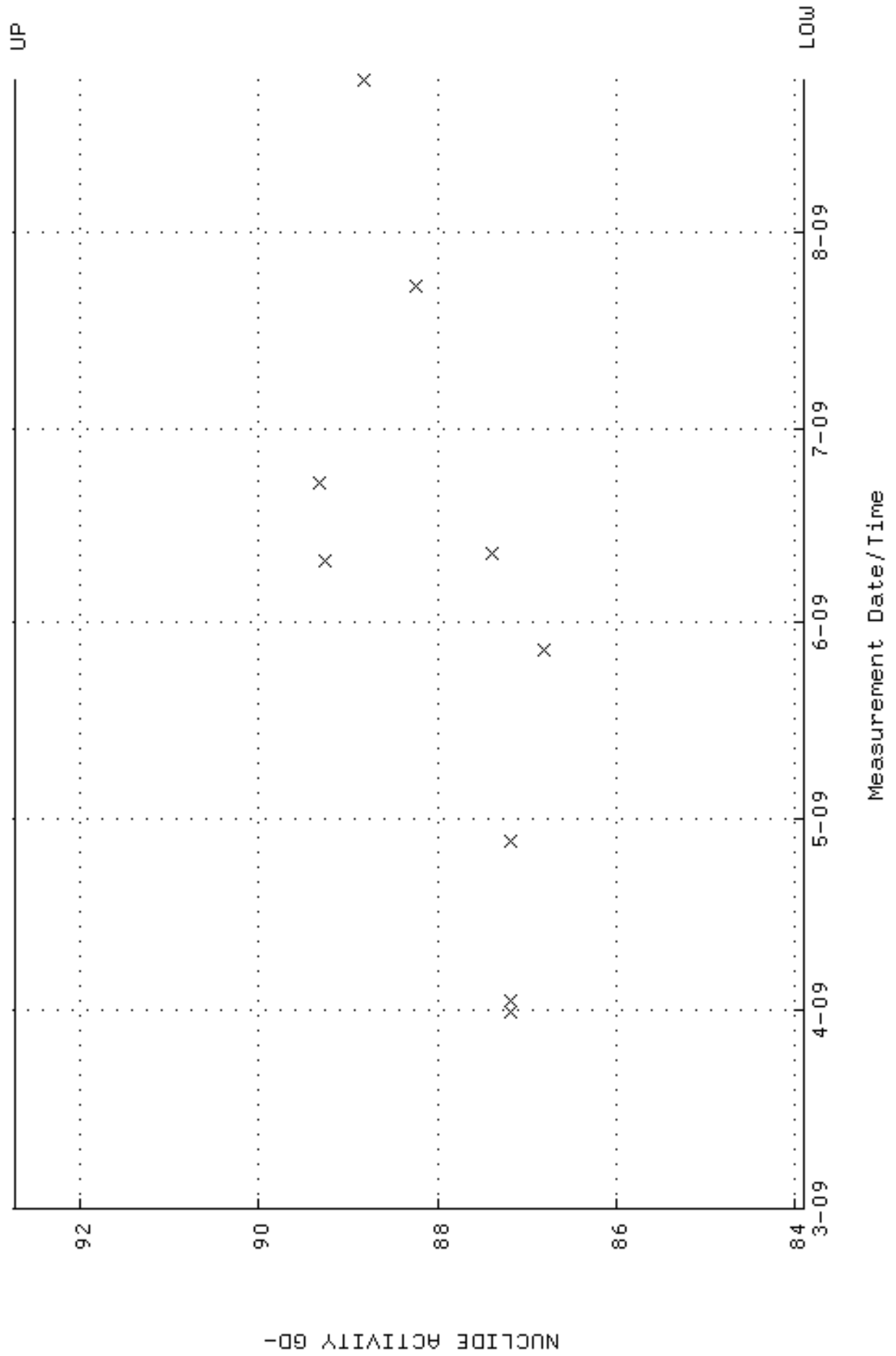
QA filename : DKA100:[ENV\_ALPHA.QA.B]B196.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-FEB-2009 17:20:38 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



QA filename : DKA100:[ENV\_ALPHA.QA.W]W198.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 31-MAR-2009 15:06:01 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.245817 through 0.265817

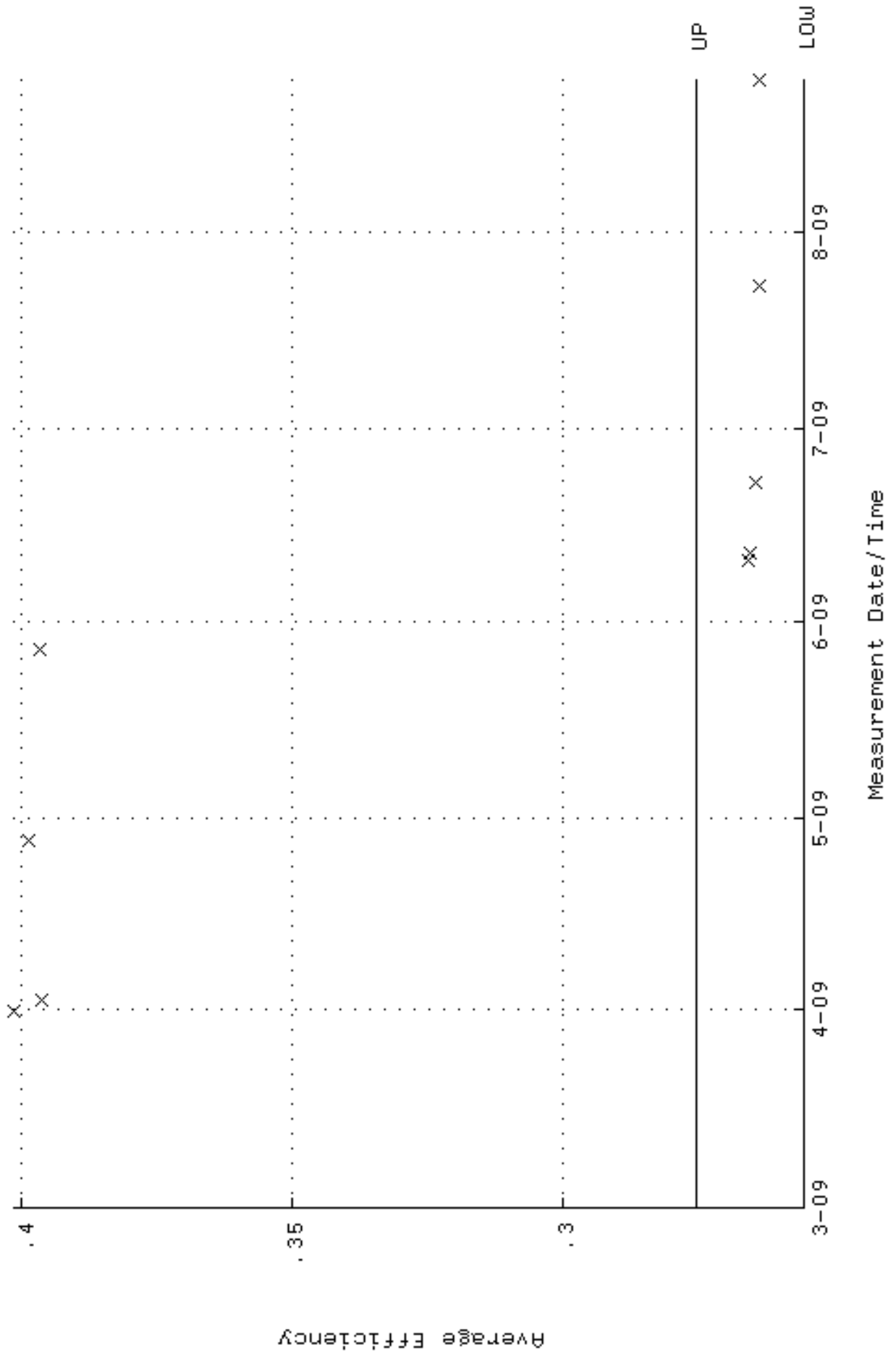


QA filename : DKA100:[ENV\_ALPHA.QA.W]W198.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 31-MAR-2009 15:06:01 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 83.8978 through 92.7292

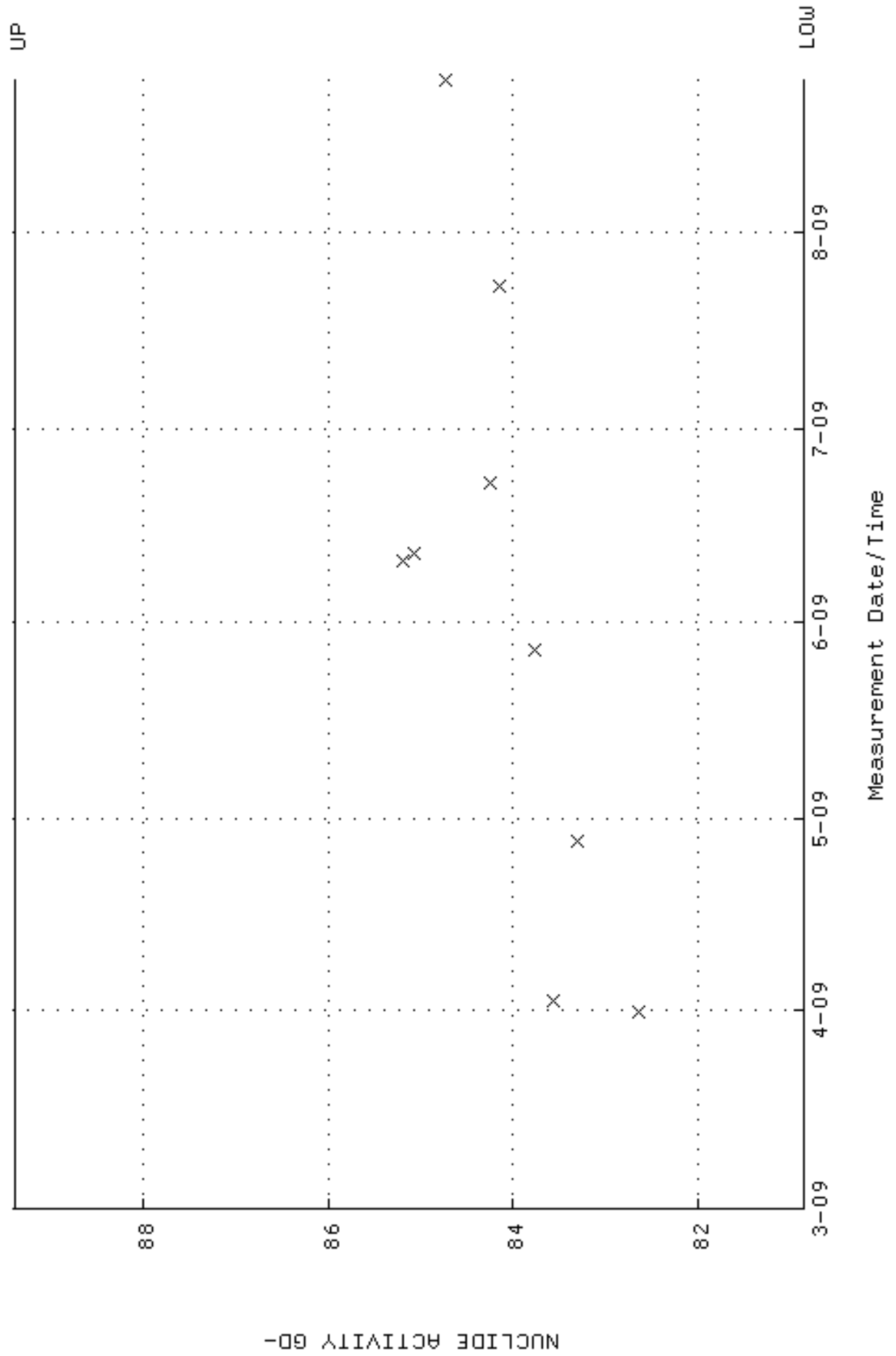




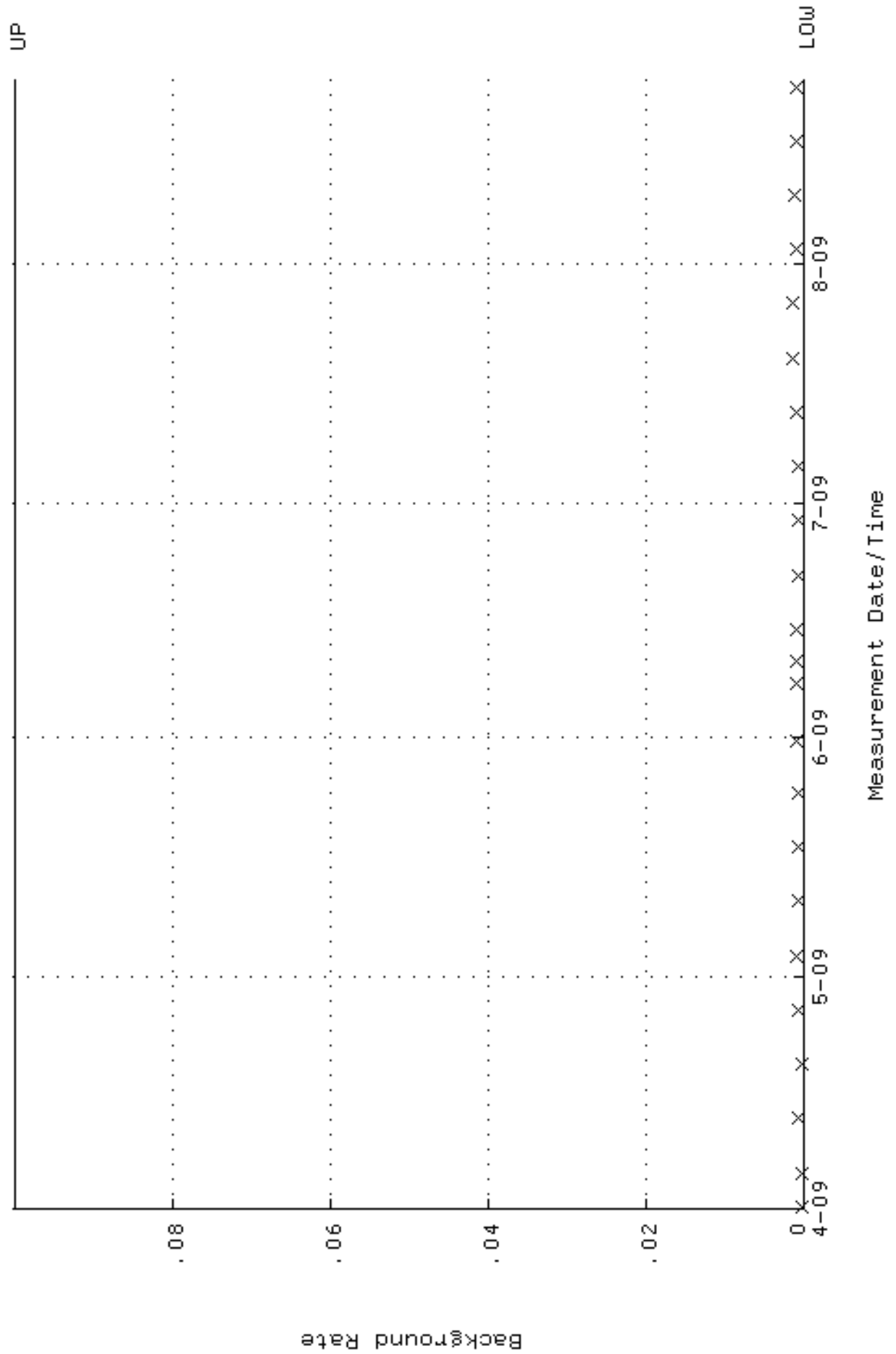
QA filename : DKA100:[ENV\_ALPHA.QA.W]W202.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 31-MAR-2009 15:10:28 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.255511 through 0.275511



QA filename : DKA100:[ENV\_ALPHA.QA.W]w202.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 31-MAR-2009 15:10:28 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 80.8649 through 89.3769

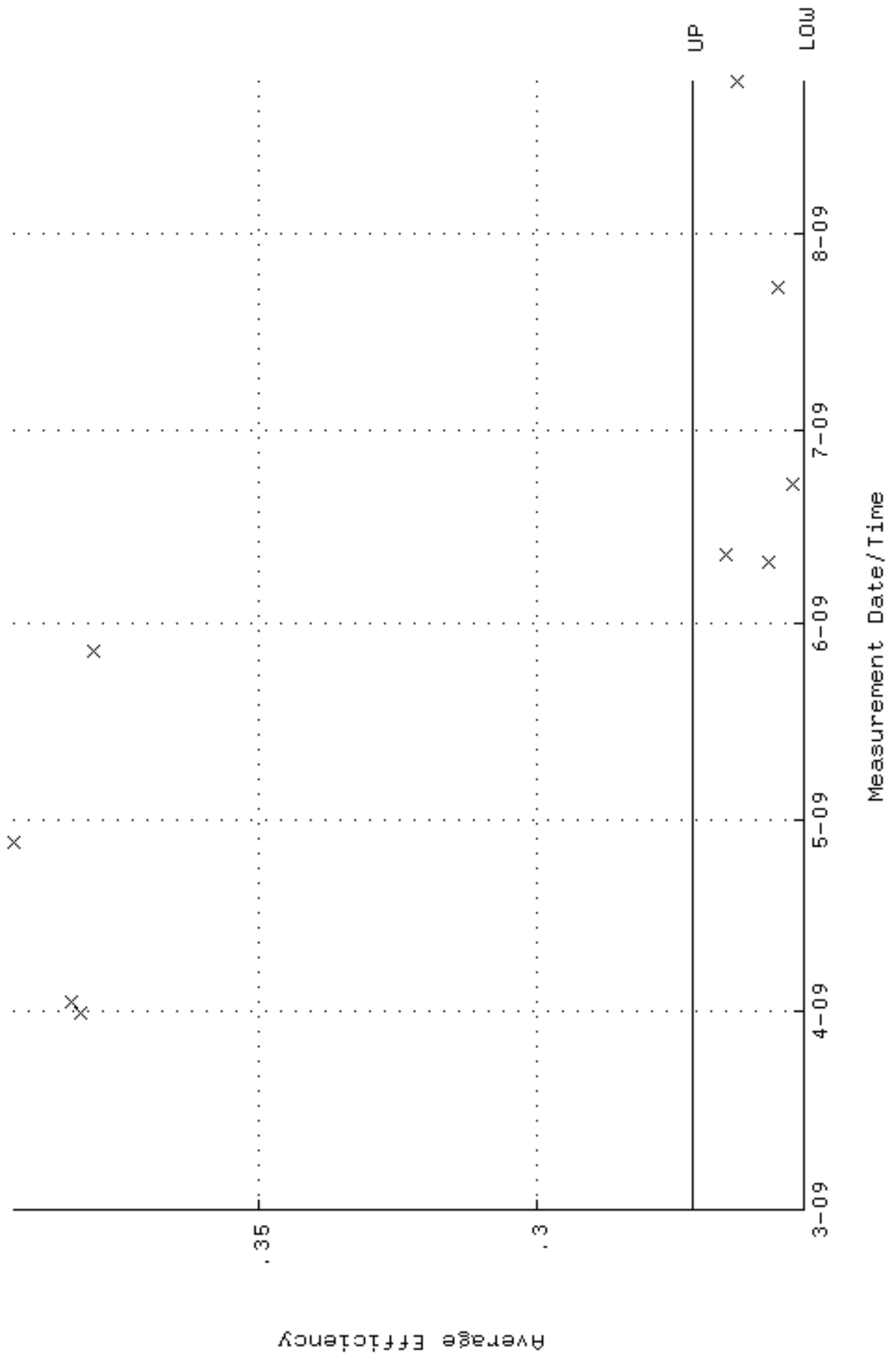


QA filename : DKA100:[ENV\_ALPHA.QA.B]B202.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-APR-2009 08:02:44 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



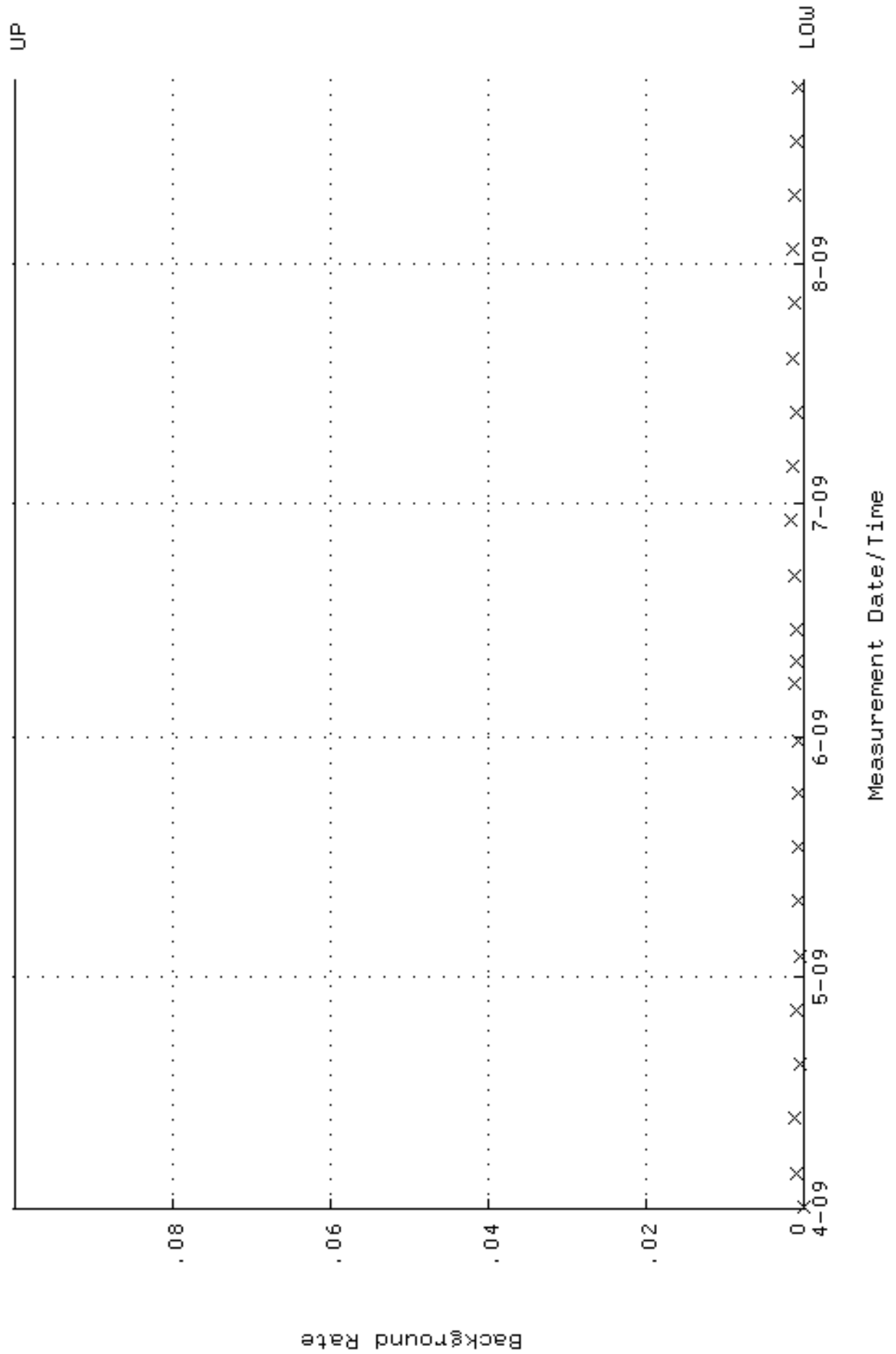


QA filename : DKA100:[ENV\_ALPHA.QA.W]W203.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 31-MAR-2009 15:10:29 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.252203 through 0.272203

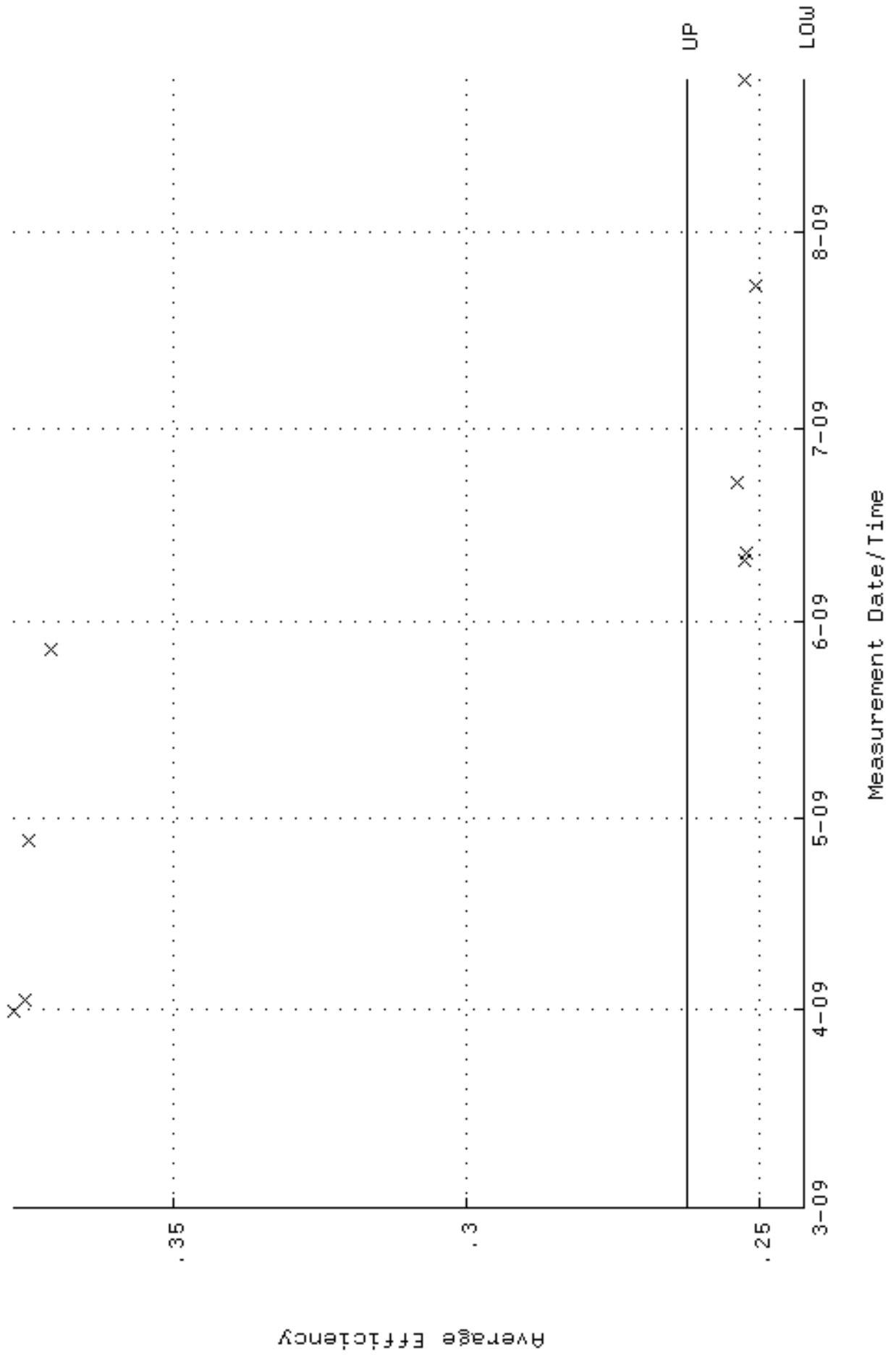




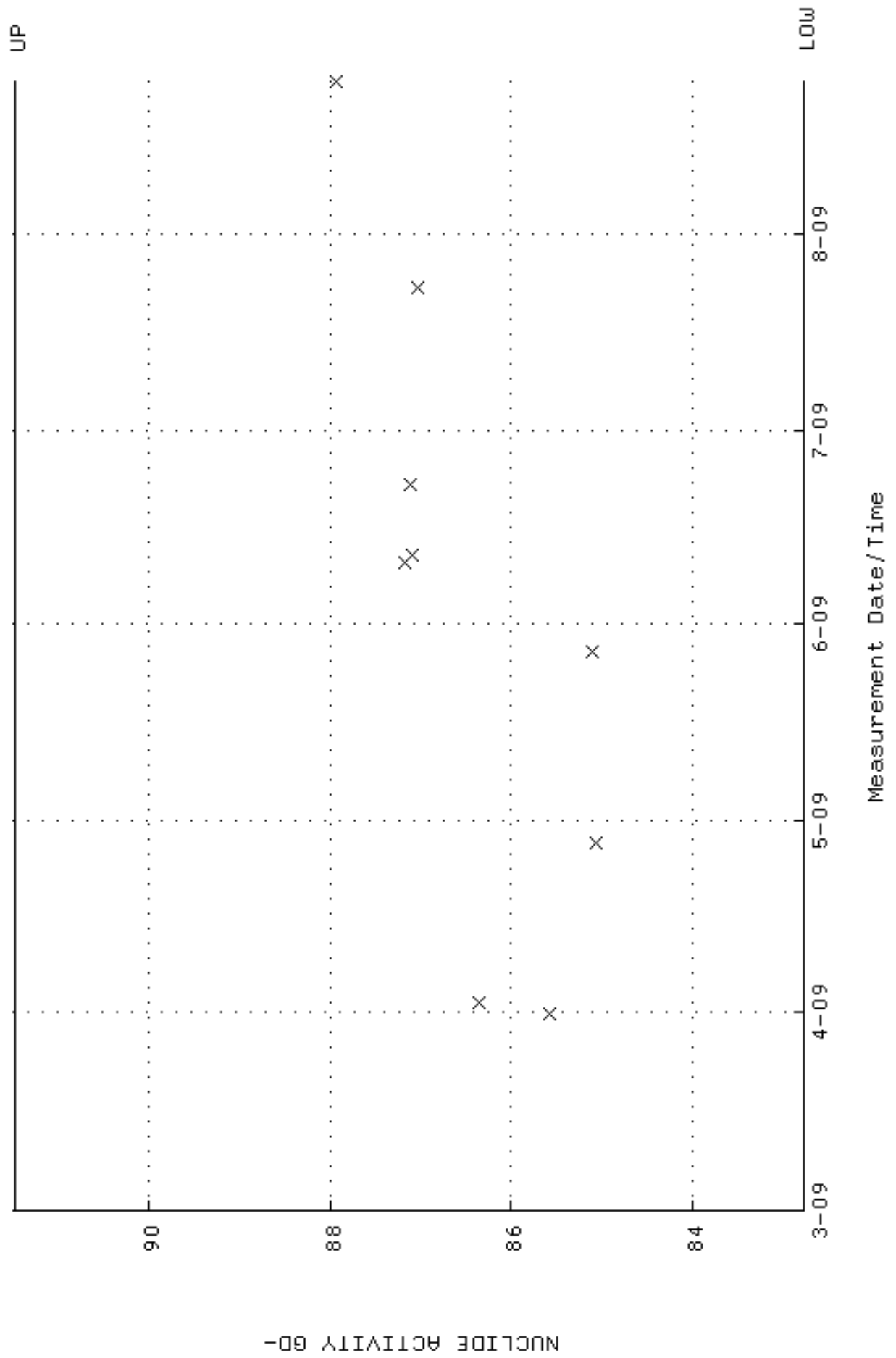
QA filename : DKA100:[ENV\_ALPHA.QA.B]B203.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-APR-2009 08:02:49 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



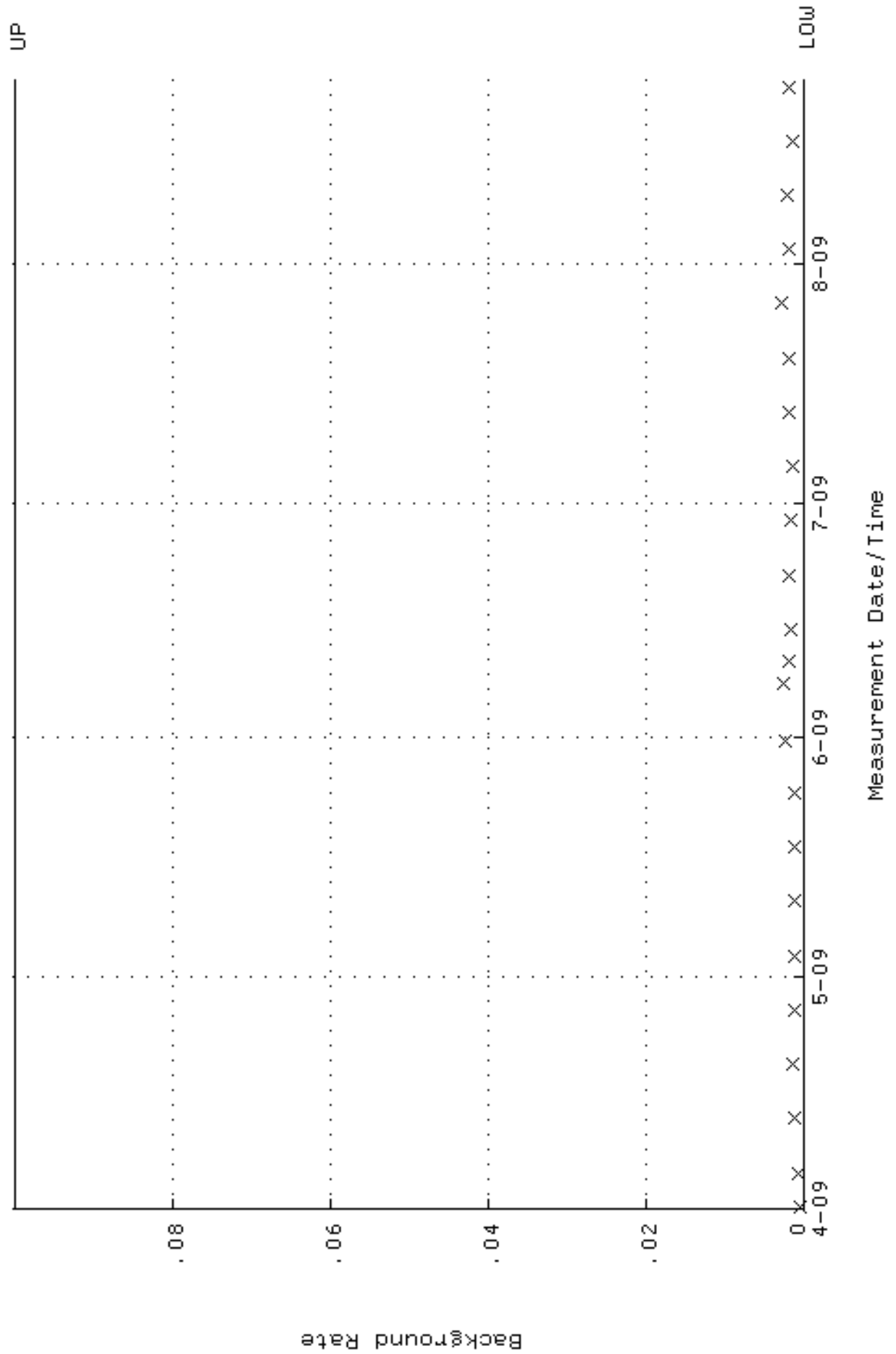
QA filename : DKA100:[ENV\_ALPHA.QA.W]W204.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 31-MAR-2009 15:10:31 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.242368 through 0.262368



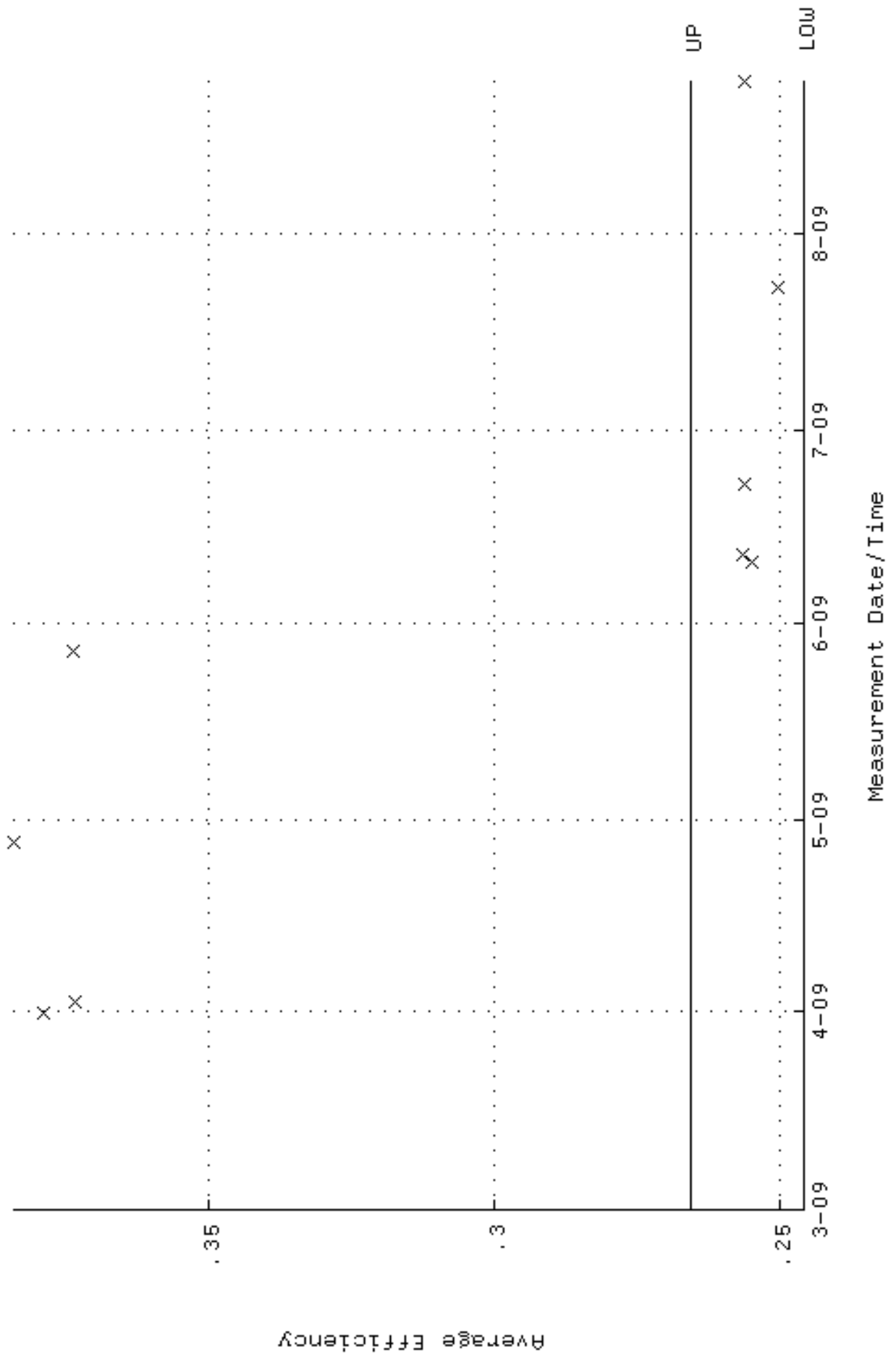
QA filename : DKA100:[ENV\_ALPHA.QA.W]w204.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 31-MAR-2009 15:10:31 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 82.7661 through 91.4783



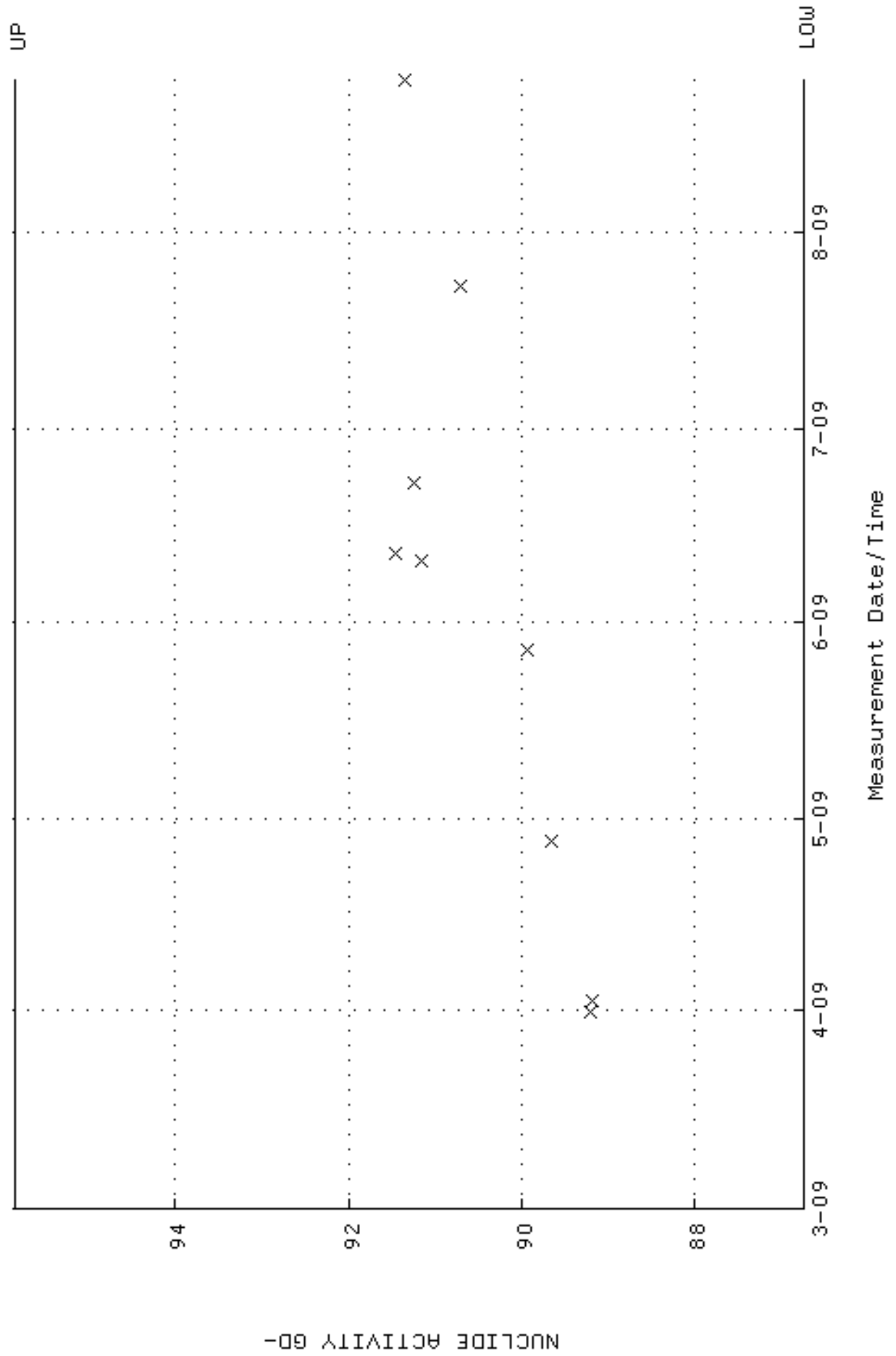
QA filename : DKA100:[ENV\_ALPHA.QA.B]B204.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-APR-2009 08:02:55 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



QA filename : DKA100:[ENV\_ALPHA.QA.W]W205.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 31-MAR-2009 15:10:33 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.245702 through 0.265702

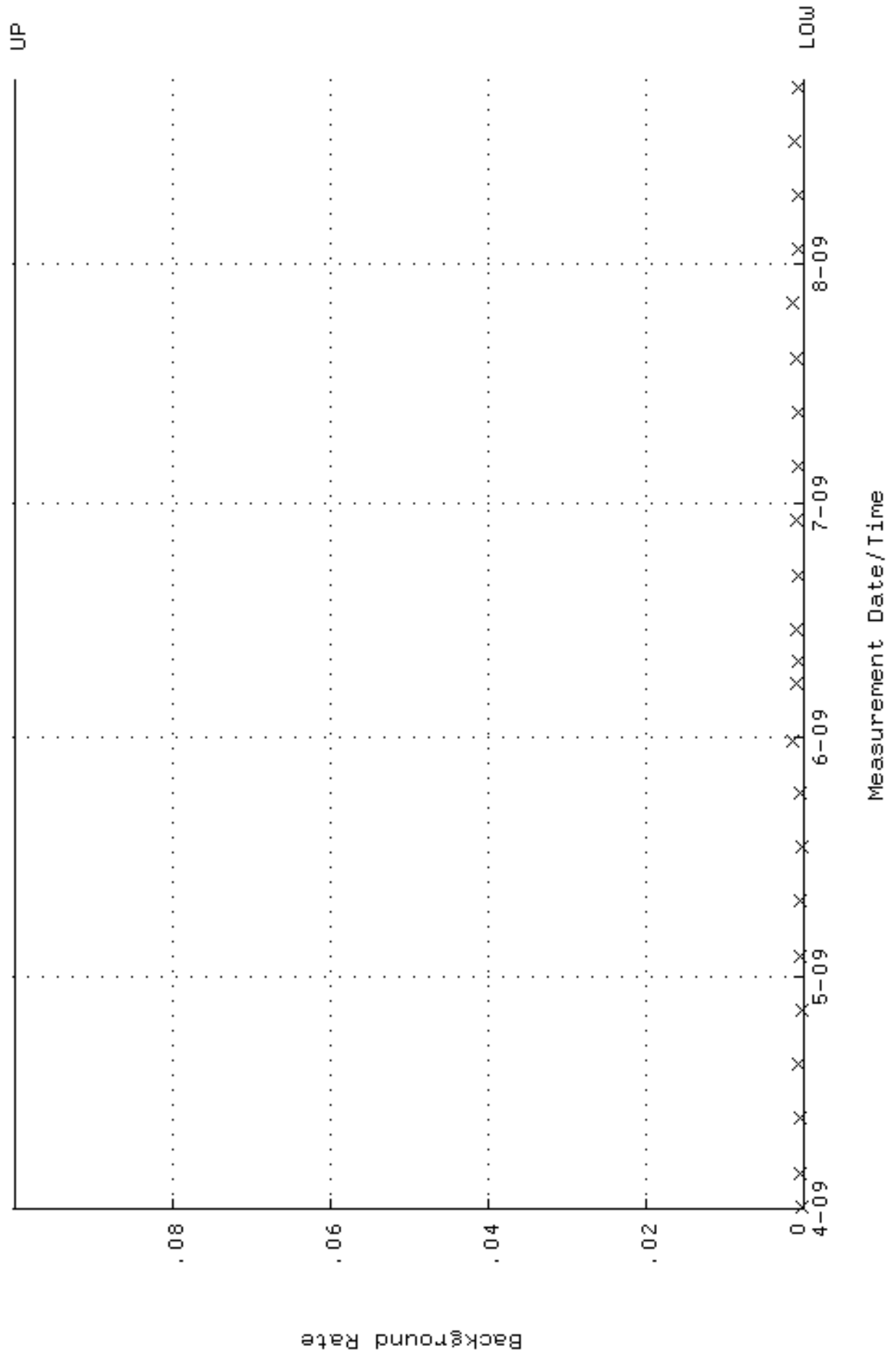


QA filename : DKA100:[ENV\_ALPHA.QA.W]W205.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 31-MAR-2009 15:10:33 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 86.7285 through 95.8579

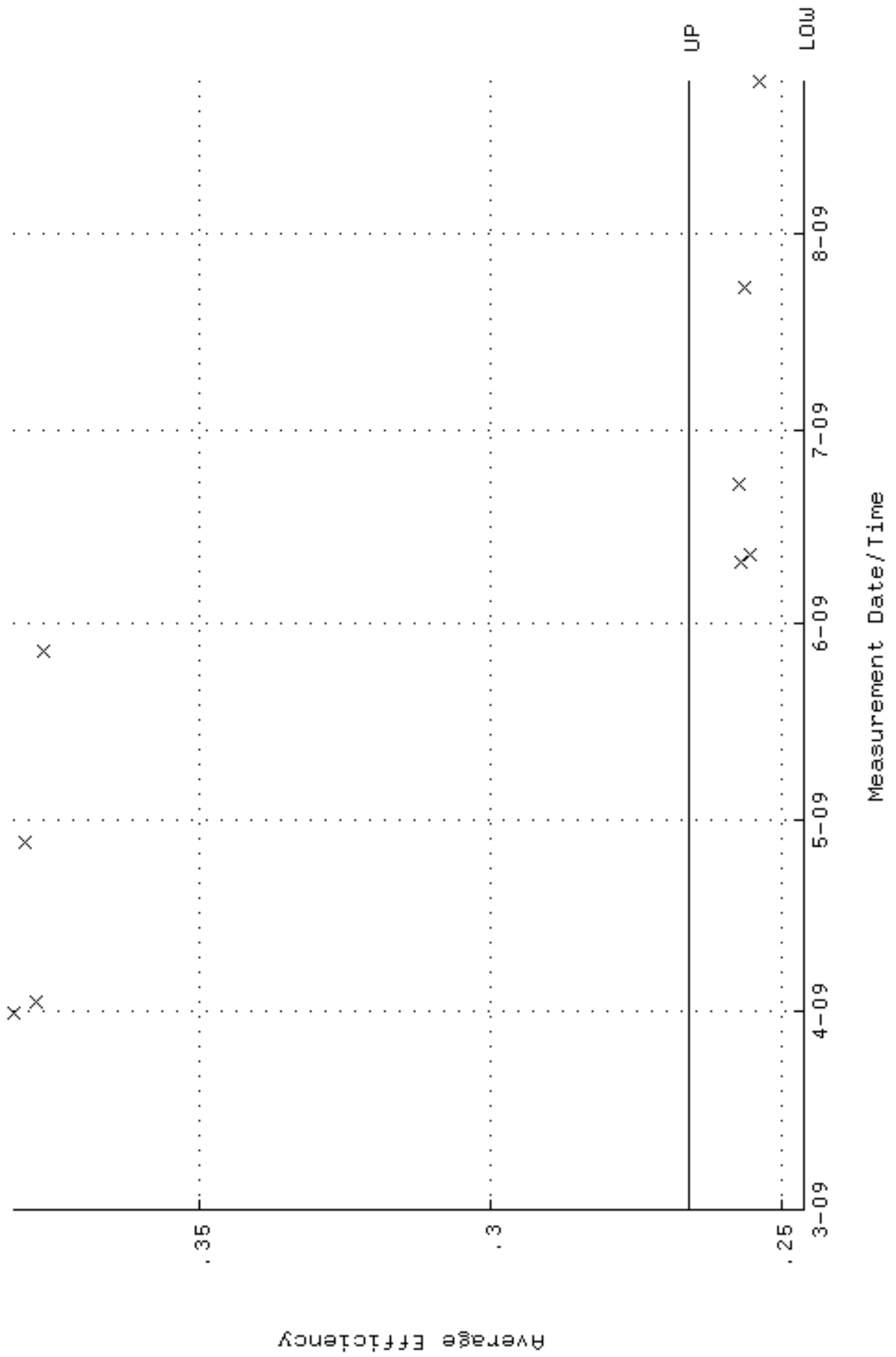




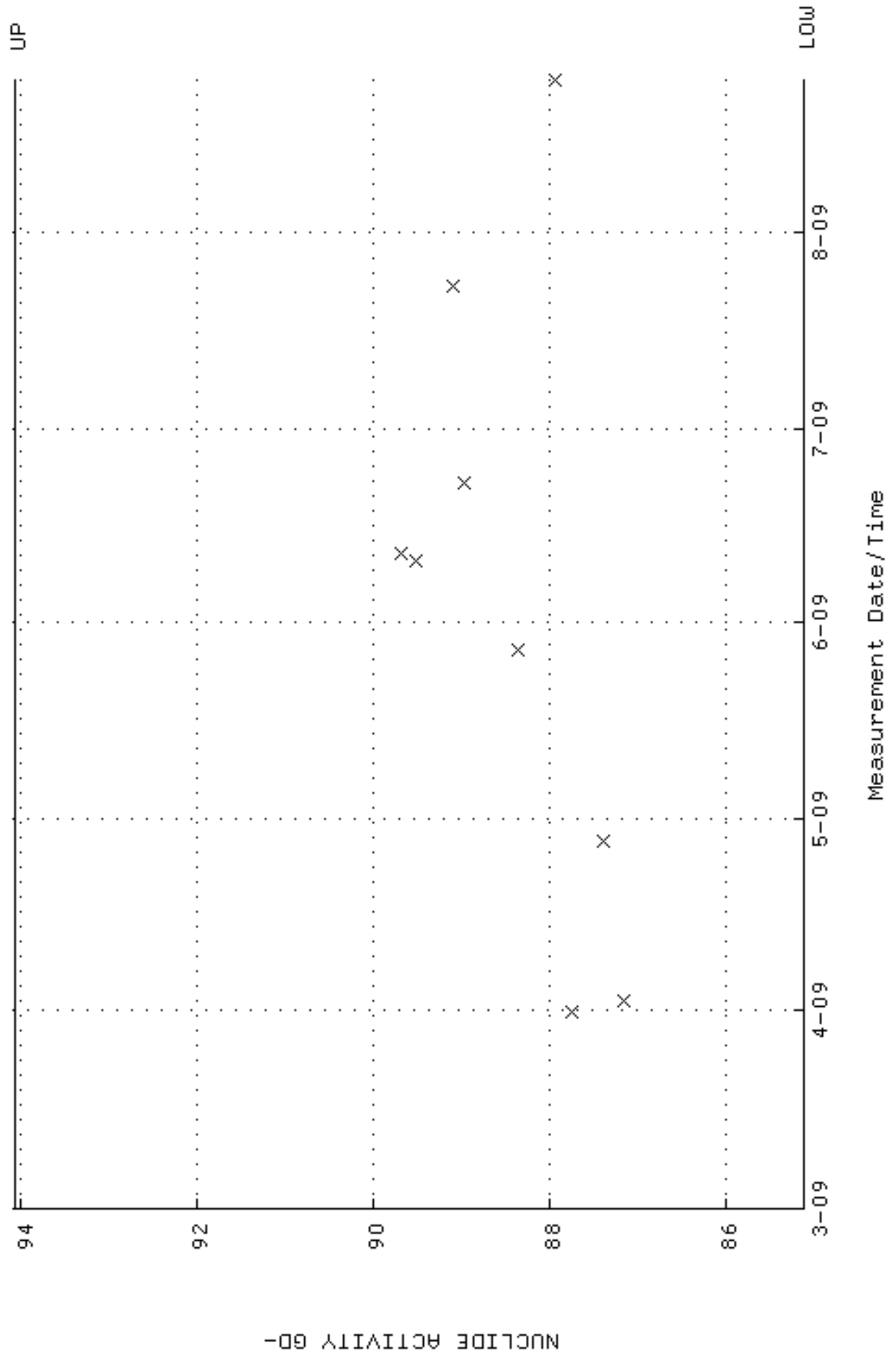
QA filename : DKA100:[ENV\_ALPHA.QA.B]B205.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-APR-2009 08:03:01 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



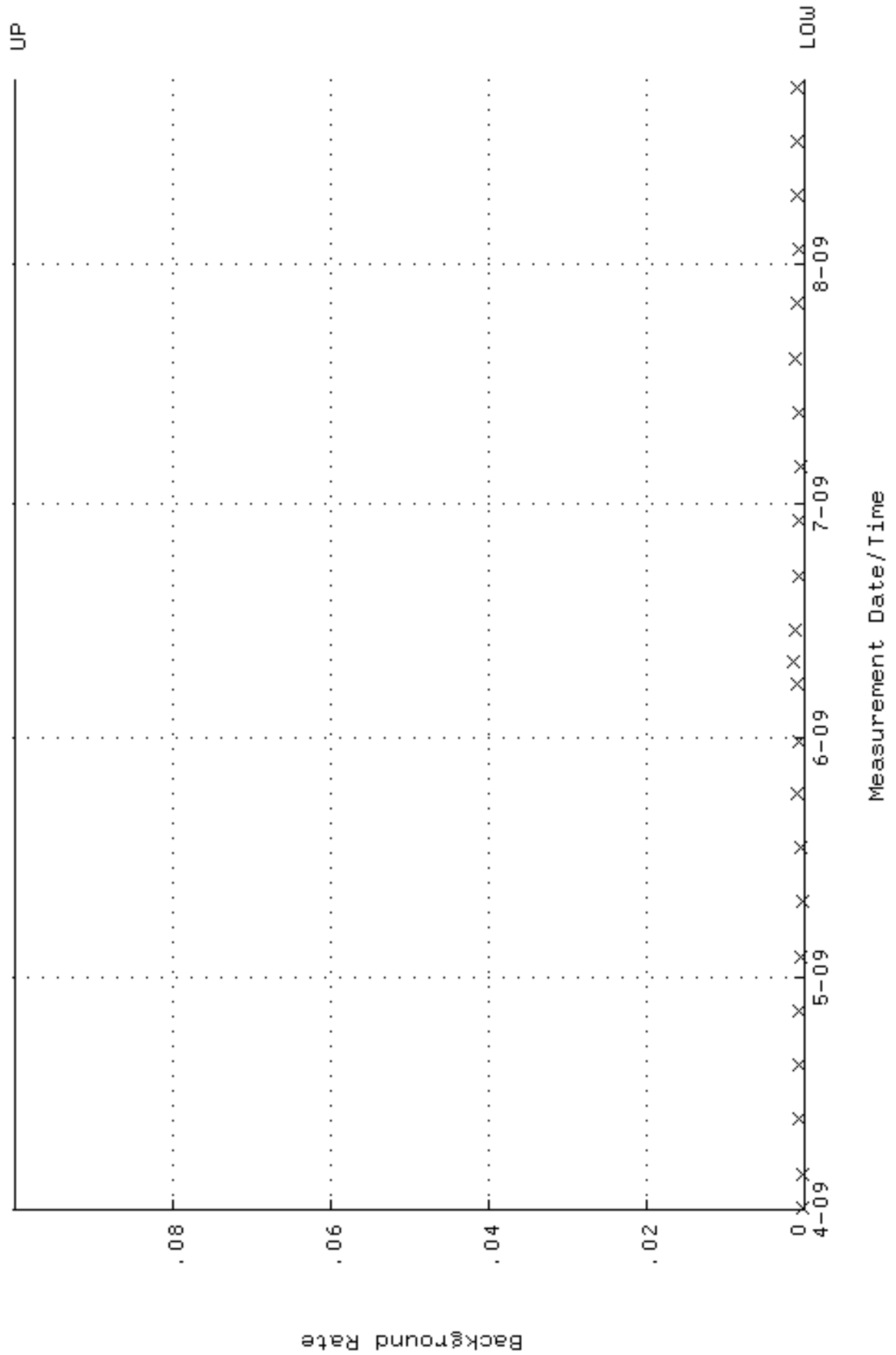
QA filename : DKA100:[ENV\_ALPHA.QA.W]W206.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 31-MAR-2009 15:10:35 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.246228 through 0.266228



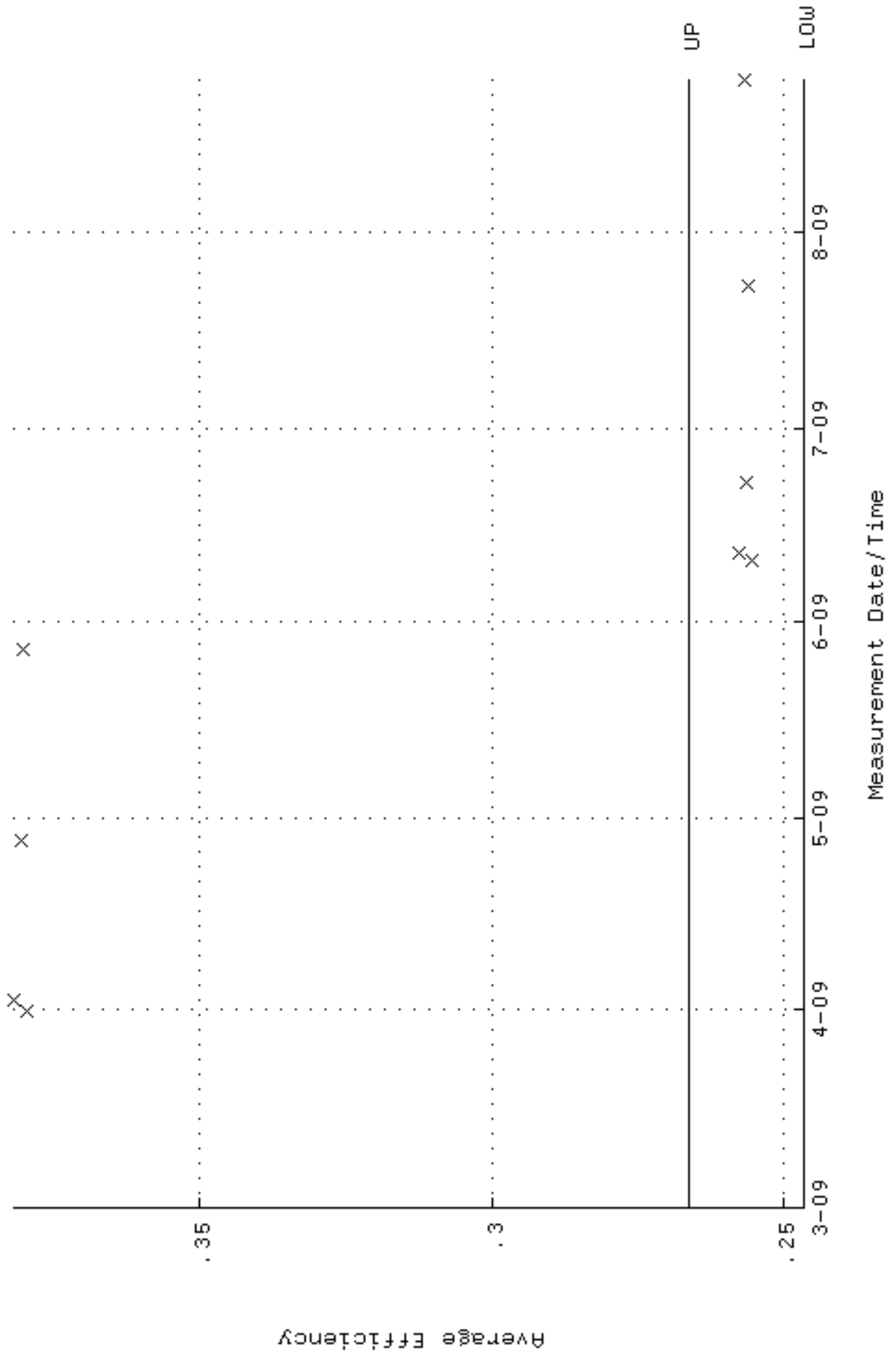
QA filename : DKA100:[ENV\_ALPHA.QA.W]w206.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 31-MAR-2009 15:10:35 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 85.1104 through 94.0694



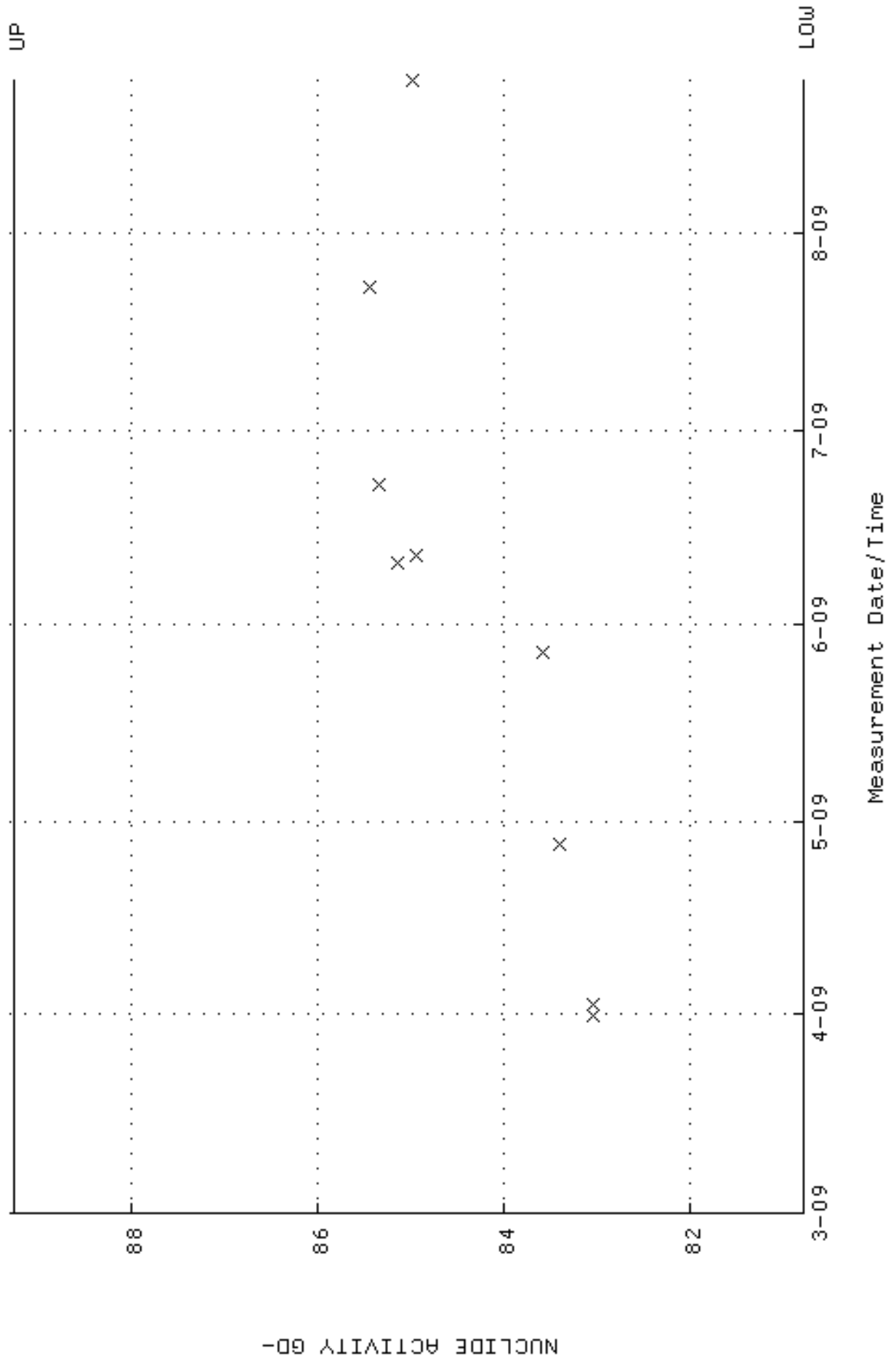
QA filename : DKA100:[ENV\_ALPHA.QA.B]B206.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-APR-2009 08:03:06 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



QA filename : DKA100:[ENV\_ALPHA.QA.W]W207.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 31-MAR-2009 15:10:38 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.246432 through 0.266432

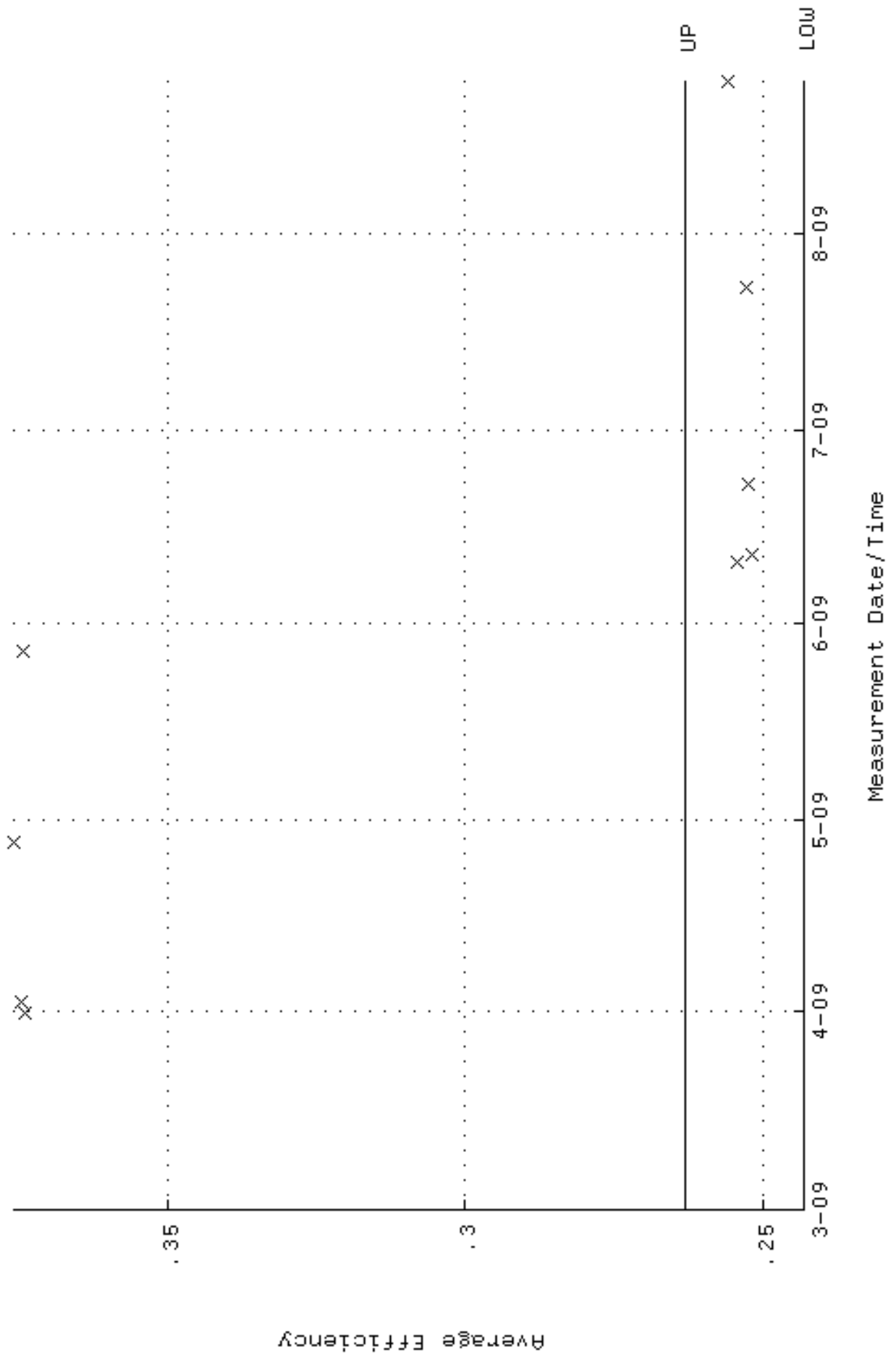


QA filename : DKA100:[ENV\_ALPHA.QA.W]w207.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 31-MAR-2009 15:10:38 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 80.7759 through 89.2787



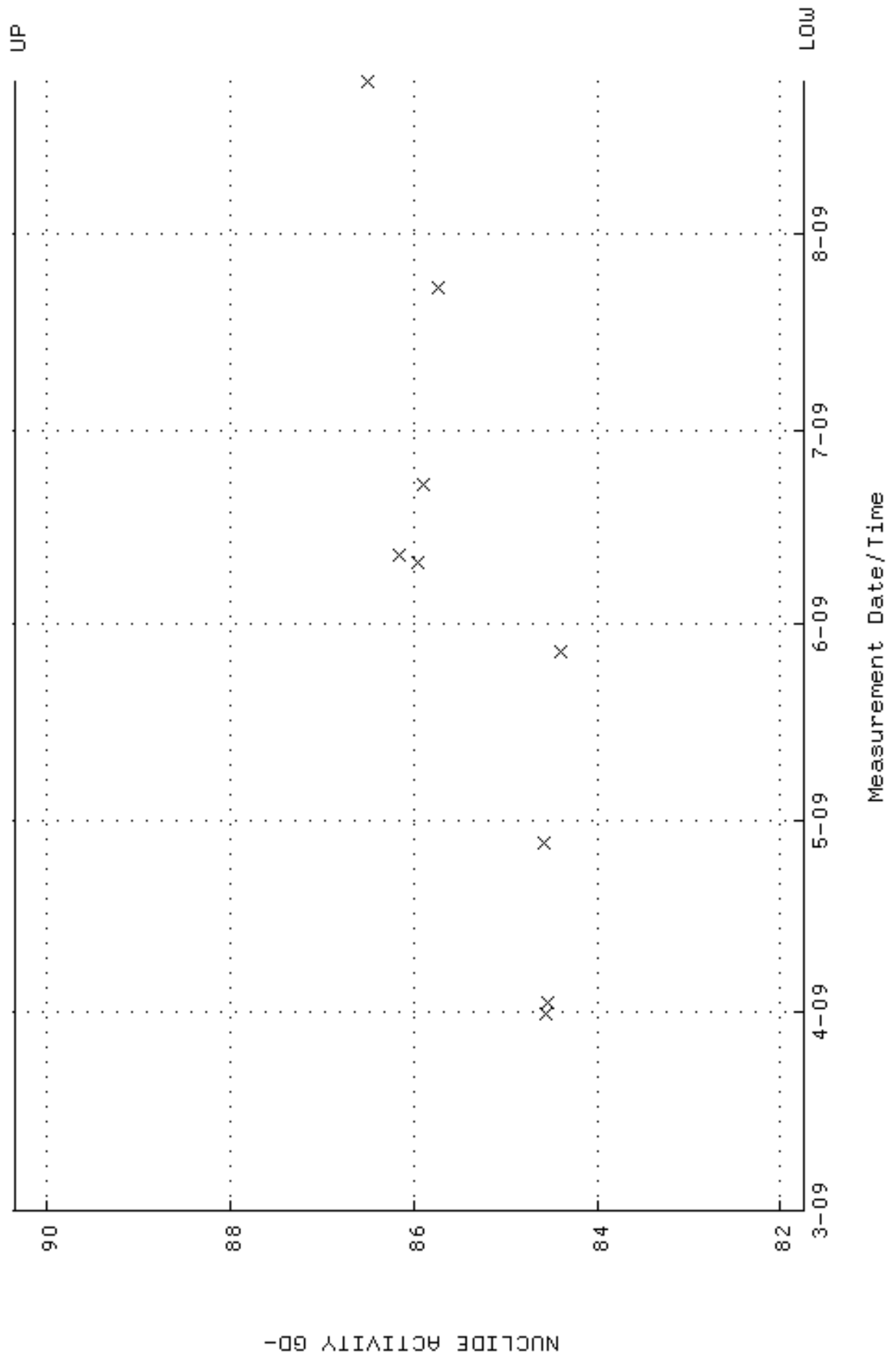


QA filename : DKA100:[ENV\_ALPHA.QA.W]W208.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 31-MAR-2009 15:10:40 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.243128 through 0.263128





QA filename : DKA100:[ENV\_ALPHA.QA.W]w208.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 31-MAR-2009 15:10:40 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 81.7467 through 90.3517





# RUNLOGS

# Instrument Run Log

Instrument Type: GFPC

Batch ID: 893087

| Sample ID  | Sample Type | Analyst | Instrument | Run Date        | Status | Geometry           | Calibration Date |
|------------|-------------|---------|------------|-----------------|--------|--------------------|------------------|
| 234964002  | SAMPLE      | JXC5    | PIC2B      | 24-AUG-09 13:55 | DONE   | CeF on 25mm Filter | 02-JUL-09 00:00  |
| 234964006  | SAMPLE      | JXC5    | PIC5C      | 24-AUG-09 13:56 | DONE   | CeF on 25mm Filter | 02-JUL-09 00:00  |
| 234964007  | SAMPLE      | JXC5    | PIC5D      | 24-AUG-09 13:56 | DONE   | CeF on 25mm Filter | 02-JUL-09 00:00  |
| 234964004  | SAMPLE      | JXC5    | PIC5A      | 24-AUG-09 13:56 | DONE   | CeF on 25mm Filter | 02-JUL-09 00:00  |
| 234964005  | SAMPLE      | JXC5    | PIC5B      | 24-AUG-09 13:56 | DONE   | CeF on 25mm Filter | 02-JUL-09 00:00  |
| 234964008  | SAMPLE      | JXC5    | PIC6A      | 24-AUG-09 13:56 | DONE   | CeF on 25mm Filter | 02-JUL-09 00:00  |
| 234964012  | SAMPLE      | JXC5    | PIC7B      | 24-AUG-09 13:56 | DONE   | CeF on 25mm Filter | 02-JUL-09 00:00  |
| 234964013  | SAMPLE      | JXC5    | PIC7C      | 24-AUG-09 13:56 | DONE   | CeF on 25mm Filter | 02-JUL-09 00:00  |
| 234964016  | SAMPLE      | JXC5    | PIC8C      | 24-AUG-09 13:56 | DONE   | CeF on 25mm Filter | 02-JUL-09 00:00  |
| 234964015  | SAMPLE      | JXC5    | PIC8A      | 24-AUG-09 13:56 | DONE   | CeF on 25mm Filter | 02-JUL-09 00:00  |
| 234964019  | SAMPLE      | JXC5    | PIC9C      | 24-AUG-09 13:56 | DONE   | CeF on 25mm Filter | 02-JUL-09 00:00  |
| 1201899996 | MS          | JXC5    | PIC10C     | 24-AUG-09 13:57 | DONE   | CeF on 25mm Filter | 02-JUL-09 00:00  |
| 1201899997 | LCS         | JXC5    | PIC10D     | 24-AUG-09 13:57 | DONE   | CeF on 25mm Filter | 02-JUL-09 00:00  |
| 1201899995 | DUP         | JXC5    | PIC10B     | 24-AUG-09 13:57 | DONE   | CeF on 25mm Filter | 02-JUL-09 00:00  |
| 234964014  | SAMPLE      | JXC5    | PIC12D     | 24-AUG-09 15:27 | DONE   | CeF on 25mm Filter | 02-JUL-09 00:00  |
| 234964003  | SAMPLE      | JXC5    | PIC2C      | 24-AUG-09 15:33 | DONE   | CeF on 25mm Filter | 02-JUL-09 00:00  |
| 234964009  | SAMPLE      | JXC5    | PIC7C      | 24-AUG-09 15:33 | DONE   | CeF on 25mm Filter | 02-JUL-09 00:00  |
| 234964010  | SAMPLE      | JXC5    | PIC9C      | 24-AUG-09 15:33 | DONE   | CeF on 25mm Filter | 02-JUL-09 00:00  |
| 234964018  | SAMPLE      | JXC5    | PIC1A      | 24-AUG-09 15:34 | DONE   | CeF on 25mm Filter | 02-JUL-09 00:00  |
| 1201899994 | MB          | JXC5    | PIC2D      | 24-AUG-09 15:34 | DONE   | CeF on 25mm Filter | 02-JUL-09 00:00  |
| 234964001  | SAMPLE      | JXC5    | PIC14B     | 24-AUG-09 17:15 | DONE   | CeF on 25mm Filter | 02-JUL-09 00:00  |
| 234964011  | SAMPLE      | JXC5    | PIC14C     | 24-AUG-09 17:15 | DONE   | CeF on 25mm Filter | 02-JUL-09 00:00  |
| 234964017  | SAMPLE      | JXC5    | PIC14D     | 24-AUG-09 17:15 | DONE   | CeF on 25mm Filter | 02-JUL-09 00:00  |

# Instrument Run Log

Instrument Type: LUCAS CELL DETECTOR

Batch ID: 893458

| Sample ID  | Sample Type | Analyst | Instrument | Run Date        | Status | Geometry   | Calibration Date |
|------------|-------------|---------|------------|-----------------|--------|------------|------------------|
| 234964001  | SAMPLE      | KSD1    | LUCAS1     | 04-SEP-09 16:15 | DONE   | Lucas Cell | 31-AUG-09 00:00  |
| 234964002  | SAMPLE      | KSD1    | LUCAS2     | 04-SEP-09 16:15 | DONE   | Lucas Cell | 19-DEC-08 00:00  |
| 234964003  | SAMPLE      | KSD1    | LUCAS3     | 04-SEP-09 16:15 | DONE   | Lucas Cell | 04-FEB-09 00:00  |
| 234964004  | SAMPLE      | KSD1    | LUCAS4     | 04-SEP-09 16:15 | DONE   | Lucas Cell | 02-MAR-09 00:00  |
| 234964005  | SAMPLE      | KSD1    | LUCAS5     | 04-SEP-09 16:15 | DONE   | Lucas Cell | 25-MAR-09 00:00  |
| 234964006  | SAMPLE      | KSD1    | LUCAS6     | 04-SEP-09 16:15 | DONE   | Lucas Cell | 04-AUG-09 00:00  |
| 234964007  | SAMPLE      | KSD1    | LUCAS1     | 04-SEP-09 16:50 | DONE   | Lucas Cell | 31-AUG-09 00:00  |
| 234964008  | SAMPLE      | KSD1    | LUCAS2     | 04-SEP-09 16:50 | DONE   | Lucas Cell | 19-DEC-08 00:00  |
| 234964009  | SAMPLE      | KSD1    | LUCAS3     | 04-SEP-09 16:50 | DONE   | Lucas Cell | 04-FEB-09 00:00  |
| 234964010  | SAMPLE      | KSD1    | LUCAS4     | 04-SEP-09 16:50 | DONE   | Lucas Cell | 02-MAR-09 00:00  |
| 234964011  | SAMPLE      | KSD1    | LUCAS5     | 04-SEP-09 16:50 | DONE   | Lucas Cell | 25-MAR-09 00:00  |
| 234964012  | SAMPLE      | KSD1    | LUCAS6     | 04-SEP-09 16:50 | DONE   | Lucas Cell | 04-AUG-09 00:00  |
| 234964013  | SAMPLE      | KSD1    | LUCAS1     | 04-SEP-09 17:20 | DONE   | Lucas Cell | 31-AUG-09 00:00  |
| 234964014  | SAMPLE      | KSD1    | LUCAS2     | 04-SEP-09 17:20 | DONE   | Lucas Cell | 19-DEC-08 00:00  |
| 234964015  | SAMPLE      | KSD1    | LUCAS3     | 04-SEP-09 17:20 | DONE   | Lucas Cell | 04-FEB-09 00:00  |
| 234964016  | SAMPLE      | KSD1    | LUCAS4     | 04-SEP-09 17:20 | DONE   | Lucas Cell | 02-MAR-09 00:00  |
| 234964017  | SAMPLE      | KSD1    | LUCAS5     | 04-SEP-09 17:20 | DONE   | Lucas Cell | 25-MAR-09 00:00  |
| 234964018  | SAMPLE      | KSD1    | LUCAS6     | 04-SEP-09 17:20 | DONE   | Lucas Cell | 04-AUG-09 00:00  |
| 234964019  | SAMPLE      | KSD1    | LUCAS1     | 04-SEP-09 17:55 | DONE   | Lucas Cell | 31-AUG-09 00:00  |
| 1201900998 | MB          | KSD1    | LUCAS2     | 04-SEP-09 17:55 | DONE   | Lucas Cell | 19-DEC-08 00:00  |
| 1201900999 | DUP         | KSD1    | LUCAS3     | 04-SEP-09 17:55 | DONE   | Lucas Cell | 04-FEB-09 00:00  |
| 1201901000 | MS          | KSD1    | LUCAS4     | 04-SEP-09 17:55 | DONE   | Lucas Cell | 02-MAR-09 00:00  |
| 1201901001 | LCS         | KSD1    | LUCAS5     | 04-SEP-09 18:40 | DONE   | Lucas Cell | 25-MAR-09 00:00  |

# Instrument Run Log

Instrument Type: ALPHA SPECTROMETER

Batch ID: 893944

| Sample ID  | Sample Type | Analyst | Instrument | Run Date        | Status | Geometry | Calibration Date |
|------------|-------------|---------|------------|-----------------|--------|----------|------------------|
| 1201902401 | LCS         | JXD2    | 1198       | 19-AUG-09 12:29 | DONE   |          |                  |
| 234654021  | SAMPLE      | JXD2    | 1201       | 19-AUG-09 12:29 | DONE   |          |                  |
| 234964020  | SAMPLE      | JXD2    | 1202       | 19-AUG-09 12:29 | DONE   |          |                  |
| 1201903406 | LCSD        | JXD2    | 1205       | 19-AUG-09 12:29 | DONE   |          |                  |
| 1201902396 | MB          | JXD2    | 1206       | 19-AUG-09 12:29 | DONE   |          |                  |
| 1201902396 | MB          | JXD2    | 1173       | 28-AUG-09 16:04 | DUSE   |          |                  |

# Instrument Run Log

Instrument Type: ALPHA SPECTROMETER

Batch ID: 893946

| Sample ID  | Sample Type | Analyst | Instrument | Run Date        | Status | Geometry | Calibration Date |
|------------|-------------|---------|------------|-----------------|--------|----------|------------------|
| 234654021  | SAMPLE      | JXD2    | 1152       | 22-AUG-09 17:58 | DONE   |          |                  |
| 234964020  | SAMPLE      | JXD2    | 1153       | 22-AUG-09 17:58 | DUSE   |          |                  |
| 1201902402 | MB          | JXD2    | 1154       | 22-AUG-09 17:58 | DONE   |          |                  |
| 1201902407 | LCS         | JXD2    | 1155       | 22-AUG-09 17:58 | DONE   |          |                  |
| 1201903407 | LCSD        | JXD2    | 1156       | 22-AUG-09 17:58 | DONE   |          |                  |
| 234964020  | SAMPLE      | JXD2    | 1114       | 28-AUG-09 16:04 | DONE   |          |                  |

# Instrument Run Log

Instrument Type: GFPC

Batch ID: 894564

| Sample ID  | Sample Type | Analyst | Instrument | Run Date        | Status | Geometry           | Calibration Date |
|------------|-------------|---------|------------|-----------------|--------|--------------------|------------------|
| 234964020  | SAMPLE      | MXS2    | PIC2A      | 20-AUG-09 15:33 | DONE   | CeF on 25mm Filter | 02-JUL-09 00:00  |
| 1201903941 | MB          | MXS2    | PIC2B      | 20-AUG-09 15:33 | DONE   | CeF on 25mm Filter | 02-JUL-09 00:00  |
| 1201903942 | DUP         | MXS2    | PIC2C      | 20-AUG-09 15:33 | DONE   | CeF on 25mm Filter | 02-JUL-09 00:00  |
| 1201903943 | MS          | MXS2    | PIC2D      | 20-AUG-09 15:33 | DONE   | CeF on 25mm Filter | 02-JUL-09 00:00  |
| 1201903944 | LCS         | MXS2    | PIC3A      | 20-AUG-09 15:34 | DONE   | CeF on 25mm Filter | 02-JUL-09 00:00  |



# Instrument Run Log

Instrument Type: LUCAS CELL DETECTOR

Batch ID: 896543

| Sample ID  | Sample Type | Analyst | Instrument | Run Date        | Status | Geometry   | Calibration Date |
|------------|-------------|---------|------------|-----------------|--------|------------|------------------|
| 234654021  | SAMPLE      | KSD1    | LUCAS1     | 02-SEP-09 07:50 | DONE   | Lucas Cell | 31-AUG-09 00:00  |
| 234964020  | SAMPLE      | KSD1    | LUCAS2     | 02-SEP-09 07:50 | DONE   | Lucas Cell | 19-DEC-08 00:00  |
| 1201908843 | MB          | KSD1    | LUCAS3     | 02-SEP-09 07:50 | DONE   | Lucas Cell | 04-FEB-09 00:00  |
| 1201908845 | DUP         | KSD1    | LUCAS5     | 02-SEP-09 07:50 | DONE   | Lucas Cell | 25-MAR-09 00:00  |
| 1201908847 | MS          | KSD1    | LUCAS1     | 02-SEP-09 08:25 | DONE   | Lucas Cell | 31-AUG-09 00:00  |
| 1201908848 | LCS         | KSD1    | LUCAS2     | 02-SEP-09 08:25 | DONE   | Lucas Cell | 19-DEC-08 00:00  |

# Instrument Run Log

Instrument Type: ALPHA SPECTROMETER

Batch ID: 899594

| Sample ID  | Sample Type | Analyst | Instrument | Run Date        | Status | Geometry | Calibration Date |
|------------|-------------|---------|------------|-----------------|--------|----------|------------------|
| 1201916364 | MS          | KXM4    | 1025       | 04-SEP-09 11:28 | DUSE   |          |                  |
| 234964001  | SAMPLE      | KXM4    | 1026       | 04-SEP-09 11:28 | DUSE   |          |                  |
| 234964002  | SAMPLE      | KXM4    | 1027       | 04-SEP-09 11:28 | DUSE   |          |                  |
| 1201916365 | LCS         | KXM4    | 1028       | 04-SEP-09 11:28 | DUSE   |          |                  |
| 234964003  | SAMPLE      | KXM4    | 1033       | 04-SEP-09 11:28 | DUSE   |          |                  |
| 234964004  | SAMPLE      | KXM4    | 1036       | 04-SEP-09 11:28 | DUSE   |          |                  |
| 234964005  | SAMPLE      | KXM4    | 1038       | 04-SEP-09 11:28 | DUSE   |          |                  |
| 234964006  | SAMPLE      | KXM4    | 1040       | 04-SEP-09 11:28 | DUSE   |          |                  |
| 234964007  | SAMPLE      | KXM4    | 1042       | 04-SEP-09 11:28 | DUSE   |          |                  |
| 234964008  | SAMPLE      | KXM4    | 1043       | 04-SEP-09 11:28 | DUSE   |          |                  |
| 234964009  | SAMPLE      | KXM4    | 1044       | 04-SEP-09 11:28 | DUSE   |          |                  |
| 234964010  | SAMPLE      | KXM4    | 1045       | 04-SEP-09 11:28 | DUSE   |          |                  |
| 234964011  | SAMPLE      | KXM4    | 1046       | 04-SEP-09 11:28 | DUSE   |          |                  |
| 234964012  | SAMPLE      | KXM4    | 1047       | 04-SEP-09 11:28 | DUSE   |          |                  |
| 234964013  | SAMPLE      | KXM4    | 1173       | 04-SEP-09 14:07 | DUSE   |          |                  |
| 234964014  | SAMPLE      | KXM4    | 1185       | 04-SEP-09 14:09 | DUSE   |          |                  |
| 234964015  | SAMPLE      | KXM4    | 1188       | 04-SEP-09 14:09 | DUSE   |          |                  |
| 234964016  | SAMPLE      | KXM4    | 1189       | 04-SEP-09 14:09 | DUSE   |          |                  |
| 234964017  | SAMPLE      | KXM4    | 1191       | 04-SEP-09 14:10 | DUSE   |          |                  |
| 234964018  | SAMPLE      | KXM4    | 1194       | 04-SEP-09 14:10 | DUSE   |          |                  |
| 234964019  | SAMPLE      | KXM4    | 1197       | 04-SEP-09 14:12 | DUSE   |          |                  |
| 1201916362 | MB          | KXM4    | 1198       | 04-SEP-09 14:12 | DUSE   |          |                  |
| 1201916363 | DUP         | KXM4    | 1199       | 04-SEP-09 14:12 | DUSE   |          |                  |
| 234964001  | SAMPLE      | KXM4    | 1027       | 08-SEP-09 12:05 | DONE   |          |                  |
| 1201916364 | MS          | KXM4    | 1031       | 08-SEP-09 12:05 | DONE   |          |                  |
| 234964002  | SAMPLE      | KXM4    | 1033       | 08-SEP-09 12:05 | DONE   |          |                  |
| 1201916365 | LCS         | KXM4    | 1035       | 08-SEP-09 12:05 | DONE   |          |                  |
| 234964003  | SAMPLE      | KXM4    | 1036       | 08-SEP-09 12:05 | DONE   |          |                  |
| 234964004  | SAMPLE      | KXM4    | 1040       | 08-SEP-09 12:05 | DONE   |          |                  |
| 234964005  | SAMPLE      | KXM4    | 1041       | 08-SEP-09 12:05 | DONE   |          |                  |
| 234964006  | SAMPLE      | KXM4    | 1042       | 08-SEP-09 12:05 | DONE   |          |                  |
| 234964007  | SAMPLE      | KXM4    | 1177       | 08-SEP-09 14:07 | DONE   |          |                  |
| 234964008  | SAMPLE      | KXM4    | 1180       | 08-SEP-09 14:07 | DONE   |          |                  |
| 234964009  | SAMPLE      | KXM4    | 1182       | 08-SEP-09 14:07 | DONE   |          |                  |
| 234964010  | SAMPLE      | KXM4    | 1185       | 08-SEP-09 14:07 | DONE   |          |                  |
| 234964011  | SAMPLE      | KXM4    | 1186       | 08-SEP-09 14:07 | DONE   |          |                  |
| 1201916362 | MB          | KXM4    | 1187       | 08-SEP-09 14:07 | DONE   |          |                  |
| 234964012  | SAMPLE      | KXM4    | 1188       | 08-SEP-09 14:07 | DONE   |          |                  |
| 1201916363 | DUP         | KXM4    | 1194       | 08-SEP-09 14:08 | DONE   |          |                  |
| 234964013  | SAMPLE      | KXM4    | 1195       | 08-SEP-09 14:08 | DONE   |          |                  |
| 234964014  | SAMPLE      | KXM4    | 1196       | 08-SEP-09 14:08 | DONE   |          |                  |
| 234964015  | SAMPLE      | KXM4    | 1203       | 08-SEP-09 14:08 | DONE   |          |                  |
| 234964016  | SAMPLE      | KXM4    | 1204       | 08-SEP-09 14:08 | DONE   |          |                  |
| 234964017  | SAMPLE      | KXM4    | 1205       | 08-SEP-09 14:08 | DONE   |          |                  |

# Instrument Run Log

**Instrument Type: ALPHA SPECTROMETER**

| <b>Sample ID</b> | <b>Sample Type</b> | <b>Analyst</b> | <b>Instrument</b> | <b>Run Date</b> | <b>Status</b> | <b>Geometry</b> | <b>Calibration Date</b> |
|------------------|--------------------|----------------|-------------------|-----------------|---------------|-----------------|-------------------------|
| 234964018        | SAMPLE             | KXM4           | 1207              | 08-SEP-09 14:08 | DONE          |                 |                         |
| 234964019        | SAMPLE             | KXM4           | 1208              | 08-SEP-09 14:09 | DONE          |                 |                         |

# Instrument Run Log

Instrument Type: ALPHA SPECTROMETER

Batch ID: 899595

| Sample ID  | Sample Type | Analyst | Instrument | Run Date        | Status | Geometry | Calibration Date |
|------------|-------------|---------|------------|-----------------|--------|----------|------------------|
| 234964009  | SAMPLE      | KXM4    | 1114       | 04-SEP-09 14:22 | DONE   |          |                  |
| 234964010  | SAMPLE      | KXM4    | 1116       | 04-SEP-09 14:22 | DONE   |          |                  |
| 234964011  | SAMPLE      | KXM4    | 1118       | 04-SEP-09 14:22 | DONE   |          |                  |
| 234964012  | SAMPLE      | KXM4    | 1123       | 04-SEP-09 14:22 | DONE   |          |                  |
| 234964013  | SAMPLE      | KXM4    | 1127       | 04-SEP-09 14:22 | DONE   |          |                  |
| 234964014  | SAMPLE      | KXM4    | 1131       | 04-SEP-09 14:23 | DONE   |          |                  |
| 234964015  | SAMPLE      | KXM4    | 1151       | 04-SEP-09 14:40 | DONE   |          |                  |
| 234964016  | SAMPLE      | KXM4    | 1155       | 04-SEP-09 14:40 | DONE   |          |                  |
| 1201916368 | MS          | KXM4    | 1008       | 04-SEP-09 14:41 | DONE   |          |                  |
| 234964001  | SAMPLE      | KXM4    | 1009       | 04-SEP-09 14:41 | DONE   |          |                  |
| 234964002  | SAMPLE      | KXM4    | 1010       | 04-SEP-09 14:41 | DUSE   |          |                  |
| 234964003  | SAMPLE      | KXM4    | 1013       | 04-SEP-09 14:41 | DONE   |          |                  |
| 234964004  | SAMPLE      | KXM4    | 1014       | 04-SEP-09 14:41 | DONE   |          |                  |
| 1201916369 | LCS         | KXM4    | 1015       | 04-SEP-09 14:41 | DONE   |          |                  |
| 234964005  | SAMPLE      | KXM4    | 1016       | 04-SEP-09 14:41 | DONE   |          |                  |
| 234964006  | SAMPLE      | KXM4    | 1017       | 04-SEP-09 14:41 | DONE   |          |                  |
| 234964007  | SAMPLE      | KXM4    | 1018       | 04-SEP-09 14:41 | DONE   |          |                  |
| 234964008  | SAMPLE      | KXM4    | 1023       | 04-SEP-09 14:41 | DONE   |          |                  |
| 234964017  | SAMPLE      | KXM4    | 1161       | 04-SEP-09 14:42 | DONE   |          |                  |
| 234964018  | SAMPLE      | KXM4    | 1162       | 04-SEP-09 14:42 | DONE   |          |                  |
| 234964019  | SAMPLE      | KXM4    | 1165       | 04-SEP-09 14:42 | DONE   |          |                  |
| 1201916366 | MB          | KXM4    | 1166       | 04-SEP-09 14:42 | DONE   |          |                  |
| 1201916367 | DUP         | KXM4    | 1167       | 04-SEP-09 15:21 | DONE   |          |                  |
| 234964002  | SAMPLE      | KXM4    | 1131       | 08-SEP-09 11:31 | DONE   |          |                  |