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Case Narrative

CASE NARRATIVE
for
MWH LABORATORIES
MWH PROJECT: 99-22168/169405
TRONOX HENDERSON SITE
SDG: 158277

April 27, 2006

Laboratory Identification:

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

Summary

Sample receipt The sample arrived at General Engineering Laboratories, LLC, Charleston, South Carolina on March 16, 2006 for analysis. Shipping container temperature was checked, documented, and within specifications. The chain of custody was not signed as relinquished by the sampler. The client was notified. Please refer to the enclosed e-mail. All sample containers arrived without any visible signs of tampering or breakage. There are no additional comments concerning sample receipt.

Sample Identification The laboratory received the following sample:

| <u>Laboratory ID</u> | <u>Client ID</u> |
|----------------------|------------------|
| 158277001 | 2603100260 EB-1 |

Case Narrative

Sample analyses were conducted using methodology as outlined in General Engineering Laboratories (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



MWH Laboratories
 A Division of MWH Americas, Inc.
 750 Royal Oaks Drive Suite 100
 Monrovia, CA 91016-3629
 Ph (626) 386-1100 Fax (626) 386-1095

Ship To **Edie Kent**

General Engineering Laboratories, LLC
 2040 Savage Road
 Charleston, SC 29414

(843) 556-8171 X4433 Fax (843) 766-1178

Date **03/14/06**

Submittal Form & Purchase Order 99-22168

***REPORTING REQUIREMENTS: Do Not Combine Report with any other samples submitted under different MWH project numbers!**
 Report & Invoice must have the MWH Project Number **169405** Sub PO# **99-22168** and Job # **Find Out**
 Report all quality control data according to Method. Include dates analyzed, date extracted (if extracted) and Method reference on the report.
Results must have Complete data & QC with Approval Signature. See reverse side for List of Terms and Conditions

Reports: Julie Lee Sub-contracting Administrator
 EMAIL TO: Julie.Lee@mwhglobal.com
 MWH Laboratories 750 Royal Oaks Dr. Ste. 100, Monrovia, CA 91016
 Phone (626) 386-1136 Fax (626) 386-1095
 Invoices to: MWH LABORATORIES
 Accounts Payable PO BOX 6610, Broomfield, CO 80021

Provide in each Report
 the Specified State
 Certification # & Exp Date for
 requested tests + matrix

CA ELAP OK

MWH Project # Report Due: Sub PO#
169405 03/29/06 99-22168

JDL

Use MWH
 Lab # for ID

Client Sample ID for reference only Analysis Requested Date & Time Matrix Container

| Client Sample ID for reference only | Analysis Requested | Date & Time | Matrix | Container |
|-------------------------------------|--------------------|----------------|------------------------|-----------|
| 1 CUSTSUB | RADIUM 226 | 03/09/06 14:00 | grnd 5 1L poly bottles | |
| 2 | RADIUM 228 | | | |
| 3 | LEAD 210 | | | |
| 4 | LEAD212 | | | |
| 5 | THORIUM (ISOTOPIC) | | | |
| 6 | URANIUM (ISOTOPIC) | | | |
| 7 | URANIUM (TOTAL) | | | |

(Handwritten signature)

Relinquished by:

Sample Control

Date **03/14/06**

Time **1441**

MUST HAVE NOTIFICATION IF TEMP IS GREATER THAN 6 OR LESS THAN 2 CELSIUS

Page 1

Received by: *(Handwritten signature)*

Date **2/14/06**

Time **0905**

An Acknowledgement of Receipt is requested to attn: Julie Lee



SAMPLE RECEIPT & REVIEW FORM

PM use only

| | |
|----------------------------------|--|
| Client: <u>MWH Labs.</u> | SDG/ARCO/Work Order: <u>169405</u> |
| Date Received: <u>3/16/06</u> | PM(A) Review (ensure non-conforming items are resolved prior to signing): <u>EM</u> |
| Received By: <u>C. Derricoto</u> | |

| Sample Receipt Criteria | Yes | NA | No | Comments/Qualifiers (Required for Non-Conforming Items) |
|---|-----|----|----|--|
| 1 Shipping containers received intact and sealed? | ✓ | | | Circle Applicable: seals broken damaged container leaking container other (describe) |
| 2 Samples requiring cold preservation within (4 +/- 2 C)? Record preservation method. | ✓ | | | Circle Coolant # ice bags <u>blue ice</u> dry ice none other describe <u>4°C</u> |
| 3 Chain of custody documents included with shipment? | ✓ | | | |
| 4 Sample containers intact and sealed? | ✓ | | | Circle Applicable: seals broken damaged container leaking container other (describe) |
| 5 Samples requiring chemical preservation at proper pH? | ✓ | | | Sample ID's, containers affected and observed pH: |
| 6 VOA vials free of headspace (defined as < 6mm bubble)? | | | ✓ | Sample ID's and containers affected: |
| 7 Are Encore containers present? (If yes, immediately deliver to VOA laboratory) | | | ✓ | |
| 8 Samples received within holding time? | ✓ | | | Id's and tests affected: |
| 9 Sample ID's on COC match ID's on bottles? | ✓ | | | Sample ID's and containers affected: |
| 10 Date & time on COC match date & time on bottles? | ✓ | | | Sample ID's affected: (C) 1.250 mL 1. meat Pipe |
| 11 Number of containers received match number indicated on COC? | | | ✓ | Sample ID's affected: <u>Received</u> <u>M121-0.5 = 2.250 mL g jars # M121-80</u> <u>M121-5 = 2.250 mL g jars # M121-5D = 2 g jars</u> |
| 12 COC form is properly signed in relinquished/received sections? | ✓ | | | |
| 14 Air Bill, Tracking #'s, & Additional Comments | | | | <u>Fed Ex TRK #</u> <u>6912 3665 2641</u> <u>6912 3665 2560</u> |

| Suspected Hazard Information | Non-Regulated | Regulated | High Level | RSO RAD Receipt # _____ *If > x2 area background is observed on samples identified as "non-regulated/non-radioactive", contact the Radiation Safety group for further investigation. |
|--|---------------|-----------|------------|---|
| A Radiological Classification? | ✓ | | | Maximum Counts Observed*: <u>30 CPM</u> |
| B PCB Regulated? | ✓ | | | Comments: |
| C Shipped as DOT Hazardous Material? If yes, contact Waste Manager or ESH Manager. | ✓ | | | Hazard Class Shipped: UN#: |
| PM (or PMA) review of Hazard classification: <u>EM</u> Initials <u>3/16/06</u> Date: | | | | |

Subject: Chains Received Today
From: Edie Kent <emk@gel.com>
Date: Thu, 16 Mar 2006 18:49:49 -0500
To: Linda.Geddes@mwhglobal.com
CC: benjamin Jenkins <ben01079@gel.com>

Linda:

Just for your information, there are no relinquished by signatures on any of the chains received today.

Edie

--

Edith M. Kent
Project Manager
General Engineering Laboratories, LLC
2040 Savage Road
PO Box 30712
Charleston, SC 29407
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Fax: 843-766-1178
e-mail: emk@gel.com
web-site: www.gel.com

RADIOLOGICAL ANALYSIS

**Radiochemistry Case Narrative
MWH Laboratories (MWHL)
Work Order 158277**

Method/Analysis Information

Product: Alphaspec Th, Liquid
Analytical Method: DOE EML HASL-300, Th-01-RC Modified
Analytical Batch Number: 520798

| Sample ID | Client ID |
|------------------|--|
| 158277001 | 2603100260 EB-1 |
| 1201071140 | Method Blank (MB) |
| 1201071141 | 159242003(2603240135 M-121) Sample Duplicate (DUP) |
| 1201071142 | 159242003(2603240135 M-121) Matrix Spike (MS) |
| 1201071143 | Laboratory Control Sample (LCS) |

SOP Reference

Procedure for preparation, analysis and reporting of analytical data are controlled by General Engineering Laboratories, LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-038 REV# 9.

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: 159242003 (2603240135 M-121).

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.

Preparation Information

All preparation criteria have been met for these analyses.

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.

Manual Integration

No manual integrations were performed on data in this batch.

Qualifier information

Manual qualifiers were not required.

Method/Analysis Information

Product: Alphaspec U, Liquid
Analytical Method: DOE EML HASL-300, U-02-RC Modified
Analytical Batch Number: 520799

| Sample ID | Client ID |
|------------------|--|
| 158277001 | 2603100260 EB-1 |
| 1201071144 | Method Blank (MB) |
| 1201071145 | 159242003(2603240135 M-121) Sample Duplicate (DUP) |
| 1201071146 | 159242003(2603240135 M-121) Matrix Spike (MS) |
| 1201071147 | Laboratory Control Sample (LCS) |

SOP Reference

Procedure for preparation, analysis and reporting of analytical data are controlled by General Engineering Laboratories, LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-011 REV# 14.

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: 159242003 (2603240135 M-121).

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.

Preparation Information

All preparation criteria have been met for these analyses.

Sample Re-prep/Re-analysis

Sample 1201071145 (2603240135 M-121) was recounted due to poor resolution.

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.

Qualifier information

Manual qualifiers were not required.

Method/Analysis Information

Product: Gamma, (Pb-212)
Analytical Method: EPA 901.1
Analytical Batch Number: 519510

| Sample ID | Client ID |
|------------------|--|
| 158277001 | 2603100260 EB-1 |
| 1201068236 | Method Blank (MB) |
| 1201068237 | 159247001(2603230069 M-120) Sample Duplicate (DUP) |
| 1201068238 | Laboratory Control Sample (LCS) |

SOP Reference

Procedure for preparation, analysis and reporting of analytical data are controlled by General Engineering Laboratories, LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-013 REV# 10.

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: 159247001 (2603230069 M-120).

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.

Preparation Information

All preparation criteria have been met for these analyses.

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.

Qualifier information

| Qualifier | Reason | Analyte | Sample |
|-----------|-------------------------------------|----------|------------|
| UI | Data rejected due to low abundance. | Lead-212 | 1201068236 |

Method/Analysis Information

Product: GFPC, Pb210, Liquid
Analytical Method: DOE RP280 Modified
Analytical Batch Number: 520607

| Sample ID | Client ID |
|------------|--|
| 158277001 | 2603100260 EB-1 |
| 1201070733 | Method Blank (MB) |
| 1201070734 | 159242003(2603240135 M-121) Sample Duplicate (DUP) |
| 1201070735 | 159242003(2603240135 M-121) Matrix Spike (MS) |
| 1201070736 | Laboratory Control Sample (LCS) |

SOP Reference

Procedure for preparation, analysis and reporting of analytical data are controlled by General Engineering Laboratories, LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-018 REV# 5.

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: 159242003 (2603240135 M-121).

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.

Preparation Information

All preparation criteria have been met for these analyses.

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.

Qualifier information

Manual qualifiers were not required.

Method/Analysis Information

Product: GFPC, Ra228, Liquid

Analytical Method: EPA 904.0 Modified

Analytical Batch Number: 515325

| Sample ID | Client ID |
|------------------|---|
| 158277001 | 2603100260 EB-1 |
| 1201058924 | Method Blank (MB) |
| 1201058925 | 158272001(2603140436 TR-10A) Sample Duplicate (DUP) |
| 1201058926 | 158272001(2603140436 TR-10A) Matrix Spike (MS) |

SOP Reference

Procedure for preparation, analysis and reporting of analytical data are controlled by General Engineering Laboratories, LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-009 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: 158272001 (2603140436 TR-10A).

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.

Preparation Information

All preparation criteria have been met for these analyses.

Sample Re-prep/Re-analysis

The batch was re-eluted and recounted due to a low matrix spike recovery.

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.

Qualifier information

Manual qualifiers were not required.

Method/Analysis Information

Product: Lucas Cell, Ra226, liquid
Analytical Method: EPA 903.1 Modified
Analytical Batch Number: 517605

| Sample ID | Client ID |
|------------------|--|
| 158277001 | 2603100260 EB-1 |
| 1201063978 | Method Blank (MB) |
| 1201063981 | Laboratory Control Sample (LCS) |
| 1201063982 | 159242003(2603240135 M-121) Sample Duplicate (DUP) |
| 1201063983 | 159242003(2603240135 M-121) Matrix Spike (MS) |

SOP Reference

Procedure for preparation, analysis and reporting of analytical data are controlled by General Engineering Laboratories, LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-008 REV# 9.

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: 159242003 (2603240135 M-121).

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.

Preparation Information

All preparation criteria have been met for these analyses.

Sample Re-prep/Re-analysis

Sample 1201063978 (MB) was recounted due to a suspected blank false positive.

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.

Qualifier information

Manual qualifiers were not required.

Method/Analysis Information

Product: KPA, Total U, Liquid

Analytical Method: ASTM D 5174

Analytical Batch Number: 523680

| Sample ID | Client ID |
|------------------|--|
| 158277001 | 2603100260 EB-1 |
| 1201077880 | Method Blank (MB) |
| 1201077881 | 159242003(2603240135 M-121) Sample Duplicate (DUP) |
| 1201077882 | 159242003(2603240135 M-121) Matrix Spike (MS) |
| 1201077883 | Laboratory Control Sample (LCS) |
| 1201077884 | Laboratory Control Sample Duplicate (LCSD) |

SOP Reference

Procedure for preparation, analysis and reporting of analytical data are controlled by General Engineering Laboratories, LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-023 REV# 11.

Calibration Information:

Calibration Information

All initial and continuing calibration requirements have been met. The calibration for Total Uranium is performed prior to each analysis and is located in the raw data section.

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: 159242003 (2603240135 M-121).

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.

Preparation Information

All preparation criteria have been met for these analyses.

Sample Re-prep/Re-analysis

Initial result of sample 1201077881 (2603240135 M-121) was greater than RDL. The sample was reanalyzed and verified initial result. The initial result is reported. The initial result of sample 158277001 (2603100260 EB-1) failed R2 and/or lifetime. The sample was treated with a post-spike, reanalyzed, and passed. The initial result is reported.

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.

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:

Handwritten signature of KATH S. Bell and date 4/26/06.

Reviewer/Date: _____

SAMPLE DATA SUMMARY

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

**Certificate of Analysis Report
for**

MWHL002 MWH Laboratories

Client SDG: 158277 GEL Work Order: 158277

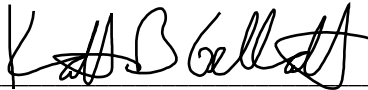
The Qualifiers in this report are defined as follows:

- * Indicates that a quality control analyte recovery is outside of specified acceptance criteria.
- < Result is less than amount reported.
- > Result is greater than amount reported.
- B Target analyte was detected in the sample as well as the associated blank.
- BD Results below the MDC or low tracer recovery.
- D Sample has been diluted and reanalyzed after initially exceeding inst. calibration range
- E Concentration of the target analyte exceeds the instrument calibration range.
- H Analytical holding time exceeded.
- J Indicates an estimated value.
- P The response between the confirmation and the primary columns is >40% Different.
- R Sample results are rejected.
- U Target analyte was analyzed for but not detected above the MDL, MDA, or LOD.
- UI Uncertain identification for gamma spectroscopy.
- X Lab-specific qualifier-please see case narrative, data summary package or contact your project manager for details.
- Y QC Samples were not spiked with this compound.
- Z Paint Filter qualifier: Particulates passed through the filter. No free liquids were observed.
- d The 2:1 depletion requirement was not met for this sample
- h Sample preparation or preservation holding time exceeded.
- ND The analyte concentration is not detected above the reporting limit.

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.

** Indicates the analyte is a surrogate compound.

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



Reviewed by _____

GENERAL ENGINEERING LABORATORIES, LLC

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

Certificate of Analysis

Company : MWH Laboratories
 Address : 750 Royal Oaks Drive, Suite 100
 Monrovia, California 91016

Report Date: April 26, 2006

Contact: Ms. Julie Lee
 Project: **Tronox Henderson**

| | | | |
|-------------------|-----------------|------------|-----------|
| Client Sample ID: | 2603100260 EB-1 | Project: | MWHL00106 |
| Sample ID: | 158277001 | Client ID: | MWHL002 |
| Matrix: | Ground Water | | |
| Collect Date: | 09-MAR-06 14:00 | | |
| Receive Date: | 16-MAR-06 | | |
| Collector: | Client | | |

| Parameter | Qualifier | Result | Uncertainty | DL | RL | Units | DF | Analyst | Date | Time | Batch | Method |
|---|-----------|---------|-------------|-------|------|-------|----|---------|----------|------|--------|--------|
| Rad Alpha Spec Analysis | | | | | | | | | | | | |
| <i>Alphaspec Th, Liquid</i> | | | | | | | | | | | | |
| Thorium-228 | U | -0.0283 | +/-0.105 | 0.350 | 2.00 | pCi/L | | BJB1 | 04/20/06 | 0749 | 520798 | 1 |
| Thorium-230 | U | 0.0167 | +/-0.0678 | 0.200 | 2.00 | pCi/L | | | | | | |
| Thorium-232 | U | 0.041 | +/-0.0948 | 0.223 | 2.00 | pCi/L | | | | | | |
| <i>Alphaspec U, Liquid</i> | | | | | | | | | | | | |
| Uranium-233/234 | U | 0.219 | +/-0.189 | 0.286 | 1.00 | pCi/L | | BJB1 | 04/20/06 | 1729 | 520799 | 2 |
| Uranium-235/236 | U | 0.00165 | +/-0.0896 | 0.311 | 1.00 | pCi/L | | | | | | |
| Uranium-238 | U | -0.072 | +/-0.0471 | 0.328 | 1.00 | pCi/L | | | | | | |
| Rad Gamma Spec Analysis | | | | | | | | | | | | |
| <i>Gamma, (Pb-212)</i> | | | | | | | | | | | | |
| Lead-212 | U | 1.83 | +/-5.32 | 5.32 | 10.0 | pCi/L | | MJH1 | 04/25/06 | 1838 | 519510 | 3 |
| Rad Gas Flow Proportional Counting | | | | | | | | | | | | |
| <i>GFPC, Pb210, Liquid</i> | | | | | | | | | | | | |
| Lead-210 | U | 0.909 | +/-0.929 | 1.83 | 3.00 | pCi/L | | BXF1 | 04/25/06 | 1102 | 520607 | 4 |
| <i>GFPC, Ra228, Liquid</i> | | | | | | | | | | | | |
| Radium-228 | U | 0.629 | +/-0.517 | 1.03 | 2.00 | pCi/L | | KSD1 | 04/10/06 | 1854 | 515325 | 5 |
| Rad Radium-226 | | | | | | | | | | | | |
| <i>Lucas Cell, Ra226, liquid</i> | | | | | | | | | | | | |
| Radium-226 | U | 0.339 | +/-0.326 | 0.509 | 2.00 | pCi/L | | SG | 04/11/06 | 0800 | 517605 | 6 |
| Rad Total Uranium | | | | | | | | | | | | |
| <i>KPA, Total U, Liquid</i> | | | | | | | | | | | | |
| Total Uranium | U | 0.161 | +/-0.0174 | 0.430 | 1.00 | ug/L | | DRS1 | 04/26/06 | 1036 | 523680 | 7 |

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 901.1 | |
| 4 | DOE RP280 Modified | |
| 5 | EPA 904.0 Modified | |
| 6 | EPA 903.1 Modified | |
| 7 | ASTM D 5174 | |

| Surrogate/Tracer recovery | Test | Result | Nominal | Recovery% | Acceptable Limits |
|---------------------------|------|--------|---------|-----------|-------------------|
| | | | | | |

GENERAL ENGINEERING LABORATORIES, LLC

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

Certificate of Analysis

Company : MWH Laboratories
Address : 750 Royal Oaks Drive, Suite 100
Monrovia, California 91016

Report Date: April 26, 2006

Contact: Ms. Julie Lee
Project: **Tronox Henderson**

Client Sample ID: 2603100260 EB-1
Sample ID: 158277001
Project: MWHL00106
Client ID: MWHL002

| Parameter | Qualifier | Result | Uncertainty | DL | RL | Units | DF | Analyst | Date | Time | Batch | Method |
|----------------------------------|----------------------|--------|-------------|----|----|---------------|----------------|------------------|------|------|-------|--------------------------|
| Surrogate/Tracer recovery | Test | | | | | Result | Nominal | Recovery% | | | | Acceptable Limits |
| Actinium-227 | Alphaspec Th, Liquid | | | | | | | 97 | | | | |
| Actinium-227 | Alphaspec Th, Liquid | | | | | | | 97 | | | | |
| Actinium-227 | Alphaspec Th, Liquid | | | | | | | 97 | | | | |
| Uranium-232 | Alphaspec U, Liquid | | | | | | | 102 | | | | (25%–125%) |
| Uranium-232 | Alphaspec U, Liquid | | | | | | | 102 | | | | (25%–125%) |
| Uranium-232 | Alphaspec U, Liquid | | | | | | | 102 | | | | (25%–125%) |
| Lead-210 | GFPC, Pb210, Liquid | | | | | | | 67 | | | | (25%–125%) |
| Radium-228 | GFPC, Ra228, Liquid | | | | | | | 82 | | | | (15%–125%) |

QUALITY CONTROL DATA

GENERAL ENGINEERING LABORATORIES, LLC

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

QC Summary

Report Date: April 26, 2006

Page 1 of 4

MWH Laboratories
750 Royal Oaks Drive, Suite 100
Monrovia, California

Contact: Ms. Julie Lee

Workorder: 158277

| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date | Time |
|-----------------------|-----------|-----------|-------|-----------|-------|------|------|------------|-------|----------|-------|
| Rad Alpha Spec | | | | | | | | | | | |
| Batch | 520798 | | | | | | | | | | |
| QC1201071141 | 159242003 | DUP | | | | | | | | | |
| Thorium-228 | | 0.311 | U | 0.175 | pCi/L | 56* | | (0%-20%) | BJB1 | 04/20/06 | 07:49 |
| | | +/-0.217 | | +/-0.215 | | | | | | | |
| Thorium-230 | U | 0.114 | U | 0.0239 | pCi/L | 131* | | (0%-20%) | | | |
| | | +/-0.122 | | +/-0.0973 | | | | | | | |
| Thorium-232 | U | 0.0416 | U | 0.081 | pCi/L | 64* | | (0%-20%) | | | |
| | | +/-0.0977 | | +/-0.133 | | | | | | | |
| QC1201071143 | LCS | | | | | | | | | | |
| Thorium-228 | | | U | 0.211 | pCi/L | | | (75%-125%) | | | |
| | | | | +/-0.193 | | | | | | | |
| Thorium-230 | 53.9 | | | 46.9 | pCi/L | | 87 | (75%-125%) | | | |
| | | | | +/-8.06 | | | | | | | |
| Thorium-232 | | | | 0.316 | pCi/L | | | (75%-125%) | | | |
| | | | | +/-0.212 | | | | | | | |
| QC1201071140 | MB | | | | | | | | | | |
| Thorium-228 | | | U | 0.0376 | pCi/L | | | | | | |
| | | | | +/-0.158 | | | | | | | |
| Thorium-230 | | | U | 0.0737 | pCi/L | | | | | | |
| | | | | +/-0.116 | | | | | | | |
| Thorium-232 | | | U | -0.0233 | pCi/L | | | | | | |
| | | | | +/-0.0271 | | | | | | | |
| QC1201071142 | 159242003 | MS | | | | | | | | | |
| Thorium-228 | | 0.311 | U | 0.483 | pCi/L | | | (75%-125%) | | | |
| | | +/-0.217 | | +/-0.665 | | | | | | | |
| Thorium-230 | 108 | U | 0.114 | 118 | pCi/L | | 109 | (75%-125%) | | | |
| | | +/-0.122 | | +/-31.2 | | | | | | | |
| Thorium-232 | U | 0.0416 | U | 0.121 | pCi/L | | | (75%-125%) | | | |
| | | +/-0.0977 | | +/-0.328 | | | | | | | |
| Batch | 520799 | | | | | | | | | | |
| QC1201071145 | 159242003 | DUP | | | | | | | | | |
| Uranium-233/234 | | 9.54 | | 10.4 | pCi/L | 9 | | (0%-20%) | BJB1 | 04/22/06 | 07:38 |
| | | +/-1.27 | | +/-1.10 | | | | | | | |
| Uranium-235/236 | | 0.311 | | 0.362 | pCi/L | 15 | | (0%-20%) | | | |
| | | +/-0.261 | | +/-0.230 | | | | | | | |
| Uranium-238 | | 4.98 | | 5.85 | pCi/L | 16 | | (0%-20%) | | | |
| | | +/-0.916 | | +/-0.821 | | | | | | | |
| QC1201071147 | LCS | | | | | | | | | | |
| Uranium-233/234 | | | | 15.5 | pCi/L | | | (75%-125%) | | 04/21/06 | 07:38 |
| | | | | +/-1.40 | | | | | | | |
| Uranium-235/236 | | | | 0.801 | pCi/L | | | (75%-125%) | | | |
| | | | | +/-0.356 | | | | | | | |
| Uranium-238 | 13.1 | | | 14.1 | pCi/L | | 108 | (75%-125%) | | | |
| | | | | +/-1.33 | | | | | | | |
| QC1201071144 | MB | | | | | | | | | | |

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QC Summary

Workorder: 158277

Page 2 of 4

| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date | Time |
|-----------------------|-----------|-------------------|------|---------------------|-------|------|------|------------|-------|----------|-------|
| Rad Alpha Spec | | | | | | | | | | | |
| Batch | 520799 | | | | | | | | | | |
| Uranium-233/234 | | | U | 0.0694 +/-0.130 | pCi/L | | | | | | |
| Uranium-235/236 | | | U | 0.0565 +/-0.111 | pCi/L | | | | BJB1 | 04/21/06 | 07:38 |
| Uranium-238 | | | U | 0.0128 +/-0.0969 | pCi/L | | | | | | |
| QC1201071146 | 159242003 | MS | | | | | | | | | |
| Uranium-233/234 | | 9.54 +/-1.27 | | 33.4 +/-3.23 | pCi/L | | | (75%-125%) | | | |
| Uranium-235/236 | | 0.311 +/-0.261 | | 1.18 +/-0.684 | pCi/L | | | (75%-125%) | | | |
| Uranium-238 | 26.3 | 4.98 +/-0.916 | | 32.3 +/-3.18 | pCi/L | | 104 | (75%-125%) | | | |
| Rad Gamma Spec | | | | | | | | | | | |
| Batch | 519510 | | | | | | | | | | |
| QC1201068237 | 159247001 | DUP | | | | | | | | | |
| Lead-212 | | 0.00 +/-5.11 | UUI | 1.88 +/-4.45 | pCi/L | 97 | | | MJH1 | 04/26/06 | 05:28 |
| QC1201068238 | LCS | | | | | | | | | | |
| Americium-241 | 1220 | | | 1330 +/-171 | pCi/L | | 109 | (75%-125%) | | 04/26/06 | 05:24 |
| Cesium-137 | 463 | | | 471 +/-34.7 | pCi/L | | 102 | (75%-125%) | | | |
| Cobalt-60 | 659 | | | 646 +/-49.1 | pCi/L | | 98 | (75%-125%) | | | |
| Lead-212 | | | U | 15.7 +/-16.8 | pCi/L | | | | | | |
| QC1201068236 | MB | | | | | | | | | | |
| Lead-212 | | | UUI | 0.00 +/-2.25 | pCi/L | | | | | 04/25/06 | 18:43 |
| Rad Gas Flow | | | | | | | | | | | |
| Batch | 515325 | | | | | | | | | | |
| QC1201058925 | 158272001 | DUP | | | | | | | | | |
| Radium-228 | | 0.592 +/-0.572 | U | 0.891 +/-0.702 | pCi/L | 0 | | (0%-20%) | KSD1 | 04/10/06 | 18:53 |
| QC1201058927 | LCS | | | | | | | | | | |
| Radium-228 | 13.5 | | | 13.1 +/-1.32 | pCi/L | | 97 | (75%-125%) | | | |
| QC1201058924 | MB | | | | | | | | | | |
| Radium-228 | | | U | 0.156 +/-0.401 | pCi/L | | | | | | |
| QC1201058926 | 158272001 | MS | | | | | | | | | |
| Radium-228 | 30.6 | 0.592 +/-0.572 | U | 37.4 +/-3.34 | pCi/L | | 122 | (75%-125%) | | | |
| Batch | 520607 | | | | | | | | | | |
| QC1201070734 | 159242003 | DUP | | | | | | | | | |
| Lead-210 | | 1.08 +/-1.08 | U | 0.877 +/-1.12 | pCi/L | 0 | | (0%-20%) | BXFI | 04/25/06 | 14:15 |

GENERAL ENGINEERING LABORATORIES, LLC

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QC Summary

Workorder: 158277

Page 3 of 4

| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date | Time |
|---------------------|-----------|--------|-------------------|-------------------|-------|------|------|------------|-------|----------|-------|
| Rad Gas Flow | | | | | | | | | | | |
| Batch | 520607 | | | | | | | | | | |
| QC1201070736 | LCS | | | | | | | | | | |
| Lead-210 | 36.5 | | | 29.5 +/-4.70 | pCi/L | | 81 | (75%-125%) | BXF1 | 04/25/06 | 14:15 |
| QC1201070733 | MB | | | | | | | | | | |
| Lead-210 | | | U | 0.253 +/-0.972 | pCi/L | | | | | | |
| QC1201070735 | 159242003 | MS | | | | | | | | | |
| Lead-210 | 91.5 | U | 1.08 +/-1.08 | 70.3 +/-10.7 | pCi/L | | 77 | (75%-125%) | | | |
| Rad Ra-226 | | | | | | | | | | | |
| Batch | 517605 | | | | | | | | | | |
| QC1201063982 | 159242003 | DUP | | | | | | | | | |
| Radium-226 | | U | 0.471 +/-0.349 | 0.098 +/-0.279 | pCi/L | 0 | | (0%-20%) | SG | 04/11/06 | 09:15 |
| QC1201063981 | LCS | | | | | | | | | | |
| Radium-226 | 25.1 | | | 27.0 +/-1.91 | pCi/L | | 108 | (75%-125%) | | | |
| QC1201063978 | MB | | | | | | | | | | |
| Radium-226 | | | U | 0.105 +/-0.315 | pCi/L | | | | | 04/11/06 | 11:25 |
| QC1201063983 | 159242003 | MS | | | | | | | | | |
| Radium-226 | 25.1 | U | 0.471 +/-0.349 | 23.5 +/-1.84 | pCi/L | | 94 | (75%-125%) | | 04/11/06 | 09:15 |
| Rad Total U | | | | | | | | | | | |
| Batch | 523680 | | | | | | | | | | |
| QC1201077881 | 159242003 | DUP | | | | | | | | | |
| Total Uranium | | | 13.7 +/-0.299 | 13.7 +/-0.299 | ug/L | 0 | | (0%-20%) | DRS1 | 04/26/06 | 10:18 |
| QC1201077883 | LCS | | | | | | | | | | |
| Total Uranium | 50.0 | | | 37.5 +/-2.27 | ug/L | | 75 | (75%-125%) | | 04/26/06 | 10:26 |
| QC1201077884 | LCSD | | | | | | | | | | |
| Total Uranium | 5.00 | | | 5.24 +/-0.116 | ug/L | 151 | 105 | | | 04/26/06 | 10:27 |
| QC1201077880 | MB | | | | | | | | | | |
| Total Uranium | | | U | 0.164 +/-0.035 | ug/L | | | | | 04/26/06 | 10:15 |
| QC1201077882 | 159242003 | MS | | | | | | | | | |
| Total Uranium | 50.0 | | 13.7 +/-0.299 | 65.8 +/-3.97 | ug/L | | 104 | (75%-125%) | | 04/26/06 | 10:22 |

Notes:

The Qualifiers in this report are defined as follows:

- B Target analyte was detected in the sample as well as the associated blank.
- BD Results below the MDC or low tracer recovery.
- E Concentration of the target analyte exceeds the instrument calibration range.
- H Analytical holding time exceeded.

GENERAL ENGINEERING LABORATORIES, LLC

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QC Summary

Workorder: 158277

Page 4 of 4

| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date | Time |
|----------|---|--------|------|----|-------|------|------|-------|-------|------|------|
| J | Indicates an estimated value. | | | | | | | | | | |
| U | Target analyte was analyzed for but not detected above the MDL, MDA, or LOD. | | | | | | | | | | |
| UI | Uncertain identification for gamma spectroscopy. | | | | | | | | | | |
| X | Lab-specific qualifier-please see case narrative, data summary package or contact your project manager for details. | | | | | | | | | | |
| d | The 2:1 depletion requirement was not met for this sample | | | | | | | | | | |
| h | Sample preparation or preservation holding time 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.

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

Radiochemistry Batch Checklist, Rev 4

Batch# 520798 Product: Th-228 Date: 04/24/06

| Criteria: | Yes | No | Comments |
|---|-----|----|----------|
| Sample Solids are less than 100 mg for GAB. | | | N/A |
| If activity less 10* MDA, error is 150% or less of sample activity. If greater 10* MDA, error is 40% or less. If below the MDA, error is okay. | ✓ | | |
| Instrument source check is within limits. | ✓ | | |
| Instrument bkg check is within limits. | ✓ | | |
| Method RDL has been met. | ✓ | | |
| If duplicate activities are less 5* MDA, then rpd is 100% or less. If greater 5* MDA, then rpd 20% or less. If below the MDA, 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. (If rad samples, < 5% of lowest activity) | ✓ | | |
| Sample was run within hold time. | ✓ | | |
| Special requirements page checked | ✓ | | |
| 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 lineouts initialed and dated. No transcription errors are apparent. | ✓ | | |
| QC data entered into QC database. Batch entered into Case Narrative. | ✓ | | |
| Batch non-conformances completed If applicable. | | | N/A |

General Engineering Laboratories

2/22/2005
Primary Review Performed By: Parrelaf Dalley 04/24/06

Secondary Review Performed By: no 4/25/06

Thorium-228 Que Sheet

19-APR-06

Batch #: 520798 Analyst: BJB1 Minimum Due Date: 20-APR-06 Ac-227 Separation Date/Time: 4/19/06 0730; #45 0815
 Tracer Isotope: Ac-227 Tracer Code: 0387-β 02 Expiration Date: 7/11/06 Vol: 0.1 ml
 LCS Isotope: Th-230 LCS Code: 0159-0 Expiration Date: 6/23/06 Vol: 0.1 ml
 Spike Isotope: Th-230 Spike Code: 0159-0 Expiration Date: 6/23/06 Vol: 0.1 ml
 Prep Date: 4/18/06 Initials: BJB Pipet ID: 1167560257 Balance ID: 1167560257 Witness: JJB 4/18/06

of 741

| Sample I | Client Description | Type | Hazard Code | Min CRDL | Matrix | Client | Collection Date | Label # | Aliquot (g/μl) | Th Det # | Ash Weight (g) |
|------------|--------------------------------|--------|-------------|----------|--------------|------------|-----------------|---------|----------------|----------|----------------|
| 158272001 | 2603140436 TR-10A | SAMPLE | | 2 pCi/L | GROUND WATER | MWHL002 | 13-MAR-06 | 31 | 0.200 | 26 | |
| 158275001 | 2603140472 PUMP BLANK | SAMPLE | | 2 pCi/L | GROUND WATER | MWHL002 | 13-MAR-06 | 32 | 0.200 | 27 | |
| 158276001 | 2603090347 FB-1 | SAMPLE | | 2 pCi/L | GROUND WATER | MWHL002 | 08-MAR-06 | 33 | 0.200 | 29 | |
| 158277001 | 2603100260 EB-1 | SAMPLE | | 2 pCi/L | GROUND WATER | MWHL002 | 09-MAR-06 | 34 | 0.200 | 30 | |
| 158436001 | 2603150120 TR-9A | SAMPLE | | 2 pCi/L | GROUND WATER | MWHL002 | 14-MAR-06 | 35 | 0.200 | 65 | |
| 158971001 | 2603220347 M-103 | SAMPLE | | 2 pCi/L | GROUND WATER | MWHL002 | 21-MAR-06 | 36 | 0.200 | 69 | |
| 158971002 | 2603220348 TR-7 | SAMPLE | | 2 pCi/L | GROUND WATER | MWHL002 | 21-MAR-06 | 37 | 0.200 | 70 | |
| 158971003 | 2603220357 TR-9 | SAMPLE | | 2 pCi/L | GROUND WATER | MWHL002 | 21-MAR-06 | 38 | 0.200 | 72 | |
| 158971004 | 2603220360 TR-10 | SAMPLE | | 2 pCi/L | GROUND WATER | MWHL002 | 21-MAR-06 | 39 | 0.200 | 73 | |
| 159242001 | 2603240118 H-11 | SAMPLE | | 2 pCi/L | GROUND WATER | MWHL002 | 23-MAR-06 | 40 | 0.200 | 75 | |
| 159242002 | 2603240122 M-117 | SAMPLE | | 2 pCi/L | GROUND WATER | MWHL002 | 23-MAR-06 | 41 | 0.200 | 77 | |
| 159242003 | 2603240135 M-121 | SAMPLE | | 2 pCi/L | GROUND WATER | MWHL002 | 23-MAR-06 | 42 | 0.200 | 79 | |
| 159243001 | 2603230197 M-118 | SAMPLE | | 2 pCi/L | GROUND WATER | MWHL002 | 22-MAR-06 | 43 | 0.200 | 79 | |
| 159244001 | 2603250005 EB-3 | SAMPLE | | 2 pCi/L | GROUND WATER | MWHL002 | 24-MAR-06 | 44 | 0.200 | 80 | |
| 159247001 | 2603230069 M-120 | SAMPLE | | 2 pCi/L | GROUND WATER | MWHL002 | 22-MAR-06 | 45 | 0.200 | 81 | |
| 1201071140 | MB for batch 520798 | MB | | 2 pCi/L | GROUND WATER | QC ACCOUNT | | 46 | 0.200 | 83 | |
| 1201071141 | 2603240135 M-121(159242003DUP) | DUP | | 2 pCi/L | GROUND WATER | QC ACCOUNT | | 47 | 0.200 | 85 | |
| 1201071142 | 2603240135 M-121(159242003MS) | MS | | 2 pCi/L | GROUND WATER | QC ACCOUNT | | 48 | 0.200 | 86 | |
| 1201071143 | LCS for batch 520798 | LCS | | 2 pCi/L | GROUND WATER | QC ACCOUNT | | 49 | 0.200 | 88 | |

BJB 4/18/06

Solid Sample Dissolution by: LEACH or DIGESTION
 Circle One

Data Reviewed By: Paralee Halley 04/24/06

MB 4/25/06

GENERAL ENGINEERING LABORATORIES, LLC.
ALPHA SPECTROSCOPY REPORT

| | | | |
|---|---|---|--|
| BATCH NUMBER: 520798 SAMPLE DATE : 19-APR-2006 07:30:00 | | SAMPLE ID : S0158277001_TH SAMPLE QTY: 0.200 L | |
| DETECTOR NUMBER :30420 AVERAGE %EFFICIENCY :30.3262 % YIELD : 96.498 | | COUNT DATE:20-APR-2006 07:49:39 ELAPSED LIVE TIME(SEC): 14399.99 ANALYST :BJB1 | |
| MS : 0159-O MSD : 0159-O LCS : 0159-O TRACER : 0387-B-102 BKG FILE: B030.CNF;690 BKG DATE: 17-APR-2006 | MS PCI/L : 53.92892 MSD PCI/L : 53.92892 LCS PCI/L : 53.92892 TRACER DPM : 4.3537 EFF FILE : W030.CNF;200 CAL DATE: 4-APR-2006 | MS ISOTOPE : TH-230 MSD ISOTOPE: TH-230 LCS ISOTOPE: TH-230 TRACER ISOTOPE: AC227 LIB FILE : ENV_ALPHA_TH.N | |

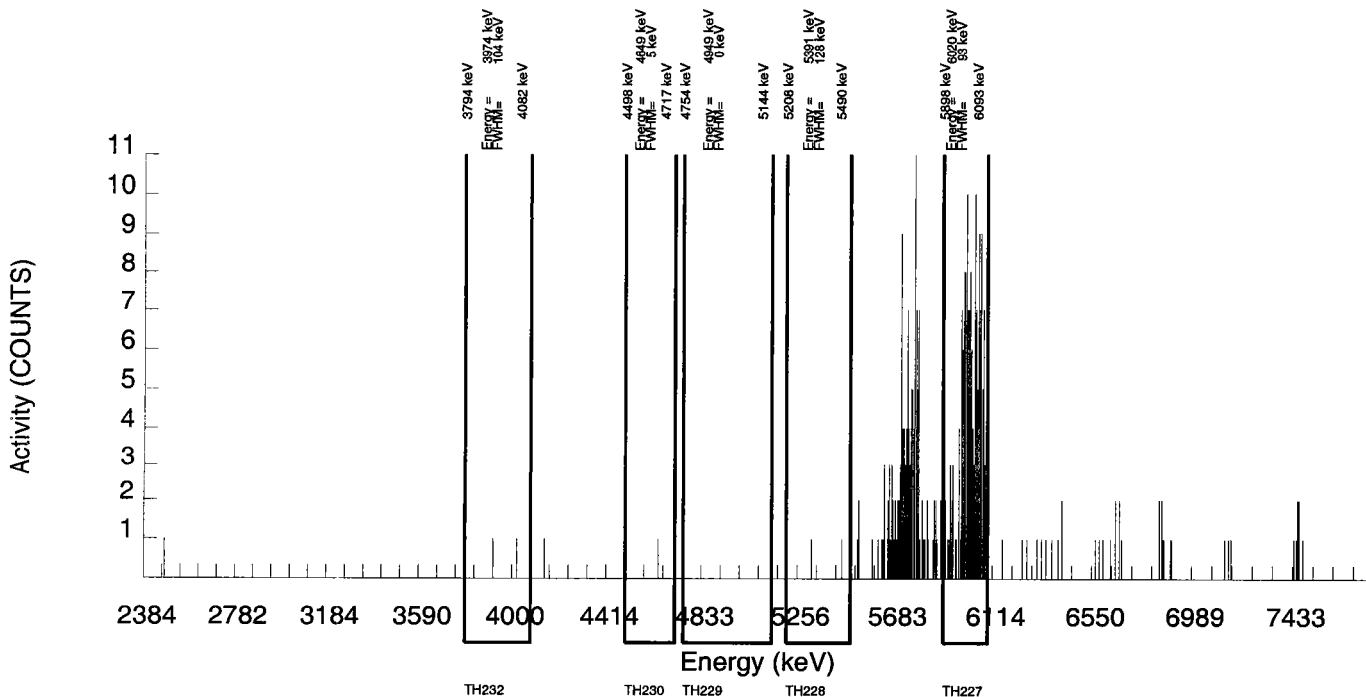
NUCLIDE ACTIVITY SUMMARY

| NUCLIDE | ENERGY | NET AREA | BKG AREA | %ABUN | ACTIVITY pCi/L | ERROR 2-SIGMA | MDA pCi/L |
|---------|----------|----------|----------|----------|----------------|---------------|-----------|
| AC-227 | 5978.000 | 160.760 | 0.240 | 54.75400 | 9.81E+00 | 2.25E+00 | 3.22E-01 |
| TH-228 | 5363.000 | -0.880 | 2.880 | 99.94000 | -2.83E-02 | 1.05E-01 | 3.50E-01 |
| TH229 | 4900.000 | -2.400 | 2.400 | 99.52000 | -7.73E-02 | 5.06E-02 | 3.29E-01 |
| TH-230 | 4625.000 | 0.520 | 0.480 | 100.0000 | 1.67E-02 | 6.78E-02 | 2.00E-01 |
| TH-232 | 3972.000 | 1.280 | 0.720 | 100.0000 | 4.10E-02 | 9.48E-02 | 2.23E-01 |

REVIEWED BY:

DATE :

Handwritten signature: BJB



GENERAL ENGINEERING LABORATORIES, LLC.
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 520798
SAMPLE DATE : 19-APR-2006 07:30:00

SAMPLE ID : S0159242003_TH
SAMPLE QTY: 0.200 L

DETECTOR NUMBER :34425
AVERAGE %EFFICIENCY :32.6623
% YIELD : 107.855

COUNT DATE:20-APR-2006 07:49:44
ELAPSED LIVE TIME(SEC): 14399.99
ANALYST :BJB1

MS : 0159-O
MSD : 0159-O
LCS : 0159-O
TRACER : 0387-B-102
BKG FILE: B078.CNF;602
BKG DATE: 16-APR-2006

MS PCI/L : 53.92892
MSD PCI/L : 53.92892
LCS PCI/L : 53.92892
TRACER DPM : 4.3537
EFF FILE : W078.CNF;154
CAL DATE: 3-APR-2006

MS ISOTOPE : TH-230
MSD ISOTOPE: TH-230
LCS ISOTOPE: TH-230
TRACER ISOTOPE: AC227
LIB FILE : ENV_ALPHA_TH.N

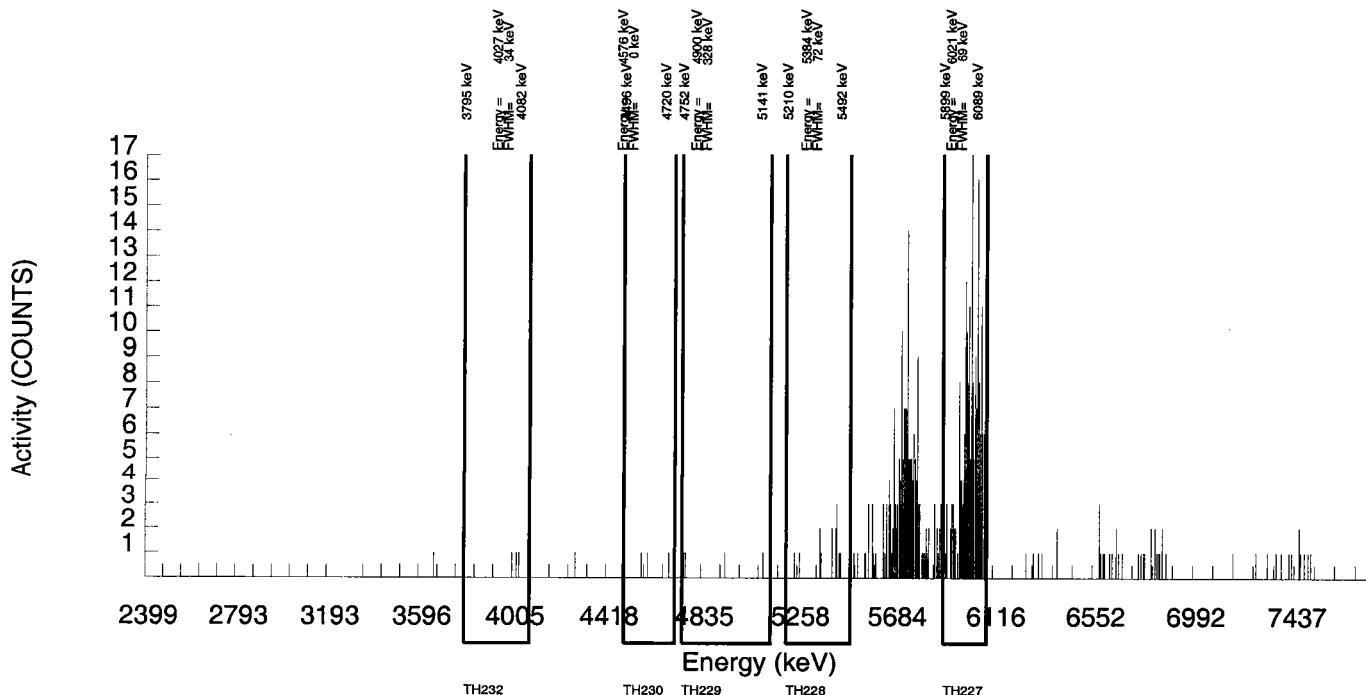
NUCLIDE ACTIVITY SUMMARY

| NUCLIDE | ENERGY | NET AREA | BKG AREA | %ABUN | ACTIVITY pCi/L | ERROR 2-SIGMA | MDA pCi/L |
|---------|----------|----------|----------|----------|----------------|---------------|-----------|
| AC-227 | 5978.000 | 193.520 | 0.480 | 54.75400 | 9.81E+00 | 2.07E+00 | 3.15E-01 |
| TH-228 | 5363.000 | 11.640 | 3.360 | 99.94000 | 3.11E-01 | 2.17E-01 | 3.07E-01 |
| TH229 | 4900.000 | 1.360 | 2.640 | 99.52000 | 3.64E-02 | 1.15E-01 | 2.83E-01 |
| TH-230 | 4625.000 | 4.280 | 0.720 | 100.0000 | 1.14E-01 | 1.22E-01 | 1.85E-01 |
| TH-232 | 3972.000 | 1.560 | 1.440 | 100.0000 | 4.16E-02 | 9.77E-02 | 2.29E-01 |

REVIEWED BY:

DATE :

Handwritten signature



GENERAL ENGINEERING LABORATORIES, LLC.
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 520798
SAMPLE DATE : 19-APR-2006 07:30:00

SAMPLE ID : S1201071140_TH
SAMPLE QTY: 0.200 L

DETECTOR NUMBER :34436
AVERAGE %EFFICIENCY :30.6338
% YIELD : 94.792

COUNT DATE:20-APR-2006 07:49:45
ELAPSED LIVE TIME(SEC): 14400.00
ANALYST :BJB1

MS : 0159-O
MSD : 0159-O
LCS : 0159-O
TRACER : 0387-B-102
BKG FILE: B083.CNF;602
BKG DATE: 16-APR-2006

MS PCI/L : 53.92892
MSD PCI/L : 53.92892
LCS PCI/L : 53.92892
TRACER DPM : 4.3537
EFF FILE : W083.CNF;187
CAL DATE: 3-APR-2006

MS ISOTOPE : TH-230
MSD ISOTOPE: TH-230
LCS ISOTOPE: TH-230
TRACER ISOTOPE: AC227
LIB FILE : ENV_ALPHA_TH.N

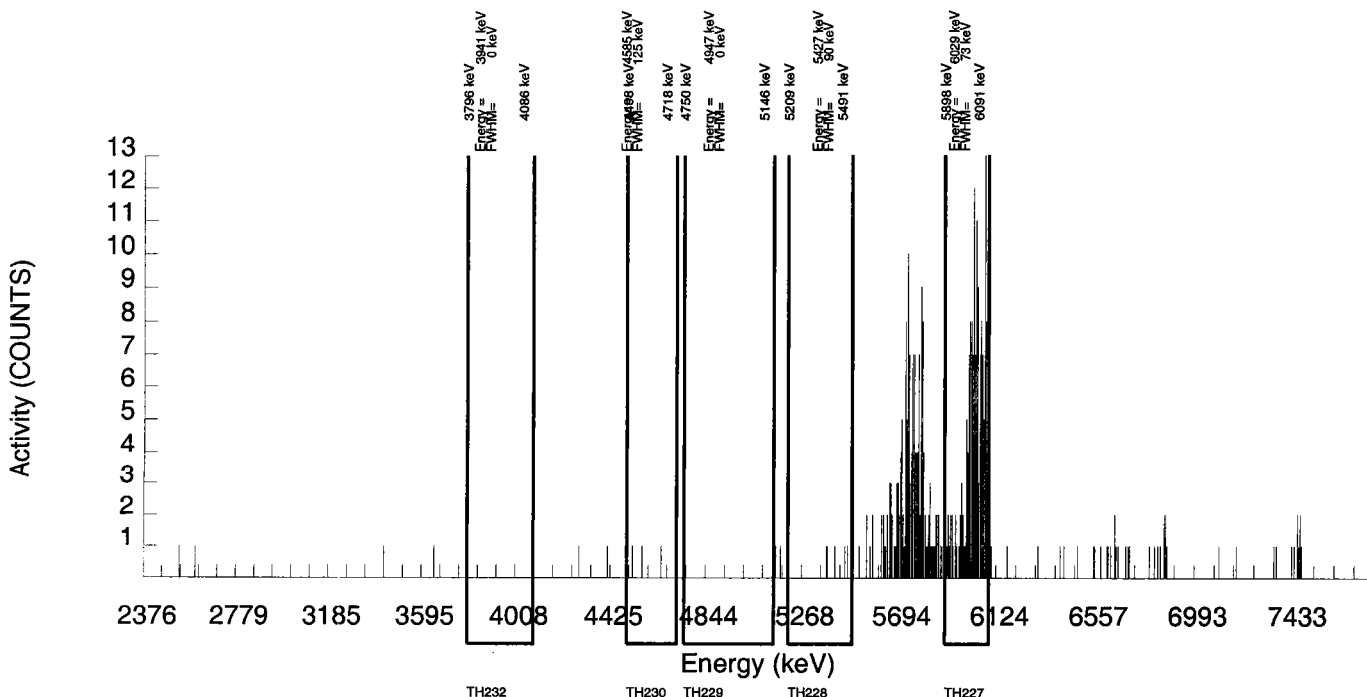
NUCLIDE ACTIVITY SUMMARY

| NUCLIDE | ENERGY | NET AREA | BKG AREA | %ABUN | ACTIVITY pCi/L | ERROR 2-SIGMA | MDA pCi/L |
|---------|----------|----------|----------|----------|----------------|---------------|-----------|
| AC-227 | 5978.000 | 159.520 | 0.480 | 54.75400 | 9.81E+00 | 2.26E+00 | 3.82E-01 |
| TH-228 | 5363.000 | 1.160 | 3.840 | 99.94000 | 3.76E-02 | 1.58E-01 | 3.92E-01 |
| TH229 | 4900.000 | -4.560 | 4.560 | 99.52000 | -1.48E-01 | 7.23E-02 | 4.20E-01 |
| TH-230 | 4625.000 | 2.280 | 0.720 | 100.0000 | 7.37E-02 | 1.16E-01 | 2.24E-01 |
| TH-232 | 3972.000 | -0.720 | 0.720 | 100.0000 | -2.33E-02 | 2.71E-02 | 2.24E-01 |

REVIEWED BY:

DATE :

BJB



GENERAL ENGINEERING LABORATORIES, LLC.
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 520798
SAMPLE DATE : 19-APR-2006 07:30:00

SAMPLE ID : S1201071141_TH
SAMPLE QTY: 0.200 L

DETECTOR NUMBER :30451
AVERAGE %EFFICIENCY :29.9703
% YIELD : 68.028

COUNT DATE:20-APR-2006 07:49:45
ELAPSED LIVE TIME(SEC): 14400.00
ANALYST :BJB1

MS : 0159-O
MSD : 0159-O
LCS : 0159-O
TRACER : 0387-B-102
BKG FILE: B085.CNF;607
BKG DATE: 16-APR-2006

MS PCI/L : 53.92892
MSD PCI/L : 53.92892
LCS PCI/L : 53.92892
TRACER DPM : 4.3537
EFF FILE : W085.CNF;205
CAL DATE: 3-APR-2006

MS ISOTOPE : TH-230
MSD ISOTOPE: TH-230
LCS ISOTOPE: TH-230
TRACER ISOTOPE: AC227
LIB FILE : ENV_ALPHA_TH.N

NUCLIDE ACTIVITY SUMMARY

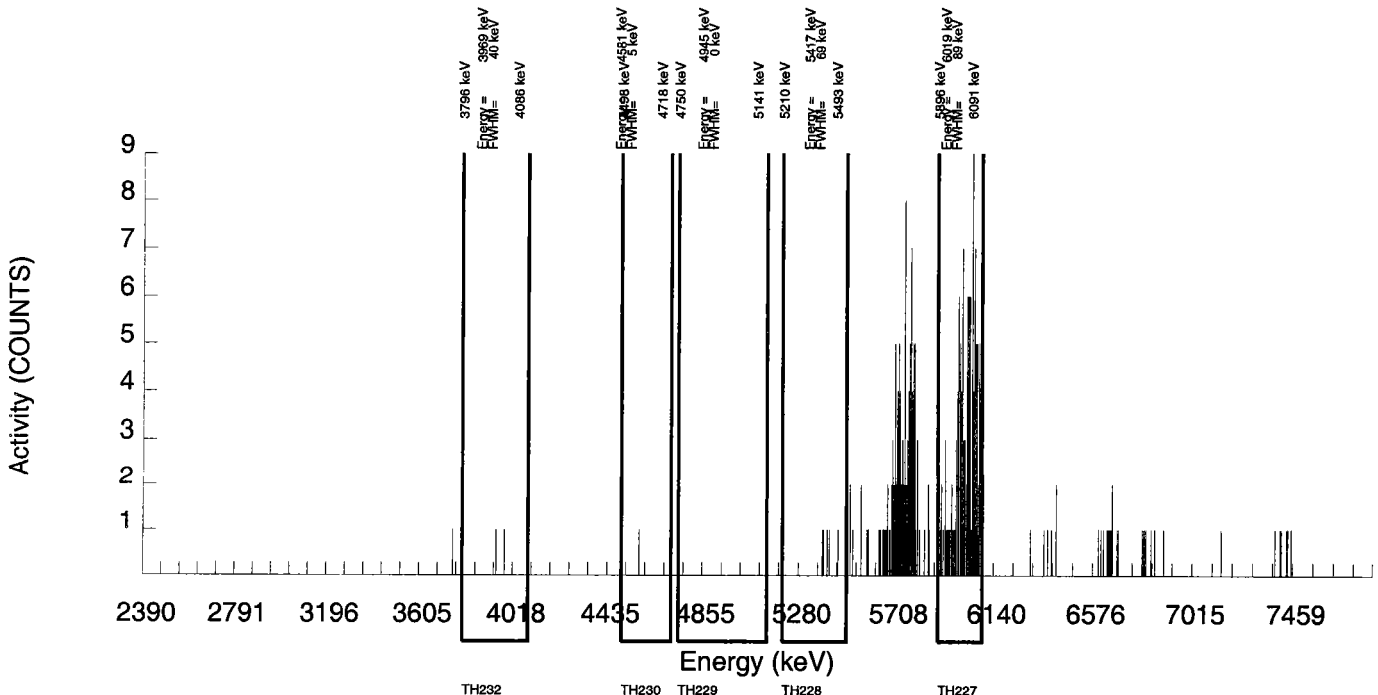
| NUCLIDE | ENERGY | NET AREA | BKG AREA | %ABUN | ACTIVITY pCi/L | ERROR 2-SIGMA | MDA pCi/L |
|---------|----------|----------|----------|----------|----------------|---------------|-----------|
| AC-227 | 5978.000 | 112.000 | 0.000 | 54.75400 | 9.81E+00 | 2.67E+00 | 2.63E-01 |
| TH-228 | 5363.000 | 3.800 | 1.200 | 99.94000 | 1.75E-01 | 2.15E-01 | 3.73E-01 |
| TH229 | 4900.000 | -1.200 | 1.200 | 99.52000 | -5.55E-02 | 5.08E-02 | 3.74E-01 |
| TH-230 | 4625.000 | 0.520 | 0.480 | 100.0000 | 2.39E-02 | 9.73E-02 | 2.86E-01 |
| TH-232 | 3972.000 | 1.760 | 0.240 | 100.0000 | 8.10E-02 | 1.33E-01 | 2.43E-01 |

REVIEWED BY:

DATE :

BJB 4/20/06

Th-228 = S.G.D ACT < MDA
Th-230 } ACT < MDA
Th-232



GENERAL ENGINEERING LABORATORIES, LLC.
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 520798
SAMPLE DATE : 19-APR-2006 07:30:00

SAMPLE ID : S1201071142_TH
SAMPLE QTY: 0.100 L

DETECTOR NUMBER :29278
AVERAGE %EFFICIENCY :26.2964
% YIELD : 44.996

COUNT DATE:20-APR-2006 07:49:45
ELAPSED LIVE TIME(SEC): 14400.00
ANALYST :BJB1

MS : 0159-O
MSD : 0159-O
LCS : 0159-O
TRACER : 0387-B-102
BKG FILE: B086.CNF;608
BKG DATE: 16-APR-2006

MS PCI/L : 107.8578
MSD PCI/L : 107.8578
LCS PCI/L : 107.8578
TRACER DPM : 4.3537
EFF FILE : W086.CNF;176
CAL DATE: 3-APR-2006

MS ISOTOPE : TH-230
MSD ISOTOPE: TH-230
LCS ISOTOPE: TH-230
TRACER ISOTOPE: AC227
LIB FILE : ENV_ALPHA_TH.N

NUCLIDE ACTIVITY SUMMARY

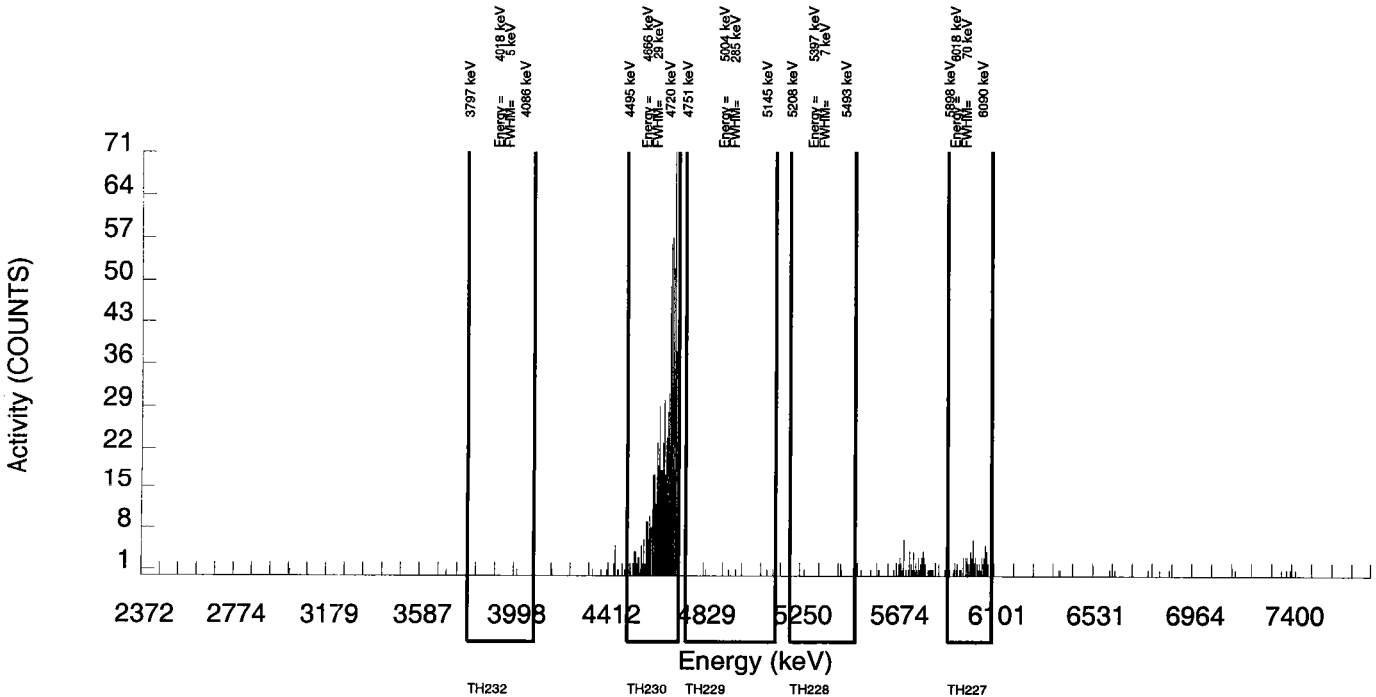
| NUCLIDE | ENERGY | NET AREA | BKG AREA | %ABUN | ACTIVITY pCi/L | ERROR 2-SIGMA | MDA pCi/L |
|---------|----------|----------|----------|----------|----------------|---------------|-----------|
| AC-227 | 5978.000 | 65.000 | 0.000 | 54.75400 | 1.96E+01 | 6.96E+00 | 9.05E-01 |
| TH-228 | 5363.000 | 3.040 | 0.960 | 99.94000 | 4.83E-01 | 6.65E-01 | 1.20E+00 |
| TH229 | 4900.000 | 2.840 | 2.160 | 99.52000 | 4.53E-01 | 7.58E-01 | 1.57E+00 |
| TH-230 | 4625.000 | 744.040 | 0.960 | 100.0000 | 1.18E+02 | 3.12E+01 | 1.20E+00 |
| TH-232 | 3972.000 | 0.760 | 0.240 | 100.0000 | 1.21E-01 | 3.28E-01 | 8.37E-01 |

REVIEWED BY:

DATE :

BJB 4/20/06

$$MS = \frac{118 - 0}{108} = 109\%$$



GENERAL ENGINEERING LABORATORIES, LLC.
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 520798
SAMPLE DATE : 19-APR-2006 07:30:00

SAMPLE ID : S1201071143_TH
SAMPLE QTY: 0.200 L

DETECTOR NUMBER :30434
AVERAGE %EFFICIENCY :27.0872
% YIELD : 112.742

COUNT DATE:20-APR-2006 07:49:45
ELAPSED LIVE TIME(SEC): 14400.00
ANALYST :BJB1

MS : 0159-O
MSD : 0159-O
LCS : 0159-O
TRACER : 0387-B-102
BKG FILE: B088.CNF;598
BKG DATE: 16-APR-2006

MS PCI/L : 53.92892
MSD PCI/L : 53.92892
LCS PCI/L : 53.92892
TRACER DPM : 4.3537
EFF FILE : W088.CNF;171
CAL DATE: 3-APR-2006

MS ISOTOPE : TH-230
MSD ISOTOPE: TH-230
LCS ISOTOPE: TH-230
TRACER ISOTOPE: AC227
LIB FILE : ENV_ALPHA_TH.N

NUCLIDE ACTIVITY SUMMARY

| NUCLIDE | ENERGY | NET AREA | BKG AREA | %ABUN | ACTIVITY pCi/L | ERROR 2-SIGMA | MDA pCi/L |
|---------|----------|----------|----------|----------|----------------|---------------|-----------|
| AC-227 | 5978.000 | 167.760 | 0.240 | 54.75400 | 9.81E+00 | 2.21E+00 | 3.08E-01 |
| TH-228 | 5363.000 | 6.840 | 2.160 | 99.94000 | 2.11E-01 | 1.93E-01 | 3.03E-01 |
| TH229 | 4900.000 | 10.560 | 1.440 | 99.52000 | 3.26E-01 | 2.23E-01 | 2.65E-01 |
| TH-230 | 4625.000 | 1527.040 | 0.960 | 100.0000 | 4.69E+01 | 8.06E+00 | 2.32E-01 |
| TH-232 | 3972.000 | 10.280 | 0.720 | 100.0000 | 3.16E-01 | 2.12E-01 | 2.13E-01 |

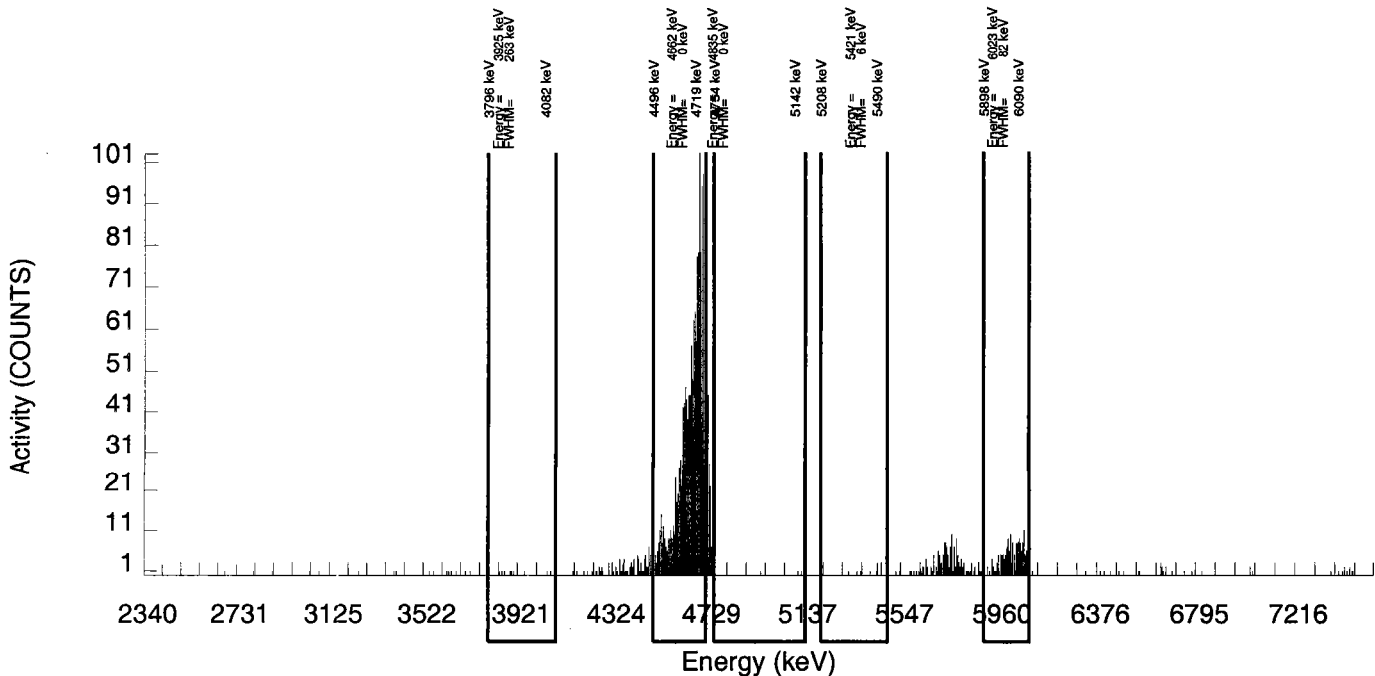
REVIEWED BY:

DATE:

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[Handwritten signature]

$$LCS = \frac{46.9}{53.9} = 87.0\%$$



Radiochemistry Batch Checklist, Rev 4

Batch# 520799 Product: U Date: 04/25/06

| Criteria: | Yes | No | Comments |
|---|-----|----|----------|
| Sample Solids are less than 100 mg for GAB. | | | N/A |
| If activity less 10* MDA, error is 150% or less of sample activity. If greater 10* MDA, error is 40% or less. If below the MDA, error is okay. | ✓ | | |
| Instrument source check is within limits. Instument bkg check is within limits. | ✓ | | |
| Method RDL has been met. | ✓ | | |
| If duplicate activities are less 5* MDA, then rpd is 100% or less. If greater 5* MDA, then rpd 20% or less. If below the MDA, 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. (If rad samples, < 5% of lowest activity) | ✓ | | |
| Sample was run within hold time. | ✓ | | |
| Special requirements page checked | ✓ | | |
| 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 lineouts initialed and dated. | ✓ | | |
| No transcription errors are apparent. | ✓ | | |
| QC data entered into QC database. | ✓ | | |
| Batch entered into Case Narrative. | ✓ | | |
| Batch non-conformances completed If applicable. | | | N/A |

General Engineering Laboratories

2/22/2005 Primary Review Performed By: James Halley 04/25/06

Secondary Review Performed By: NO 4/25/06

04/20-04/27

Uranium Que Sheet

13-APR-06

Batch #: 520799 Analyst: BJB1 Minimum Due Date: 20-APR-06
 Tracer Isotope: U-232/U-236 Tracer Code: 0688-4 Expiration Date: 11/21/07 Vol: 0.100
 LCS Isotope: U-238 LCS Code: 0850-3 Expiration Date: 11/21/06 Vol: 0.100
 Spike Isotope: U-238 Spike Code: 0852-2 Expiration Date: 11/21/06 Vol: 0.100
 Prep Date: 4/18/06 Initials: BJB Pipet ID: 182854 Balance ID: 167560 Z07

Witness: JKS 4/18/06

| Sample ID | Client Description | Hazard Code | Type | Min CRDL | Matrix | Client | Collection Date | Label # | Aliquot (g/D/f) | U Det # | Ash Weight (g) |
|------------|--------------------------------|-------------|--------|----------|-------------|------------|-----------------|---------|-----------------|---------|----------------|
| 158272001 | 2603140436 TR-10A | | SAMPLE | 1 pCi/L | GROUND WATI | MWHL002 | 13-MAR-06 | 31 | 0.200 | 19 | |
| 158275001 | 2603140472 PUMP BLANK | | SAMPLE | 1 pCi/L | GROUND WATI | MWHL002 | 13-MAR-06 | 32 | 0.200 | 20 | |
| 158276001 | 2603090347 FB-1 | | SAMPLE | 1 pCi/L | GROUND WATI | MWHL002 | 08-MAR-06 | 33 | 0.200 | 21 | |
| 158277001 | 2603100260 EB-1 | | SAMPLE | 1 pCi/L | GROUND WATI | MWHL002 | 09-MAR-06 | 34 | 0.200 | 23 | |
| 158436001 | 2603150120 TR-9A | | SAMPLE | 1 pCi/L | GROUND WATI | MWHL002 | 14-MAR-06 | 35 | 0.200 | 1 | |
| 158971001 | 2603220347 M-103 | | SAMPLE | 1 pCi/L | GROUND WATI | MWHL002 | 21-MAR-06 | 36 | 0.200 | 7 | |
| 158971002 | 2603220348 TR-7 | | SAMPLE | 1 pCi/L | GROUND WATI | MWHL002 | 21-MAR-06 | 37 | 0.200 | 4 | |
| 158971003 | 2603220357 TR-9 | | SAMPLE | 1 pCi/L | GROUND WATI | MWHL002 | 21-MAR-06 | 38 | 0.200 | 5 | |
| 158971004 | 2603220360 TR-10 | | SAMPLE | 1 pCi/L | GROUND WATI | MWHL002 | 21-MAR-06 | 39 | 0.200 | 7 | |
| 159242001 | 2603240118 H-11 | | SAMPLE | 1 pCi/L | GROUND WATI | MWHL002 | 23-MAR-06 | 40 | 0.200 | 9 | |
| 159242002 | 2603240122 M-117 | | SAMPLE | 1 pCi/L | GROUND WATI | MWHL002 | 23-MAR-06 | 41 | 0.200 | 10 | |
| 159242003 | 2603240135 M-121 | | SAMPLE | 1 pCi/L | GROUND WATI | MWHL002 | 23-MAR-06 | 42 | 0.200 | 11 | |
| 159243001 | 2603230197 M-118 | | SAMPLE | 1 pCi/L | GROUND WATI | MWHL002 | 22-MAR-06 | 43 | 0.200 | 13 | |
| 159244001 | 2603250005 EB-3 | | SAMPLE | 1 pCi/L | GROUND WATI | MWHL002 | 24-MAR-06 | 44 | 0.200 | 16 | |
| 159247001 | 2603230069 M-120 | | SAMPLE | 1 pCi/L | GROUND WATI | MWHL002 | 22-MAR-06 | 45 | 0.200 | 17 | |
| 1201071144 | MB for batch 520799 | | MB | | GROUND WATI | QC ACCOUNT | | 46 | 0.200 | 18 | |
| 1201071145 | 2603240135 M-121(159242003DUP) | | DUP | | GROUND WATI | QC ACCOUNT | 23-MAR-06 | 47 | 0.200 | 19 | |
| 1201071146 | 2603240135 M-121(159242003MS) | | MS | | GROUND WATI | QC ACCOUNT | 23-MAR-06 | 48 | 0.100 | 20 | |
| 1201071147 | LCS for batch 520799 | | LCS | | GROUND WATI | QC ACCOUNT | | 49 | 0.200 | 21 | |

388 4/17/06

Solid Sample Dissolution by: LEACH or DIGESTION
 Circle One

Data Reviewed By: Barbara D. Valley 4/25/06
 JKS 4/18/06

Choose SOP used: GL-RAD-A-011
~~GL-RAD-A-012~~
 GL-RAD-A-045
 GL-RAD-A-043

General Engineering Laboratories, Radiochemistry Division

GENERAL ENGINEERING LABORATORIES, LLC.
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 520799
SAMPLE DATE : 9-MAR-2006 00:00:00.

SAMPLE ID : S0158277001_UU
SAMPLE QTY: 0.200 L

DETECTOR NUMBER :22873
AVERAGE %EFFICIENCY :27.6563
% YIELD : 101.757

COUNT DATE:20-APR-2006 17:29:35
ELAPSED LIVE TIME(SEC): 14399.99
ANALYST :BJB1

MS : 0858-B
MSD : 0858-B
LCS : 0858-B
TRACER : 0688-H
BKG FILE: B023.CNF;685
BKG DATE: 17-APR-2006

MS PCI/L : 13.14673
MSD PCI/L : 13.14673
LCS PCI/L : 13.14673
TRACER DPM : 5.4126
EFF FILE : W023.CNF;181
CAL DATE: 3-APR-2006

MS ISOTOPE : U-238
MSD ISOTOPE: U-238
LCS ISOTOPE: U-238
TRACER ISOTOPE: U232
LIB FILE : ENV_ALPHA_UU.N

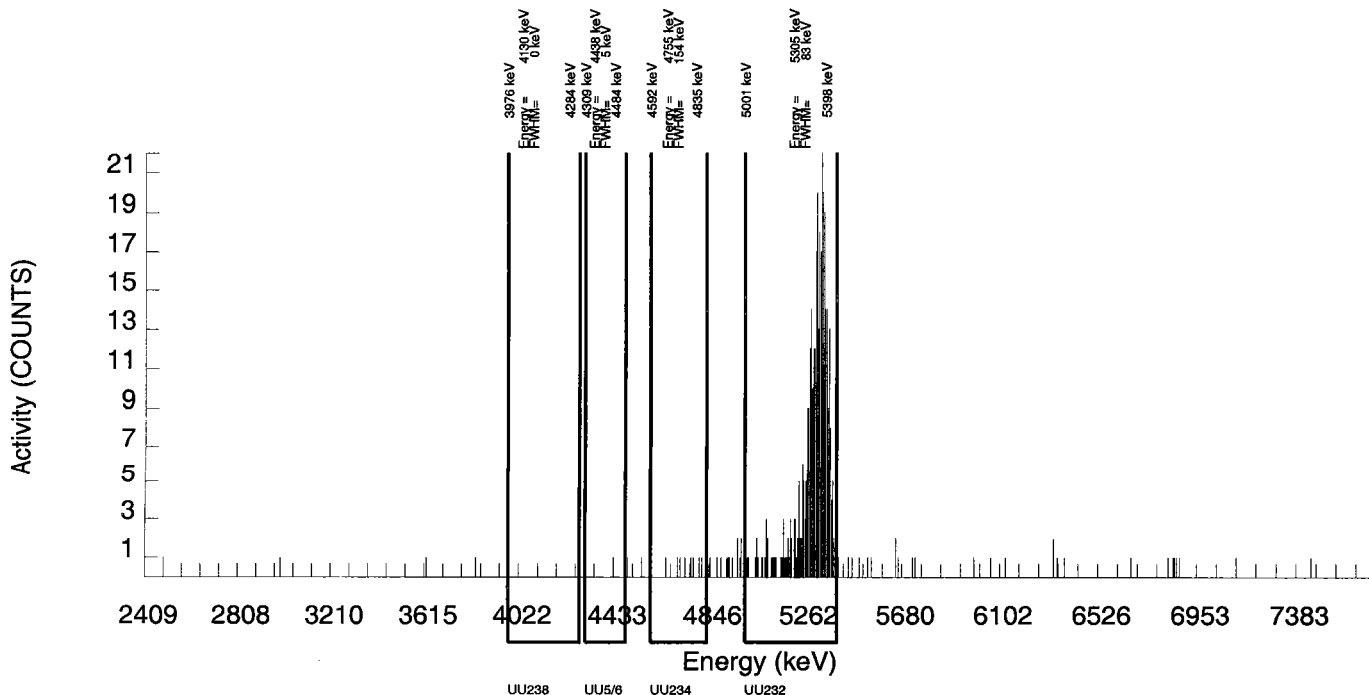
NUCLIDE ACTIVITY SUMMARY

| NUCLIDE | ENERGY | NET AREA | BKG AREA | %ABUN | ACTIVITY pCi/L | TPU 1.96-SIGMA | MDA pCi/L | UNC pCi/L |
|---------|----------|----------|----------|----------|----------------|----------------|-----------|-----------|
| U-3/4 | 4763.020 | 6.560 | 1.440 | 100.0000 | 2.19E-01 | 1.91E-01 | 2.86E-01 | 1.89E-01 |
| U232 | 5302.100 | 365.160 | 3.840 | 100.0000 | 1.22E+01 | 2.16E+00 | 4.04E-01 | 1.26E+00 |
| U-235 | 4391.000 | 0.040 | 0.960 | 80.90000 | 1.65E-03 | 8.96E-02 | 3.11E-01 | 8.96E-02 |
| U-238 | 4184.730 | -2.160 | 2.160 | 100.0000 | -7.20E-02 | 4.82E-02 | 3.28E-01 | 4.71E-02 |

REVIEWED BY:

DATE :

DH 04/21/06



GENERAL ENGINEERING LABORATORIES, LLC.
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 520799
SAMPLE DATE : 23-MAR-2006 00:00:00

SAMPLE ID : S0159242003_UU
SAMPLE QTY: 0.200 L

DETECTOR NUMBER :9537
AVERAGE %EFFICIENCY :31.0572
% YIELD : 69.076

COUNT DATE:21-APR-2006 07:38:20
ELAPSED LIVE TIME(SEC): 14400.00
ANALYST :BJB1

MS : 0858-B
MSD : 0858-B
LCS : 0858-B
TRACER : 0688-H
BKG FILE: B011.CNF;696
BKG DATE: 17-APR-2006

MS PCI/L : 13.14673
MSD PCI/L : 13.14673
LCS PCI/L : 13.14673
TRACER DPM : 5.4106
EFF FILE : W011.CNF;198
CAL DATE: 3-APR-2006

MS ISOTOPE : U-238
MSD ISOTOPE: U-238
LCS ISOTOPE: U-238
TRACER ISOTOPE: U232
LIB FILE : ENV_ALPHA_UU.N

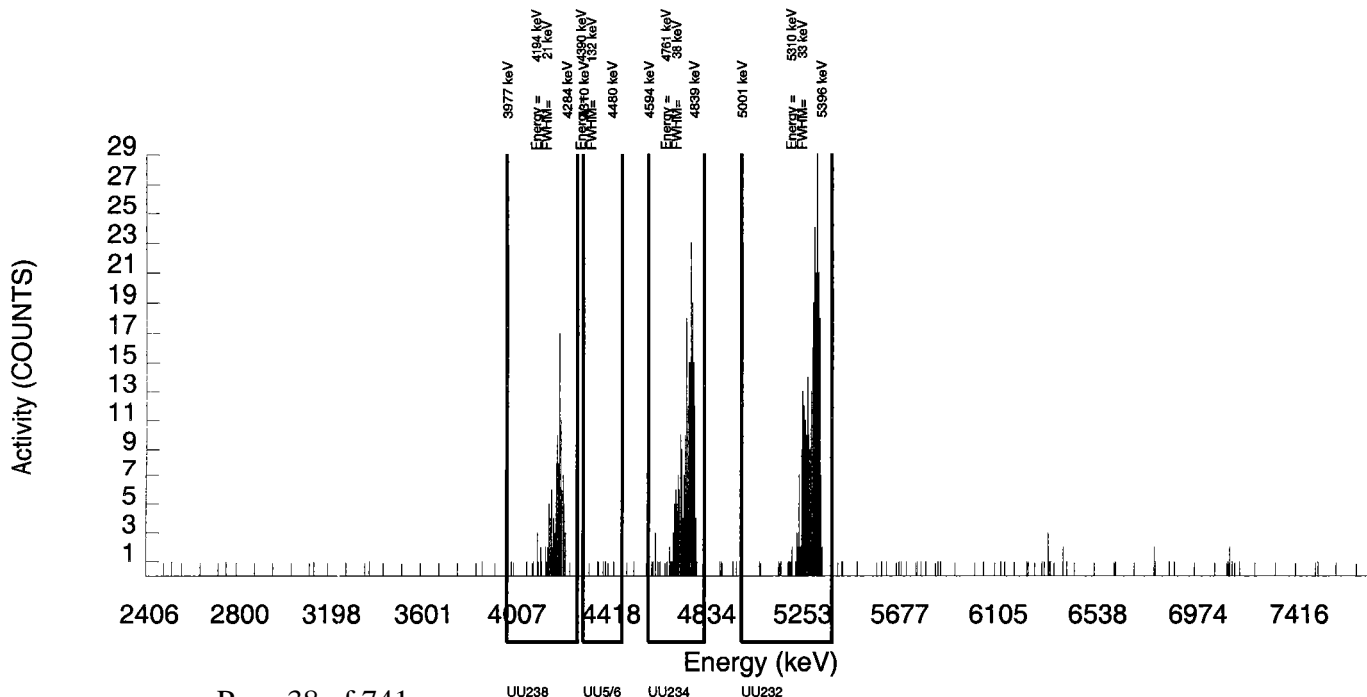
NUCLIDE ACTIVITY SUMMARY

| NUCLIDE | ENERGY | NET AREA | BKG AREA | %ABUN | ACTIVITY pCi/L | TPU 1.96-SIGMA | MDA pCi/L | UNC pCi/L |
|---------|----------|----------|----------|----------|----------------|----------------|-----------|-----------|
| U-3/4 | 4763.020 | 218.080 | 1.920 | 100.0000 | 9.54E+00 | 1.95E+00 | 4.13E-01 | 1.27E+00 |
| U232 | 5302.100 | 278.360 | 2.640 | 100.0000 | 1.22E+01 | 2.37E+00 | 4.62E-01 | 1.44E+00 |
| U-235 | 4391.000 | 5.760 | 0.240 | 80.90000 | 3.11E-01 | 2.65E-01 | 2.85E-01 | 2.61E-01 |
| U-238 | 4184.730 | 113.760 | 0.240 | 100.0000 | 4.98E+00 | 1.20E+00 | 2.31E-01 | 9.16E-01 |

REVIEWED BY:

DATE :

PH 04/21/06



GENERAL ENGINEERING LABORATORIES, LLC.
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 520799
SAMPLE DATE : 18-APR-2006 00:00:00

SAMPLE ID : S1201071144_UU
SAMPLE QTY: 0.200 L

DETECTOR NUMBER :21063
AVERAGE %EFFICIENCY :25.5920
% YIELD : 80.286

COUNT DATE:21-APR-2006 07:38:29
ELAPSED LIVE TIME(SEC): 14399.99
ANALYST :BJB1

MS : 0858-B
MSD : 0858-B
LCS : 0858-B
TRACER : 0688-H
BKG FILE: B018.CNF;670
BKG DATE: 17-APR-2006

MS PCI/L : 13.14673
MSD PCI/L : 13.14673
LCS PCI/L : 13.14673
TRACER DPM : 5.4069
EFF FILE : W018.CNF;190
CAL DATE: 3-APR-2006

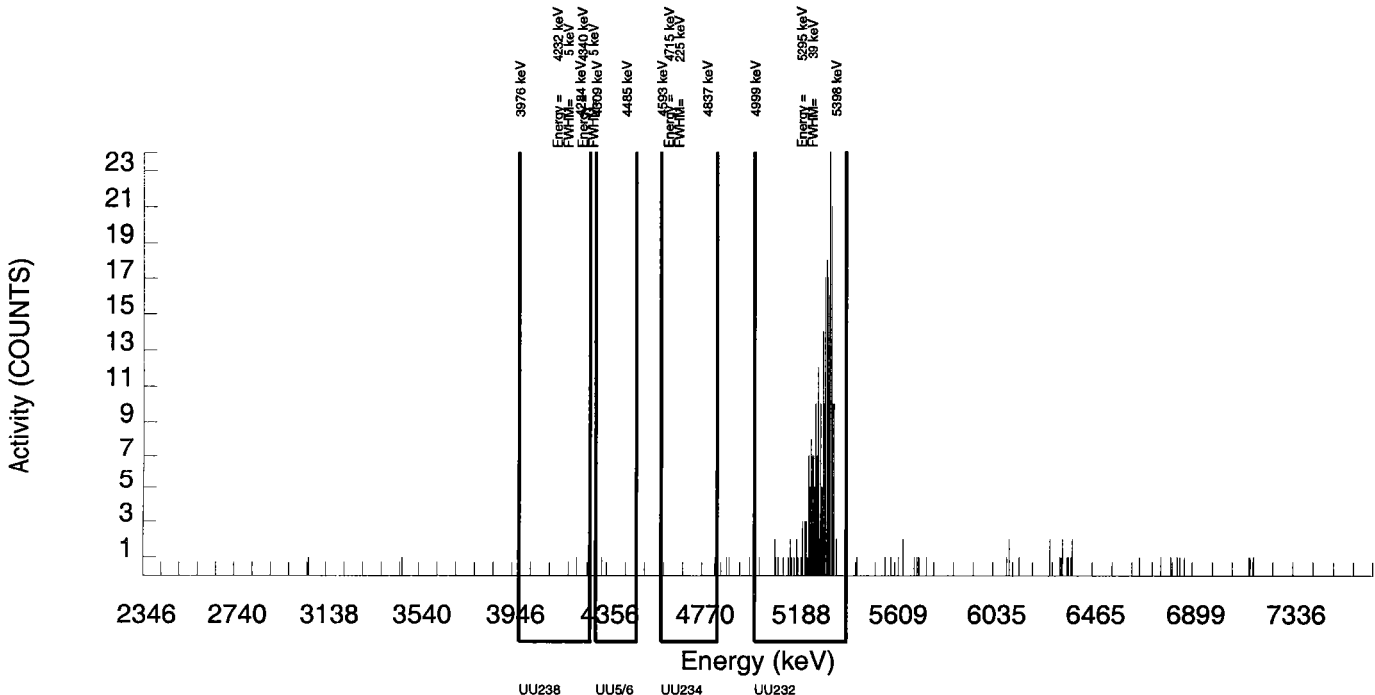
MS ISOTOPE : U-238
MSD ISOTOPE: U-238
LCS ISOTOPE: U-238
TRACER ISOTOPE: U232
LIB FILE : ENV_ALPHA_UU.N

NUCLIDE ACTIVITY SUMMARY

| NUCLIDE | ENERGY | NET AREA | BKG AREA | %ABUN | ACTIVITY pCi/L | TPU 1.96-SIGMA | MDA pCi/L | UNC pCi/L |
|---------|----------|----------|----------|----------|----------------|----------------|-----------|-----------|
| U-3/4 | 4763.020 | 1.520 | 0.480 | 100.0000 | 6.94E-02 | 1.31E-01 | 2.84E-01 | 1.30E-01 |
| U232 | 5302.100 | 266.600 | 2.400 | 100.0000 | 1.22E+01 | 2.41E+00 | 4.66E-01 | 1.47E+00 |
| U-235 | 4391.000 | 1.000 | 0.000 | 80.90000 | 5.65E-02 | 1.11E-01 | 1.69E-01 | 1.11E-01 |
| U-238 | 4184.730 | 0.280 | 0.720 | 100.0000 | 1.28E-02 | 9.70E-02 | 3.17E-01 | 9.69E-02 |

REVIEWED BY:

DATE: *DH 04/21/06*



GENERAL ENGINEERING LABORATORIES, LLC.
ALPHA SPECTROSCOPY REPORT

| | | | |
|--|--|---|--|
| BATCH NUMBER: 520799 SAMPLE DATE : 23-MAR-2006 00:00:00 | | SAMPLE ID : S1201071145_UU SAMPLE QTY: 0.200 L | |
| DETECTOR NUMBER :45-132FF2 AVERAGE %EFFICIENCY :39.0663 % YIELD : 80.097 | | COUNT DATE:22-APR-2006 07:38:41 ELAPSED LIVE TIME(SEC): 14400.00 ANALYST :BJB1 | |
| MS : 0858-B MSD : 0858-B LCS : 0858-B TRACER : 0688-H BKG FILE: B116.CNF;16 BKG DATE: 16-APR-2006 | MS PCI/L : 13.14673 MSD PCI/L : 13.14673 LCS PCI/L : 13.14673 TRACER DPM : 5.4106 EFF FILE : W116.CNF;11 CAL DATE: 4-APR-2006 | MS ISOTOPE : U-238 MSD ISOTOPE: U-238 LCS ISOTOPE: U-238 TRACER ISOTOPE: U232 LIB FILE : ENV_ALPHA_UU.N | |

NUCLIDE ACTIVITY SUMMARY

| NUCLIDE | ENERGY | NET AREA | BKG AREA | %ABUN | ACTIVITY pCi/L | TPU 1.96-SIGMA | MDA pCi/L | UNC pCi/L |
|---------|----------|----------|----------|----------|----------------|----------------|-----------|-----------|
| U-3/4 | 4763.020 | 348.280 | 0.720 | 100.0000 | 1.04E+01 | 1.82E+00 | 2.08E-01 | 1.10E+00 |
| U232 | 5302.100 | 406.000 | 0.000 | 100.0000 | 1.22E+01 | 2.07E+00 | 9.00E-02 | 1.19E+00 |
| U-235 | 4391.000 | 9.760 | 0.240 | 80.90000 | 3.62E-01 | 2.36E-01 | 1.96E-01 | 2.30E-01 |
| U-238 | 4184.730 | 195.000 | 0.000 | 100.0000 | 5.85E+00 | 1.16E+00 | 9.00E-02 | 8.21E-01 |

REVIEWED BY:

DATE :

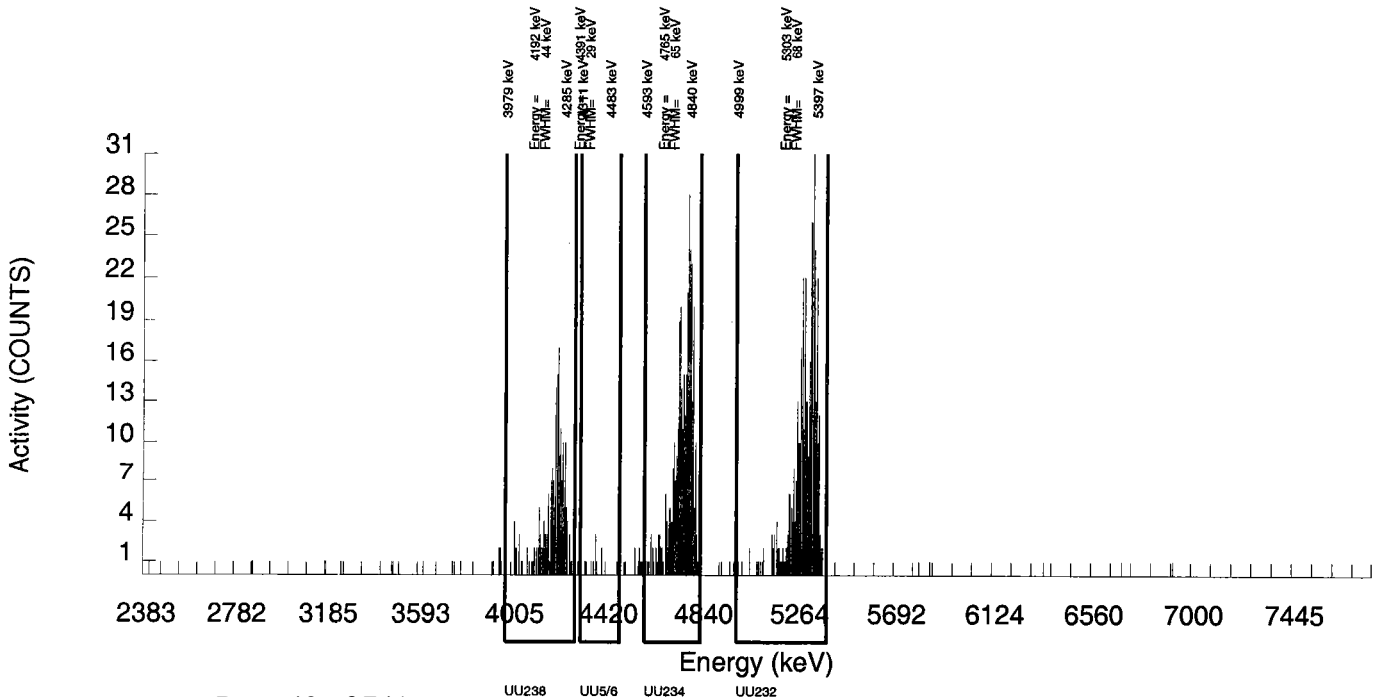
REV =

U-3/4 = 0.114 0.037
U-235 = 0.057 0.282
U-238 = 0.184 1.02

RPD = JH 04/28/06

U-3/4 = 8.63%
U-235 = 15.2%
U-238 = 16.1%

JH 04/28/06



GENERAL ENGINEERING LABORATORIES, LLC.
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 520799
SAMPLE DATE : 23-MAR-2006 00:00:00

SAMPLE ID : S1201071146_UU
SAMPLE QTY: 0.100 L

DETECTOR NUMBER :33093
AVERAGE %EFFICIENCY :33.7467
% YIELD : 68.376

COUNT DATE:21-APR-2006 07:38:37
ELAPSED LIVE TIME(SEC): 14400.00
ANALYST :BJB1

MS : 0858-B
MSD : 0858-B
LCS : 0858-B
TRACER : 0688-H
BKG FILE: B020.CNF;677
BKG DATE: 17-APR-2006

MS PCI/L : 26.29347
MSD PCI/L : 26.29347
LCS PCI/L : 26.29347
TRACER DPM : 5.4106
EFF FILE : W020.CNF;179
CAL DATE: 3-APR-2006

MS ISOTOPE : U-238
MSD ISOTOPE: U-238
LCS ISOTOPE: U-238
TRACER ISOTOPE: U232
LIB FILE : ENV_ALPHA_UU.N

NUCLIDE ACTIVITY SUMMARY

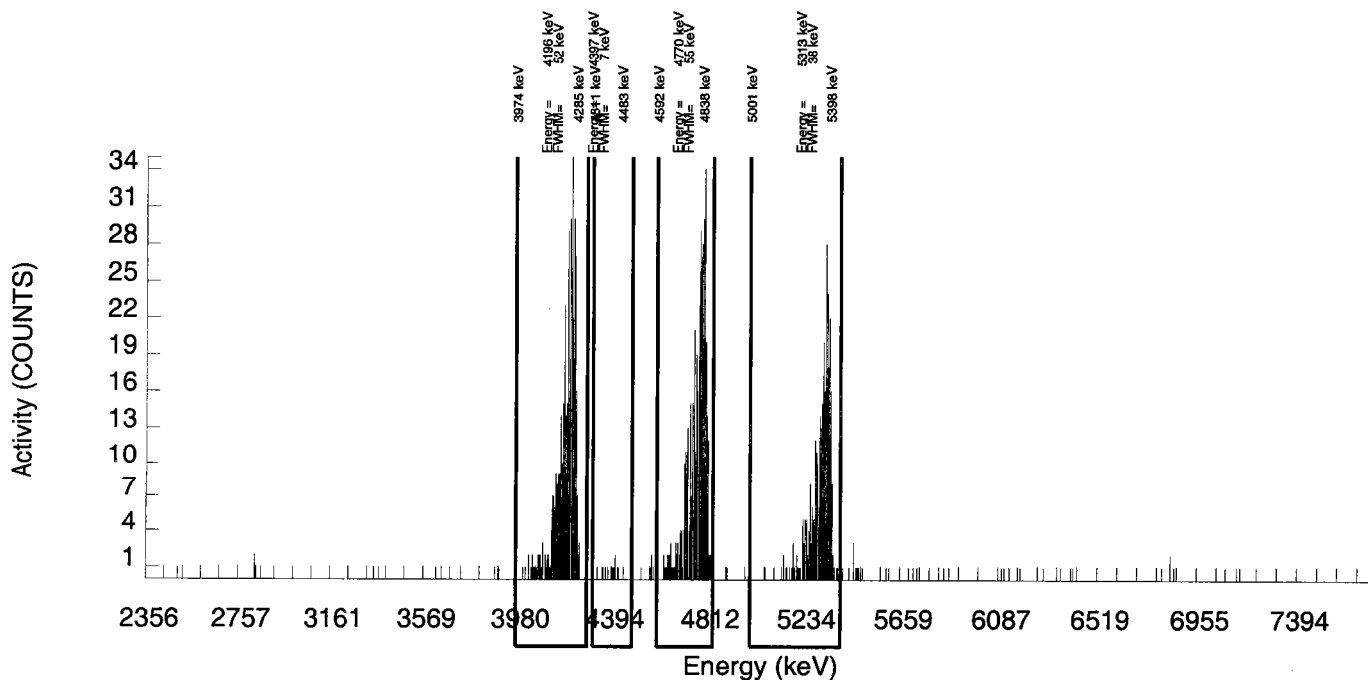
| NUCLIDE | ENERGY | NET AREA | BKG AREA | %ABUN | ACTIVITY pCi/L | TPU 1.96-SIGMA | MDA pCi/L | UNC pCi/L |
|---------|----------|----------|----------|----------|----------------|----------------|-----------|-----------|
| U-3/4 | 4763.020 | 410.760 | 0.240 | 100.0000 | 3.34E+01 | 6.01E+00 | 4.29E-01 | 3.23E+00 |
| U232 | 5302.100 | 299.400 | 3.600 | 100.0000 | 2.44E+01 | 4.63E+00 | 9.62E-01 | 2.78E+00 |
| U-235 | 4391.000 | 11.760 | 0.240 | 80.90000 | 1.18E+00 | 7.07E-01 | 5.31E-01 | 6.84E-01 |
| U-238 | 4184.730 | 397.280 | 0.720 | 100.0000 | 3.23E+01 | 5.84E+00 | 5.65E-01 | 3.18E+00 |

REVIEWED BY:

DATE :

$$ms = \frac{32.3 - 4.98}{26.3} = 104\%$$

PJH 04/21/06



GENERAL ENGINEERING LABORATORIES, LLC.
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 520799
SAMPLE DATE : 18-APR-2006 00:00:00

SAMPLE ID : S1201071147_UU
SAMPLE QTY: 0.200 L

DETECTOR NUMBER :33893
AVERAGE %EFFICIENCY :30.9792
% YIELD : 92.317

COUNT DATE:21-APR-2006 07:38:37
ELAPSED LIVE TIME(SEC): 14400.00
ANALYST :BJB1

MS : 0858-B
MSD : 0858-B
LCS : 0858-B
TRACER : 0688-H
BKG FILE: B021.CNF;681
BKG DATE: 17-APR-2006

MS PCI/L : 13.14673
MSD PCI/L : 13.14673
LCS PCI/L : 13.14673
TRACER DPM : 5.4069
EFF FILE : W021.CNF;201
CAL DATE: 3-APR-2006

MS ISOTOPE : U-238
MSD ISOTOPE: U-238
LCS ISOTOPE: U-238
TRACER ISOTOPE: U232
LIB FILE : ENV_ALPHA_UU.N

NUCLIDE ACTIVITY SUMMARY

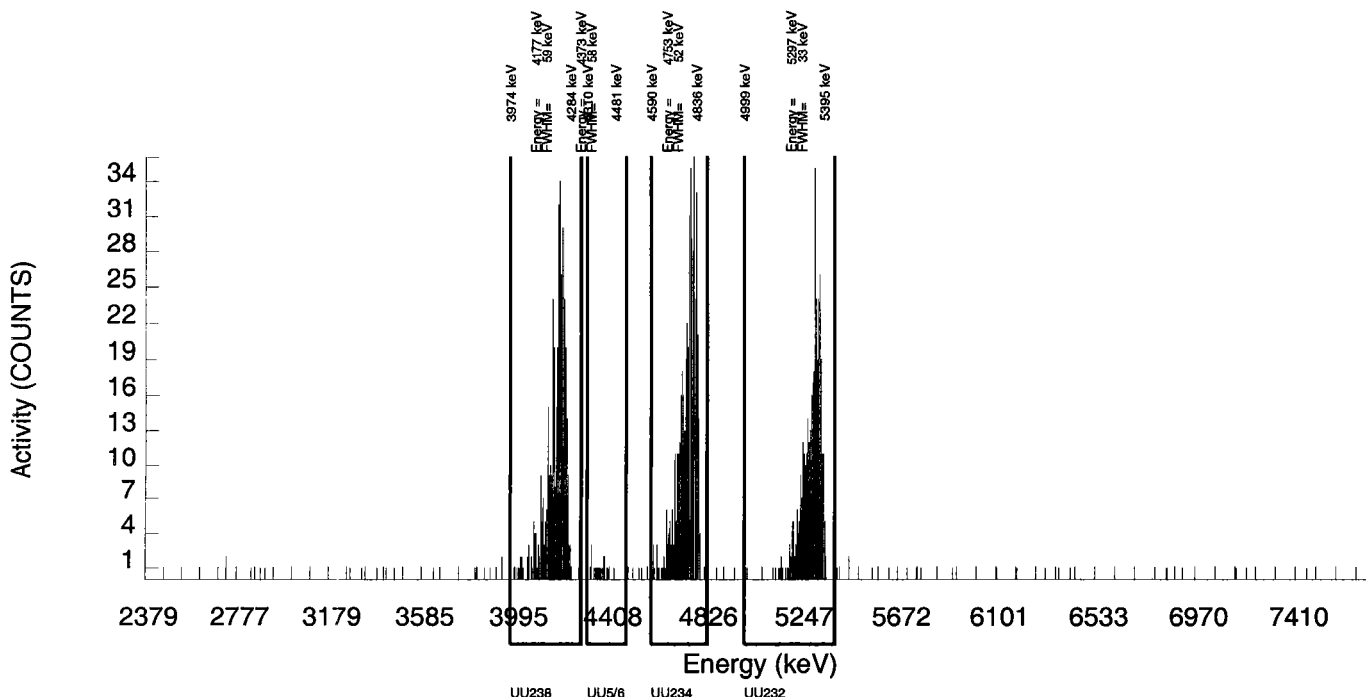
| NUCLIDE | ENERGY | NET AREA | BKG AREA | %ABUN | ACTIVITY pCi/L | TPU 1.96-SIGMA | MDA pCi/L | UNC pCi/L |
|---------|----------|----------|----------|----------|----------------|----------------|-----------|-----------|
| U-3/4 | 4763.020 | 473.280 | 0.720 | 100.0000 | 1.55E+01 | 2.62E+00 | 2.28E-01 | 1.40E+00 |
| U232 | 5302.100 | 371.080 | 1.920 | 100.0000 | 1.22E+01 | 2.14E+00 | 3.10E-01 | 1.24E+00 |
| U-235 | 4391.000 | 19.760 | 0.240 | 80.90000 | 8.01E-01 | 3.74E-01 | 2.14E-01 | 3.56E-01 |
| U-238 | 4184.730 | 428.520 | 0.480 | 100.0000 | 1.41E+01 | 2.41E+00 | 2.04E-01 | 1.33E+00 |

REVIEWED BY:

DATE:

PJH 04/21/06

$$UCS = \frac{14.1}{13.1} = 108\%$$



Radiochemistry Batch Checklist, Rev 4

Batch# 519510 Product: 8L/mwHL Date: 4/26/06

| Criteria: | Yes | No | Comments |
|--|-----|----|----------|
| Sample Solids are less than 100 mg for GAB. | | | NA |
| If activity less 10* MDA, error is 150% or less of sample activity. If greater 10* MDA, error is 40% or less. If below the MDA, error is okay. | ✓ | | |
| Instrument source check is within limits. | ✓ | | |
| Instrument bkg check is within limits. | ✓ | | |
| Method RDL has been met. | ✓ | ✓ | NCR |
| If duplicate activities are less 5* MDA, then rpd is 100% or less. If greater 5* MDA, then rpd 20% or less. If below the MDA, 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. | | | N/A |
| Method blank is less than the RDL. (If rad samples, < 5% of lowest activity) | ✓ | | |
| Sample was run within hold time. | ✓ | | |
| Special requirements page checked | ✓ | | |
| 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 lineouts initialed and dated. | ✓ | | |
| No transcription errors are apparent. | ✓ | | |
| QC data entered into QC database. | ✓ | | |
| Batch entered into Case Narrative. | ✓ | | |
| Batch non-conformances completed if applicable. | ✓ | | |

General Engineering Laboratories

2/22/2005

Primary Review Performed By: Jodi Cummings 4/26/06

Secondary Review Performed By: Michael P. [Signature] 4/26/06

Failed RDL Report

| Batch Id | Samp Id | Sample Type | Run Date | Parmname | Result | MDA | RDL |
|----------|------------|-------------|-----------|------------------|--------|-------|------|
| 519510 | 158272001 | SAMPLE | 25-APR-06 | | | | |
| 519510 | 158275001 | SAMPLE | 25-APR-06 | | | | |
| 519510 | 158276001 | SAMPLE | 25-APR-06 | | | | |
| 519510 | 158277001 | SAMPLE | 25-APR-06 | | | | |
| 519510 | 158436001 | SAMPLE | 25-APR-06 | | | | |
| 519510 | 158971001 | SAMPLE | 25-APR-06 | | | | |
| 519510 | 158971002 | SAMPLE | 25-APR-06 | | | | |
| 519510 | 158971003 | SAMPLE | 25-APR-06 | | | | |
| 519510 | 158971004 | SAMPLE | 25-APR-06 | | | | |
| 519510 | 159242001 | SAMPLE | 25-APR-06 | | | | |
| 519510 | 159242002 | SAMPLE | 25-APR-06 | | | | |
| 519510 | 159242003 | SAMPLE | 25-APR-06 | | | | |
| 519510 | 159243001 | SAMPLE | 26-APR-06 | | | | |
| 519510 | 159244001 | SAMPLE | 25-APR-06 | | | | |
| 519510 | 159247001 | SAMPLE | 25-APR-06 | Actinium-228 | -6.361 | 3.935 | 2.00 |
| 519510 | 1201068236 | MB | 25-APR-06 | Actinium-228 | 5.78 | 10.21 | 2.00 |
| | | | | Bismuth-212 | 6.397 | 18.43 | 10.0 |
| 519510 | 1201068237 | DUP | 26-APR-06 | Actinium-228 | 0.8134 | 4.83 | 2.00 |
| 519510 | 1201068238 | LCS | 26-APR-06 | Actinium-228 | 50.08 | 75.87 | 2.00 |
| | | | | Bismuth-212 | 68.21 | 146.5 | 10.0 |
| | | | | Lead-212 | 15.72 | 30.23 | 10.0 |
| | | | | Protactinium-231 | -412.2 | 684.7 | 280 |

Result Greater Than MDA

| Batch Id | Sample Id | Sample Type | Run Date | Parmname | Result | Uncertainty | Units | MDA | RDL |
|-----------------------|-----------|-------------|-----------|------------------------|--------------------|-------------|-------|-------|----------------|
| 519510 | 158272001 | SAMPLE | 25-APR-06 | Annihilation Rad. | 12.73 | 1.786 | pCi/L | 3.74 | N |
| | | | | Cadmium-115 | 2.320E+05 | 2.226E+06 | pCi/L | 0 | N |
| | | | | Iodine-135 | 1.000E+41 | 1.390E+41 | pCi/L | 0 | N |
| | | | | Lead-212 <i>LA</i> | 4.946 0 | 2.429 | pCi/L | 4.371 | 10.0 <i>UL</i> |
| | | | | Manganese-56 | 1.000E+41 | 2.000E+41 | pCi/L | 0 | N |
| | | | | Molybdenum-99 | 1.172E+05 | 89520 | pCi/L | 0 | N |
| | | | | Potassium-40 <i>HE</i> | 43.16 | 16.33 | pCi/L | 34.39 | N |
| | | | | Technetium-99m | 1.000E+41 | 7.636E+40 | pCi/L | 0 | N |
| Thulium-171 <i>HE</i> | 4043 | 2188 | pCi/L | 2075 | N | | | | |
| 519510 | 158275001 | SAMPLE | 25-APR-06 | Annihilation Rad. | 15.58 | 2.031 | pCi/L | 3.721 | N |
| | | | | Antimony-127 | 4866 | 7583 | pCi/L | 0 | N |
| | | | | Cadmium-115 | 5.908E+05 | 2.532E+06 | pCi/L | 0 | N |
| | | | | Cerium-143 | 5.140E+08 | 8.507E+09 | pCi/L | 0 | N |
| | | | | Lead-212 <i>LA</i> | 7.464 0 | 2.547 | pCi/L | 4.625 | 10.0 <i>UL</i> |
| | | | | Molybdenum-99 | 1.425E+05 | 1.297E+05 | pCi/L | 0 | N |
| | | | | Potassium-40 | 32.23 | 15.22 | pCi/L | 30.47 | N |
| | | | | Praseodymium-144 | 1.000E+41 | 1.852E+41 | pCi/L | 0 | N |
| | | | | Promethium-149 | 1.750E+06 | 2.588E+07 | pCi/L | 0 | N |
| | | | | Sodium-24 | 2.035E+20 | 1.161E+21 | pCi/L | 0 | N |
| | | | | Technetium-99m | 1.000E+41 | 1.213E+41 | pCi/L | 0 | N |
| | | | | Thorium-234 <i>HE</i> | 287.2 | 154.4 | pCi/L | 117.4 | N |
| | | | | Thulium-171 <i>HE</i> | 2399 | 1367 | pCi/L | 2171 | N |
| | | | | Uranium-238 <i>HE</i> | 287.2 | 154.4 | pCi/L | 89.81 | N |
| 519510 | 158276001 | SAMPLE | 25-APR-06 | Actinium-227 <i>HE</i> | 32.23 | 23.18 | pCi/L | 25.11 | N |
| | | | | Annihilation Rad. | 16.28 | 1.843 | pCi/L | 3.962 | N |
| | | | | Antimony-127 | 11930 | 16570 | pCi/L | 0 | N |
| | | | | Cadmium-115 | 1.783E+06 | 1.059E+07 | pCi/L | 0 | N |
| | | | | Cerium-143 | 1.154E+11 | 1.435E+11 | pCi/L | 0 | N |
| | | | | Lead-212 <i>LA</i> | 5.69 0 | 2.591 | pCi/L | 4.671 | 10.0 <i>UL</i> |
| | | | | Molybdenum-99 | 4.877E+05 | 3.927E+05 | pCi/L | 0 | N |
| | | | | Praseodymium-144 | 1.000E+41 | 2.000E+41 | pCi/L | 0 | N |
| | | | | Sodium-24 | 3.619E+23 | 2.323E+23 | pCi/L | 0 | N |
| | | | | Technetium-99m | 1.000E+41 | 8.052E+40 | pCi/L | 0 | N |
| | | | | Thorium-227 <i>HE</i> | 31.63 | 22.75 | pCi/L | 24.64 | N |
| Thulium-171 <i>HE</i> | 2712 | 2464 | pCi/L | 2441 | N | | | | |
| 519510 | 158277001 | SAMPLE | 25-APR-06 | Annihilation Rad. | 16.49 | 1.962 | pCi/L | 4.163 | N |
| | | | | Antimony-127 | 6976 | 16060 | pCi/L | 0 | N |

Result Greater Than MDA

| Batch Id | Sample Id | Sample Type | Run Date | Parmname | Result | Uncertainty | Units | MDA | RDL |
|----------|-----------|-------------|-----------|------------------------|--------------------|-------------|-------|-------|----------------|
| 519510 | 158277001 | SAMPLE | 25-APR-06 | Cadmium-115 | 3.677E+06 | 9.401E+06 | pCi/L | 0 | N |
| | | | | Lanthanum-140 | 2.439E+08 | 5.002E+08 | pCi/L | 0 | N |
| | | | | Molybdenum-99 | 4.079E+05 | 2.336E+05 | pCi/L | 0 | N |
| | | | | Niobium-95m | 5761 | 44030 | pCi/L | 0 | N |
| | | | | Potassium-40 <i>HE</i> | 62.33 | 19.26 | pCi/L | 40.57 | N |
| | | | | Promethium-149 | 2.327E+07 | 1.026E+08 | pCi/L | 0 | N |
| | | | | Sodium-24 | 1.585E+22 | 8.289E+22 | pCi/L | 0 | N |
| | | | | Technetium-99m | 1.000E+41 | 5.728E+40 | pCi/L | 0 | N |
| | | | | Thulium-171 <i>HE</i> | 5661 | 3203 | pCi/L | 2659 | N |
| 519510 | 158436001 | SAMPLE | 25-APR-06 | Annihilation Rad. | 13.23 | 1.808 | pCi/L | 3.787 | N |
| | | | | Antimony-127 | 667.6 | 6518 | pCi/L | 0 | N |
| | | | | Cadmium-115 | 2.338E+06 | 1.802E+06 | pCi/L | 0 | N |
| | | | | Iodine-132 | 1.000E+41 | 2.000E+41 | pCi/L | 0 | N |
| | | | | Lead-212 <i>LA</i> | 4.907 0 | 2.483 | pCi/L | 4.547 | 10.0 <i>CU</i> |
| | | | | Molybdenum-99 | 50670 | 86830 | pCi/L | 0 | N |
| | | | | Praseodymium-144 | 1.000E+41 | 1.378E+41 | pCi/L | 0 | N |
| | | | | Technetium-99m | 1.000E+41 | 1.714E+41 | pCi/L | 0 | N |
| | | | | Thulium-171 <i>HE</i> | 2982 | 2061 | pCi/L | 2551 | N |
| 519510 | 158971001 | SAMPLE | 25-APR-06 | Actinium-228 <i>HE</i> | 10.61 | 4.909 | pCi/L | 9.879 | N |
| | | | | Annihilation Rad. | 14.6 | 1.821 | pCi/L | 3.846 | N |
| | | | | Antimony-127 | 2131 | 1809 | pCi/L | 0 | N |
| | | | | Bismuth-211 <i>HE</i> | 14.77 | 16.48 | pCi/L | 11.92 | N |
| | | | | Cadmium-115 | 52020 | 1.900E+05 | pCi/L | 0 | N |
| | | | | Cerium-143 | 6.537E+07 | 1.284E+08 | pCi/L | 0 | N |
| | | | | Iodine-132 | 1.000E+41 | 2.000E+41 | pCi/L | 0 | N |
| | | | | Iodine-135 | 2.156E+39 | 1.972E+39 | pCi/L | 0 | N |
| | | | | Molybdenum-99 | 17960 | 14140 | pCi/L | 0 | N |
| | | | | Potassium-40 <i>HE</i> | 24.96 | 26.93 | pCi/L | 18.68 | N |
| | | | | Radium-228 <i>HE</i> | 10.61 | 4.909 | pCi/L | 9.879 | N |
| | | | | Sodium-24 | 2.011E+17 | 1.617E+17 | pCi/L | 0 | N |
| | | | | Technetium-99m | 1.000E+41 | 7.873E+40 | pCi/L | 0 | N |
| | | | | Thorium-234 <i>HE</i> | 112.6 | 68.12 | pCi/L | 108.5 | N |
| | | | | Thulium-171 <i>HE</i> | 2826 | 1738 | pCi/L | 1932 | N |
| | | | | Uranium-238 <i>HE</i> | 112.6 | 68.12 | pCi/L | 108.5 | N |
| 519510 | 158971002 | SAMPLE | 25-APR-06 | Annihilation Rad. | 16.2 | 1.889 | pCi/L | 3.974 | N |
| | | | | Iodine-135 | 2.678E+38 | 2.518E+39 | pCi/L | 0 | N |

Result Greater Than MDA

| Batch Id | Sample Id | Sample Type | Run Date | Parmname | Result | Uncertainty | Units | MDA | RDL |
|-----------------------|-----------|-------------|-----------|-----------------------------|--------------------|-------------|-------|-------|----------------|
| 519510 | 158971002 | SAMPLE | 25-APR-06 | Manganese-56 | 1.000E+41 | 2.000E+41 | pCi/L | 0 | N |
| | | | | Molybdenum-99 | 18850 | 16570 | pCi/L | 0 | N |
| | | | | Praseodymium-144 | 1.000E+41 | 2.000E+41 | pCi/L | 0 | N |
| | | | | Promethium-149 | 9.997E+05 | 2.196E+06 | pCi/L | 0 | N |
| | | | | Technetium-99m | 1.000E+41 | 8.788E+40 | pCi/L | 0 | N |
| | | | | Thulium-171 <i>HE</i> | 3368 | 2485 | pCi/L | 2281 | N |
| 519510 | 158971003 | SAMPLE | 25-APR-06 | Annihilation Rad. | 15.53 | 2.091 | pCi/L | 3.875 | N |
| | | | | Iodine-133 | 1.048E+12 | 2.619E+12 | pCi/L | 0 | N |
| | | | | Molybdenum-99 | 23630 | 13690 | pCi/L | 0 | N |
| | | | | Potassium-40 <i>HE</i> | 18.58 | 29.58 | pCi/L | 18.54 | N |
| | | | | Protactinium-234m <i>HE</i> | 304.7 | 250.4 | pCi/L | 234.8 | N |
| | | | | Technetium-99m | 1.000E+41 | 8.747E+40 | pCi/L | 0 | N |
| 519510 | 158971004 | SAMPLE | 25-APR-06 | Annihilation Rad. | 15.66 | 2.196 | pCi/L | 3.943 | N |
| | | | | Cerium-143 | 8.039E+07 | 1.510E+08 | pCi/L | 0 | N |
| | | | | Iodine-133 | 3.963E+11 | 2.726E+12 | pCi/L | 0 | N |
| | | | | Lead-212 <i>LA</i> | 5.599 0 | 2.897 | pCi/L | 5 | 10.0 <i>CU</i> |
| | | | | Manganese-56 | 1.000E+41 | 2.506E+41 | pCi/L | 0 | N |
| | | | | Molybdenum-99 | 20220 | 14670 | pCi/L | 0 | N |
| | | | | Praseodymium-144 | 1.000E+41 | 3.076E+41 | pCi/L | 0 | N |
| | | | | Promethium-149 | 1.033E+06 | 2.345E+06 | pCi/L | 0 | N |
| | | | | Sodium-24 | 3.551E+17 | 3.676E+17 | pCi/L | 0 | N |
| | | | | Technetium-99m | 1.000E+41 | 9.772E+40 | pCi/L | 0 | N |
| Tellurium-132 | 211.8 | 2368 | pCi/L | 0 | N | | | | |
| 519510 | 159242001 | SAMPLE | 25-APR-06 | Annihilation Rad. | 17.95 | 1.793 | pCi/L | 3.848 | N |
| | | | | Cadmium-115 | 67830 | 1.070E+05 | pCi/L | 0 | N |
| | | | | Iodine-135 | 3.094E+37 | 2.350E+37 | pCi/L | 0 | N |
| | | | | Manganese-56 | 1.000E+41 | 2.000E+41 | pCi/L | 0 | N |
| | | | | Molybdenum-99 | 10770 | 9356 | pCi/L | 0 | N |
| | | | | Praseodymium-144 | 1.000E+41 | 2.000E+41 | pCi/L | 0 | N |
| | | | | Promethium-149 | 2.939E+05 | 1.135E+06 | pCi/L | 0 | N |
| | | | | Technetium-99m | 2.596E+40 | 2.256E+40 | pCi/L | 0 | N |
| | | | | Tellurium-132 | 292.3 | 1344 | pCi/L | 0 | N |
| | | | | Thorium-234 <i>LA</i> | 262.3 | 62.63 | pCi/L | 118.4 | N |
| Uranium-238 <i>LA</i> | 262.3 | 62.63 | pCi/L | 118.4 | N | | | | |
| 519510 | 159242002 | SAMPLE | 25-APR-06 | Antimony-127 | 634.4 | 1211 | pCi/L | 0 | N |
| | | | | Bismuth-210 <i>HE</i> | 126.9 | 280.6 | pCi/L | 116 | N |
| | | | | Bismuth-211 <i>HE</i> | 12.88 | 12.43 | pCi/L | 6.006 | N |

Result Greater Than MDA

| Batch Id | Sample Id | Sample Type | Run Date | Parmname | Result | Uncertainty | Units | MDA | RDL | | | | |
|------------------------|-----------|-------------|-----------|----------------------------|-----------------------|-------------|-----------|-----------------------|----------------|-----------|-------|-------|---|
| 519510 | 159242002 | SAMPLE | 25-APR-06 | Gross Gamma | 7.527E+08 | 4.784E+08 | pCi/L | 5.223E+07 | N | | | | |
| | | | | Iodine-132 | 1.000E+41 | 7.243E+41 | pCi/L | 0 | N | | | | |
| | | | | Iodine-133 | 1.327E+10 | 4.512E+11 | pCi/L | 0 | N | | | | |
| | | | | Iodine-135 | 3.320E+36 | 1.362E+37 | pCi/L | 0 | N | | | | |
| | | | | Lead-210 | 126.9 | 280.6 | pCi/L | 116 | N | | | | |
| | | | | Lead-212 <i>UA</i> | <u>6.241</u> <i>0</i> | 4.662 | pCi/L | 3.129 | 10.0 <i>u1</i> | | | | |
| | | | | Manganese-56 | 1.000E+41 | 1.295E+41 | pCi/L | 0 | N | | | | |
| | | | | Molybdenum-99 | 10380 | 7018 | pCi/L | 0 | N | | | | |
| | | | | Niobium-95m | 3257 | 2617 | pCi/L | 0 | N | | | | |
| | | | | Praseodymium-144 | 1.000E+41 | 1.322E+41 | pCi/L | 0 | N | | | | |
| | | | | Promethium-149 | 97580 | 1.162E+06 | pCi/L | 0 | N | | | | |
| | | | | Protactinium-231 <i>HE</i> | 70.73 | 69.61 | pCi/L | 61.12 | N | | | | |
| | | | | Radium-224 <i>HE</i> | 46.55 | 35.72 | pCi/L | 24.83 | N | | | | |
| | | | | Sodium-24 | 1.151E+16 | 1.483E+16 | pCi/L | 0 | N | | | | |
| | | | | Technetium-99m | 2.651E+40 | 2.421E+40 | pCi/L | 0 | N | | | | |
| | | | | Tellurium-125m | 474.3 | 511.9 | pCi/L | 471.2 | N | | | | |
| | | | | Tellurium-132 | 214.8 | 1250 | pCi/L | 0 | N | | | | |
| | | | | Thorium-234 <i>HE</i> | 55.7 | 77.63 | pCi/L | 46.22 | N | | | | |
| | | | | Thulium-171 <i>HE</i> | 3903 | 2103 | pCi/L | 1226 | N | | | | |
| | | | | Uranium-238 <i>HE</i> | 55.7 | 77.63 | pCi/L | 46.22 | N | | | | |
| | | | | 519510 | 159242003 | SAMPLE | 25-APR-06 | Annihilation Rad. | 14.15 | 1.748 | pCi/L | 3.678 | N |
| | | | | | | | | Antimony-127 | 127.3 | 1412 | pCi/L | 0 | N |
| | | | | | | | | Bismuth-210 <i>HE</i> | 45.91 | 48.07 | pCi/L | 33.22 | N |
| Cadmium-115 | 1.166E+05 | 1.158E+05 | pCi/L | | | | | 0 | N | | | | |
| Cerium-143 | 7.707E+06 | 4.887E+07 | pCi/L | | | | | 0 | N | | | | |
| Iodine-135 | 5.803E+36 | 2.532E+37 | pCi/L | | | | | 0 | N | | | | |
| Lead-210 <i>HE</i> | 45.91 | 48.07 | pCi/L | | | | | 33.22 | N | | | | |
| Manganese-56 | 1.000E+41 | 1.523E+41 | pCi/L | | | | | 0 | N | | | | |
| Molybdenum-99 | 14010 | 8105 | pCi/L | | | | | 0 | N | | | | |
| Potassium-40 <i>HE</i> | 55.32 | 19.28 | pCi/L | | | | | 38.78 | N | | | | |
| Sodium-24 | 1.081E+16 | 2.102E+16 | pCi/L | | | | | 0 | N | | | | |
| Technetium-99m | 6.943E+40 | 4.017E+40 | pCi/L | | | | | 0 | N | | | | |
| Thorium-234 <i>UA</i> | 153.9 | 25.81 | pCi/L | | | | | 49.19 | N | | | | |
| Uranium-238 <i>UA</i> | 153.9 | 25.81 | pCi/L | | | | | 49.19 | N | | | | |
| 519510 | 159243001 | SAMPLE | 26-APR-06 | | | | | Antimony-127 | 978.4 | 1558 | pCi/L | 0 | N |
| | | | | | | | | Cadmium-115 | 2.405E+05 | 1.452E+05 | pCi/L | 0 | N |
| | | | | | | | | Cerium-144 <i>HE</i> | 12.34 | 10.23 | pCi/L | 9.106 | N |

Result Greater Than MDA

| Batch Id | Sample Id | Sample Type | Run Date | Parmname | Result | Uncertainty | Units | MDA | RDL | | | | |
|--------------------|--------------------|-------------|-----------|-----------------------------|--------------------|-------------|-----------|-----------------------|--------------------|-------|-------|-------|----------------|
| 519510 | 159243001 | SAMPLE | 26-APR-06 | Gross Gamma | 1.700E+09 | 1.537E+09 | pCi/L | 4.398E+08 | N | | | | |
| | | | | Iodine-133 | 1.988E+12 | 1.313E+12 | pCi/L | 0 | N | | | | |
| | | | | Iodine-135 | 2.996E+38 | 6.061E+38 | pCi/L | 0 | N | | | | |
| | | | | Manganese-56 | 1.000E+41 | 1.032E+42 | pCi/L | 0 | N | | | | |
| | | | | Molybdenum-99 | 19090 | 9959 | pCi/L | 0 | N | | | | |
| | | | | Neodymium-147 <i>KE</i> | 94.56 | 58.27 | pCi/L | 65.94 | N | | | | |
| | | | | Niobium-95m | 2646 | 3503 | pCi/L | 0 | N | | | | |
| | | | | Praseodymium-144 | 1.000E+41 | 1.359E+41 | pCi/L | 0 | N | | | | |
| | | | | Sodium-24 | 4.661E+16 | 7.977E+16 | pCi/L | 0 | N | | | | |
| | | | | Technetium-99m | 1.000E+41 | 8.264E+40 | pCi/L | 0 | N | | | | |
| | | | | Tellurium-132 | 1717 | 1763 | pCi/L | 0 | N | | | | |
| | | | | Thorium-234 <i>KE</i> | 99.27 | 90.06 | pCi/L | 55.46 | N | | | | |
| | | | | Thulium-171 <i>KE</i> | 3245 | 1222 | pCi/L | 1167 | N | | | | |
| | | | | Tin-115 <i>KE</i> | 192.7 | 155.5 | pCi/L | 162.1 | N | | | | |
| | | | | Uranium-238 <i>KE</i> | 99.27 | 90.06 | pCi/L | 46.35 | N | | | | |
| 519510 | 159244001 | SAMPLE | 25-APR-06 | Annihilation Rad. | 13.3 | 1.94 | pCi/L | 4.025 | N | | | | |
| | | | | Cadmium-115 | 31370 | 1.007E+05 | pCi/L | 0 | N | | | | |
| | | | | Iodine-132 | 1.000E+41 | 1.239E+41 | pCi/L | 0 | N | | | | |
| | | | | Lead-212 <i>UA</i> | 6.651 0 | 2.583 | pCi/L | 4.647 | 10.0 <i>UL</i> | | | | |
| | | | | Manganese-56 | 1.000E+41 | 2.000E+41 | pCi/L | 0 | N | | | | |
| | | | | Molybdenum-99 | 9982 | 5982 | pCi/L | 0 | N | | | | |
| | | | | Praseodymium-144 | 1.000E+41 | 1.473E+41 | pCi/L | 0 | N | | | | |
| | | | | Promethium-149 | 87820 | 8.511E+05 | pCi/L | 0 | N | | | | |
| | | | | Protactinium-234m <i>KE</i> | 324.3 | 205.2 | pCi/L | 309.9 | N | | | | |
| | | | | Technetium-99m | 2.771E+39 | 1.660E+39 | pCi/L | 0 | N | | | | |
| | | | | Thulium-171 <i>KE</i> | 1565 | 946.1 | pCi/L | 1119 | N | | | | |
| | | | | Uranium-235 <i>KE</i> | 14.95 | 8.194 | pCi/L | 14.62 | N | | | | |
| | | | | 519510 | 159247001 | SAMPLE | 25-APR-06 | Antimony-127 | 718.1 | 1494 | pCi/L | 0 | N |
| | | | | | | | | Bismuth-211 <i>KE</i> | 12.27 | 15.52 | pCi/L | 6.833 | N |
| | | | | | | | | Bismuth-212 <i>UA</i> | 12.08 0 | 10.09 | pCi/L | 10.25 | 10.0 <i>UL</i> |
| Californium-251 | 16.95 | 8.944 | pCi/L | | | | | 4.78 | N | | | | |
| Cerium-143 | 3.583E+07 | 8.342E+07 | pCi/L | | | | | 0 | N | | | | |
| Iodine-132 | 1.000E+41 | 6.603E+41 | pCi/L | | | | | 0 | N | | | | |
| Iodine-133 | 1.324E+11 | 1.047E+12 | pCi/L | | | | | 0 | N | | | | |
| Lead-212 <i>UA</i> | 5.428 0 | 5.108 | pCi/L | | | | | 2.676 | 10.0 <i>UL</i> | | | | |
| Manganese-56 | 1.000E+41 | 1.619E+41 | pCi/L | | | | | 0 | N | | | | |
| Molybdenum-99 | 15550 | 10390 | pCi/L | | | | | 0 | N | | | | |

Result Greater Than MDA

| Batch Id | Sample Id | Sample Type | Run Date | Parmname | Result | Uncertainty | Units | MDA | RDL |
|----------|------------|-------------|-----------|-------------------------------------|-----------|-------------|-------|-----------|---------------|
| 519510 | 159247001 | SAMPLE | 25-APR-06 | Niobium-95m | 823.7 | 3112 | pCi/L | 0 | N |
| | | | | Praseodymium-144 | 1.000E+41 | 1.490E+41 | pCi/L | 0 | N |
| | | | | Promethium-149 | 1.785E+06 | 1.737E+06 | pCi/L | 0 | N |
| | | | | Radium-224 <i>HE</i> | 61.27 | 57.61 | pCi/L | 22.48 | N |
| | | | | Technetium-99m | 1.000E+41 | 9.224E+40 | pCi/L | 0 | N |
| | | | | Tellurium-132 | 205.2 | 1650 | pCi/L | 0 | N |
| | | | | Thorium-234 <i>HE</i> | 112.1 | 96.33 | pCi/L | 59.99 | N |
| | | | | Thulium-171 <i>HE</i> | 3807 | 1521 | pCi/L | 1261 | N |
| | | | | Uranium-238 <i>HE</i> | 112.1 | 96.33 | pCi/L | 46.16 | N |
| 519510 | 1201068236 | MB | 25-APR-06 | Barium-137m | 17.07 | 2.005 | pCi/L | 4.244 | N |
| | | | | Bismuth-210 <i>HE</i> | 231.5 | 98.63 | pCi/L | 157.3 | N |
| | | | | Cesium-137 <i>LA</i> | 18.04 | 2.119 | pCi/L | 4.486 | N |
| | | | | Krypton-85 <i>LA</i> | 1690 | 341.2 | pCi/L | 614.6 | N |
| | | | | Lead-210 <i>LA</i> | 231.5 | 98.63 | pCi/L | 157.3 | N |
| | | | | Lead-212 <i>LA</i> 0.650 | 2.246 | 2.246 | pCi/L | 4.183 | 10.0 <i>u</i> |
| | | | | Potassium-40 <i>HE</i> | 35.98 | 14.79 | pCi/L | 29.86 | N |
| | | | | Praseodymium-144 | 1.000E+41 | 1.197E+41 | pCi/L | 0 | N |
| | | | | Promethium-147 <i>LA</i> | 3.886E+06 | 1.932E+06 | pCi/L | 3.303E+06 | N |
| 519510 | 1201068237 | DUP | 26-APR-06 | Antimony-127 | 199.1 | 1561 | pCi/L | 0 | N |
| | | | | Cadmium-115 | 1733 | 1.800E+05 | pCi/L | 0 | N |
| | | | | Californium-251 <i>LA</i> | 19.33 | 9.376 | pCi/L | 5.512 | N |
| | | | | Iodine-133 | 3.961E+11 | 1.602E+12 | pCi/L | 0 | N |
| | | | | Iodine-135 | 1.134E+37 | 8.162E+38 | pCi/L | 0 | N |
| | | | | Molybdenum-99 | 23310 | 11740 | pCi/L | 0 | N |
| | | | | Niobium-95m | 460.7 | 3550 | pCi/L | 0 | N |
| | | | | Praseodymium-144 | 1.000E+41 | 3.613E+42 | pCi/L | 0 | N |
| | | | | Sodium-24 | 2.522E+16 | 8.848E+16 | pCi/L | 0 | N |
| | | | | Technetium-99m | 1.000E+41 | 8.176E+40 | pCi/L | 0 | N |
| | | | | Thorium-234 <i>LA</i> | 89.8 | 91.91 | pCi/L | 60.98 | N |
| | | | | Thulium-171 <i>LA</i> | 2844 | 1503 | pCi/L | 1251 | N |
| | | | | Uranium-238 <i>LA</i> | 89.8 | 91.91 | pCi/L | 51.75 | N |
| 519510 | 1201068238 | LCS | 26-APR-06 | Americium-241 | 1332 | 170.5 | pCi/L | 116.9 | N |
| | | | | Barium-137m | 445.6 | 32.86 | pCi/L | 13.77 | N |
| | | | | Cadmium-109 | 8784 | 657.9 | pCi/L | 426.1 | N |
| | | | | Cerium-139 | 78.49 | 15.07 | pCi/L | 13.35 | N |
| | | | | Cesium-137 | 471 | 34.74 | pCi/L | 14.56 | N |
| | | | | Cobalt-57 | 138.8 | 16.11 | pCi/L | 13 | N |

Result Greater Than MDA

| Batch Id | Sample Id | Sample Type | Run Date | Parmname | Result | Uncertainty | Units | MDA | RDL |
|----------|------------|-------------|-----------|----------------|-----------|-------------|-------|-----------|-----|
| 519510 | 1201068238 | LCS | 26-APR-06 | Cobalt-60 | 645.8 | 49.12 | pCi/L | 15.69 | N |
| | | | | Gross Gamma | 3193 | 746.2 | pCi/L | 1536 | N |
| | | | | Neptunium-237 | 2637 | 197.5 | pCi/L | 130.8 | N |
| | | | | Promethium-147 | 2.960E+08 | 3.437E+07 | pCi/L | 5.405E+07 | N |
| | | | | Tin-113 | 100.3 | 26.19 | pCi/L | 17.38 | N |
| | | | | Tin-126 | 898.1 | 67.27 | pCi/L | 43.85 | N |
| | | | | Yttrium-88 | 127.9 | 30.16 | pCi/L | 13.35 | N |

GEL QUALS

Batch ID: 519510

Report run on: April 26, 2006 4:02 PM

Samp Id Parmname Cofa Edd Qual Comments Auto Result MDA Uncert SQL

| | | | | | | | | | |
|--------------------------------------|-------------|----|----|----|-------------------------------------|---|--|--|--|
| 158272001-1 25-APR-2006 18:37 | Lead-212 | UI | UI | UI | Data rejected due to low abundance. | 0 | | | |
| 158275001-1 25-APR-2006 18:37 | Lead-212 | UI | UI | UI | Data rejected due to low abundance. | 0 | | | |
| 158276001-1 25-APR-2006 18:37 | Lead-212 | UI | UI | UI | Data rejected due to low abundance. | 0 | | | |
| 158496001-1 25-APR-2006 18:38 | Lead-212 | UI | UI | UI | Data rejected due to low abundance. | 0 | | | |
| 158971004-1 25-APR-2006 18:39 | Lead-212 | UI | UI | UI | Data rejected due to low abundance. | 0 | | | |
| 159244001-1 25-APR-2006 18:42 | Lead-212 | UI | UI | UI | Data rejected due to low abundance. | 0 | | | |
| 159242002-1 25-APR-2006 18:43 | Lead-212 | UI | UI | UI | Data rejected due to low abundance. | 0 | | | |
| 1201068236-1 MB 25-APR-2006 18:43 | Lead-212 | UI | UI | UI | Data rejected due to low abundance. | 0 | | | |
| 159247001-1 25-APR-2006 18:46 | Bismuth-212 | UI | UI | UI | Data rejected due to low abundance. | 0 | | | |
| | Lead-212 | UI | UI | UI | Data rejected due to low abundance. | 0 | | | |

mgt 4/26/06
✗ mgt 4/26/06

VAX/VMS Nuclide Identification Report Generated 26-APR-2006 11:46:07.03

```

*****
*                               GENERAL ENG. LABS, LLC.                               *
*                               2040 Savage Road                                       *
*                               Charleston, SC 29414                                   *
*****
Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G158277001.CNF;1
Sample date        : 9-MAR-2006 14:00:00. Acquisition date : 25-APR-2006 18:38:15
Sample ID         : G158277001 Sample quantity : 2.00000E+00 LITER
Detector name     : GAMMA6 Detector geometry: 2L_MB
Elapsed live time : 0 10:00:00.00 Elapsed real time: 0 10:00:02.97 0.0%
Energy tolerance  : 2.00000 KEV Analyst Initials : MJH1
Abundance limit   : 75.00000 Sensitivity : 3.00000
Batch ID          : 519510 Detector SN# : 1922827
Matrix Spike DPM : LCS DPM :
*****

```

| Pk | It | Energy | Area | Bkgnd | FWHM | Channel | Left | Pw | Cts/Sec | %Err | Fit |
|----|----|----------|------|-------|-------|---------|------|----|----------|-------|----------|
| 1 | 0 | 46.41* | 21 | 608 | 0.64 | 94.08 | 90 | 8 | 5.94E-04 | 237.0 | |
| 2 | 10 | 63.34* | 63 | 371 | 1.18 | 127.88 | 125 | 14 | 1.75E-03 | 73.2 | 4.22E+00 |
| 3 | 10 | 66.14* | 239 | 924 | 1.87 | 133.46 | 125 | 14 | 6.65E-03 | 28.3 | |
| 4 | 0 | 83.86* | 11 | 653 | 1.70 | 168.81 | 166 | 7 | 3.00E-04 | 496.2 | |
| 5 | 0 | 140.14 | 137 | 563 | 0.78 | 281.15 | 279 | 6 | 3.81E-03 | 28.6 | |
| 6 | 0 | 144.09 | 110 | 634 | 1.44 | 289.03 | 286 | 7 | 3.05E-03 | 39.4 | |
| 7 | 0 | 163.93 | 75 | 510 | 0.79 | 328.62 | 326 | 6 | 2.09E-03 | 49.0 | |
| 8 | 0 | 185.79* | 2 | 657 | 1.06 | 372.24 | 369 | 8 | 4.67E-05 | ***** | |
| 9 | 0 | 238.53* | 38 | 622 | 1.11 | 477.50 | 472 | 10 | 1.06E-03 | 145.1 | |
| 10 | 0 | 281.14 | 22 | 306 | 0.92 | 562.55 | 562 | 6 | 6.13E-04 | 126.7 | |
| 11 | 0 | 300.79 | 48 | 283 | 0.71 | 601.77 | 599 | 7 | 1.35E-03 | 59.2 | |
| 12 | 0 | 340.95 | 19 | 273 | 1.39 | 681.94 | 679 | 8 | 5.24E-04 | 153.8 | |
| 13 | 0 | 500.33 | 24 | 151 | 1.06 | 1000.09 | 997 | 8 | 6.62E-04 | 91.5 | |
| 14 | 3 | 596.36 | 70 | 122 | 1.69 | 1191.79 | 1188 | 17 | 1.95E-03 | 30.0 | 1.33E+00 |
| 15 | 3 | 599.12* | 24 | 156 | 1.65 | 1197.30 | 1188 | 17 | 6.56E-04 | 116.8 | |
| 16 | 0 | 609.36* | 44 | 136 | 1.16 | 1217.75 | 1212 | 12 | 1.22E-03 | 75.0 | |
| 17 | 0 | 673.59 | 28 | 59 | 0.61 | 1345.99 | 1343 | 6 | 7.72E-04 | 48.2 | |
| 18 | 0 | 730.21 | 25 | 38 | 1.35 | 1459.03 | 1457 | 6 | 6.81E-04 | 45.4 | |
| 19 | 0 | 734.18* | 4 | 41 | 1.05 | 1466.97 | 1464 | 6 | 1.18E-04 | 424.2 | |
| 20 | 0 | 737.16 | 25 | 44 | 1.32 | 1472.90 | 1470 | 6 | 6.92E-04 | 46.5 | |
| 21 | 0 | 825.02 | 30 | 106 | 1.57 | 1648.35 | 1643 | 14 | 8.38E-04 | 75.3 | |
| 22 | 0 | 834.86 | 10 | 70 | 1.33 | 1667.99 | 1667 | 8 | 2.90E-04 | 142.2 | |
| 23 | 0 | 911.65* | 23 | 75 | 2.00 | 1821.33 | 1817 | 10 | 6.38E-04 | 100.2 | |
| 24 | 0 | 953.01 | 15 | 35 | 1.05 | 1903.93 | 1902 | 7 | 4.17E-04 | 70.3 | |
| 25 | 0 | 1035.62 | 12 | 59 | 1.48 | 2068.91 | 2067 | 9 | 3.19E-04 | 123.5 | |
| 26 | 0 | 1041.70 | 18 | 34 | 0.59 | 2081.06 | 2078 | 8 | 5.10E-04 | 59.7 | |
| 27 | 0 | 1122.32* | 14 | 79 | 3.78 | 2242.06 | 2235 | 17 | 3.82E-04 | 194.0 | |
| 28 | 0 | 1137.26 | 34 | 97 | 4.37 | 2271.91 | 2259 | 22 | 9.58E-04 | 75.3 | |
| 29 | 0 | 1186.29 | 29 | 56 | 1.57 | 2369.83 | 2362 | 14 | 8.06E-04 | 57.8 | |
| 30 | 0 | 1238.85* | 9 | 36 | 1.95 | 2474.83 | 2471 | 9 | 2.52E-04 | 181.8 | |
| 31 | 0 | 1258.37 | 30 | 39 | 1.37 | 2513.80 | 2506 | 12 | 8.31E-04 | 45.6 | |
| 32 | 0 | 1293.44 | 28 | 116 | 12.90 | 2583.86 | 2571 | 31 | 7.69E-04 | 116.8 | |
| 33 | 0 | 1592.24* | 21 | 45 | 5.69 | 3180.80 | 3168 | 20 | 5.84E-04 | 95.4 | |
| 34 | 0 | 1647.27 | 61 | 20 | 9.55 | 3290.75 | 3281 | 22 | 1.68E-03 | 23.5 | |
| 35 | 0 | 1670.52 | 26 | 15 | 3.93 | 3337.21 | 3333 | 11 | 7.32E-04 | 33.7 | |
| 36 | 0 | 1703.17 | 5 | 13 | 0.83 | 3402.46 | 3402 | 6 | 1.41E-04 | 121.7 | |
| 37 | 0 | 1729.66* | 2 | 33 | 1.62 | 3455.38 | 3446 | 12 | 5.24E-05 | 754.1 | |
| 38 | 0 | 1744.80 | 26 | 34 | 6.70 | 3485.65 | 3479 | 19 | 7.14E-04 | 57.4 | |

| Pk | It | Energy | Area | Bkgnd | FWHM | Channel | Left | Pw | Cts/Sec | %Err | Fit |
|----|----|---------|------|-------|------|---------|------|----|----------|-------|-----|
| 39 | 0 | 1895.49 | 3 | 16 | 0.39 | 3786.77 | 3785 | 6 | 7.75E-05 | 243.1 | |
| 40 | 0 | 1912.03 | 24 | 22 | 1.26 | 3819.83 | 3814 | 14 | 6.59E-04 | 50.5 | |
| 41 | 0 | 1917.47 | 11 | 8 | 1.19 | 3830.71 | 3827 | 10 | 3.10E-04 | 55.1 | |

Flag: "*" = Peak area was modified by background subtraction

VAX/VMS Nuclide Identification Report Generated

```

*****
*                               General Eng. Labs, LLC.                               *
*                               2040 Savage Road                                       *
*                               Charleston, SC 29414                                   *
*****
*                               DETECTOR DATA                                       *
*
* Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G158277001
* Acquisition date   : 25-APR-2006 18:38:15 Detector SN#      : 1922827
* Detector ID       : GAMMA6                      Sensitivity   : 3.000
* Geometry         : 2L_MB                        Energy tolerance: 2.000
* Elapsed live time: 0 10:00:00.00                Abundance limit : 75.000
* Elapsed real time: 0 10:00:02.97                Half life ratio  : 8.000
*****
*                               SAMPLE DATA                                         *
*
* Sample date       : 9-MAR-2006 14:00:00 Nuclide Library  : FERMC
* Sample ID        : G158277001                    Analyst initials: MJH1
* Batch Number     : 519510                         Sample Quantity : 2.0000E+00 LITER
* Recovery         : 1.00000                        Carrier Weight  : 0.00000
*****
*                               QC DATA                                             *
*
* Standard Weight   : 0.00000
* CALIB. DATE/TIME : 29-DEC-2005 05:08:19 MS Isotope      : TOPLOADER
* MSD DPM          : 5.440                          MSD Isotope     : TOPLOADER
* LCS DPM         : 0.000                          LCS Isotope     : TOPLOADER
* LCSD DPM        : 0.000                          LCSD Isotope    : TOPLOADER
*****

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Combined Activity-MDA Report

---- Identified Nuclides ----

| Nuclide | Activity (pCi/LITER) | Act error | MDA (pCi/LITER) | |
|---------|--------------------------|-----------|---------------------|-----------|
| MN-54 | 5.611E-01 | 1.596E+00 | 2.459E+00 | 0.000E+00 |
| CE-139 | 1.987E+00 | 1.948E+00 | 2.830E+00 | 0.000E+00 |
| CE-141 | 1.002E+01 | 7.892E+00 | 1.017E+01 | 0.000E+00 |
| HG-203 | 1.303E+00 | 3.303E+00 | 5.109E+00 | 0.000E+00 |
| BI-210 | 1.042E+02 | 4.938E+02 | 4.340E+02 | 0.000E+00 |
| PB-210 | 1.042E+02 | 4.938E+02 | 4.340E+02 | 0.000E+00 |
| TH-228 | 1.832E+00 | 5.315E+00 | 4.651E+00 | 0.000E+00 |
| TH-232 | 1.748E+00 | 5.071E+00 | 4.437E+00 | 0.000E+00 |
| U-235 | 1.680E+01 | 1.324E+01 | 1.719E+01 | 0.000E+00 |
| U-238 | 6.818E+01 | 9.987E+01 | 9.970E+01 | 0.000E+00 |

---- Non-Identified Nuclides ----

| Nuclide | Key-Line Activity (pCi/LITER) | K.L. Act error) Ided | MDA (pCi/LITER) | |
|---------|--------------------------------------|--------------------------|---------------------|----------------------|
| BE-7 | 1.644E+01 | 1.888E+01 | 3.498E+01 | 0.000E+00 NOT IDENT. |
| NA-22 | 1.005E+00 | 1.344E+00 | 2.600E+00 | 0.000E+00 NOT IDENT. |
| NA-24 | 0.000E+00 | 8.289E+22 | 0.000E+00 | 0.000E+00 SHORT HLIF |
| AL-26 | 5.721E-01 | 1.228E+00 | 2.363E+00 | 0.000E+00 NOT IDENT. |
| K-40 | 0.000E+00 | 1.926E+01 | 4.057E+01 | 0.000E+00 NOT IDENT. |
| SC-46 | 4.632E-03 | 1.913E+00 | 3.313E+00 | 0.000E+00 FAIL ABUN |
| V-48 | -4.732E+00 | 9.991E+00 | 1.655E+01 | 0.000E+00 NOT IDENT. |
| CR-51 | -8.202E-01 | 3.858E+01 | 6.457E+01 | 0.000E+00 NOT IDENT. |
| CO-56 | -9.166E-01 | 1.973E+00 | 3.301E+00 | 0.000E+00 FAIL ABUN |
| MN-56 | 0.000E+00 | 2.000E+41 | 0.000E+00 | 0.000E+00 SHORT HLIF |
| CO-57 | -6.005E-01 | 1.345E+00 | 2.313E+00 | 0.000E+00 NOT IDENT. |
| CO-58 | -3.759E-01 | 1.794E+00 | 3.086E+00 | 0.000E+00 NOT IDENT. |
| FE-59 | -2.012E+00 | 5.057E+00 | 8.365E+00 | 0.000E+00 FAIL ABUN |
| CO-60 | 7.057E-01 | 1.389E+00 | 2.624E+00 | 0.000E+00 NOT IDENT. |
| ZN-65 | -2.700E+00 | 3.034E+00 | 4.752E+00 | 0.000E+00 NOT IDENT. |
| SE-75 | -5.313E-01 | 2.492E+00 | 4.172E+00 | 0.000E+00 FAIL ABUN |
| KR-85 | -1.612E+03 | 4.090E+02 | 6.111E+02 | 0.000E+00 NOT IDENT. |

| | | | | | |
|---------|------------|-----------|-----------|-----------|------------|
| SR-85 | -1.160E+01 | 2.943E+00 | 4.397E+00 | 0.000E+00 | NOT IDENT. |
| Y-88 | -1.970E-01 | 2.095E+00 | 3.683E+00 | 0.000E+00 | NOT IDENT. |
| Y-91 | 8.179E-01 | 1.979E+00 | 3.581E+00 | 0.000E+00 | NOT IDENT. |
| NB-94 | 2.593E-01 | 1.263E+00 | 2.229E+00 | 0.000E+00 | NOT IDENT. |
| NB-95 | 3.338E-01 | 2.966E+00 | 5.228E+00 | 0.000E+00 | NOT IDENT. |
| NB-95M | 0.000E+00 | 4.403E+04 | 0.000E+00 | 0.000E+00 | SHORT HLIF |
| ZR-95 | 2.830E+00 | 3.627E+00 | 6.665E+00 | 0.000E+00 | NOT IDENT. |
| MO-99 | 0.000E+00 | 2.336E+05 | 0.000E+00 | 0.000E+00 | SHORT HLIF |
| TC-99M | 0.000E+00 | 5.728E+40 | 0.000E+00 | 0.000E+00 | SHORT HLIF |
| RU-103 | -7.500E-01 | 3.140E+00 | 4.831E+00 | 0.000E+00 | FAIL ABUN |
| RH-106 | 3.893E+00 | 1.293E+01 | 2.312E+01 | 0.000E+00 | NOT IDENT. |
| RU-106 | 7.972E+00 | 1.279E+01 | 2.330E+01 | 0.000E+00 | NOT IDENT. |
| AG-108M | 9.748E-01 | 1.373E+00 | 2.371E+00 | 0.000E+00 | NOT IDENT. |
| CD-109 | -4.455E+01 | 3.790E+01 | 5.781E+01 | 0.000E+00 | NOT IDENT. |
| AG-110M | -2.376E-01 | 1.407E+00 | 2.441E+00 | 0.000E+00 | NOT IDENT. |
| SN-113 | -9.259E-01 | 2.281E+00 | 3.716E+00 | 0.000E+00 | NOT IDENT. |
| CD-115 | 0.000E+00 | 9.401E+06 | 0.000E+00 | 0.000E+00 | SHORT HLIF |
| SN-115 | -2.789E+01 | 1.950E+02 | 3.341E+02 | 0.000E+00 | NOT IDENT. |
| SN-117M | 1.141E-01 | 1.350E+01 | 2.327E+01 | 0.000E+00 | NOT IDENT. |
| TE-123M | 5.503E-01 | 1.616E+00 | 2.811E+00 | 0.000E+00 | NOT IDENT. |
| SB-124 | 1.707E+00 | 4.586E+00 | 8.654E+00 | 0.000E+00 | NOT IDENT. |
| SB-125 | 3.719E+00 | 4.038E+00 | 7.035E+00 | 0.000E+00 | FAIL ABUN |
| TE-125M | 1.828E+02 | 6.457E+02 | 1.138E+03 | 0.000E+00 | NOT IDENT. |
| I-126 | 3.082E+00 | 3.705E+01 | 6.526E+01 | 0.000E+00 | NOT IDENT. |
| SB-126 | -4.682E+00 | 3.028E+01 | 5.245E+01 | 0.000E+00 | NOT IDENT. |
| SN-126 | -7.208E-01 | 3.526E+00 | 5.580E+00 | 0.000E+00 | FAIL ABUN |
| SB-127 | 0.000E+00 | 1.606E+04 | 0.000E+00 | 0.000E+00 | SHORT HLIF |
| I-131 | 2.883E+00 | 8.328E+01 | 1.392E+02 | 0.000E+00 | NOT IDENT. |
| I-132 | 0.000E+00 | 2.000E+41 | 0.000E+00 | 0.000E+00 | SHORT HLIF |
| TE-132 | 0.000E+00 | 3.093E+04 | 0.000E+00 | 0.000E+00 | SHORT HLIF |
| BA-133 | -7.221E-01 | 1.929E+00 | 3.162E+00 | 0.000E+00 | NOT IDENT. |
| I-133 | 0.000E+00 | 3.606E+16 | 0.000E+00 | 0.000E+00 | SHORT HLIF |
| CS-134 | -5.710E-01 | 1.445E+00 | 2.446E+00 | 0.000E+00 | NOT IDENT. |
| CS-135 | -6.542E+00 | 7.296E+00 | 1.188E+01 | 0.000E+00 | NOT IDENT. |
| I-135 | 0.000E+00 | 2.000E+41 | 0.000E+00 | 0.000E+00 | SHORT HLIF |
| CS-136 | 4.799E+00 | 1.829E+01 | 3.257E+01 | 0.000E+00 | FAIL ABUN |
| BA-137M | -3.437E-01 | 1.343E+00 | 2.314E+00 | 0.000E+00 | NOT IDENT. |
| CS-137 | -3.633E-01 | 1.420E+00 | 2.446E+00 | 0.000E+00 | NOT IDENT. |
| BA-140 | 1.563E+01 | 5.538E+01 | 9.963E+01 | 0.000E+00 | FAIL ABUN |
| LA-140 | 0.000E+00 | 5.002E+08 | 0.000E+00 | 0.000E+00 | SHORT HLIF |
| CE-143 | 0.000E+00 | 6.615E+10 | 0.000E+00 | 0.000E+00 | SHORT HLIF |
| CE-144 | -2.208E+00 | 1.056E+01 | 1.822E+01 | 0.000E+00 | NOT IDENT. |
| PM-144 | -1.212E+00 | 1.390E+00 | 2.291E+00 | 0.000E+00 | NOT IDENT. |
| PR-144 | 0.000E+00 | 1.147E+41 | 0.000E+00 | 0.000E+00 | SHORT HLIF |
| PM-146 | 8.470E-02 | 1.930E+00 | 3.197E+00 | 0.000E+00 | FAIL ABUN |
| ND-147 | -2.618E+01 | 1.621E+02 | 2.845E+02 | 0.000E+00 | NOT IDENT. |
| PM-147 | -3.792E+05 | 2.590E+06 | 4.494E+06 | 0.000E+00 | NOT IDENT. |
| PM-149 | 0.000E+00 | 1.026E+08 | 0.000E+00 | 0.000E+00 | SHORT HLIF |
| EU-152 | -9.516E-01 | 4.908E+00 | 7.219E+00 | 0.000E+00 | NOT IDENT. |
| GD-153 | -4.299E+00 | 4.054E+00 | 6.923E+00 | 0.000E+00 | FAIL ABUN |
| EU-154 | 2.754E+00 | 3.691E+00 | 7.142E+00 | 0.000E+00 | NOT IDENT. |
| EU-155 | 1.469E+00 | 5.205E+00 | 9.182E+00 | 0.000E+00 | NOT IDENT. |
| TB-160 | 3.026E+00 | 7.294E+00 | 1.300E+01 | 0.000E+00 | NOT IDENT. |
| TM-171 | 0.000E+00 | 3.203E+03 | 2.659E+03 | 0.000E+00 | FAIL ABUN |
| HF-181 | -1.938E+00 | 2.867E+00 | 4.911E+00 | 0.000E+00 | FAIL ABUN |
| TA-182 | -1.676E+00 | 6.597E+00 | 1.169E+01 | 0.000E+00 | FAIL ABUN |
| IR-192 | 2.992E-01 | 2.152E+00 | 3.631E+00 | 0.000E+00 | NOT IDENT. |
| BI-207 | -4.169E-01 | 1.809E+00 | 3.048E+00 | 0.000E+00 | NOT IDENT. |
| TL-208 | 2.143E+00 | 1.597E+00 | 2.981E+00 | 0.000E+00 | NOT IDENT. |
| BI-211 | 1.506E+01 | 9.416E+00 | 1.678E+01 | 0.000E+00 | NOT IDENT. |
| PB-211 | 1.952E+01 | 3.792E+01 | 6.491E+01 | 0.000E+00 | NOT IDENT. |
| BI-212 | 1.648E+00 | 1.232E+01 | 1.911E+01 | 0.000E+00 | NOT IDENT. |
| PB-212 | 1.832E+00 | 5.315E+00 | 5.320E+00 | 0.000E+00 | FAIL ABUN |
| BI-214 | 3.593E+00 | 5.390E+00 | 5.886E+00 | 0.000E+00 | FAIL ABUN |
| PB-214 | 4.429E+00 | 3.321E+00 | 5.850E+00 | 0.000E+00 | NOT IDENT. |
| RN-219 | -1.826E+01 | 1.807E+01 | 2.838E+01 | 0.000E+00 | NOT IDENT. |
| RA-223 | -8.963E-01 | 2.989E+01 | 4.999E+01 | 0.000E+00 | FAIL ABUN |
| RA-224 | 1.093E+01 | 3.459E+01 | 5.311E+01 | 0.000E+00 | NOT IDENT. |
| RA-226 | 3.593E+00 | 5.390E+00 | 5.886E+00 | 0.000E+00 | FAIL ABUN |
| AC-227 | -1.664E+01 | 1.806E+01 | 2.946E+01 | 0.000E+00 | FAIL ABUN |
| TH-227 | -1.633E+01 | 1.772E+01 | 2.892E+01 | 0.000E+00 | FAIL ABUN |
| AC-228 | 4.378E+00 | 8.769E+00 | 1.062E+01 | 0.000E+00 | FAIL ABUN |
| RA-228 | 4.378E+00 | 8.769E+00 | 1.062E+01 | 0.000E+00 | FAIL ABUN |
| TH-229 | -5.627E+00 | 2.362E+01 | 4.006E+01 | 0.000E+00 | FAIL ABUN |
| TH-230 | 3.593E+00 | 5.390E+00 | 5.886E+00 | 0.000E+00 | FAIL ABUN |
| PA-231 | -2.008E+00 | 8.053E+01 | 1.209E+02 | 0.000E+00 | FAIL ABUN |
| TH-231 | -1.150E+00 | 8.573E+00 | 1.438E+01 | 0.000E+00 | FAIL ABUN |
| PA-233 | -1.255E+00 | 2.810E+00 | 4.626E+00 | 0.000E+00 | FAIL ABUN |

| | | | | | |
|---------|------------|-----------|-----------|-----------|------------|
| PA-234 | -1.160E+01 | 1.073E+01 | 1.681E+01 | 0.000E+00 | FAIL ABUN |
| PA-234M | 3.156E+00 | 1.632E+02 | 2.812E+02 | 0.000E+00 | NOT IDENT. |
| TH-234 | 6.818E+01 | 9.987E+01 | 1.234E+02 | 0.000E+00 | FAIL ABUN |
| U-234 | 2.079E+00 | 6.203E+00 | 1.055E+01 | 0.000E+00 | FAIL ABUN |
| NP-237 | 1.723E+00 | 1.136E+01 | 1.676E+01 | 0.000E+00 | NOT IDENT. |
| NP-239 | -1.426E+00 | 9.162E+00 | 1.591E+01 | 0.000E+00 | NOT IDENT. |
| AM-241 | 1.098E+01 | 8.186E+00 | 1.400E+01 | 0.000E+00 | NOT IDENT. |
| AM-242 | -9.816E-02 | 1.036E+02 | 1.816E+02 | 0.000E+00 | NOT IDENT. |
| CM-247 | -4.379E-01 | 1.583E+00 | 2.592E+00 | 0.000E+00 | NOT IDENT. |
| CF-249 | -4.856E-02 | 1.724E+00 | 2.865E+00 | 0.000E+00 | NOT IDENT. |
| CF-251 | 4.057E+00 | 5.903E+00 | 1.034E+01 | 0.000E+00 | NOT IDENT. |
| ANH-511 | 0.000E+00 | 1.962E+00 | 4.163E+00 | 0.000E+00 | NOT IDENT. |

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*****
*                               GENERAL ENG. LABS, LLC.                               *
*                               2040 Savage Road                                   *
*                               Charleston, SC 29414                               *
*****
Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G158277001.CNF;1
Sample date        : 9-MAR-2006 14:00:00. Acquisition date : 25-APR-2006 18:38:15
Sample ID          : G158277001           Sample quantity  : 2.00000E+00 LITER
Detector name     : GAMMA6                Detector geometry: 2L_MB
Elapsed live time : 0 10:00:00.00         Elapsed real time: 0 10:00:02.97  0.0%
Energy tolerance  : 2.00000 KEV           Analyst Initials  : MJH1
Abundance limit   : 75.00000             Sensitivity       : 3.00000
Batch ID          : 519510                Detector SN#      : 1922827
Matrix Spike DPM  :                       LCS DPM         :
*****

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| Pk | It | Energy | Area | Bkgnd | FWHM | Channel | Left | Pw | Cts/Sec | %Err | Fit |
|----|----|---------|------|-------|------|---------|------|----|----------|-------|----------|
| 1 | 0 | 46.41 | 84 | 608 | 0.64 | 94.08 | 90 | 8 | 2.34E-03 | 51.8 | |
| 2 | 10 | 63.34 | 167 | 371 | 1.18 | 127.88 | 125 | 14 | 4.64E-03 | 19.6 | 4.22E+00 |
| 3 | 10 | 66.14 | 274 | 924 | 1.87 | 133.46 | 125 | 14 | 7.60E-03 | 22.4 | |
| 4 | 0 | 83.86 | 91 | 653 | 1.70 | 168.81 | 166 | 7 | 2.52E-03 | 47.8 | |
| 5 | 0 | 92.95 | 257 | 881 | 1.20 | 186.96 | 183 | 8 | 7.15E-03 | 20.9 | |
| 6 | 0 | 140.14 | 137 | 563 | 0.78 | 281.15 | 279 | 6 | 3.81E-03 | 28.6 | |
| 7 | 0 | 144.09 | 110 | 634 | 1.44 | 289.03 | 286 | 7 | 3.05E-03 | 39.4 | |
| 8 | 0 | 163.93 | 75 | 510 | 0.79 | 328.62 | 326 | 6 | 2.09E-03 | 49.0 | |
| 9 | 0 | 185.79 | 197 | 657 | 1.06 | 372.24 | 369 | 8 | 5.48E-03 | 23.6 | |
| 10 | 0 | 198.35 | 152 | 842 | 1.13 | 397.32 | 393 | 11 | 4.22E-03 | 37.9 | |
| 11 | 0 | 238.53 | 172 | 622 | 1.11 | 477.50 | 472 | 10 | 4.79E-03 | 28.1 | |
| 12 | 0 | 281.14 | 22 | 306 | 0.92 | 562.55 | 562 | 6 | 6.13E-04 | 126.7 | |
| 13 | 0 | 296.97 | 70 | 486 | 2.91 | 594.14 | 588 | 11 | 1.93E-03 | 62.8 | |
| 14 | 0 | 300.79 | 48 | 283 | 0.71 | 601.77 | 599 | 7 | 1.35E-03 | 59.2 | |
| 15 | 0 | 340.95 | 19 | 273 | 1.39 | 681.94 | 679 | 8 | 5.24E-04 | 153.8 | |
| 16 | 0 | 351.66 | 80 | 350 | 0.93 | 703.31 | 699 | 10 | 2.23E-03 | 44.9 | |
| 17 | 0 | 500.33 | 24 | 151 | 1.06 | 1000.09 | 997 | 8 | 6.62E-04 | 91.5 | |
| 18 | 0 | 511.20 | 583 | 382 | 2.68 | 1021.79 | 1014 | 17 | 1.62E-02 | 8.7 | |
| 19 | 0 | 583.65 | 47 | 123 | 0.87 | 1166.43 | 1165 | 7 | 1.31E-03 | 41.5 | |
| 20 | 3 | 596.36 | 70 | 122 | 1.69 | 1191.79 | 1188 | 17 | 1.95E-03 | 30.0 | 1.33E+00 |
| 21 | 3 | 599.12 | 36 | 156 | 1.65 | 1197.30 | 1188 | 17 | 9.88E-04 | 69.9 | |
| 22 | 0 | 609.36 | 149 | 136 | 1.16 | 1217.75 | 1212 | 12 | 4.15E-03 | 17.6 | |
| 23 | 0 | 673.59 | 28 | 59 | 0.61 | 1345.99 | 1343 | 6 | 7.72E-04 | 48.2 | |
| 24 | 0 | 730.21 | 25 | 38 | 1.35 | 1459.03 | 1457 | 6 | 6.81E-04 | 45.4 | |
| 25 | 0 | 734.18 | 28 | 41 | 1.05 | 1466.97 | 1464 | 6 | 7.73E-04 | 41.3 | |
| 26 | 0 | 737.16 | 25 | 44 | 1.32 | 1472.90 | 1470 | 6 | 6.92E-04 | 46.5 | |
| 27 | 0 | 825.02 | 30 | 106 | 1.57 | 1648.35 | 1643 | 14 | 8.38E-04 | 75.3 | |
| 28 | 0 | 834.86 | 10 | 70 | 1.33 | 1667.99 | 1667 | 8 | 2.90E-04 | 142.2 | |
| 29 | 0 | 911.65 | 69 | 75 | 2.00 | 1821.33 | 1817 | 10 | 1.92E-03 | 26.4 | |
| 30 | 0 | 953.01 | 15 | 35 | 1.05 | 1903.93 | 1902 | 7 | 4.17E-04 | 70.3 | |
| 31 | 0 | 969.90 | 22 | 70 | 1.16 | 1937.66 | 1932 | 9 | 6.17E-04 | 71.0 | |
| 32 | 0 | 1035.62 | 12 | 59 | 1.48 | 2068.91 | 2067 | 9 | 3.19E-04 | 123.5 | |
| 33 | 0 | 1041.70 | 18 | 34 | 0.59 | 2081.06 | 2078 | 8 | 5.10E-04 | 59.7 | |
| 34 | 0 | 1122.32 | 58 | 79 | 3.78 | 2242.06 | 2235 | 17 | 1.62E-03 | 39.0 | |
| 35 | 0 | 1137.26 | 34 | 97 | 4.37 | 2271.91 | 2259 | 22 | 9.58E-04 | 75.3 | |
| 36 | 0 | 1186.29 | 29 | 56 | 1.57 | 2369.83 | 2362 | 14 | 8.06E-04 | 57.8 | |
| 37 | 0 | 1238.85 | 29 | 36 | 1.95 | 2474.83 | 2471 | 9 | 8.06E-04 | 41.7 | |
| 38 | 0 | 1258.37 | 30 | 39 | 1.37 | 2513.80 | 2506 | 12 | 8.31E-04 | 45.6 | |

| Pk | It | Energy | Area | Bkgnd | FWHM | Channel | Left | Pw | Cts/Sec | %Err | Fit |
|----|----|---------|------|-------|-------|---------|------|----|----------|-------|-----|
| 39 | 0 | 1293.44 | 28 | 116 | 12.90 | 2583.86 | 2571 | 31 | 7.69E-04 | 116.8 | |
| 40 | 0 | 1355.73 | 10 | 26 | 0.72 | 2708.29 | 2706 | 7 | 2.75E-04 | 93.2 | |
| 41 | 0 | 1461.25 | 110 | 47 | 1.65 | 2919.10 | 2913 | 15 | 3.06E-03 | 16.7 | |
| 42 | 0 | 1510.18 | 11 | 22 | 1.51 | 3016.86 | 3014 | 8 | 3.17E-04 | 76.9 | |
| 43 | 0 | 1592.24 | 42 | 45 | 5.69 | 3180.80 | 3168 | 20 | 1.15E-03 | 42.5 | |
| 44 | 0 | 1647.27 | 61 | 20 | 9.55 | 3290.75 | 3281 | 22 | 1.68E-03 | 23.5 | |
| 45 | 0 | 1670.52 | 26 | 15 | 3.93 | 3337.21 | 3333 | 11 | 7.32E-04 | 33.7 | |
| 46 | 0 | 1703.17 | 5 | 13 | 0.83 | 3402.46 | 3402 | 6 | 1.41E-04 | 121.7 | |
| 47 | 0 | 1706.61 | 9 | 5 | 1.35 | 3409.33 | 3407 | 5 | 2.50E-04 | 50.0 | |
| 48 | 0 | 1729.66 | 10 | 33 | 1.62 | 3455.38 | 3446 | 12 | 2.79E-04 | 118.7 | |
| 49 | 0 | 1744.80 | 26 | 34 | 6.70 | 3485.65 | 3479 | 19 | 7.14E-04 | 57.4 | |
| 50 | 0 | 1764.41 | 50 | 36 | 1.34 | 3524.82 | 3520 | 13 | 1.39E-03 | 29.1 | |
| 51 | 0 | 1895.49 | 3 | 16 | 0.39 | 3786.77 | 3785 | 6 | 7.75E-05 | 243.1 | |
| 52 | 0 | 1912.03 | 24 | 22 | 1.26 | 3819.83 | 3814 | 14 | 6.59E-04 | 50.5 | |
| 53 | 0 | 1917.47 | 11 | 8 | 1.19 | 3830.71 | 3827 | 10 | 3.10E-04 | 55.1 | |
| 54 | 0 | 2037.09 | 6 | 5 | 1.37 | 4069.79 | 4068 | 6 | 1.70E-04 | 68.7 | |

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*****
*                               GENERAL ENG. LABS, LLC.                               *
*                               2040 Savage Road                                   *
*                               Charleston, SC 29414                               *
*****
Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G158277001.CNF;1
Sample date        : 9-MAR-2006 14:00:00. Acquisition date : 25-APR-2006 18:38:15
Sample ID          : G158277001           Sample quantity  : 2.00000E+00 LITER
Detector name     : GAMMA6                Detector geometry: 2L_MB
Elapsed live time : 0 10:00:00.00         Elapsed real time: 0 10:00:02.97  0.0%
Energy tolerance  : 2.00000 KEV          Analyst Initials  : MJH1
Abundance limit   : 75.00000             Sensitivity       : 3.00000
Batch ID          : 519510                Detector SN#      : 1922827
Matrix Spike DPM  :                       LCS DPM         :
*****
    
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Nuclide Line Activity Report

Nuclide Type:

| Nuclide | Energy | Area | %Abn | %Eff | Uncorrected pCi/LITER | Decay Corr pCi/LITER | 2-Sigma %Error |
|---------|--------|-------|--------|-----------|-----------------------|----------------------|----------------|
| MN-54 | 834.83 | 10 | 99.83* | 7.765E-01 | 5.051E-01 | 5.611E-01 | 284.38 |
| CE-139 | 165.85 | 75 | 80.35* | 2.241E+00 | 1.565E+00 | 1.987E+00 | 98.02 |
| CE-141 | 145.44 | 110 | 48.40* | 2.333E+00 | 3.645E+00 | 1.002E+01 | 78.78 |
| HG-203 | 70.83 | ----- | 4.75 | 1.278E+00 | ----- | Line Not Found | ----- |
| | 72.87 | ----- | 8.00 | 1.371E+00 | ----- | Line Not Found | ----- |
| | 82.60 | 11 | 3.55 | 1.798E+00 | 6.346E+00 | 1.284E+01 | 992.38 |
| | 279.20 | 22 | 77.30* | 1.665E+00 | 6.439E-01 | 1.303E+00 | 253.46 |
| BI-210 | 46.50 | 21 | 4.05* | 1.911E-01 | 1.038E+02 | 1.042E+02 | 473.95 |
| PB-210 | 46.50 | 21 | 4.05* | 1.911E-01 | 1.038E+02 | 1.042E+02 | 473.95 |
| TH-228 | 84.40 | 11 | 1.21 | 1.798E+00 | 1.862E+01 | 1.952E+01 | 992.38 |
| | 238.60 | 38 | 44.60* | 1.843E+00 | 1.748E+00 | 1.832E+00 | 290.15 |
| | 300.10 | 48 | 3.41 | 1.595E+00 | 3.345E+01 | 3.507E+01 | 118.43 |
| TH-232 | 238.59 | 38 | 44.60* | 1.843E+00 | 1.748E+00 | 1.748E+00 | 290.15 |
| | 911.20 | 23 | 27.70 | 7.217E-01 | 4.310E+00 | 4.310E+00 | 200.31 |
| | 964.40 | ----- | 5.20 | 6.882E-01 | ----- | Line Not Found | ----- |
| | 969.11 | ----- | 16.60 | 6.853E-01 | ----- | Line Not Found | ----- |
| U-235 | 89.95 | ----- | 2.70 | 1.975E+00 | ----- | Line Not Found | ----- |
| | 93.35 | ----- | 4.50 | 2.056E+00 | ----- | Line Not Found | ----- |
| | 105.00 | ----- | 2.10 | 2.250E+00 | ----- | Line Not Found | ----- |
| | 143.76 | 110 | 10.50* | 2.333E+00 | 1.680E+01 | 1.680E+01 | 78.78 |
| | 163.33 | 75 | 4.70 | 2.241E+00 | 2.676E+01 | 2.676E+01 | 98.02 |
| | 185.71 | 2 | 54.00 | 2.120E+00 | 5.512E-02 | 5.512E-02 | 7029.76 |
| | 205.31 | ----- | 5.00 | 2.011E+00 | ----- | Line Not Found | ----- |
| U-238 | 63.29 | 63 | 3.80* | 9.140E-01 | 6.818E+01 | 6.818E+01 | 146.49 |

Flag: "*" = Keyline

Total number of lines in spectrum 41
 Number of unidentified lines 16
 Number of lines tentatively identified by NID 25 60.98%

Nuclide Type :

| Nuclide | Hlife | Decay | Uncorrected pCi/LITER | Decay Corr pCi/LITER | Decay Corr 2-Sigma Error | 2-Sigma %Error | Flags |
|------------------|-----------|-------|--------------------------|-------------------------|-----------------------------|-------------------|-------|
| MN-54 | 312.70D | 1.11 | 5.051E-01 | 5.611E-01 | 15.96E-01 | 284.38 | |
| CE-139 | 137.66D | 1.27 | 1.565E+00 | 1.987E+00 | 1.948E+00 | 98.02 | |
| CE-141 | 32.50D | 2.75 | 3.645E+00 | 1.002E+01 | 0.789E+01 | 78.78 | |
| HG-203 | 46.61D | 2.02 | 6.439E-01 | 1.303E+00 | 3.303E+00 | 253.46 | |
| BI-210 | 22.26Y | 1.00 | 1.038E+02 | 1.042E+02 | 4.938E+02 | 473.95 | |
| PB-210 | 22.26Y | 1.00 | 1.038E+02 | 1.042E+02 | 4.938E+02 | 473.95 | |
| TH-228 | 1.91Y | 1.05 | 1.748E+00 | 1.832E+00 | 5.315E+00 | 290.15 | |
| TH-232 | 1.41E+10Y | 1.00 | 1.748E+00 | 1.748E+00 | 5.071E+00 | 290.15 | |
| U-235 | 7.04E+08Y | 1.00 | 1.680E+01 | 1.680E+01 | 1.324E+01 | 78.78 | |
| U-238 | 4.47E+09Y | 1.00 | 6.818E+01 | 6.818E+01 | 9.987E+01 | 146.49 | |
| Total Activity : | | | 3.024E+02 | 3.108E+02 | | | |

Grand Total Activity : 3.024E+02 3.108E+02

Flags: "K" = Keyline not found "M" = Manually accepted
 "E" = Manually edited "A" = Nuclide specific abn. limit

| It | Energy | Area | Bkgnd | FWHM | Channel | Left | Pw | Cts/Sec | %Err | %Eff | Flags |
|----|---------|------|-------|-------|---------|------|----|----------|------|----------|-------|
| 10 | 66.14 | 239 | 924 | 1.87 | 133.46 | 125 | 14 | 6.65E-03 | 56.6 | 1.05E+00 | T |
| 0 | 140.14 | 137 | 563 | 0.78 | 281.15 | 279 | 6 | 3.81E-03 | 57.3 | 2.35E+00 | T |
| 0 | 340.95 | 19 | 273 | 1.39 | 681.94 | 679 | 8 | 5.24E-04 | **** | 1.47E+00 | T |
| 0 | 500.33 | 24 | 151 | 1.06 | 1000.09 | 997 | 8 | 6.62E-04 | **** | 1.14E+00 | |
| 3 | 596.36 | 70 | 122 | 1.69 | 1191.79 | 1188 | 17 | 1.95E-03 | 60.0 | 1.01E+00 | |
| 3 | 599.12 | 24 | 156 | 1.65 | 1197.30 | 1188 | 17 | 6.56E-04 | **** | 1.01E+00 | T |
| 0 | 609.36 | 44 | 136 | 1.16 | 1217.75 | 1212 | 12 | 1.22E-03 | **** | 9.93E-01 | T |
| 0 | 673.59 | 28 | 59 | 0.61 | 1345.99 | 1343 | 6 | 7.72E-04 | 96.4 | 9.21E-01 | T |
| 0 | 730.21 | 25 | 38 | 1.35 | 1459.03 | 1457 | 6 | 6.81E-04 | 90.7 | 8.65E-01 | |
| 0 | 734.18 | 4 | 41 | 1.05 | 1466.97 | 1464 | 6 | 1.18E-04 | **** | 8.61E-01 | T |
| 0 | 737.16 | 25 | 44 | 1.32 | 1472.90 | 1470 | 6 | 6.92E-04 | 93.0 | 8.59E-01 | T |
| 0 | 825.02 | 30 | 106 | 1.57 | 1648.35 | 1643 | 14 | 8.38E-04 | **** | 7.84E-01 | T |
| 0 | 953.01 | 15 | 35 | 1.05 | 1903.93 | 1902 | 7 | 4.17E-04 | **** | 6.95E-01 | T |
| 0 | 1035.62 | 12 | 59 | 1.48 | 2068.91 | 2067 | 9 | 3.19E-04 | **** | 6.48E-01 | |
| 0 | 1041.70 | 18 | 34 | 0.59 | 2081.06 | 2078 | 8 | 5.10E-04 | **** | 6.44E-01 | |
| 0 | 1122.32 | 14 | 79 | 3.78 | 2242.06 | 2235 | 17 | 3.82E-04 | **** | 6.05E-01 | T |
| 0 | 1137.26 | 34 | 97 | 4.37 | 2271.91 | 2259 | 22 | 9.58E-04 | **** | 5.98E-01 | T |
| 0 | 1186.29 | 29 | 56 | 1.57 | 2369.83 | 2362 | 14 | 8.06E-04 | **** | 5.77E-01 | |
| 0 | 1238.85 | 9 | 36 | 1.95 | 2474.83 | 2471 | 9 | 2.52E-04 | **** | 5.57E-01 | T |
| 0 | 1258.37 | 30 | 39 | 1.37 | 2513.80 | 2506 | 12 | 8.31E-04 | 91.1 | 5.50E-01 | |
| 0 | 1293.44 | 28 | 116 | 12.90 | 2583.86 | 2571 | 31 | 7.69E-04 | **** | 5.38E-01 | T |
| 0 | 1592.24 | 21 | 45 | 5.69 | 3180.80 | 3168 | 20 | 5.84E-04 | **** | 4.62E-01 | |
| 0 | 1647.27 | 61 | 20 | 9.55 | 3290.75 | 3281 | 22 | 1.68E-03 | 46.9 | 4.53E-01 | |
| 0 | 1670.52 | 26 | 15 | 3.93 | 3337.21 | 3333 | 11 | 7.32E-04 | 67.4 | 4.49E-01 | |
| 0 | 1703.17 | 5 | 13 | 0.83 | 3402.46 | 3402 | 6 | 1.41E-04 | **** | 4.45E-01 | |
| 0 | 1729.66 | 2 | 33 | 1.62 | 3455.38 | 3446 | 12 | 5.24E-05 | **** | 4.41E-01 | |
| 0 | 1744.80 | 26 | 34 | 6.70 | 3485.65 | 3479 | 19 | 7.14E-04 | **** | 4.39E-01 | |
| 0 | 1895.49 | 3 | 16 | 0.39 | 3786.77 | 3785 | 6 | 7.75E-05 | **** | 4.24E-01 | |
| 0 | 1912.03 | 24 | 22 | 1.26 | 3819.83 | 3814 | 14 | 6.59E-04 | **** | 4.23E-01 | |
| 0 | 1917.47 | 11 | 8 | 1.19 | 3830.71 | 3827 | 10 | 3.10E-04 | **** | 4.23E-01 | |

Flags: "T" = Tentatively associated

```

*****
*                                     GENERAL ENG. LABS, LLC.                               *
*                                     2040 Savage Road                               *
*                                     Charleston, SC 29414                          *
*****
*                                     DETECTOR DATA                                *
*
* Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G158277001.CNF;1
* Acquisition date   : 25-APR-2006 18:38:15  Detector SN#      : 1922827
* Detector ID        : GAMMA6                 Sensitivity        : 3.00000
* Geometry           : 2L_MB                 Energy tolerance:    2.00000
* Elapsed live time  : 0 10:00:00.00         Abundance limit    : 75.00000
* Elapsed real time  : 0 10:00:02.97         Half life ratio    : 8.00000
*****
*                                     SAMPLE DATA                                *
*
* Sample date        : 9-MAR-2006 14:00:00.  Nuclide Library   : EPI1
* Sample ID          : G158277001           Analyst initials    : MJH1
* Batch Number       : 519510              Sample Quantity    : 2.00000E+00 LITER
*****
*                                     QC DATA                                  *
*
* CALIB. DATE/TIME  : 29-DEC-2005 05:08:19.2MS Isotope         : TOPLOADER
* MSD DPM           :                      MSD Isotope         :
* LCS DPM           :                      LCS Isotope         :
*****

```

Combined Activity-MDA Report

---- Identified Nuclides ----

| Nuclide | Activity (pCi/LITER) | Act error | MDA (pCi/LITER) | MDA error | Act/MDA |
|---------|-------------------------|-----------|--------------------|-----------|---------|
| MN-54 | 5.611E-01 | 1.596E+00 | 2.459E+00 | 0.000E+00 | 0.228 |
| CE-139 | 1.987E+00 | 1.948E+00 | 2.830E+00 | 0.000E+00 | 0.702 |
| CE-141 | 1.002E+01 | 7.892E+00 | 1.017E+01 | 0.000E+00 | 0.986 |
| HG-203 | 1.303E+00 | 3.303E+00 | 5.109E+00 | 0.000E+00 | 0.255 |
| BI-210 | 1.042E+02 | 4.938E+02 | 4.340E+02 | 0.000E+00 | 0.240 |
| PB-210 | 1.042E+02 | 4.938E+02 | 4.340E+02 | 0.000E+00 | 0.240 |
| TH-228 | 1.832E+00 | 5.315E+00 | 4.651E+00 | 0.000E+00 | 0.394 |
| TH-232 | 1.748E+00 | 5.071E+00 | 4.437E+00 | 0.000E+00 | 0.394 |
| U-235 | 1.680E+01 | 1.324E+01 | 1.719E+01 | 0.000E+00 | 0.977 |
| U-238 | 6.818E+01 | 9.987E+01 | 9.970E+01 | 0.000E+00 | 0.684 |

---- Non-Identified Nuclides ----

| Nuclide | Key-Line Activity K.L. (pCi/LITER) Ided | Act error | MDA (pCi/LITER) | MDA error | Act/MDA |
|---------|---|-----------|--------------------|-----------|---------|
| BE-7 | 1.644E+01 | 1.888E+01 | 3.498E+01 | 0.000E+00 | 0.470 |
| NA-22 | 1.005E+00 | 1.344E+00 | 2.600E+00 | 0.000E+00 | 0.387 |

---- Non-Identified Nuclides ----

| Nuclide | Key-Line Activity (pCi/LITER) | K.L. Ided | Act error | MDA (pCi/LITER) | MDA error | Act/MDA |
|---------|-------------------------------------|--------------|-----------|--------------------|-----------|---------|
| AL-26 | 5.721E-01 | | 1.228E+00 | 2.363E+00 | 0.000E+00 | 0.242 |
| K-40 | 6.233E+01 | | 1.926E+01 | 4.057E+01 | 0.000E+00 | 1.536 |
| SC-46 | 4.632E-03 | | 1.913E+00 | 3.313E+00 | 0.000E+00 | 0.001 |
| V-48 | -4.732E+00 | | 9.991E+00 | 1.655E+01 | 0.000E+00 | -0.286 |
| CR-51 | -8.202E-01 | | 3.858E+01 | 6.457E+01 | 0.000E+00 | -0.013 |
| CO-56 | -9.166E-01 | | 1.973E+00 | 3.301E+00 | 0.000E+00 | -0.278 |
| CO-57 | -6.005E-01 | | 1.345E+00 | 2.313E+00 | 0.000E+00 | -0.260 |
| CO-58 | -3.759E-01 | | 1.794E+00 | 3.086E+00 | 0.000E+00 | -0.122 |
| FE-59 | -2.012E+00 | | 5.057E+00 | 8.365E+00 | 0.000E+00 | -0.240 |
| CO-60 | 7.057E-01 | | 1.389E+00 | 2.624E+00 | 0.000E+00 | 0.269 |
| ZN-65 | -2.700E+00 | | 3.034E+00 | 4.752E+00 | 0.000E+00 | -0.568 |
| SE-75 | -5.313E-01 | | 2.492E+00 | 4.172E+00 | 0.000E+00 | -0.127 |
| KR-85 | -1.612E+03 | | 4.090E+02 | 6.111E+02 | 0.000E+00 | -2.639 |
| SR-85 | -1.160E+01 | | 2.943E+00 | 4.397E+00 | 0.000E+00 | -2.639 |
| Y-88 | -1.970E-01 | | 2.095E+00 | 3.683E+00 | 0.000E+00 | -0.054 |
| Y-91 | 8.179E-01 | | 1.979E+00 | 3.581E+00 | 0.000E+00 | 0.228 |
| NB-94 | 2.593E-01 | | 1.263E+00 | 2.229E+00 | 0.000E+00 | 0.116 |
| NB-95 | 3.338E-01 | | 2.966E+00 | 5.228E+00 | 0.000E+00 | 0.064 |
| ZR-95 | 2.830E+00 | | 3.627E+00 | 6.665E+00 | 0.000E+00 | 0.425 |
| RU-103 | -7.500E-01 | | 3.140E+00 | 4.831E+00 | 0.000E+00 | -0.155 |
| RH-106 | 3.893E+00 | | 1.293E+01 | 2.312E+01 | 0.000E+00 | 0.168 |
| RU-106 | 7.972E+00 | | 1.279E+01 | 2.330E+01 | 0.000E+00 | 0.342 |
| AG-108M | 9.748E-01 | | 1.373E+00 | 2.371E+00 | 0.000E+00 | 0.411 |
| CD-109 | -4.455E+01 | | 3.790E+01 | 5.781E+01 | 0.000E+00 | -0.771 |
| AG-110M | -2.376E-01 | | 1.407E+00 | 2.441E+00 | 0.000E+00 | -0.097 |
| SN-113 | -9.259E-01 | | 2.281E+00 | 3.716E+00 | 0.000E+00 | -0.249 |
| SN-115 | -2.789E+01 | | 1.950E+02 | 3.341E+02 | 0.000E+00 | -0.083 |
| SN-117M | 1.141E-01 | | 1.350E+01 | 2.327E+01 | 0.000E+00 | 0.005 |
| TE-123M | 5.503E-01 | | 1.616E+00 | 2.811E+00 | 0.000E+00 | 0.196 |
| SB-124 | 1.707E+00 | | 4.586E+00 | 8.654E+00 | 0.000E+00 | 0.197 |
| SB-125 | 3.719E+00 | | 4.038E+00 | 7.035E+00 | 0.000E+00 | 0.529 |
| TE-125M | 1.828E+02 | | 6.457E+02 | 1.138E+03 | 0.000E+00 | 0.161 |
| I-126 | 3.082E+00 | | 3.705E+01 | 6.526E+01 | 0.000E+00 | 0.047 |
| SB-126 | -4.682E+00 | | 3.028E+01 | 5.245E+01 | 0.000E+00 | -0.089 |
| SN-126 | -7.208E-01 | | 3.526E+00 | 5.580E+00 | 0.000E+00 | -0.129 |
| I-131 | 2.883E+00 | | 8.328E+01 | 1.392E+02 | 0.000E+00 | 0.021 |
| BA-133 | -7.221E-01 | | 1.929E+00 | 3.162E+00 | 0.000E+00 | -0.228 |
| CS-134 | -5.710E-01 | | 1.445E+00 | 2.446E+00 | 0.000E+00 | -0.233 |
| CS-135 | -6.542E+00 | | 7.296E+00 | 1.188E+01 | 0.000E+00 | -0.551 |
| CS-136 | 4.799E+00 | | 1.829E+01 | 3.257E+01 | 0.000E+00 | 0.147 |
| BA-137M | -3.437E-01 | | 1.343E+00 | 2.314E+00 | 0.000E+00 | -0.149 |
| CS-137 | -3.633E-01 | | 1.420E+00 | 2.446E+00 | 0.000E+00 | -0.149 |
| BA-140 | 1.563E+01 | | 5.538E+01 | 9.963E+01 | 0.000E+00 | 0.157 |
| CE-144 | -2.208E+00 | | 1.056E+01 | 1.822E+01 | 0.000E+00 | -0.121 |
| PM-144 | -1.212E+00 | | 1.390E+00 | 2.291E+00 | 0.000E+00 | -0.529 |
| PM-146 | 8.470E-02 | | 1.930E+00 | 3.197E+00 | 0.000E+00 | 0.026 |
| ND-147 | -2.618E+01 | | 1.621E+02 | 2.845E+02 | 0.000E+00 | -0.092 |
| PM-147 | -3.792E+05 | | 2.590E+06 | 4.494E+06 | 0.000E+00 | -0.084 |

---- Non-Identified Nuclides ----

| Nuclide | Key-Line Activity (pCi/LITER) | K.L. Ided | Act error | MDA (pCi/LITER) | MDA error | Act/MDA |
|---------|-------------------------------------|--------------|-----------|--------------------|-----------|---------|
| EU-152 | -9.516E-01 | | 4.908E+00 | 7.219E+00 | 0.000E+00 | -0.132 |
| GD-153 | -4.299E+00 | | 4.054E+00 | 6.923E+00 | 0.000E+00 | -0.621 |
| EU-154 | 2.754E+00 | | 3.691E+00 | 7.142E+00 | 0.000E+00 | 0.386 |
| EU-155 | 1.469E+00 | | 5.205E+00 | 9.182E+00 | 0.000E+00 | 0.160 |
| TB-160 | 3.026E+00 | | 7.294E+00 | 1.300E+01 | 0.000E+00 | 0.233 |
| TM-171 | 5.661E+03 | + | 3.203E+03 | 2.659E+03 | 0.000E+00 | 2.129 |
| HF-181 | -1.938E+00 | | 2.867E+00 | 4.911E+00 | 0.000E+00 | -0.395 |
| TA-182 | -1.676E+00 | | 6.597E+00 | 1.169E+01 | 0.000E+00 | -0.143 |
| IR-192 | 2.992E-01 | | 2.152E+00 | 3.631E+00 | 0.000E+00 | 0.082 |
| BI-207 | -4.169E-01 | | 1.809E+00 | 3.048E+00 | 0.000E+00 | -0.137 |
| TL-208 | 2.143E+00 | | 1.597E+00 | 2.981E+00 | 0.000E+00 | 0.719 |
| BI-211 | 1.506E+01 | | 9.416E+00 | 1.678E+01 | 0.000E+00 | 0.898 |
| PB-211 | 1.952E+01 | | 3.792E+01 | 6.491E+01 | 0.000E+00 | 0.301 |
| BI-212 | 1.648E+00 | | 1.232E+01 | 1.911E+01 | 0.000E+00 | 0.086 |
| PB-212 | 1.832E+00 | + | 5.315E+00 | 5.320E+00 | 0.000E+00 | 0.344 |
| BI-214 | 3.593E+00 | + | 5.390E+00 | 5.886E+00 | 0.000E+00 | 0.610 |
| PB-214 | 4.429E+00 | | 3.321E+00 | 5.850E+00 | 0.000E+00 | 0.757 |
| RN-219 | -1.826E+01 | | 1.807E+01 | 2.838E+01 | 0.000E+00 | -0.643 |
| RA-223 | -8.963E-01 | | 2.989E+01 | 4.999E+01 | 0.000E+00 | -0.018 |
| RA-224 | 1.093E+01 | | 3.459E+01 | 5.311E+01 | 0.000E+00 | 0.206 |
| RA-226 | 3.593E+00 | + | 5.390E+00 | 5.886E+00 | 0.000E+00 | 0.610 |
| AC-227 | -1.664E+01 | | 1.806E+01 | 2.946E+01 | 0.000E+00 | -0.565 |
| TH-227 | -1.633E+01 | | 1.772E+01 | 2.892E+01 | 0.000E+00 | -0.565 |
| AC-228 | 4.378E+00 | + | 8.769E+00 | 1.062E+01 | 0.000E+00 | 0.412 |
| RA-228 | 4.378E+00 | + | 8.769E+00 | 1.062E+01 | 0.000E+00 | 0.412 |
| TH-229 | -5.627E+00 | | 2.362E+01 | 4.006E+01 | 0.000E+00 | -0.140 |
| TH-230 | 3.593E+00 | + | 5.390E+00 | 5.886E+00 | 0.000E+00 | 0.610 |
| PA-231 | -2.008E+00 | | 8.053E+01 | 1.209E+02 | 0.000E+00 | -0.017 |
| TH-231 | -1.150E+00 | | 8.573E+00 | 1.438E+01 | 0.000E+00 | -0.080 |
| PA-233 | -1.255E+00 | | 2.810E+00 | 4.626E+00 | 0.000E+00 | -0.271 |
| PA-234 | -1.160E+01 | | 1.073E+01 | 1.681E+01 | 0.000E+00 | -0.690 |
| PA-234M | 3.156E+00 | | 1.632E+02 | 2.812E+02 | 0.000E+00 | 0.011 |
| TH-234 | 6.818E+01 | + | 9.987E+01 | 1.234E+02 | 0.000E+00 | 0.553 |
| U-234 | 2.079E+00 | | 6.203E+00 | 1.055E+01 | 0.000E+00 | 0.197 |
| NP-237 | 1.723E+00 | | 1.136E+01 | 1.676E+01 | 0.000E+00 | 0.103 |
| NP-239 | -1.426E+00 | | 9.162E+00 | 1.591E+01 | 0.000E+00 | -0.090 |
| AM-241 | 1.098E+01 | | 8.186E+00 | 1.400E+01 | 0.000E+00 | 0.784 |
| AM-242 | -9.816E-02 | | 1.036E+02 | 1.816E+02 | 0.000E+00 | -0.001 |
| CM-247 | -4.379E-01 | | 1.583E+00 | 2.592E+00 | 0.000E+00 | -0.169 |
| CF-249 | -4.856E-02 | | 1.724E+00 | 2.865E+00 | 0.000E+00 | -0.017 |
| CF-251 | 4.057E+00 | | 5.903E+00 | 1.034E+01 | 0.000E+00 | 0.393 |
| ANH-511 | 1.649E+01 | | 1.962E+00 | 4.163E+00 | 0.000E+00 | 3.961 |

```

*****
*
*                               General Engineering Labs, LLC
*                               2040 SAVAGE ROAD
*                               CHARLESTON ,SC 29417
*                               GROSS GAMMA REPORT
*
*****
*
*   BATCH ID      : 519510                SAMPLE ID   : G158277001
*   ANALYST       : MJH1                  DETECTOR    : GAMMA6
*   SAMPLE DATE   : 9-MAR-2006 14:00:00.00  COUNT TIME  : 0 10:00:00.00
*   ANALYSIS DATE: 25-APR-2006 18:38:15.27  SAMPLE ALQT: 2.000 LITER
*
*****

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GROSS GAMMA ACTIVITY (pCi/LITER ) : 6.335E+01
GROSS GAMMA ERROR   (pCi/LITER ) : 9.581E+01
GROSS GAMMA MDA     (pCi/LITER ) : 2.336E+02
GROSS GAMMA DLC     (pCi/LITER ) : 1.138E+02

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VAX/VMS Nuclide Identification Report Generated 26-APR-2006 04:46:35.81

```

*****
*                               GENERAL ENG. LABS, LLC.                               *
*                               2040 Savage Road                                       *
*                               Charleston, SC 29414                                   *
*****
Configuration   : DKA0:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G159247001.CNF;1
Sample date     : 22-MAR-2006 10:20:00 Acquisition date : 25-APR-2006 18:46:09
Sample ID      : G159247001 Sample quantity   : 2.00000E+00 LITER
Detector name  : GAM19 Detector geometry   : 2LMB
Elapsed live time: 0 10:00:00.00 Elapsed real time: 0 10:00:03.46 0.0%
Energy tolerance : 2.00000 keV Analyst Initials : MJH1
Abundance limit : 75.00000 Sensitivity    : 3.00000
Batch ID       : 519510 Detector SN#   :
Matrix Spike DPM : LCS DPM                :
*****

```

| Pk | It | Energy | Area | Bkgnd | FWHM | Channel | Left | Pw | Cts/Sec | %Err | Fit |
|----|----|----------|------|-------|------|---------|------|----|----------|-------|----------|
| 1 | 0 | 18.63 | 89 | 731 | 1.65 | 37.00 | 35 | 6 | 2.47E-03 | 49.5 | 0.00E+00 |
| 2 | 0 | 46.83* | 41 | 492 | 1.45 | 93.34 | 89 | 9 | 1.14E-03 | 120.4 | |
| 3 | 2 | 63.46* | 144 | 631 | 1.59 | 126.55 | 119 | 19 | 3.99E-03 | 41.9 | 1.21E+00 |
| 4 | 2 | 66.45 | 222 | 534 | 1.37 | 132.52 | 119 | 19 | 6.17E-03 | 19.4 | |
| 5 | 0 | 139.97* | 157 | 547 | 1.35 | 279.40 | 275 | 10 | 4.37E-03 | 33.2 | |
| 6 | 0 | 176.58 | 207 | 632 | 2.92 | 352.55 | 346 | 13 | 5.75E-03 | 26.1 | |
| 7 | 0 | 198.34* | 127 | 437 | 1.56 | 396.01 | 391 | 10 | 3.52E-03 | 46.0 | |
| 8 | 0 | 205.30 | 31 | 390 | 1.09 | 409.92 | 406 | 9 | 8.48E-04 | 118.4 | |
| 9 | 0 | 239.25* | 138 | 614 | 1.34 | 477.75 | 470 | 16 | 3.84E-03 | 46.9 | |
| 10 | 0 | 262.42 | 22 | 397 | 3.93 | 524.03 | 519 | 12 | 6.16E-04 | 181.2 | |
| 11 | 0 | 283.63 | 24 | 256 | 0.64 | 566.41 | 563 | 8 | 6.70E-04 | 116.4 | |
| 12 | 0 | 326.90 | 67 | 266 | 2.58 | 652.88 | 648 | 10 | 1.86E-03 | 47.6 | |
| 13 | 0 | 351.80* | 75 | 297 | 4.73 | 702.61 | 697 | 14 | 2.07E-03 | 63.1 | |
| 14 | 0 | 583.66* | 32 | 138 | 1.44 | 1165.93 | 1160 | 12 | 8.75E-04 | 106.7 | |
| 15 | 0 | 609.82 | 90 | 160 | 2.33 | 1218.22 | 1212 | 13 | 2.51E-03 | 30.7 | |
| 16 | 0 | 622.49 | 12 | 114 | 0.47 | 1243.53 | 1240 | 10 | 3.24E-04 | 174.4 | |
| 17 | 0 | 630.27 | 28 | 75 | 1.33 | 1259.08 | 1254 | 8 | 7.92E-04 | 56.5 | |
| 18 | 0 | 707.74 | 60 | 137 | 1.65 | 1413.92 | 1407 | 13 | 1.68E-03 | 41.9 | |
| 19 | 0 | 774.15 | 21 | 65 | 1.57 | 1546.63 | 1541 | 9 | 5.72E-04 | 75.7 | |
| 20 | 0 | 787.43 | 14 | 91 | 1.35 | 1573.19 | 1569 | 11 | 3.84E-04 | 136.2 | |
| 21 | 0 | 795.85 | 39 | 106 | 0.82 | 1590.00 | 1583 | 13 | 1.07E-03 | 57.5 | |
| 22 | 0 | 868.26 | 33 | 102 | 5.17 | 1734.74 | 1727 | 14 | 9.12E-04 | 67.4 | |
| 23 | 0 | 1079.72 | 26 | 54 | 1.84 | 2157.45 | 2150 | 12 | 7.13E-04 | 60.6 | |
| 24 | 0 | 1462.26* | 17 | 80 | 1.33 | 2922.31 | 2915 | 13 | 4.79E-04 | 140.0 | |
| 25 | 0 | 1518.18 | 12 | 29 | 1.74 | 3034.14 | 3027 | 9 | 3.30E-04 | 89.0 | |
| 26 | 0 | 1521.09 | 13 | 22 | 0.73 | 3039.97 | 3036 | 10 | 3.75E-04 | 68.4 | |
| 27 | 0 | 1667.29* | 9 | 49 | 6.76 | 3332.35 | 3320 | 20 | 2.60E-04 | 207.9 | |
| 28 | 1 | 1700.12 | 20 | 37 | 2.37 | 3398.02 | 3393 | 22 | 5.51E-04 | 56.4 | 2.96E+00 |
| 29 | 1 | 1705.33 | 25 | 36 | 2.37 | 3408.43 | 3393 | 22 | 7.06E-04 | 55.5 | |
| 30 | 0 | 1709.99 | 14 | 12 | 0.67 | 3417.76 | 3414 | 7 | 3.86E-04 | 49.5 | |
| 31 | 6 | 1750.10 | 12 | 4 | 1.30 | 3497.98 | 3496 | 12 | 3.40E-04 | 38.3 | 8.96E-01 |
| 32 | 6 | 1752.99 | 18 | 12 | 1.85 | 3503.77 | 3496 | 12 | 5.00E-04 | 40.9 | |
| 33 | 0 | 1787.71 | 25 | 97 | 6.72 | 3573.20 | 3551 | 30 | 6.94E-04 | 116.9 | |
| 34 | 0 | 1848.41 | 13 | 29 | 4.37 | 3694.64 | 3685 | 13 | 3.49E-04 | 93.2 | |
| 35 | 0 | 1967.34 | 24 | 35 | 2.85 | 3932.53 | 3921 | 16 | 6.62E-04 | 59.7 | |

Flag: "*" = Peak area was modified by background subtraction

VAX/VMS Nuclide Identification Report Generated

```

*****
*                               General Eng. Labs, LLC.                               *
*                               2040 Savage Road                                       *
*                               Charleston, SC 29414                                   *
*****
*                               DETECTOR DATA                                       *
*
* Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G159247001
* Acquisition date   : 25-APR-2006 18:46:09 Detector SN#      :
* Detector ID       : GAM19                               Sensitivity      : 3.000
* Geometry         : 2LMB                               Energy tolerance: 2.000
* Elapsed live time: 0 10:00:00.00                     Abundance limit : 75.000
* Elapsed real time: 0 10:00:03.46                     Half life ratio  : 8.000
*****
*                               SAMPLE DATA                                         *
*
* Sample date       : 22-MAR-2006 10:20:00 Nuclide Library :
* Sample ID        : G159247001                     Analyst initials: MJH1
* Batch Number     : 519510                           Sample Quantity : 2.0000E+00 LITER
* Recovery         : 1.00000                           Carrier Weight  : 0.00000
*****
*                               QC DATA                                             *
*
* Standard Weight  : 0.00000
* CALIB. DATE/TIME: 17-FEB-2006 16:09:06 MS Isotope      :
* MSD DPM         : 0.000                             MSD Isotope     :
* LCS DPM         : 0.000                             LCS Isotope     :
* LCSD DPM        : 0.000                             LCSD Isotope    :
*****

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Combined Activity-MDA Report

---- Identified Nuclides ----

| Nuclide | Activity (pCi/LITER) | Act error | MDA (pCi/LITER) | |
|---------|--------------------------|-----------|---------------------|-----------|
| K-40 | 9.849E+00 | 2.759E+01 | 1.167E+01 | 0.000E+00 |
| RU-106 | 3.959E+00 | 1.382E+01 | 1.038E+01 | 0.000E+00 |
| BI-210 | 1.065E+02 | 2.568E+02 | 1.532E+02 | 0.000E+00 |
| PB-210 | 1.065E+02 | 2.568E+02 | 1.532E+02 | 0.000E+00 |
| BI-211 | 1.227E+01 | 1.552E+01 | 6.833E+00 | 0.000E+00 |
| RA-224 | 6.127E+01 | 5.761E+01 | 2.248E+01 | 0.000E+00 |
| RA-226 | 5.990E+00 | 3.709E+00 | 2.217E+00 | 0.000E+00 |
| TH-228 | 5.426E+00 | 5.108E+00 | 1.955E+00 | 0.000E+00 |
| TH-230 | 5.990E+00 | 3.709E+00 | 2.217E+00 | 0.000E+00 |
| U-238 | 1.121E+02 | 9.633E+01 | 4.616E+01 | 0.000E+00 |
| CF-251 | 1.695E+01 | 8.944E+00 | 4.780E+00 | 0.000E+00 |

---- Non-Identified Nuclides ----

| Nuclide | Key-Line Activity (pCi/LITER) | K.L. Act error) Ided | MDA (pCi/LITER) | |
|---------|--------------------------------------|--------------------------|---------------------|----------------------|
| BE-7 | 2.601E+00 | 1.464E+01 | 1.416E+01 | 0.000E+00 NOT IDENT. |
| NA-22 | -1.934E-01 | 1.244E+00 | 1.173E+00 | 0.000E+00 NOT IDENT. |
| NA-24 | 0.000E+00 | 5.503E+16 | 0.000E+00 | 0.000E+00 SHORT HLIF |
| AL-26 | -2.827E-01 | 1.362E+00 | 1.299E+00 | 0.000E+00 NOT IDENT. |
| SC-46 | -6.438E-01 | 1.387E+00 | 1.304E+00 | 0.000E+00 NOT IDENT. |
| V-48 | 1.534E+00 | 4.647E+00 | 4.624E+00 | 0.000E+00 NOT IDENT. |
| CR-51 | -1.805E-01 | 2.463E+01 | 2.262E+01 | 0.000E+00 NOT IDENT. |
| MN-54 | -3.475E-01 | 1.124E+00 | 1.074E+00 | 0.000E+00 NOT IDENT. |
| CO-56 | 9.327E-01 | 1.509E+00 | 1.531E+00 | 0.000E+00 NOT IDENT. |
| MN-56 | 0.000E+00 | 1.619E+41 | 0.000E+00 | 0.000E+00 SHORT HLIF |
| CO-57 | -1.860E-01 | 1.126E+00 | 1.061E+00 | 0.000E+00 NOT IDENT. |
| CO-58 | 1.499E+00 | 1.553E+00 | 1.552E+00 | 0.000E+00 NOT IDENT. |
| FE-59 | 1.851E+00 | 3.897E+00 | 3.885E+00 | 0.000E+00 NOT IDENT. |
| CO-60 | 3.256E-01 | 1.407E+00 | 1.367E+00 | 0.000E+00 NOT IDENT. |
| ZN-65 | -5.230E-01 | 2.741E+00 | 2.601E+00 | 0.000E+00 NOT IDENT. |
| SE-75 | -2.765E-01 | 2.037E+00 | 1.724E+00 | 0.000E+00 FAIL ABUN |

| | | | | | |
|---------|------------|-----------|-----------|-----------|------------|
| KR-85 | 7.654E+01 | 3.964E+02 | 3.810E+02 | 0.000E+00 | NOT IDENT. |
| SR-85 | 4.812E-01 | 2.492E+00 | 2.396E+00 | 0.000E+00 | NOT IDENT. |
| Y-88 | -8.333E-01 | 1.713E+00 | 1.586E+00 | 0.000E+00 | NOT IDENT. |
| Y-91 | -8.687E-01 | 1.645E+00 | 1.517E+00 | 0.000E+00 | NOT IDENT. |
| NB-94 | -1.139E+00 | 1.405E+00 | 1.056E+00 | 0.000E+00 | NOT IDENT. |
| NB-95 | -1.195E+00 | 2.165E+00 | 1.945E+00 | 0.000E+00 | NOT IDENT. |
| NB-95M | 0.000E+00 | 3.112E+03 | 0.000E+00 | 0.000E+00 | SHORT HLIF |
| ZR-95 | -1.823E+00 | 2.864E+00 | 2.558E+00 | 0.000E+00 | NOT IDENT. |
| MO-99 | 0.000E+00 | 1.039E+04 | 0.000E+00 | 0.000E+00 | SHORT HLIF |
| TC-99M | 0.000E+00 | 9.224E+40 | 0.000E+00 | 0.000E+00 | SHORT HLIF |
| RU-103 | -1.785E+00 | 2.004E+00 | 1.807E+00 | 0.000E+00 | FAIL ABUN |
| RH-106 | 3.959E+00 | 1.381E+01 | 1.065E+01 | 0.000E+00 | FAIL ABUN |
| AG-108 | -8.011E-01 | 1.177E+00 | 1.092E+00 | 0.000E+00 | NOT IDENT. |
| CD-109 | -8.087E+01 | 3.303E+01 | 2.845E+01 | 0.000E+00 | NOT IDENT. |
| AG-110M | -4.207E-01 | 1.175E+00 | 1.083E+00 | 0.000E+00 | FAIL ABUN |
| SN-113 | -7.211E-01 | 1.825E+00 | 1.730E+00 | 0.000E+00 | NOT IDENT. |
| CD-115 | 0.000E+00 | 1.461E+05 | 0.000E+00 | 0.000E+00 | SHORT HLIF |
| SN-115 | 1.834E+01 | 1.421E+02 | 1.395E+02 | 0.000E+00 | NOT IDENT. |
| SN-117M | 2.992E+00 | 5.814E+00 | 5.562E+00 | 0.000E+00 | NOT IDENT. |
| TE-123M | 3.219E-01 | 1.267E+00 | 1.202E+00 | 0.000E+00 | NOT IDENT. |
| SB-124 | -1.446E+00 | 4.161E+00 | 3.767E+00 | 0.000E+00 | NOT IDENT. |
| SB-125 | 1.559E+00 | 3.413E+00 | 3.356E+00 | 0.000E+00 | FAIL ABUN |
| TE-125M | 8.217E+01 | 4.915E+02 | 4.693E+02 | 0.000E+00 | NOT IDENT. |
| I-126 | -7.012E+00 | 1.709E+01 | 1.570E+01 | 0.000E+00 | NOT IDENT. |
| SB-126 | 8.222E+00 | 1.479E+01 | 1.440E+01 | 0.000E+00 | NOT IDENT. |
| SN-126 | -3.605E+00 | 3.032E+00 | 2.776E+00 | 0.000E+00 | FAIL ABUN |
| SB-127 | 0.000E+00 | 1.494E+03 | 0.000E+00 | 0.000E+00 | SHORT HLIF |
| I-131 | -3.522E-01 | 2.196E+01 | 2.125E+01 | 0.000E+00 | FAIL ABUN |
| I-132 | 0.000E+00 | 6.603E+41 | 0.000E+00 | 0.000E+00 | SHORT HLIF |
| TE-132 | 0.000E+00 | 1.650E+03 | 0.000E+00 | 0.000E+00 | SHORT HLIF |
| BA-133 | 1.360E+00 | 1.828E+00 | 1.604E+00 | 0.000E+00 | NOT IDENT. |
| I-133 | 0.000E+00 | 1.047E+12 | 0.000E+00 | 0.000E+00 | SHORT HLIF |
| CS-134 | 0.000E+00 | 2.020E+00 | 1.373E+00 | 0.000E+00 | FAIL ABUN |
| CS-135 | 1.794E+00 | 6.232E+00 | 5.393E+00 | 0.000E+00 | NOT IDENT. |
| I-135 | 0.000E+00 | 2.622E+38 | 0.000E+00 | 0.000E+00 | SHORT HLIF |
| CS-136 | -3.387E-01 | 9.470E+00 | 9.129E+00 | 0.000E+00 | FAIL ABUN |
| BA-137M | 3.314E-01 | 1.135E+00 | 1.093E+00 | 0.000E+00 | NOT IDENT. |
| CS-137 | 3.520E-01 | 1.200E+00 | 1.156E+00 | 0.000E+00 | NOT IDENT. |
| CE-139 | 3.987E-01 | 1.272E+00 | 1.208E+00 | 0.000E+00 | NOT IDENT. |
| BA-140 | -3.890E+00 | 2.518E+01 | 2.375E+01 | 0.000E+00 | NOT IDENT. |
| LA-140 | 1.136E+00 | 8.949E+00 | 8.558E+00 | 0.000E+00 | FAIL ABUN |
| CE-141 | -3.104E+00 | 4.933E+00 | 3.601E+00 | 0.000E+00 | NOT IDENT. |
| CE-143 | 0.000E+00 | 8.342E+07 | 0.000E+00 | 0.000E+00 | SHORT HLIF |
| CE-144 | 5.871E+00 | 8.954E+00 | 8.325E+00 | 0.000E+00 | NOT IDENT. |
| PM-144 | 8.612E-01 | 1.284E+00 | 1.257E+00 | 0.000E+00 | NOT IDENT. |
| PR-144 | 0.000E+00 | 1.490E+41 | 0.000E+00 | 0.000E+00 | SHORT HLIF |
| PM-146 | 9.193E-01 | 1.645E+00 | 1.620E+00 | 0.000E+00 | NOT IDENT. |
| ND-147 | -2.982E-01 | 6.112E+01 | 5.829E+01 | 0.000E+00 | NOT IDENT. |
| PM-147 | 8.642E+05 | 2.216E+06 | 2.126E+06 | 0.000E+00 | NOT IDENT. |
| PM-149 | 0.000E+00 | 1.737E+06 | 0.000E+00 | 0.000E+00 | SHORT HLIF |
| EU-152 | -3.506E+00 | 4.861E+00 | 3.360E+00 | 0.000E+00 | NOT IDENT. |
| GD-153 | -9.017E+00 | 4.528E+00 | 3.200E+00 | 0.000E+00 | NOT IDENT. |
| EU-154 | -5.600E-01 | 3.438E+00 | 3.239E+00 | 0.000E+00 | NOT IDENT. |
| EU-155 | -6.049E+00 | 4.391E+00 | 3.961E+00 | 0.000E+00 | NOT IDENT. |
| TB-160 | -2.731E-01 | 5.140E+00 | 4.993E+00 | 0.000E+00 | NOT IDENT. |
| TM-171 | 0.000E+00 | 1.521E+03 | 1.261E+03 | 0.000E+00 | FAIL ABUN |
| HF-181 | 6.491E-01 | 2.017E+00 | 1.966E+00 | 0.000E+00 | FAIL ABUN |
| TA-182 | -2.293E+00 | 5.871E+00 | 5.444E+00 | 0.000E+00 | FAIL ABUN |
| IR-192 | -5.901E-01 | 1.577E+00 | 1.512E+00 | 0.000E+00 | NOT IDENT. |
| HG-203 | 8.353E-01 | 2.275E+00 | 1.973E+00 | 0.000E+00 | NOT IDENT. |
| BI-207 | 9.205E-01 | 1.494E+00 | 1.513E+00 | 0.000E+00 | NOT IDENT. |
| TL-208 | 1.153E+00 | 2.462E+00 | 1.395E+00 | 0.000E+00 | FAIL ABUN |
| PB-211 | 1.092E+01 | 3.335E+01 | 3.200E+01 | 0.000E+00 | NOT IDENT. |
| BI-212 | 0.000E+00 | 1.009E+01 | 1.025E+01 | 0.000E+00 | NOT IDENT. |
| PB-212 | 0.000E+00 | 5.108E+00 | 2.676E+00 | 0.000E+00 | FAIL ABUN |
| BI-214 | 0.000E+00 | 3.709E+00 | 2.656E+00 | 0.000E+00 | FAIL ABUN |
| PB-214 | 0.000E+00 | 5.404E+00 | 2.792E+00 | 0.000E+00 | FAIL ABUN |
| RN-219 | -2.190E+00 | 1.471E+01 | 1.409E+01 | 0.000E+00 | NOT IDENT. |
| RA-223 | 1.178E+01 | 2.876E+01 | 2.482E+01 | 0.000E+00 | NOT IDENT. |
| AC-227 | -2.265E+00 | 1.628E+01 | 1.445E+01 | 0.000E+00 | NOT IDENT. |
| TH-227 | -2.226E+00 | 1.601E+01 | 1.420E+01 | 0.000E+00 | NOT IDENT. |
| AC-228 | -6.361E+00 | 6.340E+00 | 3.935E+00 | 0.000E+00 | FAIL ABUN |
| RA-228 | -6.361E+00 | 6.340E+00 | 3.935E+00 | 0.000E+00 | FAIL ABUN |
| TH-229 | 2.734E+00 | 2.319E+01 | 1.903E+01 | 0.000E+00 | NOT IDENT. |
| PA-231 | 2.815E+01 | 6.566E+01 | 5.660E+01 | 0.000E+00 | FAIL ABUN |
| TH-231 | -1.226E+00 | 6.819E+00 | 6.255E+00 | 0.000E+00 | FAIL ABUN |
| TH-232 | 0.000E+00 | 4.936E+00 | 2.584E+00 | 0.000E+00 | FAIL ABUN |
| PA-233 | -6.460E-01 | 2.423E+00 | 2.334E+00 | 0.000E+00 | NOT IDENT. |

| | | | | | |
|---------|------------|-----------|-----------|-----------|------------|
| PA-234 | -1.765E-01 | 9.014E+00 | 8.745E+00 | 0.000E+00 | FAIL ABUN |
| PA-234M | -1.769E+02 | 2.173E+02 | 1.466E+02 | 0.000E+00 | NOT IDENT. |
| TH-234 | 0.000E+00 | 9.633E+01 | 5.999E+01 | 0.000E+00 | FAIL ABUN |
| U-234 | -1.491E+00 | 6.345E+00 | 4.861E+00 | 0.000E+00 | FAIL ABUN |
| U-235 | -2.234E+00 | 1.075E+01 | 8.010E+00 | 0.000E+00 | FAIL ABUN |
| NP-237 | -3.305E+00 | 8.871E+00 | 8.350E+00 | 0.000E+00 | NOT IDENT. |
| NP-239 | -7.024E+00 | 7.820E+00 | 7.182E+00 | 0.000E+00 | NOT IDENT. |
| AM-241 | -1.004E+00 | 7.986E+00 | 5.820E+00 | 0.000E+00 | NOT IDENT. |
| AM-242 | -1.887E+01 | 8.711E+01 | 8.227E+01 | 0.000E+00 | NOT IDENT. |
| CM-247 | 3.372E-01 | 1.309E+00 | 1.278E+00 | 0.000E+00 | NOT IDENT. |
| CF-249 | 5.133E-01 | 1.424E+00 | 1.399E+00 | 0.000E+00 | NOT IDENT. |
| ANH-511 | -6.930E+00 | 2.681E+00 | 2.090E+00 | 0.000E+00 | NOT IDENT. |

```

*****
*                               GENERAL ENG. LABS, LLC.                               *
*                               2040 Savage Road                                       *
*                               Charleston, SC 29414                                 *
*****
Configuration      : DKA0:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G159247001.CNF;1
Sample date        : 22-MAR-2006 10:20:00 Acquisition date : 25-APR-2006 18:46:09
Sample ID          : G159247001 Sample quantity : 2.00000E+00 LITER
Detector name     : GAM19 Detector geometry: 2LMB
Elapsed live time : 0 10:00:00.00 Elapsed real time: 0 10:00:03.46 0.0%
Energy tolerance  : 2.00000 keV Analyst Initials : MJH1
Abundance limit   : 75.00000 Sensitivity : 3.00000
Batch ID          : 519510 Detector SN# :
Matrix Spike DPM : LCS DPM :
*****

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| Pk | It | Energy | Area | Bkgnd | FWHM | Channel | Left | Pw | Cts/Sec | %Err | Fit |
|----|----|---------|------|-------|------|---------|------|----|----------|-------|----------|
| 1 | 7 | 4.72 | 1176 | 298 | 1.05 | 9.21 | 6 | 14 | 3.27E-02 | 4.8 | 4.21E+00 |
| 2 | 7 | 6.48 | 1293 | 2094 | 2.30 | 12.73 | 6 | 14 | 3.59E-02 | 8.4 | |
| 3 | 0 | 10.85 | 355 | 1728 | 1.43 | 21.46 | 19 | 8 | 9.87E-03 | 21.2 | |
| 4 | 0 | 18.63 | 89 | 731 | 1.65 | 37.00 | 35 | 6 | 2.47E-03 | 49.5 | |
| 5 | 0 | 46.83 | 128 | 492 | 1.45 | 93.34 | 89 | 9 | 3.56E-03 | 32.4 | |
| 6 | 2 | 63.46 | 271 | 631 | 1.59 | 126.55 | 119 | 19 | 7.52E-03 | 18.8 | 1.21E+00 |
| 7 | 2 | 66.45 | 222 | 534 | 1.37 | 132.52 | 119 | 19 | 6.17E-03 | 19.4 | |
| 8 | 0 | 77.69 | 27 | 561 | 0.81 | 154.99 | 151 | 8 | 7.63E-04 | 152.2 | |
| 9 | 0 | 92.52 | 457 | 901 | 1.55 | 184.62 | 177 | 14 | 1.27E-02 | 14.7 | |
| 10 | 0 | 139.97 | 176 | 547 | 1.35 | 279.40 | 275 | 10 | 4.88E-03 | 26.0 | |
| 11 | 0 | 143.88 | 60 | 542 | 3.21 | 287.22 | 284 | 10 | 1.68E-03 | 73.3 | |
| 12 | 0 | 176.58 | 207 | 632 | 2.92 | 352.55 | 346 | 13 | 5.75E-03 | 26.1 | |
| 13 | 0 | 185.82 | 240 | 619 | 1.38 | 371.00 | 366 | 12 | 6.68E-03 | 21.7 | |
| 14 | 0 | 198.34 | 224 | 437 | 1.56 | 396.01 | 391 | 10 | 6.23E-03 | 18.8 | |
| 15 | 0 | 205.30 | 31 | 390 | 1.09 | 409.92 | 406 | 9 | 8.48E-04 | 118.4 | |
| 16 | 0 | 239.25 | 325 | 614 | 1.34 | 477.75 | 470 | 16 | 9.03E-03 | 17.9 | |
| 17 | 0 | 262.42 | 22 | 397 | 3.93 | 524.03 | 519 | 12 | 6.16E-04 | 181.2 | |
| 18 | 0 | 283.63 | 24 | 256 | 0.64 | 566.41 | 563 | 8 | 6.70E-04 | 116.4 | |
| 19 | 0 | 326.90 | 67 | 266 | 2.58 | 652.88 | 648 | 10 | 1.86E-03 | 47.6 | |
| 20 | 0 | 351.80 | 138 | 297 | 4.73 | 702.61 | 697 | 14 | 3.83E-03 | 27.8 | |
| 21 | 0 | 511.55 | 792 | 214 | 2.79 | 1021.83 | 1014 | 20 | 2.20E-02 | 5.8 | |
| 22 | 0 | 583.66 | 77 | 138 | 1.44 | 1165.93 | 1160 | 12 | 2.14E-03 | 32.8 | |
| 23 | 0 | 609.82 | 90 | 160 | 2.33 | 1218.22 | 1212 | 13 | 2.51E-03 | 30.7 | |
| 24 | 0 | 622.49 | 12 | 114 | 0.47 | 1243.53 | 1240 | 10 | 3.24E-04 | 174.4 | |
| 25 | 0 | 630.27 | 28 | 75 | 1.33 | 1259.08 | 1254 | 8 | 7.92E-04 | 56.5 | |
| 26 | 0 | 707.74 | 60 | 137 | 1.65 | 1413.92 | 1407 | 13 | 1.68E-03 | 41.9 | |
| 27 | 0 | 774.15 | 21 | 65 | 1.57 | 1546.63 | 1541 | 9 | 5.72E-04 | 75.7 | |
| 28 | 0 | 787.43 | 14 | 91 | 1.35 | 1573.19 | 1569 | 11 | 3.84E-04 | 136.2 | |
| 29 | 0 | 795.85 | 39 | 106 | 0.82 | 1590.00 | 1583 | 13 | 1.07E-03 | 57.5 | |
| 30 | 0 | 868.26 | 33 | 102 | 5.17 | 1734.74 | 1727 | 14 | 9.12E-04 | 67.4 | |
| 31 | 0 | 1079.72 | 26 | 54 | 1.84 | 2157.45 | 2150 | 12 | 7.13E-04 | 60.6 | |
| 32 | 0 | 1462.26 | 80 | 80 | 1.33 | 2922.31 | 2915 | 13 | 2.21E-03 | 25.8 | |
| 33 | 0 | 1518.18 | 12 | 29 | 1.74 | 3034.14 | 3027 | 9 | 3.30E-04 | 89.0 | |
| 34 | 0 | 1521.09 | 13 | 22 | 0.73 | 3039.97 | 3036 | 10 | 3.75E-04 | 68.4 | |
| 35 | 0 | 1667.29 | 20 | 49 | 6.76 | 3332.35 | 3320 | 20 | 5.60E-04 | 88.6 | |
| 36 | 1 | 1700.12 | 20 | 37 | 2.37 | 3398.02 | 3393 | 22 | 5.51E-04 | 56.4 | 2.96E+00 |
| 37 | 1 | 1705.33 | 25 | 36 | 2.37 | 3408.43 | 3393 | 22 | 7.06E-04 | 55.5 | |
| 38 | 0 | 1709.99 | 14 | 12 | 0.67 | 3417.76 | 3414 | 7 | 3.86E-04 | 49.5 | |

| Pk | It | Energy | Area | Bkgnd | FWHM | Channel | Left | Pw | Cts/Sec | %Err | Fit |
|----|----|---------|------|-------|------|---------|------|----|----------|-------|----------|
| 39 | 6 | 1750.10 | 12 | 4 | 1.30 | 3497.98 | 3496 | 12 | 3.40E-04 | 38.3 | 8.96E-01 |
| 40 | 6 | 1752.99 | 18 | 12 | 1.85 | 3503.77 | 3496 | 12 | 5.00E-04 | 40.9 | |
| 41 | 0 | 1787.71 | 25 | 97 | 6.72 | 3573.20 | 3551 | 30 | 6.94E-04 | 116.9 | |
| 42 | 0 | 1848.41 | 13 | 29 | 4.37 | 3694.64 | 3685 | 13 | 3.49E-04 | 93.2 | |
| 43 | 0 | 1967.34 | 24 | 35 | 2.85 | 3932.53 | 3921 | 16 | 6.62E-04 | 59.7 | |

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*****
*                               GENERAL ENG. LABS, LLC.                               *
*                               2040 Savage Road                                       *
*                               Charleston, SC 29414                                 *
*****
Configuration      : DKA0:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G159247001.CNF;1
Sample date        : 22-MAR-2006 10:20:00 Acquisition date : 25-APR-2006 18:46:09
Sample ID          : G159247001 Sample quantity : 2.00000E+00 LITER
Detector name     : GAM19 Detector geometry: 2LMB
Elapsed live time : 0 10:00:00.00 Elapsed real time: 0 10:00:03.46 0.0%
Energy tolerance  : 2.00000 keV Analyst Initials : MJH1
Abundance limit   : 75.00000 Sensitivity : 3.00000
Batch ID          : 519510 Detector SN# :
Matrix Spike DPM : LCS DPM :
*****
    
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Nuclide Line Activity Report

Nuclide Type:

| Nuclide | Energy | Area | %Abn | %Eff | Uncorrected pCi/LITER | Decay Corr pCi/LITER | 2-Sigma %Error |
|---------|---------|-------|--------|-----------|-----------------------|----------------------|----------------|
| K-40 | 1460.81 | 17 | 10.67* | 6.163E-01 | 9.849E+00 | 9.849E+00 | 280.09 |
| RU-106 | 622.20 | 12 | 9.80* | 1.204E+00 | 3.710E+00 | 3.959E+00 | 349.04 |
| BI-210 | 46.50 | 41 | 4.05* | 3.583E-01 | 1.062E+02 | 1.065E+02 | 241.03 |
| PB-210 | 46.50 | 41 | 4.05* | 3.583E-01 | 1.062E+02 | 1.065E+02 | 241.03 |
| BI-211 | 351.07 | 75 | 12.94* | 1.761E+00 | 1.227E+01 | 1.227E+01 | 126.47 |
| RA-226 | 295.21 | ----- | 19.20 | 1.962E+00 | ----- | Line Not Found | ----- |
| | 351.92 | 75 | 37.20 | 1.761E+00 | 4.270E+00 | 4.270E+00 | 126.44 |
| | 609.31 | 90 | 46.30* | 1.222E+00 | 5.990E+00 | 5.990E+00 | 61.91 |
| TH-228 | 84.40 | ----- | 1.21 | 2.243E+00 | ----- | Line Not Found | ----- |
| | 238.60 | 138 | 44.60* | 2.221E+00 | 5.243E+00 | 5.426E+00 | 94.14 |
| | 300.10 | ----- | 3.41 | 1.943E+00 | ----- | Line Not Found | ----- |
| TH-230 | 295.21 | ----- | 19.20 | 1.962E+00 | ----- | Line Not Found | ----- |
| | 351.92 | 75 | 37.20 | 1.761E+00 | 4.270E+00 | 4.270E+00 | 126.44 |
| | 609.31 | 90 | 46.30* | 1.222E+00 | 5.990E+00 | 5.990E+00 | 61.91 |
| U-238 | 63.29 | 144 | 3.80* | 1.265E+00 | 1.121E+02 | 1.121E+02 | 85.94 |
| CF-251 | 176.00 | 207 | 17.70* | 2.590E+00 | 1.695E+01 | 1.695E+01 | 52.77 |
| | 227.00 | ----- | 6.30 | 2.287E+00 | ----- | Line Not Found | ----- |
| | 285.00 | 24 | 1.40 | 2.010E+00 | 3.218E+01 | 3.218E+01 | 232.88 |

Nuclide Type: NATURAL

| Nuclide | Energy | Area | %Abn | %Eff | Uncorrected pCi/LITER | Decay Corr pCi/LITER | 2-Sigma %Error |
|---------|--------|------|-------|-----------|-----------------------|----------------------|----------------|
| RA-224 | 240.98 | 138 | 3.95* | 2.221E+00 | 5.920E+01 | 6.127E+01 | 94.04 |

Flag: "*" = Keyline

Total number of lines in spectrum 35
 Number of unidentified lines 13
 Number of lines tentatively identified by NID 22 62.86%

Nuclide Type :

| Nuclide | Hlife | Decay | Uncorrected pCi/LITER | Decay Corr pCi/LITER | Decay Corr 2-Sigma Error | 2-Sigma %Error | Flags |
|------------------|-----------|-------|--------------------------|-------------------------|-----------------------------|-------------------|-------|
| K-40 | 1.28E+09Y | 1.00 | 9.849E+00 | 9.849E+00 | 27.59E+00 | 280.09 | |
| RU-106 | 368.20D | 1.07 | 3.710E+00 | 3.959E+00 | 13.82E+00 | 349.04 | |
| BI-210 | 22.26Y | 1.00 | 1.062E+02 | 1.065E+02 | 2.568E+02 | 241.03 | |
| PB-210 | 22.26Y | 1.00 | 1.062E+02 | 1.065E+02 | 2.568E+02 | 241.03 | |
| BI-211 | 7.04E+08Y | 1.00 | 1.227E+01 | 1.227E+01 | 1.552E+01 | 126.47 | |
| RA-226 | 1600.00Y | 1.00 | 5.990E+00 | 5.990E+00 | 3.709E+00 | 61.91 | |
| TH-228 | 1.91Y | 1.03 | 5.243E+00 | 5.426E+00 | 5.108E+00 | 94.14 | |
| TH-230 | 7.70E+04Y | 1.00 | 5.990E+00 | 5.990E+00 | 3.709E+00 | 61.91 | |
| U-238 | 4.47E+09Y | 1.00 | 1.121E+02 | 1.121E+02 | 0.963E+02 | 85.94 | |
| CF-251 | 900.00Y | 1.00 | 1.695E+01 | 1.695E+01 | 0.894E+01 | 52.77 | |
| Total Activity : | | | 3.846E+02 | 3.856E+02 | | | |

Nuclide Type : NATURAL

| Nuclide | Hlife | Decay | Uncorrected pCi/LITER | Decay Corr pCi/LITER | Decay Corr 2-Sigma Error | 2-Sigma %Error | Flags |
|------------------|-------|-------|--------------------------|-------------------------|-----------------------------|-------------------|-------|
| RA-224 | 1.91Y | 1.03 | 5.920E+01 | 6.127E+01 | 5.761E+01 | 94.04 | |
| Total Activity : | | | 5.920E+01 | 6.127E+01 | | | |

Grand Total Activity : 4.438E+02 4.469E+02

Flags: "K" = Keyline not found "M" = Manually accepted
 "E" = Manually edited "A" = Nuclide specific abn. limit

| It | Energy | Area | Bkgnd | FWHM | Channel | Left | Pw | Cts/Sec | %Err | %Eff | Flags |
|----|---------|------|-------|------|---------|------|----|----------|------|----------|-------|
| 0 | 18.63 | 89 | 731 | 1.65 | 37.00 | 35 | 6 | 2.47E-03 | 99.0 | 1.87E-06 | |
| 2 | 66.45 | 222 | 534 | 1.37 | 132.52 | 119 | 19 | 6.17E-03 | 38.7 | 1.43E+00 | T |
| 0 | 139.97 | 157 | 547 | 1.35 | 279.40 | 275 | 10 | 4.37E-03 | 66.4 | 2.78E+00 | T |
| 0 | 198.34 | 127 | 437 | 1.56 | 396.01 | 391 | 10 | 3.52E-03 | 92.1 | 2.46E+00 | T |
| 0 | 205.30 | 31 | 390 | 1.09 | 409.92 | 406 | 9 | 8.48E-04 | **** | 2.41E+00 | T |
| 0 | 262.42 | 22 | 397 | 3.93 | 524.03 | 519 | 12 | 6.16E-04 | **** | 2.11E+00 | T |
| 0 | 326.90 | 67 | 266 | 2.58 | 652.88 | 648 | 10 | 1.86E-03 | 95.2 | 1.84E+00 | T |
| 0 | 583.66 | 32 | 138 | 1.44 | 1165.93 | 1160 | 12 | 8.75E-04 | **** | 1.26E+00 | T |
| 0 | 630.27 | 28 | 75 | 1.33 | 1259.08 | 1254 | 8 | 7.92E-04 | **** | 1.19E+00 | T |
| 0 | 707.74 | 60 | 137 | 1.65 | 1413.92 | 1407 | 13 | 1.68E-03 | 83.9 | 1.09E+00 | T |
| 0 | 774.15 | 21 | 65 | 1.57 | 1546.63 | 1541 | 9 | 5.72E-04 | **** | 1.02E+00 | T |
| 0 | 787.43 | 14 | 91 | 1.35 | 1573.19 | 1569 | 11 | 3.84E-04 | **** | 1.01E+00 | |
| 0 | 795.85 | 39 | 106 | 0.82 | 1590.00 | 1583 | 13 | 1.07E-03 | **** | 1.00E+00 | T |
| 0 | 868.26 | 33 | 102 | 5.17 | 1734.74 | 1727 | 14 | 9.12E-04 | **** | 9.34E-01 | T |
| 0 | 1079.72 | 26 | 54 | 1.84 | 2157.45 | 2150 | 12 | 7.13E-04 | **** | 7.82E-01 | |
| 0 | 1518.18 | 12 | 29 | 1.74 | 3034.14 | 3027 | 9 | 3.30E-04 | **** | 6.00E-01 | |
| 0 | 1521.09 | 13 | 22 | 0.73 | 3039.97 | 3036 | 10 | 3.75E-04 | **** | 5.99E-01 | |
| 0 | 1667.29 | 9 | 49 | 6.76 | 3332.35 | 3320 | 20 | 2.60E-04 | **** | 5.65E-01 | |
| 1 | 1700.12 | 20 | 37 | 2.37 | 3398.02 | 3393 | 22 | 5.51E-04 | **** | 5.59E-01 | |
| 1 | 1705.33 | 25 | 36 | 2.37 | 3408.43 | 3393 | 22 | 7.06E-04 | **** | 5.58E-01 | T |
| 0 | 1709.99 | 14 | 12 | 0.67 | 3417.76 | 3414 | 7 | 3.86E-04 | 99.1 | 5.57E-01 | |
| 6 | 1750.10 | 12 | 4 | 1.30 | 3497.98 | 3496 | 12 | 3.40E-04 | 76.6 | 5.50E-01 | |
| 6 | 1752.99 | 18 | 12 | 1.85 | 3503.77 | 3496 | 12 | 5.00E-04 | 81.8 | 5.49E-01 | |
| 0 | 1787.71 | 25 | 97 | 6.72 | 3573.20 | 3551 | 30 | 6.94E-04 | **** | 5.44E-01 | |
| 0 | 1848.41 | 13 | 29 | 4.37 | 3694.64 | 3685 | 13 | 3.49E-04 | **** | 5.35E-01 | |
| 0 | 1967.34 | 24 | 35 | 2.85 | 3932.53 | 3921 | 16 | 6.62E-04 | **** | 5.22E-01 | |

Flags: "T" = Tentatively associated

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*****
*                                     GENERAL ENG. LABS, LLC.                               *
*                                     2040 Savage Road                                   *
*                                     Charleston, SC 29414                               *
*****
*                                     DETECTOR DATA                                   *
*
* Configuration      : DKA0:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G159247001.CNF;1           *
* Acquisition date   : 25-APR-2006 18:46:09   Detector SN#      :                   *
* Detector ID       : GAM19                    Sensitivity       : 3.00000           *
* Geometry          : 2LMB                     Energy tolerance: 2.00000           *
* Elapsed live time: 0 10:00:00.00             Abundance limit  : 75.00000           *
* Elapsed real time: 0 10:00:03.46             Half life ratio  : 8.00000           *
*****
*                                     SAMPLE DATA                                   *
*
* Sample date       : 22-MAR-2006 10:20:00   Nuclide Library  : EPI                 *
* Sample ID        : G159247001             Analyst initials: MJH1                 *
* Batch Number     : 519510                 Sample Quantity  : 2.00000E+00 LITER   *
*****
*                                     QC DATA                                   *
*
* CALIB. DATE/TIME : 17-FEB-2006 16:09:06.3MS Isotope      :                   *
* MSD DPM          :                        MSD Isotope     :                   *
* LCS DPM          :                        LCS Isotope     :                   *
*****

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Combined Activity-MDA Report

---- Identified Nuclides ----

| Nuclide | Activity (pCi/LITER) | Act error | MDA (pCi/LITER) | MDA error | Act/MDA |
|---------|-------------------------|-----------|--------------------|-----------|---------|
| K-40 | 9.849E+00 | 2.759E+01 | 1.167E+01 | 7.401E-01 | 0.844 |
| RU-106 | 3.959E+00 | 1.382E+01 | 1.038E+01 | 1.236E+00 | 0.381 |
| BI-210 | 1.065E+02 | 2.568E+02 | 1.532E+02 | 1.368E+01 | 0.696 |
| PB-210 | 1.065E+02 | 2.568E+02 | 1.532E+02 | 1.368E+01 | 0.696 |
| BI-211 | 1.227E+01 | 1.552E+01 | 6.833E+00 | 4.890E-01 | 1.796 |
| RA-224 | 6.127E+01 | 5.761E+01 | 2.248E+01 | 1.698E+00 | 2.726 |
| RA-226 | 5.990E+00 | 3.709E+00 | 2.217E+00 | 1.785E-01 | 2.702 |
| TH-228 | 5.426E+00 | 5.108E+00 | 1.955E+00 | 1.719E-01 | 2.775 |
| TH-230 | 5.990E+00 | 3.709E+00 | 2.217E+00 | 1.785E-01 | 2.702 |
| U-238 | 1.121E+02 | 9.633E+01 | 4.616E+01 | 8.728E+00 | 2.428 |
| CF-251 | 1.695E+01 | 8.944E+00 | 4.780E+00 | 3.632E-01 | 3.545 |

---- Non-Identified Nuclides ----

| Nuclide | Key-Line Activity K.L. (pCi/LITER) Ided | Act error | MDA (pCi/LITER) | MDA error | Act/MDA |
|---------|---|-----------|--------------------|-----------|---------|
| BE-7 | 2.601E+00 | 1.464E+01 | 1.416E+01 | 9.975E-01 | 0.184 |

---- Non-Identified Nuclides ----

| Nuclide | Key-Line Activity (pCi/LITER) | K.L. Ided | Act error | MDA (pCi/LITER) | MDA error | Act/MDA |
|---------|-------------------------------------|--------------|-----------|--------------------|-----------|---------|
| NA-22 | -1.934E-01 | | 1.244E+00 | 1.173E+00 | 7.194E-02 | -0.165 |
| NA-24 | -1.935E+09 | | 2.751E+10 | Half-Life | too short | |
| AL-26 | -2.827E-01 | | 1.362E+00 | 1.299E+00 | 7.405E-02 | -0.218 |
| SC-46 | -6.438E-01 | | 1.387E+00 | 1.304E+00 | 1.040E-01 | -0.494 |
| V-48 | 1.534E+00 | | 4.647E+00 | 4.624E+00 | 3.555E-01 | 0.332 |
| CR-51 | -1.805E-01 | | 2.463E+01 | 2.262E+01 | 1.708E+00 | -0.008 |
| MN-54 | -3.475E-01 | | 1.124E+00 | 1.074E+00 | 8.069E-02 | -0.323 |
| CO-56 | 9.327E-01 | | 1.509E+00 | 1.531E+00 | 1.165E-01 | 0.609 |
| MN-56 | 1.000E+35 | | 8.094E+34 | Half-Life | too short | |
| CO-57 | -1.860E-01 | | 1.126E+00 | 1.061E+00 | 7.715E-02 | -0.175 |
| CO-58 | 1.499E+00 | | 1.553E+00 | 1.552E+00 | 1.138E-01 | 0.966 |
| FE-59 | 1.851E+00 | | 3.897E+00 | 3.885E+00 | 3.034E-01 | 0.476 |
| CO-60 | 3.256E-01 | | 1.407E+00 | 1.367E+00 | 8.128E-02 | 0.238 |
| ZN-65 | -5.230E-01 | | 2.741E+00 | 2.601E+00 | 1.781E-01 | -0.201 |
| SE-75 | -2.765E-01 | | 2.037E+00 | 1.724E+00 | 1.293E-01 | -0.160 |
| KR-85 | 7.654E+01 | | 3.964E+02 | 3.810E+02 | 2.354E+01 | 0.201 |
| SR-85 | 4.812E-01 | | 2.492E+00 | 2.396E+00 | 1.480E-01 | 0.201 |
| Y-88 | -8.333E-01 | | 1.713E+00 | 1.586E+00 | 8.983E-02 | -0.526 |
| Y-91 | -8.687E-01 | | 1.645E+00 | 1.517E+00 | 9.398E-02 | -0.573 |
| NB-94 | -1.139E+00 | | 1.405E+00 | 1.056E+00 | 6.769E-02 | -1.079 |
| NB-95 | -1.195E+00 | | 2.165E+00 | 1.945E+00 | 1.350E-01 | -0.614 |
| NB-95M | 8.237E-04 | | 1.556E-03 | Half-Life | too short | |
| ZR-95 | -1.823E+00 | | 2.864E+00 | 2.558E+00 | 2.027E-01 | -0.713 |
| MO-99 | 1.555E-02 | + | 5.196E-03 | Half-Life | too short | |
| TC-99M | 1.000E+35 | + | 4.612E+34 | Half-Life | too short | |
| RU-103 | -1.785E+00 | | 2.004E+00 | 1.807E+00 | 2.316E-01 | -0.988 |
| RH-106 | 3.959E+00 | + | 1.381E+01 | 1.065E+01 | 6.549E-01 | 0.372 |
| AG-108M | -8.011E-01 | | 1.177E+00 | 1.092E+00 | 7.132E-02 | -0.733 |
| CD-109 | -8.087E+01 | | 3.303E+01 | 2.845E+01 | 2.674E+00 | -2.842 |
| AG-110M | -4.207E-01 | | 1.175E+00 | 1.083E+00 | 6.981E-02 | -0.388 |
| SN-113 | -7.211E-01 | | 1.825E+00 | 1.730E+00 | 1.091E-01 | -0.417 |
| CD-115 | -9.720E-02 | | 7.305E-02 | Half-Life | too short | |
| SN-115 | 1.834E+01 | | 1.421E+02 | 1.395E+02 | 1.105E+01 | 0.132 |
| SN-117M | 2.992E+00 | | 5.814E+00 | 5.562E+00 | 4.167E-01 | 0.538 |
| TE-123M | 3.219E-01 | | 1.267E+00 | 1.202E+00 | 9.084E-02 | 0.268 |
| SB-124 | -1.446E+00 | | 4.161E+00 | 3.767E+00 | 2.396E-01 | -0.384 |
| SB-125 | 1.559E+00 | | 3.413E+00 | 3.356E+00 | 2.105E-01 | 0.465 |
| TE-125M | 8.217E+01 | | 4.915E+02 | 4.693E+02 | 4.526E+01 | 0.175 |
| I-126 | -7.012E+00 | | 1.709E+01 | 1.570E+01 | 9.607E-01 | -0.447 |
| SB-126 | 8.222E+00 | | 1.479E+01 | 1.440E+01 | 9.440E-01 | 0.571 |
| SN-126 | -3.605E+00 | | 3.032E+00 | 2.776E+00 | 2.603E-01 | -1.299 |
| SB-127 | 7.181E-04 | | 7.469E-04 | Half-Life | too short | |
| I-131 | -3.522E-01 | | 2.196E+01 | 2.125E+01 | 1.549E+00 | -0.017 |
| I-132 | 1.000E+35 | | 3.301E+35 | Half-Life | too short | |
| TE-132 | 2.052E-04 | | 8.252E-04 | Half-Life | too short | |
| BA-133 | 1.360E+00 | | 1.828E+00 | 1.604E+00 | 1.914E-01 | 0.848 |
| I-133 | 1.324E+05 | | 5.235E+05 | Half-Life | too short | |
| CS-134 | 1.753E+00 | + | 2.020E+00 | 1.373E+00 | 9.939E-02 | 1.277 |

---- Non-Identified Nuclides ----

| Nuclide | Key-Line Activity (pCi/LITER) | K.L. Ided | Act error | MDA (pCi/LITER) | MDA error | Act/MDA |
|---------|-------------------------------------|--------------|-----------|--------------------|-----------|---------|
| CS-135 | 1.794E+00 | | 6.232E+00 | 5.393E+00 | 4.832E-01 | 0.333 |
| I-135 | -1.976E+31 | | 1.311E+32 | Half-Life | too short | |
| CS-136 | -3.387E-01 | | 9.470E+00 | 9.129E+00 | 7.100E-01 | -0.037 |
| BA-137M | 3.314E-01 | | 1.135E+00 | 1.093E+00 | 6.647E-02 | 0.303 |
| CS-137 | 3.520E-01 | | 1.200E+00 | 1.156E+00 | 7.055E-02 | 0.305 |
| CE-139 | 3.987E-01 | | 1.272E+00 | 1.208E+00 | 9.184E-02 | 0.330 |
| BA-140 | -3.890E+00 | | 2.518E+01 | 2.375E+01 | 7.742E+00 | -0.164 |
| LA-140 | 1.136E+00 | | 8.949E+00 | 8.558E+00 | 5.100E-01 | 0.133 |
| CE-141 | -3.104E+00 | | 4.933E+00 | 3.601E+00 | 2.708E-01 | -0.862 |
| CE-143 | 3.583E+01 | | 4.171E+01 | Half-Life | too short | |
| CE-144 | 5.871E+00 | | 8.954E+00 | 8.325E+00 | 1.236E+00 | 0.705 |
| PM-144 | 8.612E-01 | | 1.284E+00 | 1.257E+00 | 8.017E-02 | 0.685 |
| PR-144 | 1.000E+35 | | 7.452E+34 | Half-Life | too short | |
| PM-146 | 9.193E-01 | | 1.645E+00 | 1.620E+00 | 1.430E-01 | 0.567 |
| ND-147 | -2.982E-01 | | 6.112E+01 | 5.829E+01 | 7.984E+00 | -0.005 |
| PM-147 | 8.642E+05 | | 2.216E+06 | 2.126E+06 | 1.547E+05 | 0.407 |
| PM-149 | 1.785E+00 | | 8.685E-01 | Half-Life | too short | |
| EU-152 | -3.506E+00 | | 4.861E+00 | 3.360E+00 | 2.466E-01 | -1.043 |
| GD-153 | -9.017E+00 | | 4.528E+00 | 3.200E+00 | 2.687E-01 | -2.818 |
| EU-154 | -5.600E-01 | | 3.438E+00 | 3.239E+00 | 3.091E-01 | -0.173 |
| EU-155 | -6.049E+00 | | 4.391E+00 | 3.961E+00 | 3.165E-01 | -1.527 |
| TB-160 | -2.731E-01 | | 5.140E+00 | 4.993E+00 | 3.941E-01 | -0.055 |
| TM-171 | 3.807E+03 | + | 1.521E+03 | 1.261E+03 | 1.245E+02 | 3.019 |
| HF-181 | 6.491E-01 | | 2.017E+00 | 1.966E+00 | 1.208E-01 | 0.330 |
| TA-182 | -2.293E+00 | | 5.871E+00 | 5.444E+00 | 3.405E-01 | -0.421 |
| IR-192 | -5.901E-01 | | 1.577E+00 | 1.512E+00 | 1.067E-01 | -0.390 |
| HG-203 | 8.353E-01 | | 2.275E+00 | 1.973E+00 | 1.510E-01 | 0.423 |
| BI-207 | 9.205E-01 | | 1.494E+00 | 1.513E+00 | 1.091E-01 | 0.608 |
| TL-208 | 1.153E+00 | + | 2.462E+00 | 1.395E+00 | 9.798E-02 | 0.826 |
| PB-211 | 1.092E+01 | | 3.335E+01 | 3.200E+01 | 1.995E+01 | 0.341 |
| BI-212 | 1.393E+01 | | 1.009E+01 | 1.025E+01 | 8.551E-01 | 1.358 |
| PB-212 | 5.426E+00 | + | 5.108E+00 | 2.676E+00 | 2.352E-01 | 2.028 |
| BI-214 | 5.990E+00 | + | 3.709E+00 | 2.656E+00 | 2.139E-01 | 2.255 |
| PB-214 | 4.270E+00 | + | 5.404E+00 | 2.792E+00 | 2.470E-01 | 1.529 |
| RN-219 | -2.190E+00 | | 1.471E+01 | 1.409E+01 | 1.927E+00 | -0.155 |
| RA-223 | 1.178E+01 | | 2.876E+01 | 2.482E+01 | 4.208E+00 | 0.475 |
| AC-227 | -2.265E+00 | | 1.628E+01 | 1.445E+01 | 2.154E+00 | -0.157 |
| TH-227 | -2.226E+00 | | 1.601E+01 | 1.420E+01 | 2.493E+00 | -0.157 |
| AC-228 | -6.361E+00 | | 6.340E+00 | 3.935E+00 | 4.243E-01 | -1.617 |
| RA-228 | -6.361E+00 | | 6.340E+00 | 3.935E+00 | 4.243E-01 | -1.617 |
| TH-229 | 2.734E+00 | | 2.319E+01 | 1.903E+01 | 1.447E+00 | 0.144 |
| PA-231 | 2.815E+01 | + | 6.566E+01 | 5.660E+01 | 8.202E+00 | 0.497 |
| TH-231 | -1.226E+00 | | 6.819E+00 | 6.255E+00 | 5.403E-01 | -0.196 |
| TH-232 | 5.243E+00 | + | 4.936E+00 | 2.584E+00 | 2.271E-01 | 2.029 |
| PA-233 | -6.460E-01 | | 2.423E+00 | 2.334E+00 | 1.722E-01 | -0.277 |
| PA-234 | -1.765E-01 | | 9.014E+00 | 8.745E+00 | 1.612E+00 | -0.020 |
| PA-234M | -1.769E+02 | | 2.173E+02 | 1.466E+02 | 1.331E+01 | -1.207 |
| TH-234 | 1.121E+02 | + | 9.633E+01 | 5.999E+01 | 1.134E+01 | 1.869 |

---- Non-Identified Nuclides ----

| Nuclide | Key-Line Activity (pCi/LITER) | K.L. Ided | Act error | MDA (pCi/LITER) | MDA error | Act/MDA |
|---------|-------------------------------------|--------------|-----------|--------------------|-----------|---------|
| U-234 | -1.491E+00 | | 6.345E+00 | 4.861E+00 | 4.649E-01 | -0.307 |
| U-235 | -2.234E+00 | | 1.075E+01 | 8.010E+00 | 1.354E+00 | -0.279 |
| NP-237 | -3.305E+00 | | 8.871E+00 | 8.350E+00 | 1.891E+00 | -0.396 |
| NP-239 | -7.024E+00 | | 7.820E+00 | 7.182E+00 | 5.313E-01 | -0.978 |
| AM-241 | -1.004E+00 | | 7.986E+00 | 5.820E+00 | 6.840E-01 | -0.173 |
| AM-242 | -1.887E+01 | | 8.711E+01 | 8.227E+01 | 6.554E+00 | -0.229 |
| CM-247 | 3.372E-01 | | 1.309E+00 | 1.278E+00 | 7.622E-02 | 0.264 |
| CF-249 | 5.133E-01 | | 1.424E+00 | 1.399E+00 | 8.385E-02 | 0.367 |
| ANH-511 | -6.930E+00 | | 2.681E+00 | 2.090E+00 | 1.291E-01 | -3.316 |

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*****
*
*                               General Engineering Labs, LLC
*                               2040 SAVAGE ROAD
*                               CHARLESTON ,SC 29417
*                               GROSS GAMMA REPORT
*
*****
*
*   BATCH ID      : 519510          SAMPLE ID   : G159247001
*   ANALYST       : MJH1            DETECTOR    : GAM19
*   SAMPLE DATE   : 22-MAR-2006 10:20:00.00  COUNT TIME  : 0 10:00:00.00
*   ANALYSIS DATE: 25-APR-2006 18:46:09.53  SAMPLE ALQT: 2.000 LITER
*
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GROSS GAMMA ACTIVITY (pCi/LITER ) : 1.785E+06
GROSS GAMMA ERROR   (pCi/LITER ) : 1.112E+06
GROSS GAMMA MDA     (pCi/LITER ) : 2.005E+06
GROSS GAMMA DLC     (pCi/LITER ) : 9.758E+05

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VAX/VMS Nuclide Identification Report Generated 26-APR-2006 11:24:04.02

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*****
*                               GENERAL ENG. LABS, LLC.                               *
*                               2040 Savage Road                                       *
*                               Charleston, SC 29414                                   *
*****
Configuration : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1201068236.CNF;1
Sample date   : 25-APR-2006 00:00:00 Acquisition date : 25-APR-2006 18:43:09
Sample ID    : G1201068236 Sample quantity : 2.00000E+00 LITER
Detector name : WELL Detector geometry: 2L_MB
Elapsed live time: 0 16:40:00.00 Elapsed real time: 0 16:40:12.98 0.0%
Energy tolerance : 2.00000 KEV Analyst Initials : MJH1
Abundance limit : 75.00000 Sensitivity : 3.00000
Batch ID      : 519510 Detector SN# : 3941466
Matrix Spike DPM : LCS DPM :
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| Pk | It | Energy | Area | Bkgnd | FWHM | Channel | Left | Pw | Cts/Sec | %Err | Fit |
|----|----|----------|------|-------|------|---------|------|----|----------|-------|-----|
| 1 | 0 | 63.44* | 104 | 992 | 1.38 | 125.44 | 121 | 9 | 1.74E-03 | 81.4 | |
| 2 | 0 | 84.25* | 39 | 809 | 1.65 | 166.79 | 164 | 7 | 6.52E-04 | 187.9 | |
| 3 | 0 | 127.14 | 152 | 956 | 2.40 | 252.00 | 247 | 10 | 2.54E-03 | 38.9 | |
| 4 | 0 | 144.32* | 106 | 902 | 1.26 | 286.13 | 282 | 9 | 1.76E-03 | 77.4 | |
| 5 | 0 | 185.86* | 189 | 1096 | 1.32 | 368.66 | 363 | 13 | 3.15E-03 | 53.9 | |
| 6 | 0 | 198.00* | 31 | 868 | 2.49 | 392.79 | 388 | 10 | 5.15E-04 | 240.7 | |
| 7 | 0 | 205.59* | 26 | 541 | 0.98 | 407.86 | 405 | 7 | 4.33E-04 | 222.7 | |
| 8 | 0 | 269.75 | 49 | 442 | 1.16 | 535.37 | 533 | 7 | 8.15E-04 | 72.6 | |
| 9 | 0 | 284.94 | 42 | 391 | 1.32 | 565.55 | 563 | 7 | 7.00E-04 | 79.4 | |
| 10 | 0 | 295.73* | 35 | 455 | 0.79 | 586.97 | 583 | 9 | 5.89E-04 | 155.8 | |
| 11 | 0 | 300.19 | 77 | 365 | 1.61 | 595.85 | 593 | 7 | 1.28E-03 | 42.7 | |
| 12 | 0 | 338.45* | 7 | 526 | 2.03 | 671.87 | 666 | 11 | 1.14E-04 | 923.0 | |
| 13 | 0 | 409.22 | 29 | 262 | 0.99 | 812.52 | 810 | 7 | 4.84E-04 | 94.3 | |
| 14 | 0 | 437.53 | 30 | 235 | 1.04 | 868.79 | 865 | 7 | 5.02E-04 | 86.3 | |
| 15 | 0 | 511.12* | 31 | 487 | 2.64 | 1015.05 | 1008 | 16 | 5.14E-04 | 273.2 | |
| 16 | 0 | 569.39* | 73 | 365 | 3.52 | 1130.86 | 1122 | 17 | 1.22E-03 | 79.1 | |
| 17 | 0 | 582.82* | 77 | 250 | 2.07 | 1157.56 | 1150 | 13 | 1.28E-03 | 71.7 | |
| 18 | 0 | 609.33* | 38 | 156 | 1.75 | 1210.25 | 1207 | 7 | 6.39E-04 | 112.8 | |
| 19 | 0 | 680.39 | 51 | 122 | 2.73 | 1351.50 | 1348 | 9 | 8.52E-04 | 41.6 | |
| 20 | 0 | 766.58 | 61 | 107 | 2.16 | 1522.85 | 1519 | 8 | 1.02E-03 | 32.2 | |
| 21 | 0 | 794.47 | 33 | 82 | 2.36 | 1578.30 | 1575 | 8 | 5.58E-04 | 49.5 | |
| 22 | 0 | 802.47* | 23 | 168 | 3.23 | 1594.20 | 1590 | 12 | 3.81E-04 | 150.8 | |
| 23 | 0 | 859.60 | 28 | 98 | 1.48 | 1707.79 | 1704 | 8 | 4.63E-04 | 64.6 | |
| 24 | 0 | 910.99* | 41 | 131 | 2.78 | 1809.96 | 1805 | 12 | 6.83E-04 | 84.7 | |
| 25 | 0 | 921.32 | 27 | 123 | 0.61 | 1830.51 | 1823 | 12 | 4.46E-04 | 86.0 | |
| 26 | 0 | 939.39 | 38 | 61 | 0.71 | 1866.43 | 1864 | 8 | 6.36E-04 | 38.8 | |
| 27 | 0 | 963.77* | 19 | 87 | 2.94 | 1914.92 | 1911 | 10 | 3.09E-04 | 154.3 | |
| 28 | 0 | 1076.24 | 68 | 98 | 7.89 | 2138.57 | 2130 | 19 | 1.13E-03 | 37.4 | |
| 29 | 0 | 1307.25 | 20 | 22 | 1.84 | 2598.01 | 2594 | 8 | 3.36E-04 | 46.0 | |
| 30 | 0 | 1364.42 | 49 | 45 | 2.44 | 2711.73 | 2706 | 14 | 8.17E-04 | 32.5 | |
| 31 | 0 | 1462.83 | 78 | 153 | 7.41 | 2907.51 | 2896 | 25 | 1.30E-03 | 45.4 | |
| 32 | 0 | 1500.73 | 15 | 45 | 1.37 | 2982.90 | 2977 | 11 | 2.51E-04 | 91.0 | |
| 33 | 0 | 1522.40 | 13 | 44 | 3.57 | 3026.02 | 3021 | 12 | 2.24E-04 | 103.2 | |
| 34 | 0 | 1559.27 | 16 | 23 | 0.76 | 3099.37 | 3095 | 9 | 2.72E-04 | 59.6 | |
| 35 | 0 | 1570.09* | 6 | 50 | 0.54 | 3120.91 | 3118 | 14 | 9.80E-05 | 368.7 | |
| 36 | 0 | 1591.26 | 23 | 21 | 1.52 | 3163.02 | 3160 | 6 | 3.76E-04 | 39.1 | |
| 37 | 0 | 1668.54 | 13 | 15 | 1.47 | 3316.79 | 3315 | 7 | 2.10E-04 | 57.6 | |
| 38 | 0 | 1895.13 | 5 | 20 | 0.91 | 3767.70 | 3767 | 6 | 7.67E-05 | 160.1 | |

| Pk | It | Energy | Area | Bkgnd | FWHM | Channel | Left | Pw | Cts/Sec | %Err | Fit |
|----|----|----------|------|-------|------|---------|------|----|----------|-------|-----|
| 39 | 0 | 1923.95* | 6 | 7 | 0.63 | 3825.07 | 3822 | 5 | 1.05E-04 | 129.1 | |
| 40 | 0 | 1975.83* | 2 | 25 | 4.62 | 3928.33 | 3921 | 17 | 2.94E-05 | 865.0 | |

Flag: "*" = Peak area was modified by background subtraction

VAX/VMS Nuclide Identification Report Generated

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*****
*                               General Eng. Labs, LLC.                               *
*                               2040 Savage Road                                       *
*                               Charleston, SC 29414                                   *
*****
*                               DETECTOR DATA                                       *
*
* Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1201068236
* Acquisition date   : 25-APR-2006 18:43:09 Detector SN#      : 3941466
* Detector ID        : WELL                               Sensitivity      : 3.000
* Geometry           : 2L_MB                             Energy tolerance: 2.000
* Elapsed live time  : 0 16:40:00.00                   Abundance limit : 75.000
* Elapsed real time  : 0 16:40:12.98                   Half life ratio  : 8.000
*****
*                               SAMPLE DATA                                         *
*
* Sample date        : 25-APR-2006 00:00:00 Nuclide Library  : FERMC
* Sample ID          : G1201068236                   Analyst initials: MJH1
* Batch Number       : 519510                         Sample Quantity : 2.0000E+00 LITER
* Recovery           : 1.00000                       Carrier Weight   : 0.00000
*****
*                               QC DATA                                             *
*
* Standard Weight    : 0.00000
* CALIB. DATE/TIME  : 13-DEC-2005 09:34:01 MS Isotope      :
* MSD DPM            : *****                       MSD Isotope       :
* LCS DPM            : 0.000                          LCS Isotope       :
* LCSD DPM           : 0.000                          LCSD Isotope      :
*****

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Combined Activity-MDA Report

---- Identified Nuclides ----

| Nuclide | Activity (pCi/LITER) | Act error | MDA (pCi/LITER) | |
|---------|--------------------------|-----------|---------------------|-----------|
| NB-95 | 2.134E+00 | 1.376E+00 | 1.970E+00 | 0.000E+00 |
| CS-135 | 4.258E+00 | 6.180E+00 | 9.037E+00 | 0.000E+00 |
| CE-141 | 1.356E+00 | 3.533E+00 | 2.610E+00 | 0.000E+00 |
| PM-149 | 2.805E+01 | 4.453E+01 | 7.028E+01 | 0.000E+00 |
| TL-208 | 2.484E+00 | 3.560E+00 | 2.331E+00 | 0.000E+00 |
| PA-231 | 3.825E+01 | 6.072E+01 | 9.780E+01 | 0.000E+00 |
| U-235 | 9.939E+00 | 1.538E+01 | 1.347E+01 | 0.000E+00 |
| U-238 | 5.169E+01 | 8.414E+01 | 6.622E+01 | 0.000E+00 |
| ANH-511 | 7.473E-01 | 4.083E+00 | 1.881E+00 | 0.000E+00 |

---- Non-Identified Nuclides ----

| Nuclide | Key-Line Activity (pCi/LITER) | K.L. Act error) Ided | MDA (pCi/LITER) | |
|---------|--------------------------------------|--------------------------|---------------------|----------------------|
| BE-7 | 3.532E+00 | 1.071E+01 | 1.812E+01 | 0.000E+00 NOT IDENT. |
| NA-22 | -2.950E-01 | 1.261E+00 | 2.128E+00 | 0.000E+00 NOT IDENT. |
| NA-24 | -2.677E+00 | 4.683E+00 | 6.790E+00 | 0.000E+00 NOT IDENT. |
| AL-26 | 1.775E-01 | 1.176E+00 | 2.152E+00 | 0.000E+00 FAIL ABUN |
| K-40 | 0.000E+00 | 1.479E+01 | 2.986E+01 | 0.000E+00 NOT IDENT. |
| SC-46 | 2.679E-01 | 1.263E+00 | 2.213E+00 | 0.000E+00 NOT IDENT. |
| V-48 | -6.140E-01 | 1.236E+00 | 2.070E+00 | 0.000E+00 NOT IDENT. |
| CR-51 | 2.679E-01 | 9.895E+00 | 1.673E+01 | 0.000E+00 NOT IDENT. |
| MN-54 | -7.428E-01 | 1.262E+00 | 2.117E+00 | 0.000E+00 NOT IDENT. |
| CO-56 | -1.752E-01 | 1.254E+00 | 2.157E+00 | 0.000E+00 NOT IDENT. |
| MN-56 | -1.228E+02 | 8.715E+02 | 1.499E+03 | 0.000E+00 NOT IDENT. |
| CO-57 | 1.219E+00 | 9.119E-01 | 1.531E+00 | 0.000E+00 NOT IDENT. |
| CO-58 | 3.440E-01 | 1.295E+00 | 2.276E+00 | 0.000E+00 NOT IDENT. |
| FE-59 | 1.213E+00 | 2.282E+00 | 4.078E+00 | 0.000E+00 NOT IDENT. |
| CO-60 | 2.143E+00 | 1.385E+00 | 2.635E+00 | 0.000E+00 NOT IDENT. |
| ZN-65 | -3.648E-01 | 2.725E+00 | 4.634E+00 | 0.000E+00 NOT IDENT. |
| SE-75 | 9.296E-02 | 1.446E+00 | 2.464E+00 | 0.000E+00 FAIL ABUN |
| KR-85 | 0.000E+00 | 3.412E+02 | 6.146E+02 | 0.000E+00 NOT IDENT. |

| | | | | | |
|---------|------------|-----------|-----------|-----------|------------|
| SR-85 | 0.000E+00 | 1.509E+00 | 2.719E+00 | 0.000E+00 | NOT IDENT. |
| Y-88 | 9.787E-01 | 1.338E+00 | 2.547E+00 | 0.000E+00 | NOT IDENT. |
| Y-91 | -5.862E-01 | 1.215E+00 | 1.971E+00 | 0.000E+00 | NOT IDENT. |
| NB-94 | 2.442E-01 | 1.252E+00 | 2.197E+00 | 0.000E+00 | NOT IDENT. |
| NB-95M | -2.316E+01 | 4.814E+00 | 7.168E+00 | 0.000E+00 | NOT IDENT. |
| ZR-95 | 1.694E+00 | 2.074E+00 | 3.775E+00 | 0.000E+00 | NOT IDENT. |
| MO-99 | 1.763E-01 | 1.387E+00 | 2.128E+00 | 0.000E+00 | NOT IDENT. |
| TC-99M | 2.406E+00 | 1.894E+01 | 2.905E+01 | 0.000E+00 | NOT IDENT. |
| RU-103 | 3.641E-01 | 1.250E+00 | 2.113E+00 | 0.000E+00 | FAIL ABUN |
| RH-106 | 3.284E+00 | 1.184E+01 | 2.095E+01 | 0.000E+00 | FAIL ABUN |
| RU-106 | 3.287E+00 | 1.184E+01 | 2.096E+01 | 0.000E+00 | NOT IDENT. |
| AG-108M | 5.621E-01 | 1.390E+00 | 2.088E+00 | 0.000E+00 | NOT IDENT. |
| CD-109 | 2.205E+01 | 2.701E+01 | 4.492E+01 | 0.000E+00 | NOT IDENT. |
| AG-110M | -1.258E+01 | 1.780E+00 | 2.263E+00 | 0.000E+00 | FAIL ABUN |
| SN-113 | 1.488E-01 | 1.596E+00 | 2.689E+00 | 0.000E+00 | NOT IDENT. |
| CD-115 | -1.361E-01 | 5.258E+00 | 8.753E+00 | 0.000E+00 | NOT IDENT. |
| SN-115 | 6.681E-01 | 9.192E+01 | 1.594E+02 | 0.000E+00 | NOT IDENT. |
| SN-117M | 3.280E-01 | 9.394E-01 | 1.633E+00 | 0.000E+00 | NOT IDENT. |
| TE-123M | 2.012E-01 | 9.163E-01 | 1.588E+00 | 0.000E+00 | NOT IDENT. |
| SB-124 | 1.609E+00 | 2.610E+00 | 4.926E+00 | 0.000E+00 | NOT IDENT. |
| SB-125 | -3.360E-01 | 3.511E+00 | 5.862E+00 | 0.000E+00 | NOT IDENT. |
| TE-125M | -5.709E+00 | 3.034E+02 | 4.917E+02 | 0.000E+00 | NOT IDENT. |
| I-126 | -2.521E+01 | 4.073E+00 | 5.272E+00 | 0.000E+00 | NOT IDENT. |
| SB-126 | 2.823E+00 | 2.348E+00 | 4.327E+00 | 0.000E+00 | NOT IDENT. |
| SN-126 | 2.888E+00 | 3.071E+00 | 4.596E+00 | 0.000E+00 | FAIL ABUN |
| SB-127 | 1.086E+00 | 3.869E+00 | 6.855E+00 | 0.000E+00 | NOT IDENT. |
| I-131 | -4.598E-01 | 1.347E+00 | 2.238E+00 | 0.000E+00 | FAIL ABUN |
| I-132 | 0.000E+00 | 1.748E+03 | 0.000E+00 | 0.000E+00 | SHORT HLIF |
| TE-132 | 2.434E-01 | 1.194E+00 | 2.049E+00 | 0.000E+00 | NOT IDENT. |
| BA-133 | -6.041E-02 | 1.637E+00 | 2.754E+00 | 0.000E+00 | NOT IDENT. |
| I-133 | -2.322E-02 | 3.124E+00 | 5.199E+00 | 0.000E+00 | NOT IDENT. |
| CS-134 | 1.376E+00 | 1.363E+00 | 2.416E+00 | 0.000E+00 | FAIL ABUN |
| I-135 | 7.796E+00 | 6.750E+01 | 1.171E+02 | 0.000E+00 | NOT IDENT. |
| CS-136 | -6.304E-01 | 1.689E+00 | 2.840E+00 | 0.000E+00 | NOT IDENT. |
| BA-137M | 0.000E+00 | 2.005E+00 | 4.244E+00 | 0.000E+00 | NOT IDENT. |
| CS-137 | 0.000E+00 | 2.119E+00 | 4.486E+00 | 0.000E+00 | NOT IDENT. |
| CE-139 | -5.681E-01 | 9.654E-01 | 1.639E+00 | 0.000E+00 | NOT IDENT. |
| BA-140 | -3.400E+00 | 4.764E+00 | 7.650E+00 | 0.000E+00 | NOT IDENT. |
| LA-140 | -7.499E-01 | 1.497E+00 | 2.561E+00 | 0.000E+00 | FAIL ABUN |
| CE-143 | 2.575E+00 | 4.393E+00 | 6.696E+00 | 0.000E+00 | NOT IDENT. |
| CE-144 | -1.913E+00 | 6.887E+00 | 1.186E+01 | 0.000E+00 | NOT IDENT. |
| PM-144 | 1.087E+00 | 1.301E+00 | 2.342E+00 | 0.000E+00 | NOT IDENT. |
| PR-144 | 0.000E+00 | 1.197E+41 | 0.000E+00 | 0.000E+00 | SHORT HLIF |
| PM-146 | 3.352E-01 | 1.722E+00 | 2.902E+00 | 0.000E+00 | NOT IDENT. |
| ND-147 | 4.124E+00 | 8.905E+00 | 1.517E+01 | 0.000E+00 | NOT IDENT. |
| PM-147 | 0.000E+00 | 1.932E+06 | 3.303E+06 | 0.000E+00 | NOT IDENT. |
| EU-152 | 4.850E+00 | 3.685E+00 | 6.488E+00 | 0.000E+00 | FAIL ABUN |
| GD-153 | -1.123E+00 | 2.729E+00 | 4.395E+00 | 0.000E+00 | FAIL ABUN |
| EU-154 | -2.541E+00 | 3.690E+00 | 5.982E+00 | 0.000E+00 | NOT IDENT. |
| EU-155 | -1.960E+00 | 4.009E+00 | 6.426E+00 | 0.000E+00 | NOT IDENT. |
| TB-160 | -7.863E-01 | 4.181E+00 | 7.181E+00 | 0.000E+00 | FAIL ABUN |
| TM-171 | 3.386E+02 | 9.621E+02 | 1.429E+03 | 0.000E+00 | NOT IDENT. |
| HF-181 | 5.794E-01 | 1.320E+00 | 2.247E+00 | 0.000E+00 | FAIL ABUN |
| TA-182 | -2.994E+00 | 5.075E+00 | 8.316E+00 | 0.000E+00 | NOT IDENT. |
| IR-192 | -8.961E-02 | 1.121E+00 | 1.890E+00 | 0.000E+00 | FAIL ABUN |
| HG-203 | 1.278E+00 | 1.199E+00 | 2.098E+00 | 0.000E+00 | FAIL ABUN |
| BI-207 | 7.765E-01 | 1.769E+00 | 3.130E+00 | 0.000E+00 | FAIL ABUN |
| BI-210 | 0.000E+00 | 9.863E+01 | 1.573E+02 | 0.000E+00 | NOT IDENT. |
| PB-210 | 0.000E+00 | 9.863E+01 | 1.573E+02 | 0.000E+00 | NOT IDENT. |
| BI-211 | 5.345E+00 | 7.711E+00 | 1.329E+01 | 0.000E+00 | NOT IDENT. |
| PB-211 | 4.375E+00 | 3.592E+01 | 6.053E+01 | 0.000E+00 | NOT IDENT. |
| BI-212 | 6.397E+00 | 1.028E+01 | 1.843E+01 | 0.000E+00 | NOT IDENT. |
| PB-212 | 0.000E+00 | 2.246E+00 | 4.183E+00 | 0.000E+00 | FAIL ABUN |
| BI-214 | 2.337E+00 | 5.274E+00 | 4.983E+00 | 0.000E+00 | FAIL ABUN |
| PB-214 | 3.230E+00 | 2.649E+00 | 4.649E+00 | 0.000E+00 | FAIL ABUN |
| RN-219 | -5.727E+00 | 1.548E+01 | 2.562E+01 | 0.000E+00 | FAIL ABUN |
| RA-223 | -4.666E+00 | 2.524E+01 | 4.234E+01 | 0.000E+00 | FAIL ABUN |
| RA-224 | -1.132E+01 | 2.446E+01 | 4.107E+01 | 0.000E+00 | NOT IDENT. |
| RA-226 | 2.337E+00 | 5.274E+00 | 4.983E+00 | 0.000E+00 | FAIL ABUN |
| AC-227 | -2.683E+00 | 1.399E+01 | 2.367E+01 | 0.000E+00 | FAIL ABUN |
| TH-227 | -2.644E+00 | 1.379E+01 | 2.333E+01 | 0.000E+00 | FAIL ABUN |
| AC-228 | 5.780E+00 | 9.788E+00 | 1.021E+01 | 0.000E+00 | FAIL ABUN |
| RA-228 | 5.780E+00 | 9.788E+00 | 1.021E+01 | 0.000E+00 | FAIL ABUN |
| TH-228 | 0.000E+00 | 2.245E+00 | 4.183E+00 | 0.000E+00 | FAIL ABUN |
| TH-229 | 4.427E+00 | 1.992E+01 | 3.031E+01 | 0.000E+00 | FAIL ABUN |
| TH-230 | 2.337E+00 | 5.273E+00 | 4.983E+00 | 0.000E+00 | FAIL ABUN |
| TH-231 | 5.009E+00 | 7.270E+00 | 1.141E+01 | 0.000E+00 | FAIL ABUN |
| TH-232 | 0.000E+00 | 2.243E+00 | 4.178E+00 | 0.000E+00 | FAIL ABUN |

| | | | | | | |
|---------|------------|-----------|-----------|-----------|------|--------|
| PA-233 | -8.750E-01 | 2.342E+00 | 3.914E+00 | 0.000E+00 | FAIL | ABUN |
| PA-234 | -2.240E-01 | 1.012E+01 | 1.751E+01 | 0.000E+00 | FAIL | ABUN |
| PA-234M | 1.865E+02 | 1.661E+02 | 3.034E+02 | 0.000E+00 | FAIL | ABUN |
| TH-234 | 5.169E+01 | 8.414E+01 | 8.462E+01 | 0.000E+00 | FAIL | ABUN |
| U-234 | 2.765E+00 | 8.616E+00 | 8.496E+00 | 0.000E+00 | FAIL | ABUN |
| NP-237 | 3.935E+00 | 9.269E+00 | 1.364E+01 | 0.000E+00 | NOT | IDENT. |
| NP-239 | -5.333E+00 | 7.140E+00 | 1.132E+01 | 0.000E+00 | NOT | IDENT. |
| AM-241 | 4.433E+00 | 6.817E+00 | 8.173E+00 | 0.000E+00 | NOT | IDENT. |
| AM-242 | 2.488E+01 | 8.066E+01 | 1.323E+02 | 0.000E+00 | NOT | IDENT. |
| CM-247 | -3.006E-01 | 1.402E+00 | 2.334E+00 | 0.000E+00 | NOT | IDENT. |
| CF-249 | -1.107E-03 | 1.531E+00 | 2.573E+00 | 0.000E+00 | NOT | IDENT. |
| CF-251 | 1.957E+00 | 4.525E+00 | 7.852E+00 | 0.000E+00 | FAIL | ABUN |

```

*****
*                               GENERAL ENG. LABS, LLC.                               *
*                               2040 Savage Road                                   *
*                               Charleston, SC 29414                             *
*****
Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1201068236.CNF;1
Sample date        : 25-APR-2006 00:00:00 Acquisition date : 25-APR-2006 18:43:09
Sample ID          : G1201068236          Sample quantity  : 2.00000E+00 LITER
Detector name     : WELL                  Detector geometry: 2L_MB
Elapsed live time : 0 16:40:00.00        Elapsed real time: 0 16:40:12.98  0.0%
Energy tolerance  : 2.00000 KEV          Analyst Initials  : MJH1
Abundance limit   : 75.00000            Sensitivity       : 3.00000
Batch ID          : 519510               Detector SN#      : 3941466
Matrix Spike DPM  :                      LCS DPM          :
*****

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| Pk | It | Energy | Area | Bkgnd | FWHM | Channel | Left | Pw | Cts/Sec | %Err | Fit |
|----|----|--------|------|-------|------|---------|------|----|----------|-------|-----|
| 1 | 0 | 46.99 | 187 | 1051 | 1.76 | 92.75 | 88 | 9 | 3.12E-03 | 32.1 | |
| 2 | 0 | 63.44 | 588 | 992 | 1.38 | 125.44 | 121 | 9 | 9.80E-03 | 10.5 | |
| 3 | 0 | 77.52 | 65 | 658 | 0.88 | 153.41 | 151 | 5 | 1.08E-03 | 60.6 | |
| 4 | 0 | 84.25 | 182 | 809 | 1.65 | 166.79 | 164 | 7 | 3.04E-03 | 26.8 | |
| 5 | 0 | 87.95 | 55 | 1061 | 1.03 | 174.13 | 170 | 8 | 9.19E-04 | 103.1 | |
| 6 | 0 | 92.85 | 1280 | 1186 | 1.50 | 183.86 | 180 | 10 | 2.13E-02 | 5.8 | |
| 7 | 0 | 112.52 | 42 | 1085 | 1.21 | 222.96 | 220 | 9 | 7.04E-04 | 141.8 | |
| 8 | 0 | 127.14 | 152 | 956 | 2.40 | 252.00 | 247 | 10 | 2.54E-03 | 38.9 | |
| 9 | 0 | 144.32 | 215 | 902 | 1.26 | 286.13 | 282 | 9 | 3.59E-03 | 26.1 | |
| 10 | 0 | 162.52 | 52 | 791 | 0.95 | 322.29 | 320 | 8 | 8.61E-04 | 95.1 | |
| 11 | 0 | 185.86 | 869 | 1096 | 1.32 | 368.66 | 363 | 13 | 1.45E-02 | 8.6 | |
| 12 | 0 | 198.00 | 153 | 868 | 2.49 | 392.79 | 388 | 10 | 2.56E-03 | 37.0 | |
| 13 | 0 | 205.59 | 97 | 541 | 0.98 | 407.86 | 405 | 7 | 1.62E-03 | 41.2 | |
| 14 | 0 | 238.62 | 272 | 887 | 1.32 | 473.50 | 469 | 10 | 4.54E-03 | 21.3 | |
| 15 | 0 | 269.75 | 49 | 442 | 1.16 | 535.37 | 533 | 7 | 8.15E-04 | 72.6 | |
| 16 | 0 | 284.94 | 42 | 391 | 1.32 | 565.55 | 563 | 7 | 7.00E-04 | 79.4 | |
| 17 | 0 | 295.73 | 121 | 455 | 0.79 | 586.97 | 583 | 9 | 2.01E-03 | 33.3 | |
| 18 | 0 | 300.19 | 77 | 365 | 1.61 | 595.85 | 593 | 7 | 1.28E-03 | 42.7 | |
| 19 | 0 | 338.45 | 98 | 526 | 2.03 | 671.87 | 666 | 11 | 1.63E-03 | 46.6 | |
| 20 | 0 | 351.42 | 71 | 350 | 1.19 | 697.65 | 695 | 8 | 1.19E-03 | 46.7 | |
| 21 | 0 | 409.22 | 29 | 262 | 0.99 | 812.52 | 810 | 7 | 4.84E-04 | 94.3 | |
| 22 | 0 | 437.53 | 30 | 235 | 1.04 | 868.79 | 865 | 7 | 5.02E-04 | 86.3 | |
| 23 | 0 | 511.12 | 1085 | 487 | 2.64 | 1015.05 | 1008 | 16 | 1.81E-02 | 5.5 | |
| 24 | 0 | 569.39 | 105 | 365 | 3.52 | 1130.86 | 1122 | 17 | 1.76E-03 | 42.7 | |
| 25 | 0 | 582.82 | 200 | 250 | 2.07 | 1157.56 | 1150 | 13 | 3.33E-03 | 17.8 | |
| 26 | 0 | 609.33 | 87 | 156 | 1.75 | 1210.25 | 1207 | 7 | 1.44E-03 | 26.2 | |
| 27 | 0 | 650.12 | 38 | 375 | 8.18 | 1291.34 | 1285 | 20 | 6.27E-04 | 127.1 | |
| 28 | 0 | 661.54 | 530 | 251 | 2.20 | 1314.04 | 1308 | 13 | 8.83E-03 | 7.6 | |
| 29 | 0 | 680.39 | 51 | 122 | 2.73 | 1351.50 | 1348 | 9 | 8.52E-04 | 41.6 | |
| 30 | 0 | 725.65 | 25 | 419 | 9.16 | 1441.48 | 1426 | 23 | 4.25E-04 | 209.7 | |
| 31 | 0 | 766.58 | 61 | 107 | 2.16 | 1522.85 | 1519 | 8 | 1.02E-03 | 32.2 | |
| 32 | 0 | 794.47 | 33 | 82 | 2.36 | 1578.30 | 1575 | 8 | 5.58E-04 | 49.5 | |
| 33 | 0 | 802.47 | 65 | 168 | 3.23 | 1594.20 | 1590 | 12 | 1.08E-03 | 41.8 | |
| 34 | 0 | 859.60 | 28 | 98 | 1.48 | 1707.79 | 1704 | 8 | 4.63E-04 | 64.6 | |
| 35 | 0 | 910.99 | 111 | 131 | 2.78 | 1809.96 | 1805 | 12 | 1.85E-03 | 22.6 | |
| 36 | 0 | 921.32 | 27 | 123 | 0.61 | 1830.51 | 1823 | 12 | 4.46E-04 | 86.0 | |
| 37 | 0 | 939.39 | 38 | 61 | 0.71 | 1866.43 | 1864 | 8 | 6.36E-04 | 38.8 | |
| 38 | 0 | 963.77 | 50 | 87 | 2.94 | 1914.92 | 1911 | 10 | 8.31E-04 | 37.8 | |

| Pk | It | Energy | Area | Bkgnd | FWHM | Channel | Left | Pw | Cts/Sec | %Err | Fit |
|----|----|---------|------|-------|------|---------|------|----|----------|-------|-----|
| 39 | 0 | 1000.49 | 55 | 84 | 1.32 | 1987.92 | 1984 | 9 | 9.10E-04 | 33.1 | |
| 40 | 0 | 1076.24 | 68 | 98 | 7.89 | 2138.57 | 2130 | 19 | 1.13E-03 | 37.4 | |
| 41 | 0 | 1239.65 | 12 | 39 | 1.34 | 2463.55 | 2462 | 7 | 2.03E-04 | 90.3 | |
| 42 | 0 | 1307.25 | 20 | 22 | 1.84 | 2598.01 | 2594 | 8 | 3.36E-04 | 46.0 | |
| 43 | 0 | 1332.48 | 59 | 58 | 2.35 | 2648.19 | 2642 | 14 | 9.81E-04 | 30.6 | |
| 44 | 0 | 1364.42 | 49 | 45 | 2.44 | 2711.73 | 2706 | 14 | 8.17E-04 | 32.5 | |
| 45 | 0 | 1462.83 | 78 | 153 | 7.41 | 2907.51 | 2896 | 25 | 1.30E-03 | 45.4 | |
| 46 | 0 | 1495.26 | 7 | 38 | 1.38 | 2972.02 | 2966 | 9 | 1.15E-04 | 166.2 | |
| 47 | 0 | 1500.73 | 15 | 45 | 1.37 | 2982.90 | 2977 | 11 | 2.51E-04 | 91.0 | |
| 48 | 0 | 1509.24 | 27 | 48 | 4.30 | 2999.83 | 2994 | 14 | 4.49E-04 | 58.2 | |
| 49 | 0 | 1522.40 | 13 | 44 | 3.57 | 3026.02 | 3021 | 12 | 2.24E-04 | 103.2 | |
| 50 | 0 | 1559.27 | 16 | 23 | 0.76 | 3099.37 | 3095 | 9 | 2.72E-04 | 59.6 | |
| 51 | 0 | 1570.09 | 14 | 50 | 0.54 | 3120.91 | 3118 | 14 | 2.27E-04 | 112.9 | |
| 52 | 0 | 1591.26 | 23 | 21 | 1.52 | 3163.02 | 3160 | 6 | 3.76E-04 | 39.1 | |
| 53 | 0 | 1668.54 | 13 | 15 | 1.47 | 3316.79 | 3315 | 7 | 2.10E-04 | 57.6 | |
| 54 | 0 | 1763.84 | 51 | 44 | 2.17 | 3506.43 | 3501 | 11 | 8.57E-04 | 28.6 | |
| 55 | 0 | 1772.46 | 9 | 15 | 0.59 | 3523.57 | 3519 | 7 | 1.44E-04 | 83.3 | |
| 56 | 0 | 1895.13 | 5 | 20 | 0.91 | 3767.70 | 3767 | 6 | 7.67E-05 | 160.1 | |
| 57 | 0 | 1923.95 | 12 | 7 | 0.63 | 3825.07 | 3822 | 5 | 2.04E-04 | 43.6 | |
| 58 | 0 | 1975.83 | 29 | 25 | 4.62 | 3928.33 | 3921 | 17 | 4.87E-04 | 46.0 | |

```

*****
*                               GENERAL ENG. LABS, LLC.                               *
*                               2040 Savage Road                                       *
*                               Charleston, SC 29414                                   *
*****
Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1201068236.CNF;1
Sample date        : 25-APR-2006 00:00:00 Acquisition date : 25-APR-2006 18:43:09
Sample ID          : G1201068236              Sample quantity : 2.00000E+00 LITER
Detector name     : WELL                      Detector geometry: 2L_MB
Elapsed live time : 0 16:40:00.00            Elapsed real time: 0 16:40:12.98  0.0%
Energy tolerance  : 2.00000 KEV              Analyst Initials  : MJH1
Abundance limit   : 75.00000                 Sensitivity       : 3.00000
Batch ID          : 519510                    Detector SN#      : 3941466
Matrix Spike DPM  :                           LCS DPM       :
*****

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Nuclide Line Activity Report

Nuclide Type:

| Nuclide | Energy | Area | %Abn | %Eff | Uncorrected pCi/LITER | Decay Corr pCi/LITER | 2-Sigma %Error |
|---------|---------|-------|---------|-----------|-----------------------|----------------------|----------------|
| NB-95 | 765.79 | 61 | 99.81* | 6.608E-01 | 2.087E+00 | 2.134E+00 | 64.47 |
| CS-135 | 268.24 | 49 | 16.00* | 1.617E+00 | 4.258E+00 | 4.258E+00 | 145.13 |
| CE-141 | 145.44 | 106 | 48.40* | 2.280E+00 | 2.156E+00 | 2.209E+00 | 154.73 |
| PM-149 | 285.95 | 42 | 3.10* | 1.547E+00 | 1.974E+01 | 2.805E+01 | 158.77 |
| TL-208 | 75.00 | ----- | 3.43 | 1.606E+00 | ----- | Line Not Found | ----- |
| | 277.35 | ----- | 6.80 | 1.581E+00 | ----- | Line Not Found | ----- |
| | 510.84 | 31 | 21.60 | 9.288E-01 | 3.460E+00 | 3.464E+00 | 546.34 |
| | 583.14 | 77 | 84.20* | 8.292E-01 | 2.481E+00 | 2.484E+00 | 143.31 |
| | 763.30 | ----- | 1.64 | 6.631E-01 | ----- | Line Not Found | ----- |
| | 860.37 | 28 | 12.46 | 6.035E-01 | 8.325E+00 | 8.334E+00 | 129.13 |
| PA-231 | 1093.90 | ----- | 0.37 | 5.016E-01 | ----- | Line Not Found | ----- |
| | 283.67 | 42 | 1.60* | 1.547E+00 | 3.825E+01 | 3.825E+01 | 158.77 |
| | 301.29 | 77 | 4.60 | 1.481E+00 | 2.537E+01 | 2.537E+01 | 85.49 |
| | 330.00 | ----- | 1.30 | 1.366E+00 | ----- | Line Not Found | ----- |
| U-235 | 89.95 | ----- | 2.70 | 1.980E+00 | ----- | Line Not Found | ----- |
| | 93.35 | ----- | 4.50 | 2.042E+00 | ----- | Line Not Found | ----- |
| | 105.00 | ----- | 2.10 | 2.194E+00 | ----- | Line Not Found | ----- |
| | 143.76 | 106 | 10.50* | 2.280E+00 | 9.939E+00 | 9.939E+00 | 154.73 |
| | 163.33 | ----- | 4.70 | 2.204E+00 | ----- | Line Not Found | ----- |
| | 185.71 | 189 | 54.00 | 2.082E+00 | 3.787E+00 | 3.787E+00 | 107.78 |
| | 205.31 | 26 | 5.00 | 1.965E+00 | 5.955E+00 | 5.955E+00 | 445.37 |
| U-238 | 63.29 | 104 | 3.80* | 1.197E+00 | 5.169E+01 | 5.169E+01 | 162.78 |
| ANH-511 | 511.00 | 31 | 100.00* | 9.288E-01 | 7.473E-01 | 7.473E-01 | 546.34 |

Flag: "*" = Keyline

Total number of lines in spectrum 40
 Number of unidentified lines 16
 Number of lines tentatively identified by NID 24 60.00%

Nuclide Type :

| Nuclide | Hlife | Decay | Uncorrected | Decay Corr | Decay Corr | 2-Sigma | Flags |
|------------------|-----------|-------|-------------|------------|---------------|---------|-------|
| | | | pCi/LITER | pCi/LITER | 2-Sigma Error | %Error | |
| NB-95 | 35.06D | 1.02 | 2.087E+00 | 2.134E+00 | 1.376E+00 | 64.47 | |
| CS-135 | 2.30E+06Y | 1.00 | 4.258E+00 | 4.258E+00 | 6.180E+00 | 145.13 | |
| CE-141 | 32.50D | 1.02 | 2.156E+00 | 2.209E+00 | 3.418E+00 | 154.73 | |
| PM-149 | 53.08H | 1.42 | 1.974E+01 | 2.805E+01 | 4.453E+01 | 158.77 | |
| TL-208 | 1.91Y | 1.00 | 2.481E+00 | 2.484E+00 | 3.560E+00 | 143.31 | |
| PA-231 | 3.28E+04Y | 1.00 | 3.825E+01 | 3.825E+01 | 6.072E+01 | 158.77 | |
| U-235 | 7.04E+08Y | 1.00 | 9.939E+00 | 9.939E+00 | 15.38E+00 | 154.73 | |
| U-238 | 4.47E+09Y | 1.00 | 5.169E+01 | 5.169E+01 | 8.414E+01 | 162.78 | |
| ANH-511 | 1.00E+09Y | 1.00 | 7.473E-01 | 7.473E-01 | 40.83E-01 | 546.34 | |
| Total Activity : | | | 1.313E+02 | 1.398E+02 | | | |

Grand Total Activity : 1.313E+02 1.398E+02

Flags: "K" = Keyline not found "M" = Manually accepted
 "E" = Manually edited "A" = Nuclide specific abn. limit

| It | Energy | Area | Bkgnd | FWHM | Channel | Left | Pw | Cts/Sec | %Err | %Eff | Flags |
|----|---------|------|-------|------|---------|------|----|----------|------|----------|-------|
| 0 | 84.25 | 39 | 809 | 1.65 | 166.79 | 164 | 7 | 6.52E-04 | **** | 1.86E+00 | T |
| 0 | 127.14 | 152 | 956 | 2.40 | 252.00 | 247 | 10 | 2.54E-03 | 77.7 | 2.30E+00 | |
| 0 | 198.00 | 31 | 868 | 2.49 | 392.79 | 388 | 10 | 5.15E-04 | **** | 2.01E+00 | T |
| 0 | 295.73 | 35 | 455 | 0.79 | 586.97 | 583 | 9 | 5.89E-04 | **** | 1.50E+00 | T |
| 0 | 338.45 | 7 | 526 | 2.03 | 671.87 | 666 | 11 | 1.14E-04 | **** | 1.34E+00 | T |
| 0 | 409.22 | 29 | 262 | 0.99 | 812.52 | 810 | 7 | 4.84E-04 | **** | 1.13E+00 | |
| 0 | 437.53 | 30 | 235 | 1.04 | 868.79 | 865 | 7 | 5.02E-04 | **** | 1.07E+00 | |
| 0 | 569.39 | 73 | 365 | 3.52 | 1130.86 | 1122 | 17 | 1.22E-03 | **** | 8.46E-01 | T |
| 0 | 609.33 | 38 | 156 | 1.75 | 1210.25 | 1207 | 7 | 6.39E-04 | **** | 7.98E-01 | T |
| 0 | 680.39 | 51 | 122 | 2.73 | 1351.50 | 1348 | 9 | 8.52E-04 | 83.1 | 7.28E-01 | |
| 0 | 794.47 | 33 | 82 | 2.36 | 1578.30 | 1575 | 8 | 5.58E-04 | 99.1 | 6.42E-01 | T |
| 0 | 802.47 | 23 | 168 | 3.23 | 1594.20 | 1590 | 12 | 3.81E-04 | **** | 6.37E-01 | T |
| 0 | 910.99 | 41 | 131 | 2.78 | 1809.96 | 1805 | 12 | 6.83E-04 | **** | 5.77E-01 | T |
| 0 | 921.32 | 27 | 123 | 0.61 | 1830.51 | 1823 | 12 | 4.46E-04 | **** | 5.72E-01 | T |
| 0 | 939.39 | 38 | 61 | 0.71 | 1866.43 | 1864 | 8 | 6.36E-04 | 77.6 | 5.63E-01 | T |
| 0 | 963.77 | 19 | 87 | 2.94 | 1914.92 | 1911 | 10 | 3.09E-04 | **** | 5.52E-01 | T |
| 0 | 1076.24 | 68 | 98 | 7.89 | 2138.57 | 2130 | 19 | 1.13E-03 | 74.7 | 5.08E-01 | |
| 0 | 1307.25 | 20 | 22 | 1.84 | 2598.01 | 2594 | 8 | 3.36E-04 | 92.0 | 4.38E-01 | |
| 0 | 1364.42 | 49 | 45 | 2.44 | 2711.73 | 2706 | 14 | 8.17E-04 | 65.0 | 4.24E-01 | T |
| 0 | 1462.83 | 78 | 153 | 7.41 | 2907.51 | 2896 | 25 | 1.30E-03 | 90.8 | 4.02E-01 | |
| 0 | 1500.73 | 15 | 45 | 1.37 | 2982.90 | 2977 | 11 | 2.51E-04 | **** | 3.94E-01 | |
| 0 | 1522.40 | 13 | 44 | 3.57 | 3026.02 | 3021 | 12 | 2.24E-04 | **** | 3.89E-01 | |
| 0 | 1559.27 | 16 | 23 | 0.76 | 3099.37 | 3095 | 9 | 2.72E-04 | **** | 3.82E-01 | |
| 0 | 1570.09 | 6 | 50 | 0.54 | 3120.91 | 3118 | 14 | 9.80E-05 | **** | 3.80E-01 | |
| 0 | 1591.26 | 23 | 21 | 1.52 | 3163.02 | 3160 | 6 | 3.76E-04 | 78.1 | 3.76E-01 | |
| 0 | 1668.54 | 13 | 15 | 1.47 | 3316.79 | 3315 | 7 | 2.10E-04 | **** | 3.62E-01 | |
| 0 | 1895.13 | 5 | 20 | 0.91 | 3767.70 | 3767 | 6 | 7.67E-05 | **** | 3.24E-01 | |
| 0 | 1923.95 | 6 | 7 | 0.63 | 3825.07 | 3822 | 5 | 1.05E-04 | **** | 3.20E-01 | |
| 0 | 1975.83 | 2 | 25 | 4.62 | 3928.33 | 3921 | 17 | 2.94E-05 | **** | 3.13E-01 | |

Flags: "T" = Tentatively associated


```

*****
*                                     GENERAL ENG. LABS, LLC.                               *
*                                     2040 Savage Road                                   *
*                                     Charleston, SC 29414                             *
*****
*                                     DETECTOR DATA                                   *
* Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1201068236.CNF;1         *
* Acquisition date   : 25-APR-2006 18:43:09   Detector SN#      : 3941466           *
* Detector ID       : WELL                      Sensitivity       : 3.00000           *
* Geometry          : 2L_MB                     Energy tolerance:    2.00000           *
* Elapsed live time : 0 16:40:00.00             Abundance limit   : 75.00000           *
* Elapsed real time : 0 16:40:12.98             Half life ratio    : 8.00000           *
*****
*                                     SAMPLE DATA                                   *
* Sample date       : 25-APR-2006 00:00:00   Nuclide Library  : EPI                 *
* Sample ID        : G1201068236             Analyst initials  : MJH1                 *
* Batch Number     : 519510                  Sample Quantity  : 2.00000E+00 LITER        *
*****
*                                     QC DATA                                       *
* CALIB. DATE/TIME : 13-DEC-2005 09:34:01.1MS Isotope      :                   *
* MSD DPM          :                          MSD Isotope   :                   *
* LCS DPM          :                          LCS Isotope    :                   *
*****

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Combined Activity-MDA Report

---- Identified Nuclides ----

| Nuclide | Activity (pCi/LITER) | Act error | MDA (pCi/LITER) | MDA error | Act/MDA |
|---------|-------------------------|-----------|--------------------|-----------|---------|
| NB-95 | 2.134E+00 | 1.376E+00 | 1.970E+00 | 0.000E+00 | 1.083 |
| CS-135 | 4.258E+00 | 6.180E+00 | 9.037E+00 | 0.000E+00 | 0.471 |
| CE-141 | 1.356E+00 | 3.533E+00 | 2.610E+00 | 0.000E+00 | 0.520 |
| PM-149 | 2.805E+01 | 4.453E+01 | 7.028E+01 | 0.000E+00 | 0.399 |
| TL-208 | 2.484E+00 | 3.560E+00 | 2.331E+00 | 0.000E+00 | 1.066 |
| PA-231 | 3.825E+01 | 6.072E+01 | 9.780E+01 | 0.000E+00 | 0.391 |
| U-235 | 9.939E+00 | 1.538E+01 | 1.347E+01 | 0.000E+00 | 0.738 |
| U-238 | 5.169E+01 | 8.414E+01 | 6.622E+01 | 0.000E+00 | 0.781 |
| ANH-511 | 7.473E-01 | 4.083E+00 | 1.881E+00 | 0.000E+00 | 0.397 |

---- Non-Identified Nuclides ----

| Nuclide | Key-Line Activity K.L. (pCi/LITER) Ided | Act error | MDA (pCi/LITER) | MDA error | Act/MDA |
|---------|---|-----------|--------------------|-----------|---------|
| BE-7 | 3.532E+00 | 1.071E+01 | 1.812E+01 | 0.000E+00 | 0.195 |
| NA-22 | -2.950E-01 | 1.261E+00 | 2.128E+00 | 0.000E+00 | -0.139 |
| NA-24 | -2.677E+00 | 4.683E+00 | 6.790E+00 | 0.000E+00 | -0.394 |

---- Non-Identified Nuclides ----

| Nuclide | Key-Line Activity (pCi/LITER) | K.L. Ided | Act error | MDA (pCi/LITER) | MDA error | Act/MDA |
|---------|-------------------------------------|--------------|-----------|--------------------|-----------|---------|
| AL-26 | 1.775E-01 | | 1.176E+00 | 2.152E+00 | 0.000E+00 | 0.082 |
| K-40 | 3.598E+01 | | 1.479E+01 | 2.986E+01 | 0.000E+00 | 1.205 |
| SC-46 | 2.679E-01 | | 1.263E+00 | 2.213E+00 | 0.000E+00 | 0.121 |
| V-48 | -6.140E-01 | | 1.236E+00 | 2.070E+00 | 0.000E+00 | -0.297 |
| CR-51 | 2.679E-01 | | 9.895E+00 | 1.673E+01 | 0.000E+00 | 0.016 |
| MN-54 | -7.428E-01 | | 1.262E+00 | 2.117E+00 | 0.000E+00 | -0.351 |
| CO-56 | -1.752E-01 | | 1.254E+00 | 2.157E+00 | 0.000E+00 | -0.081 |
| MN-56 | -1.228E+02 | | 8.715E+02 | 1.499E+03 | 0.000E+00 | -0.082 |
| CO-57 | 1.219E+00 | | 9.119E-01 | 1.531E+00 | 0.000E+00 | 0.796 |
| CO-58 | 3.440E-01 | | 1.295E+00 | 2.276E+00 | 0.000E+00 | 0.151 |
| FE-59 | 1.213E+00 | | 2.282E+00 | 4.078E+00 | 0.000E+00 | 0.298 |
| CO-60 | 2.143E+00 | | 1.385E+00 | 2.635E+00 | 0.000E+00 | 0.813 |
| ZN-65 | -3.648E-01 | | 2.725E+00 | 4.634E+00 | 0.000E+00 | -0.079 |
| SE-75 | 9.296E-02 | | 1.446E+00 | 2.464E+00 | 0.000E+00 | 0.038 |
| KR-85 | 1.690E+03 | | 3.412E+02 | 6.146E+02 | 0.000E+00 | 2.749 |
| SR-85 | 7.475E+00 | | 1.509E+00 | 2.719E+00 | 0.000E+00 | 2.749 |
| Y-88 | 9.787E-01 | | 1.338E+00 | 2.547E+00 | 0.000E+00 | 0.384 |
| Y-91 | -5.862E-01 | | 1.215E+00 | 1.971E+00 | 0.000E+00 | -0.297 |
| NB-94 | 2.442E-01 | | 1.252E+00 | 2.197E+00 | 0.000E+00 | 0.111 |
| NB-95M | -2.316E+01 | | 4.814E+00 | 7.168E+00 | 0.000E+00 | -3.231 |
| ZR-95 | 1.694E+00 | | 2.074E+00 | 3.775E+00 | 0.000E+00 | 0.449 |
| MO-99 | 1.763E-01 | | 1.387E+00 | 2.128E+00 | 0.000E+00 | 0.083 |
| TC-99M | 2.406E+00 | | 1.894E+01 | 2.905E+01 | 0.000E+00 | 0.083 |
| RU-103 | 3.641E-01 | | 1.250E+00 | 2.113E+00 | 0.000E+00 | 0.172 |
| RH-106 | 3.284E+00 | | 1.184E+01 | 2.095E+01 | 0.000E+00 | 0.157 |
| RU-106 | 3.287E+00 | | 1.184E+01 | 2.096E+01 | 0.000E+00 | 0.157 |
| AG-108M | 5.621E-01 | | 1.390E+00 | 2.088E+00 | 0.000E+00 | 0.269 |
| CD-109 | 2.205E+01 | | 2.701E+01 | 4.492E+01 | 0.000E+00 | 0.491 |
| AG-110M | -1.258E+01 | | 1.780E+00 | 2.263E+00 | 0.000E+00 | -5.558 |
| SN-113 | 1.488E-01 | | 1.596E+00 | 2.689E+00 | 0.000E+00 | 0.055 |
| CD-115 | -1.361E-01 | | 5.258E+00 | 8.753E+00 | 0.000E+00 | -0.016 |
| SN-115 | 6.681E-01 | | 9.192E+01 | 1.594E+02 | 0.000E+00 | 0.004 |
| SN-117M | 3.280E-01 | | 9.394E-01 | 1.633E+00 | 0.000E+00 | 0.201 |
| TE-123M | 2.012E-01 | | 9.163E-01 | 1.588E+00 | 0.000E+00 | 0.127 |
| SB-124 | 1.609E+00 | | 2.610E+00 | 4.926E+00 | 0.000E+00 | 0.327 |
| SB-125 | -3.360E-01 | | 3.511E+00 | 5.862E+00 | 0.000E+00 | -0.057 |
| TE-125M | -5.709E+00 | | 3.034E+02 | 4.917E+02 | 0.000E+00 | -0.012 |
| I-126 | -2.521E+01 | | 4.073E+00 | 5.272E+00 | 0.000E+00 | -4.781 |
| SB-126 | 2.823E+00 | | 2.348E+00 | 4.327E+00 | 0.000E+00 | 0.653 |
| SN-126 | 2.888E+00 | | 3.071E+00 | 4.596E+00 | 0.000E+00 | 0.628 |
| SB-127 | 1.086E+00 | | 3.869E+00 | 6.855E+00 | 0.000E+00 | 0.158 |
| I-131 | -4.598E-01 | | 1.347E+00 | 2.238E+00 | 0.000E+00 | -0.205 |
| TE-132 | 2.434E-01 | | 1.194E+00 | 2.049E+00 | 0.000E+00 | 0.119 |
| BA-133 | -6.041E-02 | | 1.637E+00 | 2.754E+00 | 0.000E+00 | -0.022 |
| I-133 | -2.322E-02 | | 3.124E+00 | 5.199E+00 | 0.000E+00 | -0.004 |
| CS-134 | 1.376E+00 | + | 1.363E+00 | 2.416E+00 | 0.000E+00 | 0.570 |
| I-135 | 7.796E+00 | | 6.750E+01 | 1.171E+02 | 0.000E+00 | 0.067 |
| CS-136 | -6.304E-01 | | 1.689E+00 | 2.840E+00 | 0.000E+00 | -0.222 |

---- Non-Identified Nuclides ----

| Nuclide | Key-Line Activity (pCi/LITER) | K.L. Ided | Act error | MDA (pCi/LITER) | MDA error | Act/MDA |
|---------|-------------------------------------|--------------|-----------|--------------------|-----------|---------|
| BA-137M | 1.707E+01 | | 2.005E+00 | 4.244E+00 | 0.000E+00 | 4.022 |
| CS-137 | 1.804E+01 | | 2.119E+00 | 4.486E+00 | 0.000E+00 | 4.021 |
| CE-139 | -5.681E-01 | | 9.654E-01 | 1.639E+00 | 0.000E+00 | -0.347 |
| BA-140 | -3.400E+00 | | 4.764E+00 | 7.650E+00 | 0.000E+00 | -0.444 |
| LA-140 | -7.499E-01 | | 1.497E+00 | 2.561E+00 | 0.000E+00 | -0.293 |
| CE-143 | 2.575E+00 | | 4.393E+00 | 6.696E+00 | 0.000E+00 | 0.385 |
| CE-144 | -1.913E+00 | | 6.887E+00 | 1.186E+01 | 0.000E+00 | -0.161 |
| PM-144 | 1.087E+00 | | 1.301E+00 | 2.342E+00 | 0.000E+00 | 0.464 |
| PM-146 | 3.352E-01 | | 1.722E+00 | 2.902E+00 | 0.000E+00 | 0.115 |
| ND-147 | 4.124E+00 | | 8.905E+00 | 1.517E+01 | 0.000E+00 | 0.272 |
| PM-147 | 3.886E+06 | | 1.932E+06 | 3.303E+06 | 0.000E+00 | 1.177 |
| EU-152 | 4.850E+00 | | 3.685E+00 | 6.488E+00 | 0.000E+00 | 0.748 |
| GD-153 | -1.123E+00 | | 2.729E+00 | 4.395E+00 | 0.000E+00 | -0.255 |
| EU-154 | -2.541E+00 | | 3.690E+00 | 5.982E+00 | 0.000E+00 | -0.425 |
| EU-155 | -1.960E+00 | | 4.009E+00 | 6.426E+00 | 0.000E+00 | -0.305 |
| TB-160 | -7.863E-01 | | 4.181E+00 | 7.181E+00 | 0.000E+00 | -0.109 |
| TM-171 | 3.386E+02 | | 9.621E+02 | 1.429E+03 | 0.000E+00 | 0.237 |
| HF-181 | 5.794E-01 | | 1.320E+00 | 2.247E+00 | 0.000E+00 | 0.258 |
| TA-182 | -2.994E+00 | | 5.075E+00 | 8.316E+00 | 0.000E+00 | -0.360 |
| IR-192 | -8.961E-02 | | 1.121E+00 | 1.890E+00 | 0.000E+00 | -0.047 |
| HG-203 | 1.278E+00 | | 1.199E+00 | 2.098E+00 | 0.000E+00 | 0.609 |
| BI-207 | 7.765E-01 | | 1.769E+00 | 3.130E+00 | 0.000E+00 | 0.248 |
| BI-210 | 2.315E+02 | | 9.863E+01 | 1.573E+02 | 0.000E+00 | 1.471 |
| PB-210 | 2.315E+02 | | 9.863E+01 | 1.573E+02 | 0.000E+00 | 1.471 |
| BI-211 | 5.345E+00 | | 7.711E+00 | 1.329E+01 | 0.000E+00 | 0.402 |
| PB-211 | 4.375E+00 | | 3.592E+01 | 6.053E+01 | 0.000E+00 | 0.072 |
| BI-212 | 6.397E+00 | | 1.028E+01 | 1.843E+01 | 0.000E+00 | 0.347 |
| PB-212 | 9.659E+00 | | 2.246E+00 | 4.183E+00 | 0.000E+00 | 2.309 |
| BI-214 | 2.337E+00 | + | 5.274E+00 | 4.983E+00 | 0.000E+00 | 0.469 |
| PB-214 | 3.230E+00 | | 2.649E+00 | 4.649E+00 | 0.000E+00 | 0.695 |
| RN-219 | -5.727E+00 | | 1.548E+01 | 2.562E+01 | 0.000E+00 | -0.224 |
| RA-223 | -4.666E+00 | | 2.524E+01 | 4.234E+01 | 0.000E+00 | -0.110 |
| RA-224 | -1.132E+01 | | 2.446E+01 | 4.107E+01 | 0.000E+00 | -0.276 |
| RA-226 | 2.337E+00 | + | 5.274E+00 | 4.983E+00 | 0.000E+00 | 0.469 |
| AC-227 | -2.683E+00 | | 1.399E+01 | 2.367E+01 | 0.000E+00 | -0.113 |
| TH-227 | -2.644E+00 | | 1.379E+01 | 2.333E+01 | 0.000E+00 | -0.113 |
| AC-228 | 5.780E+00 | + | 9.788E+00 | 1.021E+01 | 0.000E+00 | 0.566 |
| RA-228 | 5.780E+00 | + | 9.788E+00 | 1.021E+01 | 0.000E+00 | 0.566 |
| TH-228 | 9.658E+00 | | 2.245E+00 | 4.183E+00 | 0.000E+00 | 2.309 |
| TH-229 | 4.427E+00 | | 1.992E+01 | 3.031E+01 | 0.000E+00 | 0.146 |
| TH-230 | 2.337E+00 | + | 5.273E+00 | 4.983E+00 | 0.000E+00 | 0.469 |
| TH-231 | 5.009E+00 | + | 7.270E+00 | 1.141E+01 | 0.000E+00 | 0.439 |
| TH-232 | 9.647E+00 | | 2.243E+00 | 4.178E+00 | 0.000E+00 | 2.309 |
| PA-233 | -8.750E-01 | | 2.342E+00 | 3.914E+00 | 0.000E+00 | -0.224 |
| PA-234 | -2.240E-01 | | 1.012E+01 | 1.751E+01 | 0.000E+00 | -0.013 |
| PA-234M | 1.865E+02 | | 1.661E+02 | 3.034E+02 | 0.000E+00 | 0.615 |
| TH-234 | 5.169E+01 | + | 8.414E+01 | 8.462E+01 | 0.000E+00 | 0.611 |
| U-234 | 2.765E+00 | + | 8.616E+00 | 8.496E+00 | 0.000E+00 | 0.325 |

---- Non-Identified Nuclides ----

| Nuclide | Key-Line Activity (pCi/LITER) | K.L. Ided | Act error | MDA (pCi/LITER) | MDA error | Act/MDA |
|---------|-------------------------------------|--------------|-----------|--------------------|-----------|---------|
| NP-237 | 3.935E+00 | | 9.269E+00 | 1.364E+01 | 0.000E+00 | 0.288 |
| NP-239 | -5.333E+00 | | 7.140E+00 | 1.132E+01 | 0.000E+00 | -0.471 |
| AM-241 | 4.433E+00 | | 6.817E+00 | 8.173E+00 | 0.000E+00 | 0.542 |
| AM-242 | 2.488E+01 | | 8.066E+01 | 1.323E+02 | 0.000E+00 | 0.188 |
| CM-247 | -3.006E-01 | | 1.402E+00 | 2.334E+00 | 0.000E+00 | -0.129 |
| CF-249 | -1.107E-03 | | 1.531E+00 | 2.573E+00 | 0.000E+00 | 0.000 |
| CF-251 | 1.957E+00 | | 4.525E+00 | 7.852E+00 | 0.000E+00 | 0.249 |

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*****
*
*                               General Engineering Labs, LLC
*                               2040 SAVAGE ROAD
*                               CHARLESTON ,SC 29417
*                               GROSS GAMMA REPORT
*
*****
*
*   BATCH ID      : 519510          SAMPLE ID   : G1201068236
*   ANALYST       : MJH1            DETECTOR    : WELL
*   SAMPLE DATE   : 25-APR-2006 00:00:00.00  COUNT TIME  : 0 16:40:00.00
*   ANALYSIS DATE: 25-APR-2006 18:43:09.10  SAMPLE ALQT: 2.000 LITER
*
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GROSS GAMMA ACTIVITY (pCi/LITER ) : 4.604E+01
GROSS GAMMA ERROR   (pCi/LITER ) : 5.361E+01
GROSS GAMMA MDA     (pCi/LITER ) : 1.983E+02
GROSS GAMMA DLC     (pCi/LITER ) : 9.730E+01

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VAX/VMS Nuclide Identification Report Generated 26-APR-2006 15:32:33.23

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*****
*                               GENERAL ENG. LABS, LLC.                               *
*                               2040 Savage Road                                       *
*                               Charleston, SC 29414                                 *
*****
Configuration      : DKA0:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1201068237.CNF;1
Sample date        : 22-MAR-2006 10:20:00 Acquisition date : 26-APR-2006 05:28:03
Sample ID          : G1201068237 Sample quantity      : 2.00000E+00 LITER
Detector name     : GAM19 Detector geometry         : 2LMB
Elapsed live time : 0 10:00:00.00 Elapsed real time: 0 10:00:06.59 0.0%
Energy tolerance  : 2.00000 keV Analyst Initials    : MJH1
Abundance limit   : 75.00000 Sensitivity          : 3.00000
Batch ID          : 519510 Detector SN#         :
Matrix Spike DPM  : LCS DPM                        :
*****

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| Pk | It | Energy | Area | Bkgnd | FWHM | Channel | Left | Pw | Cts/Sec | %Err | Fit |
|----|----|---------|------|-------|------|---------|------|----|----------|-------|----------|
| 1 | 9 | 5.01* | 3201 | 1638 | 1.35 | 9.81 | 6 | 12 | 8.89E-02 | 3.9 | 3.49E+01 |
| 2 | 0 | 10.51* | 66 | 4003 | 1.01 | 20.79 | 18 | 7 | 1.82E-03 | 191.0 | |
| 3 | 0 | 14.40 | 185 | 3325 | 1.55 | 28.56 | 26 | 7 | 5.13E-03 | 52.4 | |
| 4 | 0 | 46.86* | 16 | 660 | 1.22 | 93.40 | 89 | 8 | 4.36E-04 | 338.8 | |
| 5 | 2 | 63.40* | 115 | 606 | 1.56 | 126.45 | 121 | 16 | 3.19E-03 | 50.3 | 1.86E+00 |
| 6 | 2 | 66.41 | 166 | 578 | 1.60 | 132.45 | 121 | 16 | 4.60E-03 | 25.9 | |
| 7 | 0 | 84.72 | 39 | 587 | 0.66 | 169.02 | 164 | 9 | 1.10E-03 | 111.9 | |
| 8 | 0 | 140.04* | 211 | 540 | 1.04 | 279.54 | 275 | 10 | 5.86E-03 | 24.9 | |
| 9 | 0 | 176.54 | 236 | 658 | 2.73 | 352.47 | 346 | 14 | 6.56E-03 | 24.0 | |
| 10 | 0 | 185.99* | 34 | 461 | 1.26 | 371.34 | 367 | 10 | 9.35E-04 | 160.0 | |
| 11 | 0 | 198.61* | 109 | 528 | 1.42 | 396.55 | 391 | 12 | 3.02E-03 | 57.9 | |
| 12 | 0 | 204.90 | 44 | 391 | 0.66 | 409.12 | 407 | 9 | 1.22E-03 | 82.2 | |
| 13 | 0 | 239.37* | 48 | 510 | 1.24 | 477.98 | 472 | 13 | 1.33E-03 | 118.5 | |
| 14 | 0 | 265.86 | 25 | 264 | 0.72 | 530.92 | 528 | 8 | 6.94E-04 | 114.3 | |
| 15 | 0 | 326.20 | 46 | 259 | 1.32 | 651.46 | 646 | 10 | 1.29E-03 | 66.7 | |
| 16 | 0 | 352.31* | 16 | 176 | 2.33 | 703.63 | 700 | 8 | 4.37E-04 | 233.9 | |
| 17 | 0 | 472.06 | 36 | 245 | 6.09 | 942.92 | 936 | 16 | 1.00E-03 | 98.1 | |
| 18 | 0 | 484.78 | 38 | 224 | 4.85 | 968.34 | 959 | 15 | 1.06E-03 | 87.2 | |
| 19 | 0 | 489.33 | 36 | 132 | 1.51 | 977.42 | 974 | 9 | 1.01E-03 | 59.0 | |
| 20 | 0 | 569.31* | 16 | 208 | 3.26 | 1137.26 | 1128 | 15 | 4.54E-04 | 215.2 | |
| 21 | 0 | 584.22* | 17 | 158 | 1.15 | 1167.05 | 1160 | 11 | 4.85E-04 | 194.2 | |
| 22 | 0 | 596.03 | 49 | 134 | 1.66 | 1190.65 | 1188 | 8 | 1.37E-03 | 42.6 | |
| 23 | 0 | 609.96 | 76 | 146 | 1.41 | 1218.49 | 1214 | 12 | 2.12E-03 | 34.0 | |
| 24 | 0 | 645.94 | 15 | 117 | 1.22 | 1290.39 | 1283 | 11 | 4.26E-04 | 141.7 | |
| 25 | 0 | 651.43 | 94 | 157 | 7.08 | 1301.38 | 1293 | 20 | 2.62E-03 | 34.0 | |
| 26 | 0 | 819.74 | 40 | 55 | 2.32 | 1637.76 | 1633 | 10 | 1.11E-03 | 38.7 | |
| 27 | 0 | 869.24 | 83 | 125 | 4.36 | 1736.70 | 1726 | 20 | 2.31E-03 | 34.7 | |
| 28 | 0 | 912.61* | 5 | 148 | 4.28 | 1823.39 | 1812 | 19 | 1.48E-04 | 636.6 | |
| 29 | 0 | 922.01 | 15 | 52 | 0.49 | 1842.18 | 1836 | 9 | 4.13E-04 | 91.2 | |
| 30 | 0 | 1227.06 | 22 | 93 | 5.83 | 2452.03 | 2436 | 19 | 6.12E-04 | 110.2 | |
| 31 | 0 | 1287.80 | 41 | 81 | 7.73 | 2573.47 | 2562 | 23 | 1.14E-03 | 58.9 | |
| 32 | 0 | 1498.87 | 18 | 38 | 1.51 | 2995.54 | 2990 | 11 | 5.09E-04 | 69.4 | |
| 33 | 1 | 1696.61 | 28 | 35 | 2.16 | 3391.00 | 3373 | 38 | 7.83E-04 | 46.8 | 1.57E+00 |
| 34 | 1 | 1699.11 | 18 | 37 | 2.16 | 3396.00 | 3373 | 38 | 5.12E-04 | 73.9 | |
| 35 | 0 | 1745.33 | 23 | 57 | 7.21 | 3488.45 | 3477 | 18 | 6.33E-04 | 81.3 | |
| 36 | 0 | 1800.14 | 13 | 25 | 1.55 | 3598.08 | 3589 | 14 | 3.67E-04 | 84.3 | |
| 37 | 0 | 1873.57 | 17 | 44 | 6.51 | 3744.96 | 3732 | 17 | 4.86E-04 | 92.1 | |
| 38 | 0 | 1960.59 | 38 | 16 | 4.63 | 3919.04 | 3912 | 14 | 1.05E-03 | 28.5 | |

| Pk | It | Energy | Area | Bkgnd | FWHM | Channel | Left | Pw | Cts/Sec | %Err | Fit |
|----|----|--------|------|-------|------|---------|------|----|---------|------|-----|
|----|----|--------|------|-------|------|---------|------|----|---------|------|-----|

Flag: "*" = Peak area was modified by background subtraction

VAX/VMS Nuclide Identification Report Generated

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*****
*                               General Eng. Labs, LLC.                               *
*                               2040 Savage Road                                       *
*                               Charleston, SC 29414                                   *
*****
*                               DETECTOR DATA                                       *
*
* Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1201068237
* Acquisition date   : 26-APR-2006 05:28:03 Detector SN#      :
* Detector ID       : GAM19                               Sensitivity      : 3.000
* Geometry          : 2LMB                               Energy tolerance: 2.000
* Elapsed live time: 0 10:00:00.00                      Abundance limit : 75.000
* Elapsed real time: 0 10:00:06.59                      Half life ratio  : 8.000
*****
*                               SAMPLE DATA                                         *
*
* Sample date       : 22-MAR-2006 10:20:00 Nuclide Library :
* Sample ID        : G1201068237                      Analyst initials: MJH1
* Batch Number     : 519510                          Sample Quantity : 2.0000E+00 LITER
* Recovery         : 1.00000                          Carrier Weight  : 0.00000
*****
*                               QC DATA                                             *
*
* Standard Weight   : 0.00000
* CALIB. DATE/TIME : 17-FEB-2006 16:09:06 MS Isotope      :
* MSD DPM          : 0.000                          MSD Isotope     :
* LCS DPM         : 0.000                          LCS Isotope     :
* LCSD DPM        : 0.000                          LCSD Isotope    :
*****

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Combined Activity-MDA Report

---- Identified Nuclides ----

| Nuclide | Activity (pCi/LITER) | Act error | MDA (pCi/LITER) | |
|---------|--------------------------|-----------|---------------------|-----------|
| BI-210 | 4.053E+01 | 2.746E+02 | 1.833E+02 | 0.000E+00 |
| PB-210 | 4.053E+01 | 2.746E+02 | 1.833E+02 | 0.000E+00 |
| BI-211 | 2.595E+00 | 1.214E+01 | 6.879E+00 | 0.000E+00 |
| RA-224 | 2.120E+01 | 5.028E+01 | 2.244E+01 | 0.000E+00 |
| RA-226 | 5.065E+00 | 3.465E+00 | 2.297E+00 | 0.000E+00 |
| TH-228 | 1.877E+00 | 4.454E+00 | 2.067E+00 | 0.000E+00 |
| TH-230 | 5.065E+00 | 3.465E+00 | 2.297E+00 | 0.000E+00 |
| TH-232 | 1.813E+00 | 4.302E+00 | 1.997E+00 | 0.000E+00 |
| NP-237 | 5.213E+00 | 1.173E+01 | 8.155E+00 | 0.000E+00 |
| U-238 | 8.980E+01 | 9.191E+01 | 5.175E+01 | 0.000E+00 |

---- Non-Identified Nuclides ----

| Nuclide | Key-Line Activity (pCi/LITER) | K.L. Act error) Ided | MDA (pCi/LITER) | |
|---------|--------------------------------------|--------------------------|---------------------|----------------------|
| BE-7 | -4.062E+00 | 2.635E+01 | 1.424E+01 | 0.000E+00 NOT IDENT. |
| NA-22 | 3.565E-01 | 1.283E+00 | 1.257E+00 | 0.000E+00 NOT IDENT. |
| NA-24 | 0.000E+00 | 8.848E+16 | 0.000E+00 | 0.000E+00 SHORT HLIF |
| AL-26 | 3.295E-01 | 1.392E+00 | 1.362E+00 | 0.000E+00 NOT IDENT. |
| K-40 | 5.311E+00 | 2.121E+01 | 1.748E+01 | 0.000E+00 NOT IDENT. |
| SC-46 | -2.367E-01 | 1.408E+00 | 1.355E+00 | 0.000E+00 NOT IDENT. |
| V-48 | -7.506E+00 | 5.317E+00 | 4.562E+00 | 0.000E+00 NOT IDENT. |
| CR-51 | 1.087E+01 | 2.587E+01 | 2.241E+01 | 0.000E+00 NOT IDENT. |
| MN-54 | 7.352E-01 | 1.178E+00 | 1.197E+00 | 0.000E+00 NOT IDENT. |
| CO-56 | -6.100E-01 | 1.519E+00 | 1.444E+00 | 0.000E+00 NOT IDENT. |
| MN-56 | 0.000E+00 | 2.491E+41 | 0.000E+00 | 0.000E+00 SHORT HLIF |
| CO-57 | 3.795E-01 | 1.098E+00 | 1.052E+00 | 0.000E+00 NOT IDENT. |
| CO-58 | -2.751E-01 | 1.678E+00 | 1.551E+00 | 0.000E+00 NOT IDENT. |
| FE-59 | 3.084E-01 | 3.734E+00 | 3.624E+00 | 0.000E+00 NOT IDENT. |
| CO-60 | 2.445E-01 | 1.320E+00 | 1.280E+00 | 0.000E+00 NOT IDENT. |
| ZN-65 | -5.357E-02 | 2.529E+00 | 2.432E+00 | 0.000E+00 NOT IDENT. |
| SE-75 | 9.199E-01 | 2.105E+00 | 1.800E+00 | 0.000E+00 FAIL ABUN |

| | | | | | |
|---------|------------|-----------|-----------|-----------|------------|
| KR-85 | -5.741E+02 | 3.887E+02 | 3.512E+02 | 0.000E+00 | NOT IDENT. |
| SR-85 | -3.626E+00 | 2.455E+00 | 2.218E+00 | 0.000E+00 | NOT IDENT. |
| Y-88 | 6.325E-01 | 1.635E+00 | 1.651E+00 | 0.000E+00 | NOT IDENT. |
| Y-91 | -2.381E-01 | 1.581E+00 | 1.491E+00 | 0.000E+00 | NOT IDENT. |
| NB-94 | 2.155E-01 | 1.234E+00 | 1.174E+00 | 0.000E+00 | FAIL ABUN |
| NB-95 | 3.961E-01 | 2.134E+00 | 2.029E+00 | 0.000E+00 | NOT IDENT. |
| NB-95M | 0.000E+00 | 3.550E+03 | 0.000E+00 | 0.000E+00 | SHORT HLIF |
| ZR-95 | -1.915E+00 | 2.901E+00 | 2.587E+00 | 0.000E+00 | NOT IDENT. |
| MO-99 | 0.000E+00 | 1.174E+04 | 0.000E+00 | 0.000E+00 | SHORT HLIF |
| TC-99M | 0.000E+00 | 8.176E+40 | 0.000E+00 | 0.000E+00 | SHORT HLIF |
| RU-103 | -2.050E-01 | 2.099E+00 | 1.997E+00 | 0.000E+00 | FAIL ABUN |
| RH-106 | 4.494E+00 | 1.181E+01 | 1.144E+01 | 0.000E+00 | NOT IDENT. |
| RU-106 | 8.205E+00 | 1.173E+01 | 1.154E+01 | 0.000E+00 | NOT IDENT. |
| AG-108M | 5.042E-02 | 1.184E+00 | 1.141E+00 | 0.000E+00 | NOT IDENT. |
| CD-109 | -1.062E+02 | 3.843E+01 | 2.740E+01 | 0.000E+00 | NOT IDENT. |
| AG-110M | -1.258E-01 | 1.361E+00 | 1.100E+00 | 0.000E+00 | NOT IDENT. |
| SN-113 | 8.867E-01 | 1.761E+00 | 1.740E+00 | 0.000E+00 | NOT IDENT. |
| CD-115 | 0.000E+00 | 1.800E+05 | 0.000E+00 | 0.000E+00 | SHORT HLIF |
| SN-115 | 4.332E+01 | 1.554E+02 | 1.539E+02 | 0.000E+00 | FAIL ABUN |
| SN-117M | 3.664E+00 | 5.962E+00 | 5.721E+00 | 0.000E+00 | NOT IDENT. |
| TE-123M | 2.223E-01 | 1.265E+00 | 1.198E+00 | 0.000E+00 | NOT IDENT. |
| SB-124 | 1.737E-01 | 3.786E+00 | 3.580E+00 | 0.000E+00 | FAIL ABUN |
| SB-125 | 1.094E+00 | 3.333E+00 | 3.259E+00 | 0.000E+00 | FAIL ABUN |
| TE-125M | -3.751E+02 | 4.910E+02 | 4.540E+02 | 0.000E+00 | NOT IDENT. |
| I-126 | 1.496E+00 | 1.681E+01 | 1.597E+01 | 0.000E+00 | NOT IDENT. |
| SB-126 | 9.136E+00 | 1.452E+01 | 1.422E+01 | 0.000E+00 | NOT IDENT. |
| SN-126 | -3.627E+00 | 3.383E+00 | 2.688E+00 | 0.000E+00 | FAIL ABUN |
| SB-127 | 0.000E+00 | 1.561E+03 | 0.000E+00 | 0.000E+00 | SHORT HLIF |
| I-131 | -1.353E+01 | 2.344E+01 | 2.208E+01 | 0.000E+00 | NOT IDENT. |
| I-132 | 0.000E+00 | 7.018E+41 | 0.000E+00 | 0.000E+00 | SHORT HLIF |
| TE-132 | 0.000E+00 | 1.818E+03 | 0.000E+00 | 0.000E+00 | SHORT HLIF |
| BA-133 | 5.742E-01 | 1.749E+00 | 1.503E+00 | 0.000E+00 | NOT IDENT. |
| I-133 | 0.000E+00 | 1.602E+12 | 0.000E+00 | 0.000E+00 | SHORT HLIF |
| CS-134 | 6.035E-01 | 1.325E+00 | 1.282E+00 | 0.000E+00 | FAIL ABUN |
| CS-135 | 6.010E-01 | 6.359E+00 | 5.447E+00 | 0.000E+00 | NOT IDENT. |
| I-135 | 0.000E+00 | 8.162E+38 | 0.000E+00 | 0.000E+00 | SHORT HLIF |
| CS-136 | -7.805E-01 | 8.986E+00 | 8.625E+00 | 0.000E+00 | FAIL ABUN |
| BA-137M | -1.269E-01 | 1.199E+00 | 1.093E+00 | 0.000E+00 | NOT IDENT. |
| CS-137 | -1.383E-01 | 1.268E+00 | 1.155E+00 | 0.000E+00 | NOT IDENT. |
| CE-139 | -2.849E-01 | 1.299E+00 | 1.211E+00 | 0.000E+00 | NOT IDENT. |
| BA-140 | -1.850E+00 | 2.535E+01 | 2.406E+01 | 0.000E+00 | NOT IDENT. |
| LA-140 | -1.681E+00 | 9.371E+00 | 8.681E+00 | 0.000E+00 | FAIL ABUN |
| CE-141 | 1.271E+00 | 4.976E+00 | 3.799E+00 | 0.000E+00 | NOT IDENT. |
| CE-143 | 0.000E+00 | 1.111E+08 | 0.000E+00 | 0.000E+00 | SHORT HLIF |
| CE-144 | 1.431E+00 | 8.854E+00 | 8.125E+00 | 0.000E+00 | NOT IDENT. |
| PM-144 | 3.574E-02 | 1.291E+00 | 1.219E+00 | 0.000E+00 | NOT IDENT. |
| PR-144 | 0.000E+00 | 3.613E+42 | 0.000E+00 | 0.000E+00 | SHORT HLIF |
| PM-146 | 4.571E-01 | 1.597E+00 | 1.555E+00 | 0.000E+00 | NOT IDENT. |
| ND-147 | 3.783E+01 | 6.585E+01 | 6.476E+01 | 0.000E+00 | NOT IDENT. |
| PM-147 | -9.980E+05 | 2.223E+06 | 2.075E+06 | 0.000E+00 | NOT IDENT. |
| PM-149 | 0.000E+00 | 1.699E+06 | 0.000E+00 | 0.000E+00 | SHORT HLIF |
| EU-152 | -4.415E+00 | 4.885E+00 | 3.440E+00 | 0.000E+00 | NOT IDENT. |
| GD-153 | -1.165E+01 | 4.553E+00 | 3.094E+00 | 0.000E+00 | FAIL ABUN |
| EU-154 | 1.011E+00 | 3.551E+00 | 3.480E+00 | 0.000E+00 | NOT IDENT. |
| EU-155 | 4.074E+00 | 4.443E+00 | 4.335E+00 | 0.000E+00 | FAIL ABUN |
| TB-160 | 4.123E+00 | 5.717E+00 | 5.720E+00 | 0.000E+00 | NOT IDENT. |
| TM-171 | 0.000E+00 | 1.503E+03 | 1.251E+03 | 0.000E+00 | FAIL ABUN |
| HF-181 | 4.640E-01 | 2.369E+00 | 1.995E+00 | 0.000E+00 | FAIL ABUN |
| TA-182 | 2.574E+00 | 6.697E+00 | 5.766E+00 | 0.000E+00 | FAIL ABUN |
| IR-192 | -1.115E+00 | 1.553E+00 | 1.465E+00 | 0.000E+00 | NOT IDENT. |
| HG-203 | 1.490E+00 | 1.974E+00 | 1.980E+00 | 0.000E+00 | NOT IDENT. |
| BI-207 | 1.038E+00 | 1.584E+00 | 1.604E+00 | 0.000E+00 | FAIL ABUN |
| TL-208 | 6.402E-01 | 2.488E+00 | 1.450E+00 | 0.000E+00 | FAIL ABUN |
| PB-211 | 8.929E+00 | 3.257E+01 | 3.138E+01 | 0.000E+00 | NOT IDENT. |
| BI-212 | 2.307E-01 | 9.514E+00 | 8.961E+00 | 0.000E+00 | NOT IDENT. |
| PB-212 | 1.877E+00 | 4.454E+00 | 2.518E+00 | 0.000E+00 | FAIL ABUN |
| BI-214 | 0.000E+00 | 3.465E+00 | 2.571E+00 | 0.000E+00 | FAIL ABUN |
| PB-214 | 9.028E-01 | 4.225E+00 | 2.651E+00 | 0.000E+00 | FAIL ABUN |
| RN-219 | 6.767E+00 | 1.464E+01 | 1.441E+01 | 0.000E+00 | NOT IDENT. |
| RA-223 | -5.475E-02 | 2.826E+01 | 2.389E+01 | 0.000E+00 | NOT IDENT. |
| AC-227 | -1.179E+01 | 1.431E+01 | 1.349E+01 | 0.000E+00 | NOT IDENT. |
| TH-227 | -1.158E+01 | 1.410E+01 | 1.326E+01 | 0.000E+00 | NOT IDENT. |
| AC-228 | 8.134E-01 | 1.036E+01 | 4.830E+00 | 0.000E+00 | FAIL ABUN |
| RA-228 | 8.134E-01 | 1.036E+01 | 4.830E+00 | 0.000E+00 | FAIL ABUN |
| TH-229 | 6.179E+00 | 2.320E+01 | 1.918E+01 | 0.000E+00 | FAIL ABUN |
| PA-231 | -5.266E+01 | 5.658E+01 | 5.276E+01 | 0.000E+00 | NOT IDENT. |
| TH-231 | 9.197E-01 | 7.290E+00 | 6.256E+00 | 0.000E+00 | FAIL ABUN |
| PA-233 | 2.136E+00 | 2.360E+00 | 2.376E+00 | 0.000E+00 | FAIL ABUN |

| | | | | | |
|---------|------------|-----------|-----------|-----------|------------|
| PA-234 | 9.417E-01 | 9.561E+00 | 9.353E+00 | 0.000E+00 | FAIL ABUN |
| PA-234M | -2.302E+02 | 2.175E+02 | 1.429E+02 | 0.000E+00 | NOT IDENT. |
| TH-234 | 0.000E+00 | 9.191E+01 | 6.098E+01 | 0.000E+00 | FAIL ABUN |
| U-234 | 3.646E-01 | 6.490E+00 | 5.106E+00 | 0.000E+00 | FAIL ABUN |
| U-235 | -4.325E+00 | 1.107E+01 | 8.209E+00 | 0.000E+00 | FAIL ABUN |
| NP-239 | -7.653E+00 | 7.948E+00 | 7.284E+00 | 0.000E+00 | NOT IDENT. |
| AM-241 | -2.304E+00 | 8.448E+00 | 6.218E+00 | 0.000E+00 | NOT IDENT. |
| AM-242 | 2.172E+01 | 8.958E+01 | 8.587E+01 | 0.000E+00 | NOT IDENT. |
| CM-247 | 1.107E+00 | 1.297E+00 | 1.300E+00 | 0.000E+00 | NOT IDENT. |
| CF-249 | -8.488E-01 | 1.374E+00 | 1.286E+00 | 0.000E+00 | NOT IDENT. |
| CF-251 | 0.000E+00 | 9.376E+00 | 5.512E+00 | 0.000E+00 | FAIL ABUN |
| ANH-511 | -6.215E+00 | 2.644E+00 | 2.071E+00 | 0.000E+00 | NOT IDENT. |

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*****
*                               GENERAL ENG. LABS, LLC.                               *
*                               2040 Savage Road                                       *
*                               Charleston, SC 29414                                   *
*****
Configuration      : DKA0:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1201068237.CNF;1
Sample date        : 22-MAR-2006 10:20:00 Acquisition date : 26-APR-2006 05:28:03
Sample ID          : G1201068237 Sample quantity : 2.00000E+00 LITER
Detector name     : GAM19 Detector geometry: 2LMB
Elapsed live time : 0 10:00:00.00 Elapsed real time: 0 10:00:06.59 0.0%
Energy tolerance  : 2.00000 keV Analyst Initials : MJH1
Abundance limit   : 75.00000 Sensitivity : 3.00000
Batch ID          : 519510 Detector SN# :
Matrix Spike DPM : LCS DPM :
*****

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| Pk | It | Energy | Area | Bkgnd | FWHM | Channel | Left | Pw | Cts/Sec | %Err | Fit |
|----|----|---------|------|-------|------|---------|------|----|----------|-------|----------|
| 1 | 9 | 5.01 | 4433 | 1638 | 1.35 | 9.81 | 6 | 12 | 1.23E-01 | 2.5 | 3.49E+01 |
| 2 | 9 | 6.51 | 1724 | 4033 | 1.89 | 12.80 | 6 | 12 | 4.79E-02 | 8.3 | |
| 3 | 0 | 10.51 | 483 | 4003 | 1.01 | 20.79 | 18 | 7 | 1.34E-02 | 22.4 | |
| 4 | 0 | 14.40 | 185 | 3325 | 1.55 | 28.56 | 26 | 7 | 5.13E-03 | 52.4 | |
| 5 | 0 | 46.86 | 103 | 660 | 1.22 | 93.40 | 89 | 8 | 2.86E-03 | 44.5 | |
| 6 | 2 | 63.40 | 242 | 606 | 1.56 | 126.45 | 121 | 16 | 6.72E-03 | 19.8 | 1.86E+00 |
| 7 | 2 | 66.41 | 166 | 578 | 1.60 | 132.45 | 121 | 16 | 4.60E-03 | 25.9 | |
| 8 | 0 | 84.72 | 39 | 587 | 0.66 | 169.02 | 164 | 9 | 1.10E-03 | 111.9 | |
| 9 | 0 | 92.61 | 430 | 698 | 1.36 | 184.80 | 178 | 11 | 1.19E-02 | 12.9 | |
| 10 | 0 | 140.04 | 229 | 540 | 1.04 | 279.54 | 275 | 10 | 6.37E-03 | 20.1 | |
| 11 | 0 | 176.54 | 236 | 658 | 2.73 | 352.47 | 346 | 14 | 6.56E-03 | 24.0 | |
| 12 | 0 | 185.99 | 294 | 461 | 1.26 | 371.34 | 367 | 10 | 8.18E-03 | 14.8 | |
| 13 | 0 | 198.61 | 206 | 528 | 1.42 | 396.55 | 391 | 12 | 5.73E-03 | 23.4 | |
| 14 | 0 | 204.90 | 44 | 391 | 0.66 | 409.12 | 407 | 9 | 1.22E-03 | 82.2 | |
| 15 | 0 | 239.37 | 235 | 510 | 1.24 | 477.98 | 472 | 13 | 6.52E-03 | 20.9 | |
| 16 | 0 | 265.86 | 25 | 264 | 0.72 | 530.92 | 528 | 8 | 6.94E-04 | 114.3 | |
| 17 | 0 | 326.20 | 46 | 259 | 1.32 | 651.46 | 646 | 10 | 1.29E-03 | 66.7 | |
| 18 | 0 | 352.31 | 79 | 176 | 2.33 | 703.63 | 700 | 8 | 2.19E-03 | 31.2 | |
| 19 | 0 | 472.06 | 36 | 245 | 6.09 | 942.92 | 936 | 16 | 1.00E-03 | 98.1 | |
| 20 | 0 | 484.78 | 38 | 224 | 4.85 | 968.34 | 959 | 15 | 1.06E-03 | 87.2 | |
| 21 | 0 | 489.33 | 36 | 132 | 1.51 | 977.42 | 974 | 9 | 1.01E-03 | 59.0 | |
| 22 | 0 | 511.23 | 735 | 230 | 2.91 | 1021.18 | 1012 | 19 | 2.04E-02 | 6.2 | |
| 23 | 0 | 569.31 | 55 | 208 | 3.26 | 1137.26 | 1128 | 15 | 1.52E-03 | 59.1 | |
| 24 | 0 | 584.22 | 63 | 158 | 1.15 | 1167.05 | 1160 | 11 | 1.75E-03 | 40.8 | |
| 25 | 0 | 596.03 | 49 | 134 | 1.66 | 1190.65 | 1188 | 8 | 1.37E-03 | 42.6 | |
| 26 | 0 | 609.96 | 76 | 146 | 1.41 | 1218.49 | 1214 | 12 | 2.12E-03 | 34.0 | |
| 27 | 0 | 645.94 | 15 | 117 | 1.22 | 1290.39 | 1283 | 11 | 4.26E-04 | 141.7 | |
| 28 | 0 | 651.43 | 94 | 157 | 7.08 | 1301.38 | 1293 | 20 | 2.62E-03 | 34.0 | |
| 29 | 0 | 819.74 | 40 | 55 | 2.32 | 1637.76 | 1633 | 10 | 1.11E-03 | 38.7 | |
| 30 | 0 | 869.24 | 83 | 125 | 4.36 | 1736.70 | 1726 | 20 | 2.31E-03 | 34.7 | |
| 31 | 0 | 912.61 | 48 | 148 | 4.28 | 1823.39 | 1812 | 19 | 1.34E-03 | 61.8 | |
| 32 | 0 | 922.01 | 15 | 52 | 0.49 | 1842.18 | 1836 | 9 | 4.13E-04 | 91.2 | |
| 33 | 0 | 1227.06 | 22 | 93 | 5.83 | 2452.03 | 2436 | 19 | 6.12E-04 | 110.2 | |
| 34 | 0 | 1287.80 | 41 | 81 | 7.73 | 2573.47 | 2562 | 23 | 1.14E-03 | 58.9 | |
| 35 | 0 | 1463.26 | 46 | 91 | 1.35 | 2924.32 | 2915 | 14 | 1.28E-03 | 46.4 | |
| 36 | 0 | 1498.87 | 18 | 38 | 1.51 | 2995.54 | 2990 | 11 | 5.09E-04 | 69.4 | |
| 37 | 1 | 1696.61 | 28 | 35 | 2.16 | 3391.00 | 3373 | 38 | 7.83E-04 | 46.8 | 1.57E+00 |
| 38 | 1 | 1699.11 | 18 | 37 | 2.16 | 3396.00 | 3373 | 38 | 5.12E-04 | 73.9 | |

| Pk | It | Energy | Area | Bkgnd | FWHM | Channel | Left | Pw | Cts/Sec | %Err | Fit |
|----|----|---------|------|-------|------|---------|------|----|----------|------|-----|
| 39 | 0 | 1745.33 | 23 | 57 | 7.21 | 3488.45 | 3477 | 18 | 6.33E-04 | 81.3 | |
| 40 | 0 | 1800.14 | 13 | 25 | 1.55 | 3598.08 | 3589 | 14 | 3.67E-04 | 84.3 | |
| 41 | 0 | 1873.57 | 17 | 44 | 6.51 | 3744.96 | 3732 | 17 | 4.86E-04 | 92.1 | |
| 42 | 0 | 1960.59 | 38 | 16 | 4.63 | 3919.04 | 3912 | 14 | 1.05E-03 | 28.5 | |

```

*****
*                               GENERAL ENG. LABS, LLC.                               *
*                               2040 Savage Road                                       *
*                               Charleston, SC 29414                                 *
*****
Configuration      : DKA0:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1201068237.CNF;1
Sample date        : 22-MAR-2006 10:20:00 Acquisition date : 26-APR-2006 05:28:03
Sample ID          : G1201068237           Sample quantity  : 2.00000E+00 LITER
Detector name     : GAM19                 Detector geometry: 2LMB
Elapsed live time : 0 10:00:00.00         Elapsed real time: 0 10:00:06.59  0.0%
Energy tolerance  : 2.00000 keV          Analyst Initials  : MJH1
Abundance limit   : 75.00000             Sensitivity       : 3.00000
Batch ID          : 519510                Detector SN#      :
Matrix Spike DPM  :                       LCS DPM         :
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Nuclide Line Activity Report

Nuclide Type:

| Nuclide | Energy | Area | %Abn | %Eff | Uncorrected pCi/LITER | Decay Corr pCi/LITER | 2-Sigma %Error |
|---------|--------|-------|--------|-----------|-----------------------|----------------------|----------------|
| BI-210 | 46.50 | 16 | 4.05* | 3.596E-01 | 4.041E+01 | 4.053E+01 | 677.59 |
| PB-210 | 46.50 | 16 | 4.05* | 3.596E-01 | 4.041E+01 | 4.053E+01 | 677.59 |
| BI-211 | 351.07 | 16 | 12.94* | 1.759E+00 | 2.595E+00 | 2.595E+00 | 467.92 |
| RA-226 | 295.21 | ----- | 19.20 | 1.962E+00 | ----- | Line Not Found | ----- |
| | 351.92 | 16 | 37.20 | 1.759E+00 | 9.028E-01 | 9.028E-01 | 467.91 |
| | 609.31 | 76 | 46.30* | 1.221E+00 | 5.065E+00 | 5.065E+00 | 68.42 |
| TH-228 | 84.40 | 39 | 1.21 | 2.253E+00 | 5.429E+01 | 5.621E+01 | 224.25 |
| | 238.60 | 48 | 44.60* | 2.220E+00 | 1.813E+00 | 1.877E+00 | 237.24 |
| | 300.10 | ----- | 3.41 | 1.943E+00 | ----- | Line Not Found | ----- |
| TH-230 | 295.21 | ----- | 19.20 | 1.962E+00 | ----- | Line Not Found | ----- |
| | 351.92 | 16 | 37.20 | 1.759E+00 | 9.028E-01 | 9.028E-01 | 467.91 |
| | 609.31 | 76 | 46.30* | 1.221E+00 | 5.065E+00 | 5.065E+00 | 68.42 |
| TH-232 | 238.59 | 48 | 44.60* | 2.220E+00 | 1.813E+00 | 1.813E+00 | 237.24 |
| | 911.20 | 5 | 27.70 | 8.970E-01 | 8.041E-01 | 8.041E-01 | 1273.17 |
| | 964.40 | ----- | 5.20 | 8.576E-01 | ----- | Line Not Found | ----- |
| | 969.11 | ----- | 16.60 | 8.542E-01 | ----- | Line Not Found | ----- |
| NP-237 | 86.48 | 39 | 12.60* | 2.253E+00 | 5.213E+00 | 5.213E+00 | 224.98 |
| | 95.87 | ----- | 2.60 | 2.545E+00 | ----- | Line Not Found | ----- |
| U-238 | 63.29 | 115 | 3.80* | 1.262E+00 | 8.980E+01 | 8.980E+01 | 102.35 |

Nuclide Type: NATURAL

| Nuclide | Energy | Area | %Abn | %Eff | Uncorrected pCi/LITER | Decay Corr pCi/LITER | 2-Sigma %Error |
|---------|--------|------|-------|-----------|-----------------------|----------------------|----------------|
| RA-224 | 240.98 | 48 | 3.95* | 2.220E+00 | 2.047E+01 | 2.120E+01 | 237.20 |

Flag: "*" = Keyline

Total number of lines in spectrum 38
 Number of unidentified lines 15
 Number of lines tentatively identified by NID 23 60.53%

Nuclide Type :

| Nuclide | Hlife | Decay | Uncorrected pCi/LITER | Decay Corr pCi/LITER | Decay Corr 2-Sigma Error | 2-Sigma %Error | Flags |
|------------------|-----------|-------|--------------------------|-------------------------|-----------------------------|-------------------|-------|
| BI-210 | 22.26Y | 1.00 | 4.041E+01 | 4.053E+01 | 27.46E+01 | 677.59 | |
| PB-210 | 22.26Y | 1.00 | 4.041E+01 | 4.053E+01 | 27.46E+01 | 677.59 | |
| BI-211 | 7.04E+08Y | 1.00 | 2.595E+00 | 2.595E+00 | 12.14E+00 | 467.92 | |
| RA-226 | 1600.00Y | 1.00 | 5.065E+00 | 5.065E+00 | 3.465E+00 | 68.42 | |
| TH-228 | 1.91Y | 1.04 | 1.813E+00 | 1.877E+00 | 4.454E+00 | 237.24 | |
| TH-230 | 7.70E+04Y | 1.00 | 5.065E+00 | 5.065E+00 | 3.465E+00 | 68.42 | |
| TH-232 | 1.41E+10Y | 1.00 | 1.813E+00 | 1.813E+00 | 4.302E+00 | 237.24 | |
| NP-237 | 2.14E+06Y | 1.00 | 5.213E+00 | 5.213E+00 | 11.73E+00 | 224.98 | |
| U-238 | 4.47E+09Y | 1.00 | 8.980E+01 | 8.980E+01 | 9.191E+01 | 102.35 | |
| Total Activity : | | | 1.922E+02 | 1.925E+02 | | | |

Nuclide Type : NATURAL

| Nuclide | Hlife | Decay | Uncorrected pCi/LITER | Decay Corr pCi/LITER | Decay Corr 2-Sigma Error | 2-Sigma %Error | Flags |
|------------------|-------|-------|--------------------------|-------------------------|-----------------------------|-------------------|-------|
| RA-224 | 1.91Y | 1.04 | 2.047E+01 | 2.120E+01 | 5.028E+01 | 237.20 | |
| Total Activity : | | | 2.047E+01 | 2.120E+01 | | | |

Grand Total Activity : 2.127E+02 2.137E+02

Flags: "K" = Keyline not found "M" = Manually accepted
 "E" = Manually edited "A" = Nuclide specific abn. limit

| It | Energy | Area | Bkgnd | FWHM | Channel | Left | Pw | Cts/Sec | %Err | %Eff | Flags |
|----|---------|------|-------|------|---------|------|----|----------|------|----------|-------|
| 9 | 5.01 | 3201 | 1638 | 1.35 | 9.81 | 6 | 12 | 8.89E-02 | 7.8 | 0.00E+00 | |
| 0 | 10.51 | 66 | 4003 | 1.01 | 20.79 | 18 | 7 | 1.82E-03 | **** | 5.98E-15 | |
| 0 | 14.40 | 185 | 3325 | 1.55 | 28.56 | 26 | 7 | 5.13E-03 | **** | 1.39E-09 | |
| 2 | 66.41 | 166 | 578 | 1.60 | 132.45 | 121 | 16 | 4.60E-03 | 51.9 | 1.43E+00 | T |
| 0 | 140.04 | 211 | 540 | 1.04 | 279.54 | 275 | 10 | 5.86E-03 | 49.8 | 2.78E+00 | T |
| 0 | 176.54 | 236 | 658 | 2.73 | 352.47 | 346 | 14 | 6.56E-03 | 47.9 | 2.59E+00 | T |
| 0 | 185.99 | 34 | 461 | 1.26 | 371.34 | 367 | 10 | 9.35E-04 | **** | 2.53E+00 | T |
| 0 | 198.61 | 109 | 528 | 1.42 | 396.55 | 391 | 12 | 3.02E-03 | **** | 2.45E+00 | T |
| 0 | 204.90 | 44 | 391 | 0.66 | 409.12 | 407 | 9 | 1.22E-03 | **** | 2.42E+00 | T |
| 0 | 265.86 | 25 | 264 | 0.72 | 530.92 | 528 | 8 | 6.94E-04 | **** | 2.09E+00 | T |
| 0 | 326.20 | 46 | 259 | 1.32 | 651.46 | 646 | 10 | 1.29E-03 | **** | 1.85E+00 | |
| 0 | 472.06 | 36 | 245 | 6.09 | 942.92 | 936 | 16 | 1.00E-03 | **** | 1.46E+00 | T |
| 0 | 484.78 | 38 | 224 | 4.85 | 968.34 | 959 | 15 | 1.06E-03 | **** | 1.43E+00 | T |
| 0 | 489.33 | 36 | 132 | 1.51 | 977.42 | 974 | 9 | 1.01E-03 | **** | 1.42E+00 | T |
| 0 | 569.31 | 16 | 208 | 3.26 | 1137.26 | 1128 | 15 | 4.54E-04 | **** | 1.28E+00 | T |
| 0 | 584.22 | 17 | 158 | 1.15 | 1167.05 | 1160 | 11 | 4.85E-04 | **** | 1.26E+00 | T |
| 0 | 596.03 | 49 | 134 | 1.66 | 1190.65 | 1188 | 8 | 1.37E-03 | 85.3 | 1.24E+00 | |
| 0 | 645.94 | 15 | 117 | 1.22 | 1290.39 | 1283 | 11 | 4.26E-04 | **** | 1.17E+00 | T |
| 0 | 651.43 | 94 | 157 | 7.08 | 1301.38 | 1293 | 20 | 2.62E-03 | 67.9 | 1.16E+00 | T |
| 0 | 819.74 | 40 | 55 | 2.32 | 1637.76 | 1633 | 10 | 1.11E-03 | 77.4 | 9.77E-01 | T |
| 0 | 869.24 | 83 | 125 | 4.36 | 1736.70 | 1726 | 20 | 2.31E-03 | 69.5 | 9.33E-01 | T |
| 0 | 922.01 | 15 | 52 | 0.49 | 1842.18 | 1836 | 9 | 4.13E-04 | **** | 8.90E-01 | |
| 0 | 1227.06 | 22 | 93 | 5.83 | 2452.03 | 2436 | 19 | 6.12E-04 | **** | 7.05E-01 | |
| 0 | 1287.80 | 41 | 81 | 7.73 | 2573.47 | 2562 | 23 | 1.14E-03 | **** | 6.78E-01 | |
| 0 | 1498.87 | 18 | 38 | 1.51 | 2995.54 | 2990 | 11 | 5.09E-04 | **** | 6.06E-01 | |
| 1 | 1696.61 | 28 | 35 | 2.16 | 3391.00 | 3373 | 38 | 7.83E-04 | 93.7 | 5.59E-01 | |
| 1 | 1699.11 | 18 | 37 | 2.16 | 3396.00 | 3373 | 38 | 5.12E-04 | **** | 5.59E-01 | |
| 0 | 1745.33 | 23 | 57 | 7.21 | 3488.45 | 3477 | 18 | 6.33E-04 | **** | 5.51E-01 | |
| 0 | 1800.14 | 13 | 25 | 1.55 | 3598.08 | 3589 | 14 | 3.67E-04 | **** | 5.42E-01 | |
| 0 | 1873.57 | 17 | 44 | 6.51 | 3744.96 | 3732 | 17 | 4.86E-04 | **** | 5.32E-01 | |
| 0 | 1960.59 | 38 | 16 | 4.63 | 3919.04 | 3912 | 14 | 1.05E-03 | 57.0 | 5.23E-01 | |

Flags: "T" = Tentatively associated

```

*****
*                                     GENERAL ENG. LABS, LLC.                               *
*                                     2040 Savage Road                                   *
*                                     Charleston, SC 29414                               *
*****
*                                     DETECTOR DATA                                   *
*
* Configuration      : DKA0:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1201068237.CNF;1          *
* Acquisition date   : 26-APR-2006 05:28:03   Detector SN#      :                   *
* Detector ID       : GAM19                   Sensitivity        : 3.00000          *
* Geometry          : 2LMB                    Energy tolerance    : 2.00000          *
* Elapsed live time : 0 10:00:00.00           Abundance limit      : 75.00000          *
* Elapsed real time : 0 10:00:06.59           Half life ratio      : 8.00000          *
*****
*                                     SAMPLE DATA                                   *
*
* Sample date       : 22-MAR-2006 10:20:00   Nuclide Library    : EPI                *
* Sample ID        : G1201068237           Analyst initials   : MJH1                *
* Batch Number     : 519510                Sample Quantity    : 2.00000E+00 LITER          *
*****
*                                     QC DATA                                       *
*
* CALIB. DATE/TIME : 17-FEB-2006 16:09:06.3MS Isotope      :                   *
* MSD DPM          :                       MSD Isotope      :                   *
* LCS DPM          :                       LCS Isotope      :                   *
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Combined Activity-MDA Report

---- Identified Nuclides ----

| Nuclide | Activity (pCi/LITER) | Act error | MDA (pCi/LITER) | MDA error | Act/MDA |
|---------|-------------------------|-----------|--------------------|-----------|---------|
| BI-210 | 4.053E+01 | 2.746E+02 | 1.833E+02 | 1.637E+01 | 0.221 |
| PB-210 | 4.053E+01 | 2.746E+02 | 1.833E+02 | 1.637E+01 | 0.221 |
| BI-211 | 2.595E+00 | 1.214E+01 | 6.879E+00 | 4.923E-01 | 0.377 |
| RA-224 | 2.120E+01 | 5.028E+01 | 2.244E+01 | 1.695E+00 | 0.945 |
| RA-226 | 5.065E+00 | 3.465E+00 | 2.297E+00 | 1.850E-01 | 2.205 |
| TH-228 | 1.877E+00 | 4.454E+00 | 2.067E+00 | 1.817E-01 | 0.908 |
| TH-230 | 5.065E+00 | 3.465E+00 | 2.297E+00 | 1.849E-01 | 2.205 |
| TH-232 | 1.813E+00 | 4.302E+00 | 1.997E+00 | 1.755E-01 | 0.908 |
| NP-237 | 5.213E+00 | 1.173E+01 | 8.155E+00 | 1.847E+00 | 0.639 |
| U-238 | 8.980E+01 | 9.191E+01 | 5.175E+01 | 9.784E+00 | 1.735 |

---- Non-Identified Nuclides ----

| Nuclide | Key-Line Activity (pCi/LITER) | K.L. Ided | Act error | MDA (pCi/LITER) | MDA error | Act/MDA |
|---------|-------------------------------------|--------------|-----------|--------------------|-----------|---------|
| BE-7 | -4.062E+00 | | 2.635E+01 | 1.424E+01 | 1.003E+00 | -0.285 |
| NA-22 | 3.565E-01 | | 1.283E+00 | 1.257E+00 | 7.711E-02 | 0.284 |

---- Non-Identified Nuclides ----

| Nuclide | Key-Line Activity (pCi/LITER) | K.L. Ided | Act error | MDA (pCi/LITER) | MDA error | Act/MDA |
|---------|-------------------------------------|--------------|-----------|---------------------|-----------|---------|
| NA-24 | 2.522E+10 | | 4.424E+10 | Half-Life too short | | |
| AL-26 | 3.295E-01 | | 1.392E+00 | 1.362E+00 | 7.763E-02 | 0.242 |
| K-40 | 5.311E+00 | | 2.121E+01 | 1.748E+01 | 1.109E+00 | 0.304 |
| SC-46 | -2.367E-01 | | 1.408E+00 | 1.355E+00 | 1.081E-01 | -0.175 |
| V-48 | -7.506E+00 | | 5.317E+00 | 4.562E+00 | 3.507E-01 | -1.645 |
| CR-51 | 1.087E+01 | | 2.587E+01 | 2.241E+01 | 1.692E+00 | 0.485 |
| MN-54 | 7.352E-01 | | 1.178E+00 | 1.197E+00 | 8.987E-02 | 0.614 |
| CO-56 | -6.100E-01 | | 1.519E+00 | 1.444E+00 | 1.099E-01 | -0.423 |
| MN-56 | -1.000E+35 | | 1.245E+35 | Half-Life too short | | |
| CO-57 | 3.795E-01 | | 1.098E+00 | 1.052E+00 | 7.650E-02 | 0.361 |
| CO-58 | -2.751E-01 | | 1.678E+00 | 1.551E+00 | 1.137E-01 | -0.177 |
| FE-59 | 3.084E-01 | | 3.734E+00 | 3.624E+00 | 2.830E-01 | 0.085 |
| CO-60 | 2.445E-01 | | 1.320E+00 | 1.280E+00 | 7.608E-02 | 0.191 |
| ZN-65 | -5.357E-02 | | 2.529E+00 | 2.432E+00 | 1.665E-01 | -0.022 |
| SE-75 | 9.199E-01 | + | 2.105E+00 | 1.800E+00 | 1.350E-01 | 0.511 |
| KR-85 | -5.741E+02 | | 3.887E+02 | 3.512E+02 | 2.170E+01 | -1.635 |
| SR-85 | -3.626E+00 | | 2.455E+00 | 2.218E+00 | 1.371E-01 | -1.635 |
| Y-88 | 6.325E-01 | | 1.635E+00 | 1.651E+00 | 9.355E-02 | 0.383 |
| Y-91 | -2.381E-01 | | 1.581E+00 | 1.491E+00 | 9.235E-02 | -0.160 |
| NB-94 | 2.155E-01 | | 1.234E+00 | 1.174E+00 | 7.526E-02 | 0.184 |
| NB-95 | 3.961E-01 | | 2.134E+00 | 2.029E+00 | 1.407E-01 | 0.195 |
| NB-95M | 4.607E-04 | | 1.775E-03 | Half-Life too short | | |
| ZR-95 | -1.915E+00 | | 2.901E+00 | 2.587E+00 | 2.050E-01 | -0.740 |
| MO-99 | 2.331E-02 | + | 5.870E-03 | Half-Life too short | | |
| TC-99M | 1.000E+35 | + | 4.088E+34 | Half-Life too short | | |
| RU-103 | -2.050E-01 | | 2.099E+00 | 1.997E+00 | 2.560E-01 | -0.103 |
| RH-106 | 4.494E+00 | | 1.181E+01 | 1.144E+01 | 7.032E-01 | 0.393 |
| RU-106 | 8.205E+00 | | 1.173E+01 | 1.154E+01 | 1.374E+00 | 0.711 |
| AG-108M | 5.042E-02 | | 1.184E+00 | 1.141E+00 | 7.452E-02 | 0.044 |
| CD-109 | -1.062E+02 | | 3.843E+01 | 2.740E+01 | 2.575E+00 | -3.875 |
| AG-110M | -1.258E-01 | | 1.361E+00 | 1.100E+00 | 7.090E-02 | -0.114 |
| SN-113 | 8.867E-01 | | 1.761E+00 | 1.740E+00 | 1.098E-01 | 0.510 |
| CD-115 | 1.733E-03 | | 8.999E-02 | Half-Life too short | | |
| SN-115 | 4.332E+01 | | 1.554E+02 | 1.539E+02 | 1.219E+01 | 0.282 |
| SN-117M | 3.664E+00 | | 5.962E+00 | 5.721E+00 | 4.285E-01 | 0.640 |
| TE-123M | 2.223E-01 | | 1.265E+00 | 1.198E+00 | 9.050E-02 | 0.186 |
| SB-124 | 1.737E-01 | | 3.786E+00 | 3.580E+00 | 2.277E-01 | 0.049 |
| SB-125 | 1.094E+00 | | 3.333E+00 | 3.259E+00 | 2.044E-01 | 0.336 |
| TE-125M | -3.751E+02 | | 4.910E+02 | 4.540E+02 | 4.380E+01 | -0.826 |
| I-126 | 1.496E+00 | | 1.681E+01 | 1.597E+01 | 9.771E-01 | 0.094 |
| SB-126 | 9.136E+00 | | 1.452E+01 | 1.422E+01 | 9.321E-01 | 0.643 |
| SN-126 | -3.627E+00 | | 3.383E+00 | 2.688E+00 | 2.520E-01 | -1.349 |
| SB-127 | 1.991E-04 | | 7.807E-04 | Half-Life too short | | |
| I-131 | -1.353E+01 | | 2.344E+01 | 2.208E+01 | 1.612E+00 | -0.613 |
| I-132 | -1.000E+35 | | 3.509E+35 | Half-Life too short | | |
| TE-132 | -9.308E-04 | | 9.091E-04 | Half-Life too short | | |
| BA-133 | 5.742E-01 | | 1.749E+00 | 1.503E+00 | 1.794E-01 | 0.382 |
| I-133 | 3.961E+05 | | 8.009E+05 | Half-Life too short | | |

---- Non-Identified Nuclides ----

| Nuclide | Key-Line Activity (pCi/LITER) | K.L. Ided | Act error | MDA (pCi/LITER) | MDA error | Act/MDA |
|---------|-------------------------------------|--------------|-----------|--------------------|-----------|---------|
| CS-134 | 6.035E-01 | | 1.325E+00 | 1.282E+00 | 9.280E-02 | 0.471 |
| CS-135 | 6.010E-01 | | 6.359E+00 | 5.447E+00 | 4.880E-01 | 0.110 |
| I-135 | 1.134E+31 | | 4.081E+32 | Half-Life | too short | |
| CS-136 | -7.805E-01 | | 8.986E+00 | 8.625E+00 | 6.709E-01 | -0.090 |
| BA-137M | -1.269E-01 | | 1.199E+00 | 1.093E+00 | 6.649E-02 | -0.116 |
| CS-137 | -1.383E-01 | | 1.268E+00 | 1.155E+00 | 7.053E-02 | -0.120 |
| CE-139 | -2.849E-01 | | 1.299E+00 | 1.211E+00 | 9.202E-02 | -0.235 |
| BA-140 | -1.850E+00 | | 2.535E+01 | 2.406E+01 | 7.841E+00 | -0.077 |
| LA-140 | -1.681E+00 | | 9.371E+00 | 8.681E+00 | 5.173E-01 | -0.194 |
| CE-141 | 1.271E+00 | | 4.976E+00 | 3.799E+00 | 2.856E-01 | 0.334 |
| CE-143 | -8.497E+01 | | 5.554E+01 | Half-Life | too short | |
| CE-144 | 1.431E+00 | | 8.854E+00 | 8.125E+00 | 1.207E+00 | 0.176 |
| PM-144 | 3.574E-02 | | 1.291E+00 | 1.219E+00 | 7.777E-02 | 0.029 |
| PR-144 | 1.000E+35 | | 1.807E+36 | Half-Life | too short | |
| PM-146 | 4.571E-01 | | 1.597E+00 | 1.555E+00 | 1.372E-01 | 0.294 |
| ND-147 | 3.783E+01 | | 6.585E+01 | 6.476E+01 | 8.871E+00 | 0.584 |
| PM-147 | -9.980E+05 | | 2.223E+06 | 2.075E+06 | 1.510E+05 | -0.481 |
| PM-149 | -1.390E+00 | | 8.497E-01 | Half-Life | too short | |
| EU-152 | -4.415E+00 | | 4.885E+00 | 3.440E+00 | 2.524E-01 | -1.284 |
| GD-153 | -1.165E+01 | | 4.553E+00 | 3.094E+00 | 2.598E-01 | -3.764 |
| EU-154 | 1.011E+00 | | 3.551E+00 | 3.480E+00 | 3.322E-01 | 0.290 |
| EU-155 | 4.074E+00 | | 4.443E+00 | 4.335E+00 | 3.464E-01 | 0.940 |
| TB-160 | 4.123E+00 | | 5.717E+00 | 5.720E+00 | 4.515E-01 | 0.721 |
| TM-171 | 2.844E+03 | + | 1.503E+03 | 1.251E+03 | 1.235E+02 | 2.274 |
| HF-181 | 4.640E-01 | | 2.369E+00 | 1.995E+00 | 1.226E-01 | 0.233 |
| TA-182 | 2.574E+00 | | 6.697E+00 | 5.766E+00 | 3.606E-01 | 0.446 |
| IR-192 | -1.115E+00 | | 1.553E+00 | 1.465E+00 | 1.034E-01 | -0.762 |
| HG-203 | 1.490E+00 | | 1.974E+00 | 1.980E+00 | 1.515E-01 | 0.753 |
| BI-207 | 1.038E+00 | | 1.584E+00 | 1.604E+00 | 1.157E-01 | 0.647 |
| TL-208 | 6.402E-01 | + | 2.488E+00 | 1.450E+00 | 1.018E-01 | 0.442 |
| PB-211 | 8.929E+00 | | 3.257E+01 | 3.138E+01 | 1.956E+01 | 0.285 |
| BI-212 | 2.307E-01 | | 9.514E+00 | 8.961E+00 | 7.473E-01 | 0.026 |
| PB-212 | 1.877E+00 | + | 4.454E+00 | 2.518E+00 | 2.213E-01 | 0.746 |
| BI-214 | 5.065E+00 | + | 3.465E+00 | 2.571E+00 | 2.071E-01 | 1.970 |
| PB-214 | 9.028E-01 | + | 4.225E+00 | 2.651E+00 | 2.346E-01 | 0.341 |
| RN-219 | 6.767E+00 | | 1.464E+01 | 1.441E+01 | 1.970E+00 | 0.470 |
| RA-223 | -5.475E-02 | | 2.826E+01 | 2.389E+01 | 4.050E+00 | -0.002 |
| AC-227 | -1.179E+01 | | 1.431E+01 | 1.349E+01 | 2.011E+00 | -0.874 |
| TH-227 | -1.158E+01 | | 1.410E+01 | 1.326E+01 | 2.328E+00 | -0.874 |
| AC-228 | 8.134E-01 | + | 1.036E+01 | 4.830E+00 | 5.208E-01 | 0.168 |
| RA-228 | 8.134E-01 | + | 1.036E+01 | 4.830E+00 | 5.208E-01 | 0.168 |
| TH-229 | 6.179E+00 | | 2.320E+01 | 1.918E+01 | 1.458E+00 | 0.322 |
| PA-231 | -5.266E+01 | | 5.658E+01 | 5.276E+01 | 7.646E+00 | -0.998 |
| TH-231 | 9.197E-01 | | 7.290E+00 | 6.256E+00 | 5.404E-01 | 0.147 |
| PA-233 | 2.136E+00 | | 2.360E+00 | 2.376E+00 | 1.753E-01 | 0.899 |
| PA-234 | 9.417E-01 | | 9.561E+00 | 9.353E+00 | 1.724E+00 | 0.101 |
| PA-234M | -2.302E+02 | | 2.175E+02 | 1.429E+02 | 1.297E+01 | -1.611 |
| TH-234 | 8.980E+01 | + | 9.191E+01 | 6.098E+01 | 1.153E+01 | 1.473 |

---- Non-Identified Nuclides ----

| Nuclide | Key-Line Activity (pCi/LITER) | K.L. Ided | Act error | MDA (pCi/LITER) | MDA error | Act/MDA |
|---------|-------------------------------------|--------------|-----------|--------------------|-----------|---------|
| U-234 | 3.646E-01 | | 6.490E+00 | 5.106E+00 | 4.883E-01 | 0.071 |
| U-235 | -4.325E+00 | | 1.107E+01 | 8.209E+00 | 1.388E+00 | -0.527 |
| NP-239 | -7.653E+00 | | 7.948E+00 | 7.284E+00 | 5.389E-01 | -1.051 |
| AM-241 | -2.304E+00 | | 8.448E+00 | 6.218E+00 | 7.307E-01 | -0.370 |
| AM-242 | 2.172E+01 | | 8.958E+01 | 8.587E+01 | 6.841E+00 | 0.253 |
| CM-247 | 1.107E+00 | | 1.297E+00 | 1.300E+00 | 7.753E-02 | 0.851 |
| CF-249 | -8.488E-01 | | 1.374E+00 | 1.286E+00 | 7.711E-02 | -0.660 |
| CF-251 | 1.933E+01 | + | 9.376E+00 | 5.512E+00 | 4.188E-01 | 3.506 |
| ANH-511 | -6.215E+00 | | 2.644E+00 | 2.071E+00 | 1.279E-01 | -3.000 |

VAX/VMS Nuclide Identification Report Generated 26-APR-2006 06:24:34.65

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*****
*                               GENERAL ENG. LABS, LLC.                               *
*                               2040 Savage Road                                       *
*                               Charleston, SC 29414                                   *
*****
Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1201068238.CNF;1
Sample date        : 25-APR-2006 00:00:00 Acquisition date : 26-APR-2006 05:24:01
Sample ID          : G1201068238 Sample quantity      : 2.00000E+00 LITER
Detector name     : GAMMA6 Detector geometry        : 2L_MB
Elapsed live time : 0 01:00:00.00 Elapsed real time: 0 01:00:01.09 0.0%
Energy tolerance  : 2.00000 KEV Analyst Initials    : MJH1
Abundance limit   : 75.00000 Sensitivity         : 3.00000
Batch ID          : 519510 Detector SN#       : 1922827
Matrix Spike DPM  : LCS DPM                        :
*****

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| Pk | It | Energy | Area | Bkgnd | FWHM | Channel | Left | Pw | Cts/Sec | %Err | Fit |
|----|----|----------|------|-------|-------|---------|------|----|----------|-------|----------|
| 1 | 0 | 59.54 | 924 | 675 | 1.09 | 120.28 | 115 | 11 | 2.57E-01 | 6.4 | |
| 2 | 0 | 66.80* | 55 | 433 | 1.79 | 134.77 | 132 | 8 | 1.54E-02 | 66.5 | |
| 3 | 0 | 88.15* | 1706 | 637 | 1.06 | 177.38 | 171 | 11 | 4.74E-01 | 3.7 | |
| 4 | 0 | 102.91 | 42 | 199 | 0.85 | 206.83 | 205 | 6 | 1.18E-02 | 54.6 | |
| 5 | 0 | 122.26 | 744 | 339 | 1.08 | 245.45 | 241 | 9 | 2.07E-01 | 5.8 | |
| 6 | 2 | 137.05 | 125 | 208 | 1.11 | 274.98 | 269 | 13 | 3.46E-02 | 21.2 | 3.92E+00 |
| 7 | 2 | 138.57 | 39 | 168 | 1.08 | 278.00 | 269 | 13 | 1.08E-02 | 59.2 | |
| 8 | 0 | 166.11 | 372 | 277 | 1.02 | 332.97 | 329 | 9 | 1.03E-01 | 9.6 | |
| 9 | 0 | 185.58* | 27 | 215 | 1.37 | 371.82 | 367 | 9 | 7.39E-03 | 103.3 | |
| 10 | 0 | 198.42* | 18 | 167 | 0.73 | 397.46 | 394 | 7 | 5.06E-03 | 124.6 | |
| 11 | 0 | 203.10* | 36 | 136 | 1.60 | 406.80 | 405 | 7 | 9.93E-03 | 57.0 | |
| 12 | 0 | 294.96* | 9 | 86 | 1.30 | 590.14 | 588 | 6 | 2.45E-03 | 175.6 | |
| 13 | 0 | 331.52 | 20 | 51 | 0.50 | 663.12 | 660 | 5 | 5.51E-03 | 58.5 | |
| 14 | 0 | 371.57 | 56 | 78 | 1.60 | 743.05 | 739 | 9 | 1.54E-02 | 31.8 | |
| 15 | 0 | 375.25 | 20 | 81 | 1.52 | 750.40 | 747 | 8 | 5.61E-03 | 80.0 | |
| 16 | 0 | 391.78* | 231 | 159 | 1.19 | 783.40 | 777 | 13 | 6.43E-02 | 13.1 | |
| 17 | 1 | 469.59 | 27 | 76 | 1.55 | 938.72 | 931 | 21 | 7.54E-03 | 63.1 | 1.86E+00 |
| 18 | 1 | 473.38* | 27 | 93 | 1.55 | 946.28 | 931 | 21 | 7.48E-03 | 62.8 | |
| 19 | 0 | 485.15* | 10 | 65 | 0.59 | 969.78 | 964 | 8 | 2.84E-03 | 143.7 | |
| 20 | 0 | 511.14* | 15 | 84 | 3.31 | 1021.66 | 1017 | 11 | 4.27E-03 | 133.0 | |
| 21 | 0 | 527.89 | 22 | 26 | 1.35 | 1055.09 | 1052 | 6 | 6.04E-03 | 43.3 | |
| 22 | 0 | 661.87 | 997 | 73 | 1.41 | 1322.59 | 1316 | 15 | 2.77E-01 | 3.7 | |
| 23 | 3 | 675.33 | 30 | 14 | 1.49 | 1349.46 | 1347 | 11 | 8.35E-03 | 26.2 | 1.83E+00 |
| 24 | 3 | 677.98 | 18 | 16 | 1.42 | 1354.74 | 1347 | 11 | 5.01E-03 | 41.7 | |
| 25 | 0 | 884.81 | 23 | 78 | 6.82 | 1767.73 | 1763 | 16 | 6.51E-03 | 85.9 | |
| 26 | 0 | 898.17 | 248 | 111 | 1.47 | 1794.41 | 1786 | 16 | 6.88E-02 | 11.5 | |
| 27 | 0 | 922.24 | 20 | 32 | 0.92 | 1842.48 | 1839 | 7 | 5.66E-03 | 50.8 | |
| 28 | 0 | 1053.34 | 25 | 33 | 2.13 | 2104.30 | 2100 | 11 | 6.96E-03 | 49.9 | |
| 29 | 0 | 1115.81 | 21 | 20 | 1.22 | 2229.06 | 2226 | 7 | 5.72E-03 | 45.3 | |
| 30 | 0 | 1159.36* | 56 | 65 | 16.43 | 2316.05 | 2294 | 37 | 1.55E-02 | 48.2 | |
| 31 | 0 | 1173.41 | 1031 | 43 | 1.95 | 2344.11 | 2338 | 17 | 2.86E-01 | 3.5 | |
| 32 | 0 | 1239.28* | 20 | 7 | 0.73 | 2475.67 | 2470 | 13 | 5.42E-03 | 36.4 | |
| 33 | 0 | 1299.97 | 18 | 7 | 4.82 | 2596.92 | 2590 | 14 | 5.00E-03 | 39.1 | |
| 34 | 0 | 1332.60* | 903 | 48 | 1.71 | 2662.10 | 2653 | 19 | 2.51E-01 | 3.8 | |
| 35 | 0 | 1404.40* | 11 | 27 | 14.79 | 2805.53 | 2782 | 36 | 3.00E-03 | 155.7 | |
| 36 | 0 | 1414.87 | 7 | 7 | 0.90 | 2826.44 | 2823 | 13 | 1.92E-03 | 85.5 | |
| 37 | 0 | 1426.57 | 9 | 18 | 1.04 | 2849.82 | 2846 | 23 | 2.43E-03 | 128.5 | |
| 38 | 0 | 1461.47* | 3 | 0 | 3.33 | 2919.53 | 2916 | 9 | 8.80E-04 | 136.4 | |

| Pk | It | Energy | Area | Bkgnd | FWHM | Channel | Left | Pw | Cts/Sec | %Err | Fit |
|----|----|----------|------|-------|------|---------|------|----|----------|-------|-----|
| 39 | 0 | 1538.95 | 9 | 6 | 3.46 | 3074.33 | 3071 | 10 | 2.61E-03 | 55.8 | |
| 40 | 0 | 1559.91 | 4 | 13 | 3.31 | 3116.21 | 3113 | 17 | 1.07E-03 | 219.0 | |
| 41 | 0 | 1836.62* | 144 | 21 | 2.23 | 3669.14 | 3659 | 22 | 4.01E-02 | 11.8 | |

Flag: "*" = Peak area was modified by background subtraction

VAX/VMS Nuclide Identification Report Generated

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*****
*                               General Eng. Labs, LLC.                               *
*                               2040 Savage Road                                       *
*                               Charleston, SC 29414                                   *
*****
*                               DETECTOR DATA                                       *
*
* Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1201068238
* Acquisition date   : 26-APR-2006 05:24:01 Detector SN#      : 1922827
* Detector ID        : GAMMA6                      Sensitivity    : 3.000
* Geometry           : 2L_MB                       Energy tolerance: 2.000
* Elapsed live time  : 0 01:00:00.00              Abundance limit : 75.000
* Elapsed real time  : 0 01:00:01.09              Half life ratio  : 8.000
*****
*                               SAMPLE DATA                                         *
*
* Sample date        : 25-APR-2006 00:00:00 Nuclide Library  : FERMC
* Sample ID          : G1201068238                 Analyst initials  : MJH1
* Batch Number       : 519510                      Sample Quantity  : 2.0000E+00 LITER
* Recovery            : 1.00000                     Carrier Weight   : 0.00000
*****
*                               QC DATA                                             *
*
* Standard Weight    : 0.00000
* CALIB. DATE/TIME   : 29-DEC-2005 05:08:19 MS Isotope      : TOPLOADER
* MSD DPM             : 5.440                       MSD Isotope      : TOPLOADER
* LCS DPM             : 0.000                       LCS Isotope      : TOPLOADER
* LCSD DPM           : 0.000                       LCSD Isotope     : TOPLOADER
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Combined Activity-MDA Report

---- Identified Nuclides ----

| Nuclide | Activity (pCi/LITER) | Act error | MDA (pCi/LITER) | |
|---------|--------------------------|-----------|---------------------|-----------|
| K-40 | 2.276E+01 | 6.209E+01 | 1.148E+02 | 0.000E+00 |
| CO-57 | 1.388E+02 | 1.611E+01 | 1.300E+01 | 0.000E+00 |
| CO-60 | 6.458E+02 | 4.912E+01 | 1.569E+01 | 0.000E+00 |
| ZN-65 | 2.514E+01 | 2.277E+01 | 4.058E+01 | 0.000E+00 |
| Y-88 | 1.279E+02 | 3.016E+01 | 1.335E+01 | 0.000E+00 |
| MO-99 | 1.025E+01 | 1.214E+01 | 1.707E+01 | 0.000E+00 |
| TC-99M | 2.186E+02 | 2.589E+02 | 3.640E+02 | 0.000E+00 |
| CD-109 | 8.784E+03 | 6.579E+02 | 4.261E+02 | 0.000E+00 |
| SN-113 | 1.003E+02 | 2.619E+01 | 1.738E+01 | 0.000E+00 |
| SN-126 | 8.981E+02 | 6.727E+01 | 4.385E+01 | 0.000E+00 |
| I-133 | 2.328E+01 | 2.014E+01 | 4.042E+01 | 0.000E+00 |
| BA-137M | 4.456E+02 | 3.286E+01 | 1.377E+01 | 0.000E+00 |
| CS-137 | 4.710E+02 | 3.474E+01 | 1.456E+01 | 0.000E+00 |
| CE-139 | 7.849E+01 | 1.507E+01 | 1.335E+01 | 0.000E+00 |
| NP-237 | 2.637E+03 | 1.975E+02 | 1.308E+02 | 0.000E+00 |
| AM-241 | 1.332E+03 | 1.705E+02 | 1.169E+02 | 0.000E+00 |
| ANH-511 | 5.126E+00 | 1.364E+01 | 1.370E+01 | 0.000E+00 |

---- Non-Identified Nuclides ----

| Nuclide | Key-Line Activity (pCi/LITER) | K.L. Act error) Ided | MDA (pCi/LITER) | |
|---------|--------------------------------------|--------------------------|---------------------|----------------------|
| BE-7 | -3.471E+01 | 8.309E+01 | 1.272E+02 | 0.000E+00 NOT IDENT. |
| NA-22 | 5.170E+00 | 6.742E+00 | 1.469E+01 | 0.000E+00 NOT IDENT. |
| NA-24 | -1.840E+01 | 2.193E+01 | 3.549E+01 | 0.000E+00 NOT IDENT. |
| AL-26 | -2.933E+00 | 5.963E+00 | 1.045E+01 | 0.000E+00 FAIL ABUN |
| SC-46 | 2.328E+00 | 1.272E+01 | 1.991E+01 | 0.000E+00 NOT IDENT. |
| V-48 | -5.362E+00 | 1.081E+01 | 1.796E+01 | 0.000E+00 NOT IDENT. |
| CR-51 | 1.802E+01 | 7.275E+01 | 1.269E+02 | 0.000E+00 NOT IDENT. |
| MN-54 | -4.854E+00 | 1.004E+01 | 1.689E+01 | 0.000E+00 NOT IDENT. |
| CO-56 | -6.226E+00 | 1.034E+01 | 1.716E+01 | 0.000E+00 FAIL ABUN |
| MN-56 | 0.000E+00 | 3.189E+04 | 0.000E+00 | 0.000E+00 SHORT HLIF |

| | | | | | |
|---------|------------|-----------|-----------|-----------|------------|
| CO-58 | -5.073E+00 | 9.538E+00 | 1.603E+01 | 0.000E+00 | NOT IDENT. |
| FE-59 | 6.860E+00 | 2.158E+01 | 3.869E+01 | 0.000E+00 | NOT IDENT. |
| SE-75 | 1.168E+01 | 1.203E+01 | 2.183E+01 | 0.000E+00 | FAIL ABUN |
| KR-85 | 1.677E+03 | 1.963E+03 | 3.402E+03 | 0.000E+00 | NOT IDENT. |
| SR-85 | 7.429E+00 | 8.695E+00 | 1.507E+01 | 0.000E+00 | NOT IDENT. |
| Y-91 | 3.841E+00 | 8.266E+00 | 1.543E+01 | 0.000E+00 | NOT IDENT. |
| NB-94 | -1.325E+00 | 8.479E+00 | 1.494E+01 | 0.000E+00 | NOT IDENT. |
| NB-95 | -3.221E+00 | 9.685E+00 | 1.665E+01 | 0.000E+00 | NOT IDENT. |
| NB-95M | -3.522E+01 | 3.632E+01 | 5.924E+01 | 0.000E+00 | NOT IDENT. |
| ZR-95 | 7.775E+00 | 1.711E+01 | 3.156E+01 | 0.000E+00 | NOT IDENT. |
| RU-103 | 2.444E+00 | 8.378E+00 | 1.551E+01 | 0.000E+00 | NOT IDENT. |
| RH-106 | 1.159E+01 | 7.269E+01 | 1.338E+02 | 0.000E+00 | FAIL ABUN |
| RU-106 | -1.247E+01 | 7.325E+01 | 1.306E+02 | 0.000E+00 | NOT IDENT. |
| AG-108M | -6.696E-01 | 9.555E+00 | 1.606E+01 | 0.000E+00 | NOT IDENT. |
| AG-110M | 1.287E+00 | 8.854E+00 | 1.435E+01 | 0.000E+00 | FAIL ABUN |
| CD-115 | 3.756E+01 | 3.249E+01 | 6.351E+01 | 0.000E+00 | FAIL ABUN |
| SN-115 | -2.380E+01 | 8.743E+02 | 1.522E+03 | 0.000E+00 | FAIL ABUN |
| SN-117M | 3.700E+00 | 7.121E+00 | 1.283E+01 | 0.000E+00 | NOT IDENT. |
| TE-123M | 3.152E+00 | 7.018E+00 | 1.259E+01 | 0.000E+00 | NOT IDENT. |
| SB-124 | -1.553E+00 | 1.186E+01 | 2.331E+01 | 0.000E+00 | NOT IDENT. |
| SB-125 | -1.295E+00 | 2.554E+01 | 4.312E+01 | 0.000E+00 | NOT IDENT. |
| TE-125M | 1.776E+02 | 2.379E+03 | 4.231E+03 | 0.000E+00 | NOT IDENT. |
| I-126 | -1.476E+01 | 2.427E+01 | 3.523E+01 | 0.000E+00 | NOT IDENT. |
| SB-126 | 9.719E+00 | 1.584E+01 | 3.011E+01 | 0.000E+00 | NOT IDENT. |
| SB-127 | 8.285E+00 | 2.806E+01 | 5.175E+01 | 0.000E+00 | FAIL ABUN |
| I-131 | 2.661E+00 | 1.004E+01 | 1.745E+01 | 0.000E+00 | NOT IDENT. |
| I-132 | 0.000E+00 | 7.708E+04 | 0.000E+00 | 0.000E+00 | SHORT HLIF |
| TE-132 | -5.670E+00 | 1.067E+01 | 1.789E+01 | 0.000E+00 | NOT IDENT. |
| BA-133 | -4.950E+00 | 1.204E+01 | 1.989E+01 | 0.000E+00 | NOT IDENT. |
| CS-134 | -2.886E+00 | 1.084E+01 | 1.874E+01 | 0.000E+00 | NOT IDENT. |
| CS-135 | -3.550E+01 | 4.372E+01 | 7.137E+01 | 0.000E+00 | NOT IDENT. |
| I-135 | 6.145E+01 | 5.032E+02 | 1.011E+03 | 0.000E+00 | NOT IDENT. |
| CS-136 | 5.657E-01 | 1.517E+01 | 2.656E+01 | 0.000E+00 | FAIL ABUN |
| BA-140 | -7.234E+00 | 3.119E+01 | 5.543E+01 | 0.000E+00 | NOT IDENT. |
| LA-140 | 2.789E+00 | 9.529E+00 | 1.896E+01 | 0.000E+00 | FAIL ABUN |
| CE-141 | -4.868E+00 | 1.257E+01 | 2.171E+01 | 0.000E+00 | NOT IDENT. |
| CE-143 | 9.136E+00 | 3.209E+01 | 5.256E+01 | 0.000E+00 | FAIL ABUN |
| CE-144 | -1.747E+01 | 6.141E+01 | 9.579E+01 | 0.000E+00 | NOT IDENT. |
| PM-144 | -6.150E+00 | 8.554E+00 | 1.428E+01 | 0.000E+00 | NOT IDENT. |
| PR-144 | 0.000E+00 | 1.391E+41 | 0.000E+00 | 0.000E+00 | SHORT HLIF |
| PM-146 | -6.358E+00 | 1.211E+01 | 1.952E+01 | 0.000E+00 | NOT IDENT. |
| ND-147 | -4.335E+00 | 6.180E+01 | 1.111E+02 | 0.000E+00 | NOT IDENT. |
| PM-147 | 0.000E+00 | 3.437E+07 | 5.405E+07 | 0.000E+00 | FAIL ABUN |
| PM-149 | 1.515E+02 | 3.088E+02 | 5.501E+02 | 0.000E+00 | NOT IDENT. |
| EU-152 | -2.409E+01 | 2.681E+01 | 4.267E+01 | 0.000E+00 | FAIL ABUN |
| GD-153 | 1.422E+01 | 2.216E+01 | 4.053E+01 | 0.000E+00 | FAIL ABUN |
| EU-154 | 1.439E+01 | 1.894E+01 | 4.123E+01 | 0.000E+00 | FAIL ABUN |
| EU-155 | -1.218E+01 | 3.611E+01 | 5.674E+01 | 0.000E+00 | FAIL ABUN |
| TB-160 | 1.399E+01 | 3.538E+01 | 6.475E+01 | 0.000E+00 | FAIL ABUN |
| TM-171 | 1.213E+04 | 1.612E+04 | 1.856E+04 | 0.000E+00 | FAIL ABUN |
| HF-181 | -5.942E+00 | 1.037E+01 | 1.560E+01 | 0.000E+00 | FAIL ABUN |
| TA-182 | 6.087E+00 | 2.754E+01 | 5.454E+01 | 0.000E+00 | FAIL ABUN |
| IR-192 | -1.083E+00 | 8.754E+00 | 1.485E+01 | 0.000E+00 | FAIL ABUN |
| HG-203 | 3.915E+00 | 9.118E+00 | 1.610E+01 | 0.000E+00 | NOT IDENT. |
| BI-207 | -1.236E+01 | 1.476E+01 | 2.331E+01 | 0.000E+00 | FAIL ABUN |
| TL-208 | 8.574E+00 | 9.469E+00 | 1.821E+01 | 0.000E+00 | FAIL ABUN |
| BI-210 | -9.189E+02 | 2.365E+03 | 3.516E+03 | 0.000E+00 | NOT IDENT. |
| PB-210 | -9.189E+02 | 2.365E+03 | 3.516E+03 | 0.000E+00 | NOT IDENT. |
| BI-211 | -3.950E+01 | 5.784E+01 | 9.358E+01 | 0.000E+00 | NOT IDENT. |
| PB-211 | 1.329E+02 | 2.557E+02 | 4.524E+02 | 0.000E+00 | NOT IDENT. |
| BI-212 | 6.821E+01 | 7.660E+01 | 1.465E+02 | 0.000E+00 | NOT IDENT. |
| PB-212 | 1.572E+01 | 1.678E+01 | 3.023E+01 | 0.000E+00 | FAIL ABUN |
| BI-214 | 2.661E+00 | 1.803E+01 | 3.268E+01 | 0.000E+00 | FAIL ABUN |
| PB-214 | 1.793E+01 | 1.878E+01 | 3.437E+01 | 0.000E+00 | FAIL ABUN |
| RN-219 | 1.933E-01 | 1.153E+02 | 1.957E+02 | 0.000E+00 | NOT IDENT. |
| RA-223 | 1.595E+01 | 1.813E+02 | 3.123E+02 | 0.000E+00 | FAIL ABUN |
| RA-224 | -6.663E+01 | 1.894E+02 | 3.195E+02 | 0.000E+00 | NOT IDENT. |
| RA-226 | 2.661E+00 | 1.803E+01 | 3.268E+01 | 0.000E+00 | FAIL ABUN |
| AC-227 | 4.873E+01 | 1.080E+02 | 1.914E+02 | 0.000E+00 | FAIL ABUN |
| TH-227 | 4.803E+01 | 1.064E+02 | 1.886E+02 | 0.000E+00 | FAIL ABUN |
| AC-228 | 5.008E+01 | 3.883E+01 | 7.587E+01 | 0.000E+00 | NOT IDENT. |
| RA-228 | 5.008E+01 | 3.883E+01 | 7.587E+01 | 0.000E+00 | NOT IDENT. |
| TH-228 | 1.553E+01 | 1.677E+01 | 3.019E+01 | 0.000E+00 | NOT IDENT. |
| TH-229 | 4.272E+01 | 1.385E+02 | 2.449E+02 | 0.000E+00 | FAIL ABUN |
| TH-230 | 2.661E+00 | 1.803E+01 | 3.268E+01 | 0.000E+00 | FAIL ABUN |
| PA-231 | -4.122E+02 | 4.260E+02 | 6.847E+02 | 0.000E+00 | FAIL ABUN |
| TH-231 | -2.792E+01 | 5.018E+01 | 8.333E+01 | 0.000E+00 | FAIL ABUN |
| TH-232 | 1.544E+01 | 1.675E+01 | 3.014E+01 | 0.000E+00 | NOT IDENT. |

| | | | | | | |
|---------|------------|-----------|-----------|-----------|------|--------|
| PA-233 | 5.779E+00 | 1.730E+01 | 3.044E+01 | 0.000E+00 | FAIL | ABUN |
| PA-234 | 6.687E+01 | 9.922E+01 | 1.826E+02 | 0.000E+00 | FAIL | ABUN |
| PA-234M | -4.836E+02 | 1.386E+03 | 2.330E+03 | 0.000E+00 | NOT | IDENT. |
| TH-234 | 8.569E+01 | 5.275E+02 | 8.016E+02 | 0.000E+00 | NOT | IDENT. |
| U-234 | 1.066E+01 | 3.746E+01 | 6.189E+01 | 0.000E+00 | FAIL | ABUN |
| U-235 | 4.096E+01 | 5.517E+01 | 1.006E+02 | 0.000E+00 | FAIL | ABUN |
| U-238 | 8.569E+01 | 5.275E+02 | 8.016E+02 | 0.000E+00 | NOT | IDENT. |
| NP-239 | -4.913E+01 | 5.912E+01 | 1.009E+02 | 0.000E+00 | NOT | IDENT. |
| AM-242 | 7.073E+02 | 7.722E+02 | 1.176E+03 | 0.000E+00 | FAIL | ABUN |
| CM-247 | -6.406E+00 | 1.042E+01 | 1.679E+01 | 0.000E+00 | NOT | IDENT. |
| CF-249 | 3.763E+00 | 1.268E+01 | 1.976E+01 | 0.000E+00 | FAIL | ABUN |
| CF-251 | -1.287E+01 | 3.468E+01 | 5.946E+01 | 0.000E+00 | NOT | IDENT. |


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*****
*                               GENERAL ENG. LABS, LLC.                               *
*                               2040 Savage Road                                       *
*                               Charleston, SC 29414                                   *
*****
Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1201068238.CNF;1
Sample date        : 25-APR-2006 00:00:00 Acquisition date : 26-APR-2006 05:24:01
Sample ID         : G1201068238 Sample quantity  : 2.00000E+00 LITER
Detector name     : GAMMA6 Detector geometry: 2L_MB
Elapsed live time : 0 01:00:00.00 Elapsed real time: 0 01:00:01.09 0.0%
Energy tolerance  : 2.00000 KEV Analyst Initials  : MJH1
Abundance limit   : 75.00000 Sensitivity       : 3.00000
Batch ID          : 519510 Detector SN#      : 1922827
Matrix Spike DPM  : LCS DPM                      :
*****

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| Pk | It | Energy | Area | Bkgnd | FWHM | Channel | Left | Pw | Cts/Sec | %Err | Fit |
|----|----|---------|------|-------|-------|---------|------|----|----------|-------|----------|
| 1 | 0 | 59.54 | 924 | 675 | 1.09 | 120.28 | 115 | 11 | 2.57E-01 | 6.4 | |
| 2 | 0 | 66.80 | 59 | 433 | 1.79 | 134.77 | 132 | 8 | 1.63E-02 | 62.4 | |
| 3 | 0 | 88.15 | 1710 | 637 | 1.06 | 177.38 | 171 | 11 | 4.75E-01 | 3.7 | |
| 4 | 0 | 102.91 | 42 | 199 | 0.85 | 206.83 | 205 | 6 | 1.18E-02 | 54.6 | |
| 5 | 0 | 122.26 | 744 | 339 | 1.08 | 245.45 | 241 | 9 | 2.07E-01 | 5.8 | |
| 6 | 2 | 137.05 | 125 | 208 | 1.11 | 274.98 | 269 | 13 | 3.46E-02 | 21.2 | 3.92E+00 |
| 7 | 2 | 138.57 | 39 | 168 | 1.08 | 278.00 | 269 | 13 | 1.08E-02 | 59.2 | |
| 8 | 0 | 166.11 | 372 | 277 | 1.02 | 332.97 | 329 | 9 | 1.03E-01 | 9.6 | |
| 9 | 0 | 185.58 | 46 | 215 | 1.37 | 371.82 | 367 | 9 | 1.28E-02 | 59.0 | |
| 10 | 0 | 198.42 | 34 | 167 | 0.73 | 397.46 | 394 | 7 | 9.33E-03 | 66.4 | |
| 11 | 0 | 203.10 | 38 | 136 | 1.60 | 406.80 | 405 | 7 | 1.06E-02 | 53.1 | |
| 12 | 0 | 294.96 | 18 | 86 | 1.30 | 590.14 | 588 | 6 | 5.06E-03 | 83.6 | |
| 13 | 0 | 331.52 | 20 | 51 | 0.50 | 663.12 | 660 | 5 | 5.51E-03 | 58.5 | |
| 14 | 0 | 371.57 | 56 | 78 | 1.60 | 743.05 | 739 | 9 | 1.54E-02 | 31.8 | |
| 15 | 0 | 375.25 | 20 | 81 | 1.52 | 750.40 | 747 | 8 | 5.61E-03 | 80.0 | |
| 16 | 0 | 391.78 | 234 | 159 | 1.19 | 783.40 | 777 | 13 | 6.49E-02 | 12.9 | |
| 17 | 1 | 469.59 | 27 | 76 | 1.55 | 938.72 | 931 | 21 | 7.54E-03 | 63.1 | 1.86E+00 |
| 18 | 1 | 473.38 | 28 | 93 | 1.55 | 946.28 | 931 | 21 | 7.86E-03 | 59.6 | |
| 19 | 0 | 485.15 | 13 | 65 | 0.59 | 969.78 | 964 | 8 | 3.55E-03 | 113.5 | |
| 20 | 0 | 511.14 | 90 | 84 | 3.31 | 1021.66 | 1017 | 11 | 2.51E-02 | 22.1 | |
| 21 | 0 | 527.89 | 22 | 26 | 1.35 | 1055.09 | 1052 | 6 | 6.04E-03 | 43.3 | |
| 22 | 0 | 661.87 | 997 | 73 | 1.41 | 1322.59 | 1316 | 15 | 2.77E-01 | 3.7 | |
| 23 | 3 | 675.33 | 30 | 14 | 1.49 | 1349.46 | 1347 | 11 | 8.35E-03 | 26.2 | 1.83E+00 |
| 24 | 3 | 677.98 | 18 | 16 | 1.42 | 1354.74 | 1347 | 11 | 5.01E-03 | 41.7 | |
| 25 | 0 | 884.81 | 23 | 78 | 6.82 | 1767.73 | 1763 | 16 | 6.51E-03 | 85.9 | |
| 26 | 0 | 898.17 | 248 | 111 | 1.47 | 1794.41 | 1786 | 16 | 6.88E-02 | 11.5 | |
| 27 | 0 | 922.24 | 20 | 32 | 0.92 | 1842.48 | 1839 | 7 | 5.66E-03 | 50.8 | |
| 28 | 0 | 1053.34 | 25 | 33 | 2.13 | 2104.30 | 2100 | 11 | 6.96E-03 | 49.9 | |
| 29 | 0 | 1115.81 | 21 | 20 | 1.22 | 2229.06 | 2226 | 7 | 5.72E-03 | 45.3 | |
| 30 | 0 | 1159.36 | 57 | 65 | 16.43 | 2316.05 | 2294 | 37 | 1.59E-02 | 46.9 | |
| 31 | 0 | 1173.41 | 1031 | 43 | 1.95 | 2344.11 | 2338 | 17 | 2.86E-01 | 3.5 | |
| 32 | 0 | 1239.28 | 22 | 7 | 0.73 | 2475.67 | 2470 | 13 | 5.97E-03 | 32.6 | |
| 33 | 0 | 1299.97 | 18 | 7 | 4.82 | 2596.92 | 2590 | 14 | 5.00E-03 | 39.1 | |
| 34 | 0 | 1332.60 | 904 | 48 | 1.71 | 2662.10 | 2653 | 19 | 2.51E-01 | 3.8 | |
| 35 | 0 | 1404.40 | 12 | 27 | 14.79 | 2805.53 | 2782 | 36 | 3.32E-03 | 140.5 | |
| 36 | 0 | 1414.87 | 7 | 7 | 0.90 | 2826.44 | 2823 | 13 | 1.92E-03 | 85.5 | |
| 37 | 0 | 1426.57 | 9 | 18 | 1.04 | 2849.82 | 2846 | 23 | 2.43E-03 | 128.5 | |
| 38 | 0 | 1461.47 | 17 | 0 | 3.33 | 2919.53 | 2916 | 9 | 4.72E-03 | 24.3 | |

| Pk | It | Energy | Area | Bkgnd | FWHM | Channel | Left | Pw | Cts/Sec | %Err | Fit |
|----|----|---------|------|-------|------|---------|------|----|----------|-------|-----|
| 39 | 0 | 1538.95 | 9 | 6 | 3.46 | 3074.33 | 3071 | 10 | 2.61E-03 | 55.8 | |
| 40 | 0 | 1559.91 | 4 | 13 | 3.31 | 3116.21 | 3113 | 17 | 1.07E-03 | 219.0 | |
| 41 | 0 | 1836.62 | 146 | 21 | 2.23 | 3669.14 | 3659 | 22 | 4.06E-02 | 11.6 | |

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*****
*                               GENERAL ENG. LABS, LLC.                               *
*                               2040 Savage Road                                       *
*                               Charleston, SC 29414                                   *
*****
Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1201068238.CNF;1
Sample date        : 25-APR-2006 00:00:00 Acquisition date : 26-APR-2006 05:24:01
Sample ID          : G1201068238           Sample quantity  : 2.00000E+00 LITER
Detector name     : GAMMA6                 Detector geometry: 2L_MB
Elapsed live time : 0 01:00:00.00          Elapsed real time: 0 01:00:01.09  0.0%
Energy tolerance  : 2.00000 KEV           Analyst Initials  : MJH1
Abundance limit   : 75.00000             Sensitivity       : 3.00000
Batch ID          : 519510                Detector SN#      : 1922827
Matrix Spike DPM  :                       LCS DPM         :
*****
    
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Nuclide Line Activity Report

Nuclide Type:

| Nuclide | Energy | Area | %Abn | %Eff | Uncorrected pCi/LITER | Decay Corr pCi/LITER | 2-Sigma %Error |
|---------|---------|-------|---------|-----------|-----------------------|----------------------|----------------|
| K-40 | 1460.81 | 3 | 10.67* | 4.897E-01 | 2.276E+01 | 2.276E+01 | 272.82 |
| CO-57 | 122.06 | 744 | 85.51* | 2.359E+00 | 1.384E+02 | 1.388E+02 | 11.61 |
| | 136.47 | 125 | 10.47 | 2.353E+00 | 1.899E+02 | 1.905E+02 | 42.44 |
| CO-60 | 1173.24 | 1031 | 99.90 | 5.825E-01 | 6.649E+02 | 6.652E+02 | 6.92 |
| | 1332.50 | 903 | 99.98* | 5.250E-01 | 6.455E+02 | 6.458E+02 | 7.61 |
| ZN-65 | 1115.55 | 21 | 50.75* | 6.078E-01 | 2.505E+01 | 2.514E+01 | 90.59 |
| Y-88 | 898.02 | 248 | 93.40 | 7.308E-01 | 1.362E+02 | 1.373E+02 | 22.95 |
| | 1836.01 | 144 | 99.38* | 4.292E-01 | 1.269E+02 | 1.279E+02 | 23.58 |
| MO-99 | 140.51 | 39 | 82.70* | 2.350E+00 | 7.489E+00 | 1.025E+01 | 118.46 |
| | 181.06 | ----- | 6.20 | 2.147E+00 | ----- | Line Not Found | ----- |
| | 739.58 | ----- | 12.80 | 8.564E-01 | ----- | Line Not Found | ----- |
| TC-99M | 140.51 | 39 | 89.07* | 2.350E+00 | 6.953E+00 | 2.186E+02 | 118.46 |
| CD-109 | 88.03 | 1706 | 3.79* | 1.927E+00 | 8.768E+03 | 8.784E+03 | 7.49 |
| SN-113 | 391.69 | 231 | 64.90* | 1.345E+00 | 9.951E+01 | 1.003E+02 | 26.12 |
| SN-126 | 64.28 | ----- | 9.60 | 9.606E-01 | ----- | Line Not Found | ----- |
| | 86.94 | 1706 | 8.90 | 1.927E+00 | 3.734E+03 | 3.734E+03 | 7.49 |
| | 87.57 | 1706 | 37.00* | 1.927E+00 | 8.981E+02 | 8.981E+02 | 7.49 |
| I-133 | 529.87 | 22 | 86.30* | 1.101E+00 | 8.596E+00 | 2.328E+01 | 86.51 |
| | 875.33 | ----- | 4.47 | 7.467E-01 | ----- | Line Not Found | ----- |
| | 1298.22 | 18 | 2.33 | 5.355E-01 | 5.415E+02 | 1.467E+03 | 78.17 |
| BA-137M | 661.65 | 997 | 89.98* | 9.334E-01 | 4.455E+02 | 4.456E+02 | 7.38 |
| CS-137 | 661.66 | 997 | 85.12* | 9.334E-01 | 4.710E+02 | 4.710E+02 | 7.38 |
| CE-139 | 165.85 | 372 | 80.35* | 2.230E+00 | 7.800E+01 | 7.849E+01 | 19.20 |
| PM-147 | 121.30 | 744 | 0.00* | 2.359E+00 | 2.958E+08 | 2.960E+08 | 11.61 |
| NP-237 | 86.48 | 1706 | 12.60* | 1.927E+00 | 2.637E+03 | 2.637E+03 | 7.49 |
| | 95.87 | ----- | 2.60 | 2.109E+00 | ----- | Line Not Found | ----- |
| AM-241 | 59.54 | 924 | 35.90* | 7.253E-01 | 1.332E+03 | 1.332E+03 | 12.80 |
| ANH-511 | 511.00 | 15 | 100.00* | 1.126E+00 | 5.126E+00 | 5.126E+00 | 266.05 |

Flag: "*" = Keyline

Total number of lines in spectrum 41
 Number of unidentified lines 11
 Number of lines tentatively identified by NID 30 73.17%

Nuclide Type :

| Nuclide | Hlife | Decay | Uncorrected pCi/LITER | Decay Corr pCi/LITER | Decay Corr 2-Sigma Error | 2-Sigma %Error | Flags |
|------------------|-----------|-------|--------------------------|-------------------------|-----------------------------|-------------------|-------|
| K-40 | 1.28E+09Y | 1.00 | 2.276E+01 | 2.276E+01 | 6.209E+01 | 272.82 | |
| CO-57 | 270.90D | 1.00 | 1.384E+02 | 1.388E+02 | 0.161E+02 | 11.61 | |
| CO-60 | 5.27Y | 1.00 | 6.455E+02 | 6.458E+02 | 0.491E+02 | 7.61 | |
| ZN-65 | 244.40D | 1.00 | 2.505E+01 | 2.514E+01 | 2.277E+01 | 90.59 | |
| Y-88 | 106.60D | 1.01 | 1.269E+02 | 1.279E+02 | 0.302E+02 | 23.58 | |
| MO-99 | 66.02H | 1.37 | 7.489E+00 | 1.025E+01 | 1.214E+01 | 118.46 | |
| TC-99M | 6.01H | 31.4 | 6.953E+00 | 2.186E+02 | 2.589E+02 | 118.46 | |
| CD-109 | 464.00D | 1.00 | 8.768E+03 | 8.784E+03 | 0.658E+03 | 7.49 | |
| SN-113 | 115.10D | 1.01 | 9.951E+01 | 1.003E+02 | 0.262E+02 | 26.12 | |
| SN-126 | 1.00E+05Y | 1.00 | 8.981E+02 | 8.981E+02 | 0.673E+02 | 7.49 | |
| I-133 | 20.80H | 2.71 | 8.596E+00 | 2.328E+01 | 2.014E+01 | 86.51 | |
| BA-137M | 30.17Y | 1.00 | 4.455E+02 | 4.456E+02 | 0.329E+02 | 7.38 | |
| CS-137 | 30.17Y | 1.00 | 4.710E+02 | 4.710E+02 | 0.347E+02 | 7.38 | |
| CE-139 | 137.66D | 1.01 | 7.800E+01 | 7.849E+01 | 1.507E+01 | 19.20 | |
| PM-147 | 2.62Y | 1.00 | 2.958E+08 | 2.960E+08 | 0.344E+08 | 11.61 | |
| NP-237 | 2.14E+06Y | 1.00 | 2.637E+03 | 2.637E+03 | 0.198E+03 | 7.49 | |
| AM-241 | 432.20Y | 1.00 | 1.332E+03 | 1.332E+03 | 0.171E+03 | 12.80 | |
| ANH-511 | 1.00E+09Y | 1.00 | 5.126E+00 | 5.126E+00 | 13.64E+00 | 266.05 | |
| Total Activity : | | | 2.958E+08 | 2.961E+08 | | | |

Grand Total Activity : 2.958E+08 2.961E+08

Flags: "K" = Keyline not found "M" = Manually accepted
 "E" = Manually edited "A" = Nuclide specific abn. limit

| It | Energy | Area | Bkgnd | FWHM | Channel | Left | Pw | Cts/Sec | %Err | %Eff | Flags |
|----|---------|------|-------|-------|---------|------|----|----------|------|----------|-------|
| 0 | 66.80 | 55 | 433 | 1.79 | 134.77 | 132 | 8 | 1.54E-02 | **** | 1.09E+00 | T |
| 0 | 102.91 | 42 | 199 | 0.85 | 206.83 | 205 | 6 | 1.18E-02 | **** | 2.22E+00 | T |
| 0 | 185.58 | 27 | 215 | 1.37 | 371.82 | 367 | 9 | 7.39E-03 | **** | 2.12E+00 | T |
| 0 | 198.42 | 18 | 167 | 0.73 | 397.46 | 394 | 7 | 5.06E-03 | **** | 2.05E+00 | T |
| 0 | 203.10 | 36 | 136 | 1.60 | 406.80 | 405 | 7 | 9.93E-03 | **** | 2.02E+00 | |
| 0 | 294.96 | 9 | 86 | 1.30 | 590.14 | 588 | 6 | 2.45E-03 | **** | 1.62E+00 | T |
| 0 | 331.52 | 20 | 51 | 0.50 | 663.12 | 660 | 5 | 5.51E-03 | **** | 1.50E+00 | T |
| 0 | 371.57 | 56 | 78 | 1.60 | 743.05 | 739 | 9 | 1.54E-02 | 63.6 | 1.39E+00 | T |
| 0 | 375.25 | 20 | 81 | 1.52 | 750.40 | 747 | 8 | 5.61E-03 | **** | 1.38E+00 | |
| 1 | 469.59 | 27 | 76 | 1.55 | 938.72 | 931 | 21 | 7.54E-03 | **** | 1.19E+00 | T |
| 1 | 473.38 | 27 | 93 | 1.55 | 946.28 | 931 | 21 | 7.48E-03 | **** | 1.19E+00 | T |
| 0 | 485.15 | 10 | 65 | 0.59 | 969.78 | 964 | 8 | 2.84E-03 | **** | 1.17E+00 | T |
| 3 | 675.33 | 30 | 14 | 1.49 | 1349.46 | 1347 | 11 | 8.35E-03 | 52.5 | 9.19E-01 | |
| 3 | 677.98 | 18 | 16 | 1.42 | 1354.74 | 1347 | 11 | 5.01E-03 | 83.5 | 9.16E-01 | T |
| 0 | 884.81 | 23 | 78 | 6.82 | 1767.73 | 1763 | 16 | 6.51E-03 | **** | 7.40E-01 | T |
| 0 | 922.24 | 20 | 32 | 0.92 | 1842.48 | 1839 | 7 | 5.66E-03 | **** | 7.15E-01 | |
| 0 | 1053.34 | 25 | 33 | 2.13 | 2104.30 | 2100 | 11 | 6.96E-03 | 99.8 | 6.38E-01 | |
| 0 | 1159.36 | 56 | 65 | 16.43 | 2316.05 | 2294 | 37 | 1.55E-02 | 96.4 | 5.88E-01 | |
| 0 | 1239.28 | 20 | 7 | 0.73 | 2475.67 | 2470 | 13 | 5.42E-03 | 72.8 | 5.57E-01 | T |
| 0 | 1404.40 | 11 | 27 | 14.79 | 2805.53 | 2782 | 36 | 3.00E-03 | **** | 5.04E-01 | |
| 0 | 1414.87 | 7 | 7 | 0.90 | 2826.44 | 2823 | 13 | 1.92E-03 | **** | 5.01E-01 | |
| 0 | 1426.57 | 9 | 18 | 1.04 | 2849.82 | 2846 | 23 | 2.43E-03 | **** | 4.98E-01 | |
| 0 | 1538.95 | 9 | 6 | 3.46 | 3074.33 | 3071 | 10 | 2.61E-03 | **** | 4.72E-01 | |
| 0 | 1559.91 | 4 | 13 | 3.31 | 3116.21 | 3113 | 17 | 1.07E-03 | **** | 4.68E-01 | |

Flags: "T" = Tentatively associated

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*****
*                                     GENERAL ENG. LABS, LLC.                                     *
*                                     2040 Savage Road                                       *
*                                     Charleston, SC 29414                                   *
*****
*                                     DETECTOR DATA                                       *
*
* Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1201068238.CNF;1
* Acquisition date   : 26-APR-2006 05:24:01  Detector SN#      : 1922827
* Detector ID        : GAMMA6                  Sensitivity       : 3.00000
* Geometry           : 2L_MB                   Energy tolerance: 2.00000
* Elapsed live time  : 0 01:00:00.00           Abundance limit  : 75.00000
* Elapsed real time  : 0 01:00:01.09           Half life ratio  : 8.00000
*****
*                                     SAMPLE DATA                                         *
*
* Sample date        : 25-APR-2006 00:00:00  Nuclide Library  : EPI
* Sample ID          : G1201068238          Analyst initials  : MJH1
* Batch Number       : 519510              Sample Quantity  : 2.00000E+00 LITER
*****
*                                     QC DATA                                             *
*
* CALIB. DATE/TIME  : 29-DEC-2005 05:08:19.2MS Isotope       : TOPLOADER
* MSD DPM           :                      MSD Isotope        :
* LCS DPM           :                      LCS Isotope        :
*****

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Combined Activity-MDA Report

---- Identified Nuclides ----

| Nuclide | Activity (pCi/LITER) | Act error | MDA (pCi/LITER) | MDA error | Act/MDA |
|---------|-------------------------|-----------|--------------------|-----------|---------|
| K-40 | 2.276E+01 | 6.209E+01 | 1.148E+02 | 0.000E+00 | 0.198 |
| CO-57 | 1.388E+02 | 1.611E+01 | 1.300E+01 | 0.000E+00 | 10.678 |
| CO-60 | 6.458E+02 | 4.912E+01 | 1.569E+01 | 0.000E+00 | 41.149 |
| ZN-65 | 2.514E+01 | 2.277E+01 | 4.058E+01 | 0.000E+00 | 0.619 |
| Y-88 | 1.279E+02 | 3.016E+01 | 1.335E+01 | 0.000E+00 | 9.583 |
| MO-99 | 1.025E+01 | 1.214E+01 | 1.707E+01 | 0.000E+00 | 0.600 |
| TC-99M | 2.186E+02 | 2.589E+02 | 3.640E+02 | 0.000E+00 | 0.600 |
| CD-109 | 8.784E+03 | 6.579E+02 | 4.261E+02 | 0.000E+00 | 20.614 |
| SN-113 | 1.003E+02 | 2.619E+01 | 1.738E+01 | 0.000E+00 | 5.767 |
| SN-126 | 8.981E+02 | 6.727E+01 | 4.385E+01 | 0.000E+00 | 20.484 |
| I-133 | 2.328E+01 | 2.014E+01 | 4.042E+01 | 0.000E+00 | 0.576 |
| BA-137M | 4.456E+02 | 3.286E+01 | 1.377E+01 | 0.000E+00 | 32.348 |
| CS-137 | 4.710E+02 | 3.474E+01 | 1.456E+01 | 0.000E+00 | 32.348 |
| CE-139 | 7.849E+01 | 1.507E+01 | 1.335E+01 | 0.000E+00 | 5.879 |
| NP-237 | 2.637E+03 | 1.975E+02 | 1.308E+02 | 0.000E+00 | 20.165 |
| AM-241 | 1.332E+03 | 1.705E+02 | 1.169E+02 | 0.000E+00 | 11.395 |
| ANH-511 | 5.126E+00 | 1.364E+01 | 1.370E+01 | 0.000E+00 | 0.374 |

---- Non-Identified Nuclides ----

| Nuclide | Key-Line Activity K.L. (pCi/LITER) Ided | Act error | MDA (pCi/LITER) | MDA error | Act/MDA |
|---------|---|-----------|--------------------|-----------|---------|
| BE-7 | -3.471E+01 | 8.309E+01 | 1.272E+02 | 0.000E+00 | -0.273 |

---- Non-Identified Nuclides ----

| Nuclide | Key-Line Activity (pCi/LITER) | K.L. Ided | Act error | MDA (pCi/LITER) | MDA error | Act/MDA |
|---------|-------------------------------------|--------------|-----------|--------------------|-----------|---------|
| NA-22 | 5.170E+00 | | 6.742E+00 | 1.469E+01 | 0.000E+00 | 0.352 |
| NA-24 | -1.840E+01 | | 2.193E+01 | 3.549E+01 | 0.000E+00 | -0.518 |
| AL-26 | -2.933E+00 | | 5.963E+00 | 1.045E+01 | 0.000E+00 | -0.281 |
| SC-46 | 2.328E+00 | | 1.272E+01 | 1.991E+01 | 0.000E+00 | 0.117 |
| V-48 | -5.362E+00 | | 1.081E+01 | 1.796E+01 | 0.000E+00 | -0.298 |
| CR-51 | 1.802E+01 | | 7.275E+01 | 1.269E+02 | 0.000E+00 | 0.142 |
| MN-54 | -4.854E+00 | | 1.004E+01 | 1.689E+01 | 0.000E+00 | -0.287 |
| CO-56 | -6.226E+00 | | 1.034E+01 | 1.716E+01 | 0.000E+00 | -0.363 |
| CO-58 | -5.073E+00 | | 9.538E+00 | 1.603E+01 | 0.000E+00 | -0.316 |
| FE-59 | 6.860E+00 | | 2.158E+01 | 3.869E+01 | 0.000E+00 | 0.177 |
| SE-75 | 1.168E+01 | | 1.203E+01 | 2.183E+01 | 0.000E+00 | 0.535 |
| KR-85 | 1.677E+03 | | 1.963E+03 | 3.402E+03 | 0.000E+00 | 0.493 |
| SR-85 | 7.429E+00 | | 8.695E+00 | 1.507E+01 | 0.000E+00 | 0.493 |
| Y-91 | 3.841E+00 | | 8.266E+00 | 1.543E+01 | 0.000E+00 | 0.249 |
| NB-94 | -1.325E+00 | | 8.479E+00 | 1.494E+01 | 0.000E+00 | -0.089 |
| NB-95 | -3.221E+00 | | 9.685E+00 | 1.665E+01 | 0.000E+00 | -0.193 |
| NB-95M | -3.522E+01 | | 3.632E+01 | 5.924E+01 | 0.000E+00 | -0.594 |
| ZR-95 | 7.775E+00 | | 1.711E+01 | 3.156E+01 | 0.000E+00 | 0.246 |
| RU-103 | 2.444E+00 | | 8.378E+00 | 1.551E+01 | 0.000E+00 | 0.158 |
| RH-106 | 1.159E+01 | | 7.269E+01 | 1.338E+02 | 0.000E+00 | 0.087 |
| RU-106 | -1.247E+01 | | 7.325E+01 | 1.306E+02 | 0.000E+00 | -0.095 |
| AG-108M | -6.696E-01 | | 9.555E+00 | 1.606E+01 | 0.000E+00 | -0.042 |
| AG-110M | 1.287E+00 | | 8.854E+00 | 1.435E+01 | 0.000E+00 | 0.090 |
| CD-115 | 3.756E+01 | + | 3.249E+01 | 6.351E+01 | 0.000E+00 | 0.591 |
| SN-115 | -2.380E+01 | | 8.743E+02 | 1.522E+03 | 0.000E+00 | -0.016 |
| SN-117M | 3.700E+00 | | 7.121E+00 | 1.283E+01 | 0.000E+00 | 0.288 |
| TE-123M | 3.152E+00 | | 7.018E+00 | 1.259E+01 | 0.000E+00 | 0.250 |
| SB-124 | -1.553E+00 | | 1.186E+01 | 2.331E+01 | 0.000E+00 | -0.067 |
| SB-125 | -1.295E+00 | | 2.554E+01 | 4.312E+01 | 0.000E+00 | -0.030 |
| TE-125M | 1.776E+02 | | 2.379E+03 | 4.231E+03 | 0.000E+00 | 0.042 |
| I-126 | -1.476E+01 | | 2.427E+01 | 3.523E+01 | 0.000E+00 | -0.419 |
| SB-126 | 9.719E+00 | | 1.584E+01 | 3.011E+01 | 0.000E+00 | 0.323 |
| SB-127 | 8.285E+00 | | 2.806E+01 | 5.175E+01 | 0.000E+00 | 0.160 |
| I-131 | 2.661E+00 | | 1.004E+01 | 1.745E+01 | 0.000E+00 | 0.153 |
| TE-132 | -5.670E+00 | | 1.067E+01 | 1.789E+01 | 0.000E+00 | -0.317 |
| BA-133 | -4.950E+00 | | 1.204E+01 | 1.989E+01 | 0.000E+00 | -0.249 |
| CS-134 | -2.886E+00 | | 1.084E+01 | 1.874E+01 | 0.000E+00 | -0.154 |
| CS-135 | -3.550E+01 | | 4.372E+01 | 7.137E+01 | 0.000E+00 | -0.497 |
| I-135 | 6.145E+01 | | 5.032E+02 | 1.011E+03 | 0.000E+00 | 0.061 |
| CS-136 | 5.657E-01 | | 1.517E+01 | 2.656E+01 | 0.000E+00 | 0.021 |
| BA-140 | -7.234E+00 | | 3.119E+01 | 5.543E+01 | 0.000E+00 | -0.131 |
| LA-140 | 2.789E+00 | | 9.529E+00 | 1.896E+01 | 0.000E+00 | 0.147 |
| CE-141 | -4.868E+00 | | 1.257E+01 | 2.171E+01 | 0.000E+00 | -0.224 |
| CE-143 | 9.136E+00 | + | 3.209E+01 | 5.256E+01 | 0.000E+00 | 0.174 |
| CE-144 | -1.747E+01 | | 6.141E+01 | 9.579E+01 | 0.000E+00 | -0.182 |
| PM-144 | -6.150E+00 | | 8.554E+00 | 1.428E+01 | 0.000E+00 | -0.431 |
| PM-146 | -6.358E+00 | | 1.211E+01 | 1.952E+01 | 0.000E+00 | -0.326 |
| ND-147 | -4.335E+00 | | 6.180E+01 | 1.111E+02 | 0.000E+00 | -0.039 |

---- Non-Identified Nuclides ----

| Nuclide | Key-Line Activity (pCi/LITER) | K.L. Ided | Act error | MDA (pCi/LITER) | MDA error | Act/MDA |
|---------|-------------------------------------|--------------|-----------|--------------------|-----------|---------|
| PM-147 | 2.960E+08 | | 3.437E+07 | 5.405E+07 | 0.000E+00 | 5.477 |
| PM-149 | 1.515E+02 | | 3.088E+02 | 5.501E+02 | 0.000E+00 | 0.275 |
| EU-152 | -2.409E+01 | | 2.681E+01 | 4.267E+01 | 0.000E+00 | -0.565 |
| GD-153 | 1.422E+01 | | 2.216E+01 | 4.053E+01 | 0.000E+00 | 0.351 |
| EU-154 | 1.439E+01 | | 1.894E+01 | 4.123E+01 | 0.000E+00 | 0.349 |
| EU-155 | -1.218E+01 | | 3.611E+01 | 5.674E+01 | 0.000E+00 | -0.215 |
| TB-160 | 1.399E+01 | | 3.538E+01 | 6.475E+01 | 0.000E+00 | 0.216 |
| TM-171 | 1.213E+04 | + | 1.612E+04 | 1.856E+04 | 0.000E+00 | 0.654 |
| HF-181 | -5.942E+00 | | 1.037E+01 | 1.560E+01 | 0.000E+00 | -0.381 |
| TA-182 | 6.087E+00 | | 2.754E+01 | 5.454E+01 | 0.000E+00 | 0.112 |
| IR-192 | -1.083E+00 | | 8.754E+00 | 1.485E+01 | 0.000E+00 | -0.073 |
| HG-203 | 3.915E+00 | | 9.118E+00 | 1.610E+01 | 0.000E+00 | 0.243 |
| BI-207 | -1.236E+01 | | 1.476E+01 | 2.331E+01 | 0.000E+00 | -0.530 |
| TL-208 | 8.574E+00 | | 9.469E+00 | 1.821E+01 | 0.000E+00 | 0.471 |
| BI-210 | -9.189E+02 | | 2.365E+03 | 3.516E+03 | 0.000E+00 | -0.261 |
| PB-210 | -9.189E+02 | | 2.365E+03 | 3.516E+03 | 0.000E+00 | -0.261 |
| BI-211 | -3.950E+01 | | 5.784E+01 | 9.358E+01 | 0.000E+00 | -0.422 |
| PB-211 | 1.329E+02 | | 2.557E+02 | 4.524E+02 | 0.000E+00 | 0.294 |
| BI-212 | 6.821E+01 | | 7.660E+01 | 1.465E+02 | 0.000E+00 | 0.466 |
| PB-212 | 1.572E+01 | | 1.678E+01 | 3.023E+01 | 0.000E+00 | 0.520 |
| BI-214 | 2.661E+00 | | 1.803E+01 | 3.268E+01 | 0.000E+00 | 0.081 |
| PB-214 | 1.793E+01 | | 1.878E+01 | 3.437E+01 | 0.000E+00 | 0.522 |
| RN-219 | 1.933E-01 | | 1.153E+02 | 1.957E+02 | 0.000E+00 | 0.001 |
| RA-223 | 1.595E+01 | | 1.813E+02 | 3.123E+02 | 0.000E+00 | 0.051 |
| RA-224 | -6.663E+01 | | 1.894E+02 | 3.195E+02 | 0.000E+00 | -0.209 |
| RA-226 | 2.661E+00 | | 1.803E+01 | 3.268E+01 | 0.000E+00 | 0.081 |
| AC-227 | 4.873E+01 | | 1.080E+02 | 1.914E+02 | 0.000E+00 | 0.255 |
| TH-227 | 4.803E+01 | | 1.064E+02 | 1.886E+02 | 0.000E+00 | 0.255 |
| AC-228 | 5.008E+01 | | 3.883E+01 | 7.587E+01 | 0.000E+00 | 0.660 |
| RA-228 | 5.008E+01 | | 3.883E+01 | 7.587E+01 | 0.000E+00 | 0.660 |
| TH-228 | 1.553E+01 | | 1.677E+01 | 3.019E+01 | 0.000E+00 | 0.514 |
| TH-229 | 4.272E+01 | | 1.385E+02 | 2.449E+02 | 0.000E+00 | 0.174 |
| TH-230 | 2.661E+00 | | 1.803E+01 | 3.268E+01 | 0.000E+00 | 0.081 |
| PA-231 | -4.122E+02 | | 4.260E+02 | 6.847E+02 | 0.000E+00 | -0.602 |
| TH-231 | -2.792E+01 | | 5.018E+01 | 8.333E+01 | 0.000E+00 | -0.335 |
| TH-232 | 1.544E+01 | | 1.675E+01 | 3.014E+01 | 0.000E+00 | 0.512 |
| PA-233 | 5.779E+00 | | 1.730E+01 | 3.044E+01 | 0.000E+00 | 0.190 |
| PA-234 | 6.687E+01 | | 9.922E+01 | 1.826E+02 | 0.000E+00 | 0.366 |
| PA-234M | -4.836E+02 | | 1.386E+03 | 2.330E+03 | 0.000E+00 | -0.208 |
| TH-234 | 8.569E+01 | | 5.275E+02 | 8.016E+02 | 0.000E+00 | 0.107 |
| U-234 | 1.066E+01 | + | 3.746E+01 | 6.189E+01 | 0.000E+00 | 0.172 |
| U-235 | 4.096E+01 | | 5.517E+01 | 1.006E+02 | 0.000E+00 | 0.407 |
| U-238 | 8.569E+01 | | 5.275E+02 | 8.016E+02 | 0.000E+00 | 0.107 |
| NP-239 | -4.913E+01 | | 5.912E+01 | 1.009E+02 | 0.000E+00 | -0.487 |
| AM-242 | 7.073E+02 | + | 7.722E+02 | 1.176E+03 | 0.000E+00 | 0.601 |
| CM-247 | -6.406E+00 | | 1.042E+01 | 1.679E+01 | 0.000E+00 | -0.382 |
| CF-249 | 3.763E+00 | | 1.268E+01 | 1.976E+01 | 0.000E+00 | 0.190 |
| CF-251 | -1.287E+01 | | 3.468E+01 | 5.946E+01 | 0.000E+00 | -0.216 |


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*****
*
*                               General Engineering Labs, LLC
*                               2040 SAVAGE ROAD
*                               CHARLESTON ,SC 29417
*                               GROSS GAMMA REPORT
*
*****
*
*   BATCH ID      : 519510                SAMPLE ID   : G1201068238
*   ANALYST       : MJH1                  DETECTOR    : GAMMA6
*   SAMPLE DATE   : 25-APR-2006 00:00:00.00  COUNT TIME  : 0 01:00:00.00
*   ANALYSIS DATE: 26-APR-2006 05:24:01.34  SAMPLE ALQT: 2.000 LITER
*
*****

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GROSS GAMMA ACTIVITY (pCi/LITER ) : 3.193E+03
GROSS GAMMA ERROR   (pCi/LITER ) : 7.462E+02
GROSS GAMMA MDA     (pCi/LITER ) : 1.536E+03
GROSS GAMMA DLC     (pCi/LITER ) : 7.439E+02

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Radiochemistry Batch Checklist, Rev 4

Batch# 515325 Product: Pa-228 Date: 4/11/06

| Criteria: | Yes | No | Comments |
|--|-----|----|----------|
| Sample Solids are less than 100 mg for GAB. | | | N/A |
| If activity less 10* MDA, error is 150% or less of sample activity. If greater 10* MDA, error is 40% or less. If below the MDA, error is okay. | ✓ | | |
| Instrument source check is within limits. | ✓ | | |
| Instrument bkg check is within limits. | ✓ | | |
| Method RDL has been met. | ✓ | | |
| If duplicate activities are less 5* MDA, then rpd is 100% or less. If greater 5* MDA, then rpd 20% or less. If below the MDA, 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. (If rad samples, < 5% of lowest activity) | ✓ | | |
| Sample was run within hold time. | ✓ | | |
| Special requirements page checked | ✓ | | |
| 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 lineouts initialed and dated. | ✓ | | |
| No transcription errors are apparent. | ✓ | | |
| QC data entered into QC database. | ✓ | | |
| Batch entered into Case Narrative. | ✓ | | |
| Batch non-conformances completed If applicable. | | | N/A |

General Engineering Laboratories

2/22/2005
 Primary Review Performed By: M. Lane [Signature] 4/11/06

Secondary Review Performed By: no 4/11/06

03/27/2006

Radium-228 Que Sheet

Batch #: 515325 Analyst: KSD1 Minimum Due Date: 04/07/2006 Ac-228 Ingrow: 1385 4/4/06
 Spike Isotope: Radium-228 Spike Code: 0503-B Expiration Date: 9/9/06 Vol: 0.1
 LCS Isotope: Radium-228 LCS Code: 0503-B Expiration Date: 9/9/06 Vol: 0.1
 Tracer Isotope: Barium-133 Tracer Code: 0112-H Expiration Date: 11/1/07 Vol: 0.1
 Prep Date: 4/3/06 Initials: KSD Pipet ID: 276953 Balance ID: 51204863
 Ac-228 Separation Date/Time: 1400 4/6/06
 Witness: FXW 4/6/06 04/03/06

| Sample ID | Client Description | Type | Hazard Code | Min CRDL | Matrix | Client | Collect Date & Time | Bkr # | Vol (mL) | Ba Yield (%) | Gamma Det. # |
|------------|---------------------------------|--------|-------------|----------|-------------|------------|---------------------|-------|----------|--------------|--------------|
| 158272001 | 2603140436 TR-10A | SAMPLE | | 2 pCi/L | GROUND WATI | MWHL002 | 13-MAR-06 02:35 PM | 1 | 600 | 97.2 | 73.48 1A |
| 158275001 | 2603140472 PUMP BLANK | SAMPLE | | 2 pCi/L | GROUND WATI | MWHL002 | 13-MAR-06 10:45 AM | 2 | 600 | 97.3 | 82.28 1B |
| 158276001 | 2603090347 FB-1 | SAMPLE | | 2 pCi/L | GROUND WATI | MWHL002 | 08-MAR-06 03:30 PM | 3 | 600 | 97.4 | 93.10 1C |
| 158277001 | 2603100260 EB-1 | SAMPLE | | 2 pCi/L | GROUND WATI | MWHL002 | 09-MAR-06 02:00 PM | 4 | 600 | 97.5 | 85.17 1D |
| 158764001 | TW-1 | SAMPLE | | 1 pCi/L | WATER | CH2M001 | 22-MAR-06 10:45 AM | 5 | 400 | 89.6 | 75.10 2A |
| 158995001 | 908368/06-4I-0089C-01 | SAMPLE | | 3 pCi/L | WATER | FLAD001 | 17-MAR-06 10:21 AM | 6 | 400 | 89.7 | 87.66 2B |
| 1201058924 | MB for batch 515325 | MB | | 1 pCi/L | GROUND WATI | QC ACCOUNT | 13-MAR-06 02:35 PM | 7 | 400 | 89.8 | 70.21 2C |
| 1201058925 | 2603140436 TR-10A(158272001)DUP | MB | | 2 pCi/L | GROUND WATI | QC ACCOUNT | 13-MAR-06 02:35 PM | 8 | 400 | 89.9 | 66.77 2D |
| 1201058926 | 2603140436 TR-10A(158272001)MMS | LCS | | 2 pCi/L | GROUND WATI | QC ACCOUNT | 13-MAR-06 02:35 PM | 9 | 400 | 89.6 | 76.57 3B 3C |
| 1201058927 | LCS for batch 515325 | LCS | | 1 pCi/L | GROUND WATI | QC ACCOUNT | 13-MAR-06 02:35 PM | 10 | 400 | 95.11 | 73.08 3D |

MAR 11 11 06

non-history

Data Reviewed By: MAY 11 11 06

Comments:

PIC S/N: 10751-4

404 11 06

Radium 228 Re-Elute / Reprecipitate

Batch # 515325
 Ra 228 Spike Code 0503B
 LCS Code 0503B
 Ba-133 Tracer Code 01124

Prep Date 4/13/06
 Spike Vol (mls) 0.1
 LCS Vol (mls) 0.1
 Tracer Vol (mls) 0.1

Initials KSD
 Ingrow Start Time: 1600 4/10/06
 Separation Time: 1650 4/10/06

| Sample ID | Bkr # | Vol. (mls) | Det # | % Yield | Gamma Det # |
|------------|-------|------------|--------|---------|-------------|
| 158272001 | 1 | 600 | 99 -2 | 68.78 | 1B |
| 158275001 | 2 | 600 | 99 -3 | 76.28 | 1C |
| 158276001 | 3 | 600 | 99 -4 | 86.20 | 1D |
| 158277001 | 4 | 600 | 99 -5 | 82.42 | 2A |
| 158764001 | 5 | 900 | 94 -6 | 71.27 | 2B |
| 158995001 | 6 | 400 | 94 -7 | 83.57 | 2C |
| 1201058924 | 7 | 900 | 94 -8 | 63.98 | 2D |
| 1201058925 | 8 | 600 | 94 -9 | 62.97 | 3B |
| 1201058926 | 9 | 400 | 94 -10 | 70.80 | 3C |
| 1201058927 | 10 | 900 | 96 -11 | 70.09 | 3D |
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KSD
 MA 4/10/06
 204/11/06

Radium-228 Water

Filename : RA228.XLS
 File type : Excel
 Version # : 1

Spike S/N : 0503-B
 Spike Exp Date : 9/9/2006
 Spike Activity (dpm/ml): 269.72
 Spike Volume Added: 0.1

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

LCS S/N : 0503-B
 LCS Exp Date : 9/9/2006
 LCS Activity (dpm/ml): 269.72
 LCS Volume Added: 0.1

Batch : 515325
 Analyst : KSD1
 Prep Date : 4/3/2006
 Ra-228 Abundance : 1

Procedure Code : GFC28RAL
 Parmaname : Radium-228
 Required MDA: 1 pCi/L

Halfife of Ra-228 : 5.75 years
 Halfife of Ac-228 : 6.13 hours
 Batch counted on : PIC
 BKG Count time : 500 min

Tracer S/N : 0112-H
 Tracer Exp Date : 1/18/2007
 Tracer Volume Added: 0.1

| Sample Characteristics | | | | Tracer Calculations | | | | | | |
|------------------------|------------------|-----------------------|------------------|------------------------------------|-------------------------------|-------------------------------------|---------------------|--------------------------------|---------------------|-----------------------|
| Sample ID | Sample Aliquot L | Sample Aliquot SiDev. | Sample Date/Time | Tracer Concentration (Ba-133 Ref.) | Tracer Ref. Count Uncertainty | Tracer Concentration (Ba-133 Samp.) | Tracer Aliquot (mL) | Tracer Samp. Count Uncertainty | Tracer Aliquot (mL) | Tracer Aliquot SiDev. |
| 158272001 | 0.600 | 2.0573E-05 | 3/13/2006 14:35 | 365.1 | 2.50% | 251.1 | 0.1 | 3.09% | 0.1 | 0.000701 |
| 158275001 | 0.600 | 2.0573E-05 | 3/13/2006 10:45 | 365.1 | 2.50% | 278.5 | 0.1 | 2.91% | 0.1 | 0.000701 |
| 158276001 | 0.600 | 2.0573E-05 | 3/8/2006 15:30 | 365.1 | 2.50% | 314.7 | 0.1 | 2.71% | 0.1 | 0.000701 |
| 158277001 | 0.600 | 2.0573E-05 | 3/9/2006 14:00 | 365.1 | 2.50% | 300.9 | 0.1 | 2.79% | 0.1 | 0.000701 |
| 158764001 | 0.900 | 2.0768E-05 | 3/22/2006 10:45 | 365.1 | 2.50% | 260.2 | 0.1 | 3.09% | 0.1 | 0.000701 |
| 158995001 | 0.400 | 1.9669E-05 | 3/17/2006 10:21 | 365.1 | 2.50% | 305.1 | 0.1 | 2.76% | 0.1 | 0.000701 |
| 1201058824 | 0.900 | 2.0768E-05 | 4/3/2006 0:00 | 365.1 | 2.50% | 233.6 | 0.1 | 3.23% | 0.1 | 0.000701 |
| 1201058925 | 0.600 | 2.0573E-05 | 3/13/2006 14:35 | 365.1 | 2.50% | 229.9 | 0.1 | 3.26% | 0.1 | 0.000701 |
| 1201058926 | 0.400 | 1.9669E-05 | 3/13/2006 14:35 | 365.1 | 2.50% | 258.5 | 0.1 | 3.04% | 0.1 | 0.000701 |
| 1201058927 | 0.900 | 2.0768E-05 | 4/3/2006 0:00 | 365.1 | 2.50% | 255.9 | 0.1 | 3.06% | 0.1 | 0.000701 |

Handwritten notes:
 MAR 11 11:09 AM '06
 120 d 1/11/06

| Count raw Data | | | | | | | | | | | | | | |
|----------------|---------------|--------------------|----------|---------------------|---------------------------|----------------------|------------|----------------------|-----------------------|--------------|--------------|-------------------------|-------------------|-------------------------|
| Detector ID | Counting Time | Gross Counts Alpha | Beta cpm | Detector Efficiency | Detector Efficiency Error | Weekly Bkg Count cpm | Count Time | Separation Date/Time | Count Start Date/Time | Ra-228 Decay | Ac-228 Decay | Ac-228 Count Correction | Sample Recovery % | Sample Recovery Error % |
| 1B | 60 | 4 | 0.567 | 0.5082 | 0.00409 | 0.362 | 500 | 4/10/2006 16:50 | 4/10/2006 18:53 | 0.991 | 0.792 | 1.058 | 68.78% | 2.22% |
| 1C | 60 | 7 | 0.417 | 0.5231 | 0.00344 | 0.434 | 500 | 4/10/2006 16:50 | 4/10/2006 18:54 | 0.991 | 0.791 | 1.058 | 76.28% | 2.16% |
| 1D | 60 | 3 | 0.667 | 0.5121 | 0.00511 | 0.354 | 500 | 4/10/2006 16:50 | 4/10/2006 18:54 | 0.989 | 0.791 | 1.058 | 86.20% | 2.09% |
| 2A | 60 | 7 | 0.667 | 0.5097 | 0.00349 | 0.406 | 500 | 4/10/2006 16:50 | 4/10/2006 18:54 | 0.989 | 0.791 | 1.058 | 82.42% | 2.12% |
| 2B | 60 | 6 | 0.733 | 0.5242 | 0.00383 | 0.242 | 500 | 4/10/2006 16:50 | 4/10/2006 18:54 | 0.994 | 0.791 | 1.058 | 71.27% | 2.20% |
| 2C | 60 | 0 | 0.400 | 0.5009 | 0.00575 | 0.350 | 500 | 4/10/2006 16:50 | 4/10/2006 18:54 | 0.992 | 0.791 | 1.058 | 83.57% | 2.11% |
| 2D | 60 | 6 | 0.533 | 0.5067 | 0.00479 | 0.458 | 500 | 4/10/2006 16:50 | 4/10/2006 18:53 | 0.997 | 0.792 | 1.058 | 63.98% | 2.27% |
| 3B | 60 | 5 | 0.650 | 0.4832 | 0.00655 | 0.382 | 500 | 4/10/2006 16:50 | 4/10/2006 18:53 | 0.991 | 0.792 | 1.058 | 62.97% | 2.28% |
| 3C | 60 | 23 | 8.917 | 0.4861 | 0.00535 | 0.434 | 500 | 4/10/2006 16:50 | 4/10/2006 18:53 | 0.991 | 0.792 | 1.058 | 70.80% | 2.20% |
| 3D | 60 | 22 | 7.200 | 0.4940 | 0.00464 | 0.416 | 500 | 4/10/2006 16:50 | 4/10/2006 18:53 | 0.997 | 0.792 | 1.058 | 70.09% | 2.21% |

Handwritten signature

| Results Decision Level pCi/L | Critical Level pCi/L | MDA pCi/L | Sample Act. Conc. | Sample Act. Error | Net Count Rate | Net Count Rate Error | 2 SIGMA Counting Uncertainty | 2 SIGMA Total Prop. Uncertainty | Sample QC | Sample Type | RPD | RER | Nominal | Recovery |
|---------------------------------------|----------------------------|--------------|----------------------|----------------------|-------------------|-------------------------|------------------------------------|---------------------------------------|--------------|----------------|------|-----|---------|----------|
| 0.7406 | 0.5229 | 1.1763 | 0.5922 | 0.4932 | 0.2047 | 0.1008 | 0.5719 | 0.5725 | | SAMPLE | | | | |
| 0.7112 | 0.5021 | 1.1187 | -0.0440 | 5.0994 | -0.0173 | 0.0884 | 0.4396 | 0.4396 | | SAMPLE | | | | |
| 0.5817 | 0.4107 | 0.9250 | 0.7186 | 0.3484 | 0.3127 | 0.1087 | 0.4897 | 0.4907 | | SAMPLE | | | | |
| 0.6545 | 0.4620 | 1.0330 | 0.6294 | 0.4194 | 0.2607 | 0.1092 | 0.5167 | 0.5174 | | SAMPLE | | | | |
| 0.3772 | 0.2663 | 0.6139 | 0.8856 | 0.2305 | 0.4913 | 0.1127 | 0.3982 | 0.4001 | | SAMPLE | | | | |
| 0.9126 | 0.6443 | 1.4522 | 0.1813 | 1.7167 | 0.0500 | 0.0858 | 0.6100 | 0.6101 | | SAMPLE | | | | |
| 0.5950 | 0.4201 | 0.9333 | 0.1557 | 1.3146 | 0.0753 | 0.0990 | 0.4011 | 0.4012 | | MB | | | | |
| 0.8745 | 0.6174 | 1.9848 | 0.8914 | 0.4025 | 0.2680 | 0.1077 | 0.7020 | 0.7032 | 158272001 | DUP | 0.0% | | 30.58 | 122.4% |
| 1.2364 | 0.8729 | 1.9448 | 37.4235 | 0.0509 | 8.4827 | 0.3866 | 3.3432 | 3.7341 | 158272001 | MS | | | 13.50 | 97.3% |
| 0.5312 | 0.3750 | 0.6374 | 13.1343 | 0.0560 | 6.7840 | 0.3476 | 1.3191 | 1.4415 | | LCS | | | | |

20/11/2000

| SampleID | Instr | Time | Alpha | Beta | Count Start Time | Count End Time |
|------------|-------|------|-------|------|------------------|-----------------|
| 158272001 | 1B | 60 | 4 | 34 | 4/10/2006 18:53 | 4/10/2006 19:53 |
| 158275001 | 1C | 60 | 7 | 25 | 4/10/2006 18:54 | 4/10/2006 19:54 |
| 158276001 | 1D | 60 | 3 | 40 | 4/10/2006 18:54 | 4/10/2006 19:54 |
| 158277001 | 2A | 60 | 7 | 40 | 4/10/2006 18:54 | 4/10/2006 19:54 |
| 158764001 | 2B | 60 | 6 | 44 | 4/10/2006 18:54 | 4/10/2006 19:54 |
| 158995001 | 2C | 60 | 0 | 24 | 4/10/2006 18:54 | 4/10/2006 19:54 |
| 1201058924 | 2D | 60 | 6 | 32 | 4/10/2006 18:53 | 4/10/2006 19:53 |
| 1201058925 | 3B | 60 | 5 | 39 | 4/10/2006 18:53 | 4/10/2006 19:53 |
| 1201058926 | 3C | 60 | 23 | 535 | 4/10/2006 18:53 | 4/10/2006 19:53 |
| 1201058927 | 3D | 60 | 22 | 432 | 4/10/2006 18:53 | 4/10/2006 19:53 |

MA 4/11/08

COUNTING

1480, RiaCalc WIZ, program 3.6, serial #4800440

ASSAY 7-Apr-06 18:24:54

Protocol id 8 228_REC
Time limit 300
Count limit 50000
Isotope Ba-133
Protocol date 27-Apr-05 14:46:49
Run id. 86

| POS | RACK | BATCH | TIME | COUNTS | CPM | ERROR | % RECOVERY | CLOCK |
|-----|------|-------|------|--------|-------|-------|------------|---------|
| 1 | 99 | 1 | 300 | 1993 | 365.1 | 2.5 | | 25:01.6 |
| 2 | 99 | 2 | 300 | 1423 | 251.1 | 3.09 | | 68.78 |
| 3 | 99 | 3 | 300 | 1560 | 278.5 | 2.91 | | 76.28 |
| 4 | 99 | 4 | 300 | 1741 | 314.7 | 2.71 | | 86.20 |
| 5 | 99 | 5 | 300 | 1672 | 300.9 | 2.79 | | 82.42 |
| 6 | 94 | 6 | 300 | 1469 | 260.2 | 3.03 | | 71.27 |
| 7 | 94 | 7 | 300 | 1693 | 305.1 | 2.76 | | 83.57 |
| 8 | 94 | 8 | 300 | 1336 | 233.6 | 3.23 | | 63.98 |
| 9 | 94 | 9 | 300 | 1317 | 229.9 | 3.26 | | 62.97 |
| 10 | 94 | 10 | 300 | 1460 | 258.5 | 3.04 | | 70.80 |
| 11 | 96 | 11 | 300 | 1447 | 255.9 | 3.06 | | 70.09 |

END OF ASSAY

END OF COUNTING

maulida

Radiochemistry Batch Checklist, Rev 4

Batch# 520607 Product: Pb-210 Date: 4/26/04

| Criteria: | Yes | No | Comments |
|--|-----|----|----------|
| Sample Solids are less than 100 mg for GAB. | NA | | |
| If activity less 10* MDA, error is 150% or less of sample activity. If greater 10* MDA, error is 40% or less. If below the MDA, error is okay. | ✓ | | |
| Instrument source check is within limits. | ✓ | | |
| Instrument bkg check is within limits. | ✓ | | |
| Method RDL has been met. | ✓ | | |
| If duplicate activities are less 5* MDA, then rpd is 100% or less. If greater 5* MDA, then rpd 20% or less. If below the MDA, 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. (If rad samples, < 5% of lowest activity) | ✓ | | |
| Sample was run within hold time. | ✓ | | |
| Special requirements page checked | ✓ | | |
| Sample was correctly preserved if required. | ✓ | | |
| 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 lineouts initialed and dated. | ✓ | | |
| No transcription errors are apparent. | ✓ | | |
| QC data entered into QC database. | | | |
| Batch entered into Case Narrative. | ✓ | | |
| Batch non-conformances completed If applicable. | NA | | |

General Engineering Laboratories

2/22/2005

Primary Review Performed By: _____

J. Rosen 4/26/06

Secondary Review Performed By: _____

NO 4/26/04

4/20-4/27

MWHL Page 133 of 741

Pb-210 Que Sheet

04/13/06

Batch #: 520607 Analyst: BXF1 Minimum Due Date 04/20/2006
 Spike Isotope: Pb210 Spike Code: ET 491E Expiration Date: 11-11-06 Vol: 0.1 ml Bi Separation Date/Time: 1830 4/20/06
 LCS Isotope: Pb210 LCS Code: ET 491E Expiration Date: 11-11-06 Vol: 0.1 ml Std Wt: 13.88
 Carrier: Pb Carrier Code: 100L4864 Expiration Date: 1-19-08 Analytical Scale #: 38110047
 Prep Date: 4-19-06 Initials: Bxif Pipet #: 4497063 Balance #: 36040216 Witness: Bx 4/19/06

34 of 74

| Sample ID | Client Description | Type | Hazard Code | RDL | Client | Matrix | Collection Date & Time | Bkr# | Aliquot (ml or g) | Det | Initial Pb Weight (g) | Final Pb Weight (g) | Net Pb Weight (mg) |
|------------|-----------------------------------|--------|-------------|---------|------------|---------------------|------------------------|------|-------------------|-----|-----------------------|---------------------|--------------------|
| 158272001 | 2603140436 TR-10A | SAMPLE | | 3 pCi/L | MWHL002 | GROUND WAT13-MAR-06 | | | 500 | 1B | .0744 | .0841 | 9.7 |
| 158275001 | 2603140472 PUMP BLANK | SAMPLE | | 3 pCi/L | MWHL002 | GROUND WAT13-MAR-06 | | | 500 | 1C | .0739 | .0832 | 9.3 |
| 158276001 | 2603090347 FB-1 | SAMPLE | | 3 pCi/L | MWHL002 | GROUND WAT08-MAR-06 | | | 500 | 1D | .0741 | .0837 | 9.6 |
| 158277001 | 2603100260 EB-1 | SAMPLE | | 3 pCi/L | MWHL002 | GROUND WAT09-MAR-06 | | | 500 | 2A | .0748 | .0841 | 9.3 |
| 158436001 | 2603150120 TR-9A | SAMPLE | | 3 pCi/L | MWHL002 | GROUND WAT14-MAR-06 | | | 500 | 2B | .0734 | .0816 | 8.2 |
| 158971001 | 2603220347 M-103 | SAMPLE | | 3 pCi/L | MWHL002 | GROUND WAT21-MAR-06 | | | 500 | 2C | .0734 | .0823 | 8.9 |
| 158971002 | 2603220348 TR-7 | SAMPLE | | 3 pCi/L | MWHL002 | GROUND WAT21-MAR-06 | | | 500 | 2D | .0745 | .0782 | 3.7 |
| 158971003 | 2603220357 TR-9 | SAMPLE | | 3 pCi/L | MWHL002 | GROUND WAT21-MAR-06 | | | 500 | 3A | .0736 | .0819 | 8.3 |
| 158971004 | 2603220360 TR-10 | SAMPLE | | 3 pCi/L | MWHL002 | GROUND WAT21-MAR-06 | | | 500 | 3B | .0737 | .0815 | 7.8 |
| 159242001 | 2603240118 H-11 | SAMPLE | | 3 pCi/L | MWHL002 | GROUND WAT23-MAR-06 | | | 500 | 3C | .0749 | .0813 | 6.4 |
| 159242002 | 2603240122 M-117 | SAMPLE | | 3 pCi/L | MWHL002 | GROUND WAT23-MAR-06 | | | 500 | 7D | .0745 | .0817 | 7.2 |
| 159242003 | 2603240135 M-121 | SAMPLE | | 3 pCi/L | MWHL002 | GROUND WAT23-MAR-06 | | | 400 | 4A | .0812 | .0909 | 9.7 |
| 159243001 | 2603230197 M-118 | SAMPLE | | 3 pCi/L | MWHL002 | GROUND WAT22-MAR-06 | | | 500 | 4B | .0742 | .0810 | 6.8 |
| 159244001 | 2603250005 EB-3 | SAMPLE | | 3 pCi/L | MWHL002 | GROUND WAT24-MAR-06 | | | 500 | 4C | .0793 | .0882 | 8.9 |
| 159247001 | 2603230069 M-120 | SAMPLE | | 3 pCi/L | MWHL002 | GROUND WAT22-MAR-06 | | | 500 | 4D | .0769 | .0920 | 15.1 |
| 1201070733 | MB for batch 520607 | MB | | 3 pCi/L | QC ACCOUNT | GROUND WAT1 | | | 500 | 3A | .0795 | .0867 | 7.2 |
| 1201070734 | 2603240135 M-121(159242003DUP)DUP | DUP | | 3 pCi/L | QC ACCOUNT | GROUND WAT1 | | | 400 | 3B | .0729 | .0823 | 9.4 |
| 1201070735 | 2603240135 M-121(159242003MS) MS | MS | | 3 pCi/L | QC ACCOUNT | GROUND WAT23-MAR-06 | | | 200 | 3C | .0777 | .0860 | 9.3 |
| 1201070736 | LCS for batch 520607 | LCS | | 3 pCi/L | QC ACCOUNT | GROUND WAT1 | | | 500 | 3D | .0772 | .0849 | 7.7 |
| | | | | | | | | | | | | .0842 | 7.0 |

WTR

Handwritten signature

Data Reviewed By:

Page 1 of 1

Instrument Used (circle one): LB4100 S/N 8219

PIC SN: 10751-4

NO 4 100 100

Lead-210 Water

Filename : PB210.XLS
 File type : Excel
 Version # : 1

Spike S/N : ET491-E
 Spike Exp Date : 11/11/2006
 Spike Activity (dpm/ml) : 405.42
 Spike Volume Added : 0.1

Pipet, 0.1 ml Stdev : +/-
 Pipet, 0.5 ml Stdev : +/-
 Pipet, 1 ml Stdev : +/-

0.000701 ml
 0.002564 ml
 0.005480 ml

GFC_PBL
 Lead-210
 3
 22.26
 5.013
 PIC
 500

Procedure Code :
 Parname :
 Required MDA:
 Half-life of Pb-210 :
 Half-life of Bi-210 :
 Batch counted on :
 BKG Count time :

ET491-E
 11/11/2006
 405.42
 0.1
 1006864
 1/19/2008
 1.0
 13.88
 0.05

LCS S/N : ET491-E
 LCS Exp Date : 11/11/2006
 LCS Activity (dpm/ml) : 405.42
 LCS Volume Added : 0.1

Batch : 520607
 Analyst : BXF1
 Prep Date : 4/19/2006

Pb-210 Abundance : 1

Carrier S/N : 1006864
 Carrier Exp Date : 1/19/2008
 Carrier Volume Added : 1.0
 Carrier Weight (mg/ml) : 13.88
 Carrier Weight StDev.: 0.05

Calibration Date : 7/29/2005
 Calibration Due Date : 7/29/2006

| Sample Characteristics | | | | Carrier Calculations | | | |
|------------------------|------------------|-----------------------|------------------|---------------------------|---------------------|-------------------|--|
| Sample ID | Sample Aliquot L | Sample Aliquot StDev. | Sample Date/Time | Carrier Weight (Standard) | Net Weight (Sample) | Net Weight StDev. | Carrier Aliquot (mL) Carrier Aliquot StDev. |
| 158272001 | 0.500 | 2.0256E-05 | 3/13/2006 14:35 | 13.88 | 9.7 | 0.049021 | 1.0 0.005480 |
| 158275001 | 0.500 | 2.0256E-05 | 3/13/2006 10:45 | 13.88 | 9.3 | 0.047301 | 1.0 0.005480 |
| 158276001 | 0.500 | 2.0256E-05 | 3/8/2006 15:30 | 13.88 | 9.6 | 0.048591 | 1.0 0.005480 |
| 158277001 | 0.500 | 2.0256E-05 | 3/9/2006 14:00 | 13.88 | 9.3 | 0.047301 | 1.0 0.005480 |
| 158436001 | 0.500 | 2.0256E-05 | 3/14/2006 14:45 | 13.88 | 8.2 | 0.042574 | 1.0 0.005480 |
| 158971001 | 0.500 | 2.0256E-05 | 3/21/2006 14:00 | 13.88 | 8.9 | 0.045582 | 1.0 0.005480 |
| 158971002 | 0.500 | 2.0256E-05 | 3/21/2006 12:00 | 13.88 | 3.7 | 0.023233 | 1.0 0.005480 |
| 158971003 | 0.500 | 2.0256E-05 | 3/21/2006 9:00 | 13.88 | 8.3 | 0.043003 | 1.0 0.005480 |
| 158971004 | 0.500 | 2.0256E-05 | 3/21/2006 10:20 | 13.88 | 7.8 | 0.040854 | 1.0 0.005480 |
| 159242001 | 0.500 | 2.0256E-05 | 3/23/2006 15:20 | 13.88 | 6.4 | 0.034837 | 1.0 0.005480 |
| 159242002 | 0.500 | 2.0256E-05 | 3/23/2006 14:50 | 13.88 | 7.2 | 0.038276 | 1.0 0.005480 |
| 159242003 | 0.400 | 1.9669E-05 | 3/23/2006 8:30 | 13.88 | 9.7 | 0.049021 | 1.0 0.005480 |
| 159243001 | 0.500 | 2.0256E-05 | 3/22/2006 14:30 | 13.88 | 6.8 | 0.036556 | 1.0 0.005480 |
| 159244001 | 0.500 | 2.0256E-05 | 3/24/2006 12:00 | 13.88 | 8.9 | 0.045582 | 1.0 0.005480 |
| 159247001 | 0.500 | 2.0256E-05 | 3/22/2006 10:20 | 13.88 | 15.1 | 0.072230 | 1.0 0.005480 |
| 1201070733 | 0.500 | 2.0256E-05 | 4/19/2006 0:00 | 13.88 | 7.2 | 0.038276 | 1.0 0.005480 |
| 1201070734 | 0.400 | 1.9669E-05 | 3/23/2006 8:30 | 13.88 | 9.4 | 0.047731 | 1.0 0.005480 |
| 1201070735 | 0.200 | 1.6007E-05 | 3/23/2006 8:30 | 13.88 | 8.3 | 0.043003 | 1.0 0.005480 |
| 1201070736 | 0.500 | 2.0256E-05 | 4/19/2006 0:00 | 13.88 | 7.0 | 0.037416 | 1.0 0.005480 |

Handwritten notes:
 12/1/06
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 12/1/06

| Count Raw Data | | | | | | | | | | | | | | |
|----------------|---------------|-------------|------------|----------------|-------|-----------------------|---------------------|---------------------------|-----------------------|-----------------------------|-----------------|--------------|-------------------|-------------------------|
| Detector ID | Counting Time | Gross Alpha | Gross Beta | Gross Beta CPM | CPM | Weekly Bkg Count Time | Detector Efficiency | Detector Efficiency Error | Count Start Date/Time | Bi-210 Separation Date/Time | Bi-210 Ingrowth | Pb-210 Decay | Sample Recovery % | Sample Recovery Error % |
| | | | | | | | | | | | | | | |
| 1B | 180 | 15 | 314 | 1.744 | 0.308 | 500 | 0.3392 | 0.00409 | 4/25/2006 11:02 | 4/20/2006 18:30 | 0.482 | 0.996 | 69.88% | 0.97% |
| 1C | 180 | 15 | 75 | 0.417 | 0.368 | 500 | 0.3465 | 0.00344 | 4/25/2006 11:02 | 4/20/2006 18:30 | 0.482 | 0.996 | 67.00% | 0.97% |
| 1D | 180 | 17 | 88 | 0.489 | 0.450 | 500 | 0.3439 | 0.00511 | 4/25/2006 11:02 | 4/20/2006 18:30 | 0.482 | 0.996 | 69.16% | 0.97% |
| 2A | 180 | 13 | 88 | 0.489 | 0.376 | 500 | 0.3482 | 0.00349 | 4/25/2006 11:02 | 4/20/2006 18:30 | 0.482 | 0.996 | 67.00% | 0.97% |
| 2B | 180 | 18 | 63 | 0.350 | 0.312 | 500 | 0.3583 | 0.00383 | 4/25/2006 11:02 | 4/20/2006 18:30 | 0.482 | 0.996 | 59.08% | 0.98% |
| 2C | 180 | 9 | 75 | 0.417 | 0.294 | 500 | 0.3487 | 0.00575 | 4/25/2006 11:03 | 4/20/2006 18:30 | 0.482 | 0.997 | 64.12% | 0.98% |
| 2D | 400 | 25 | 182 | 0.455 | 0.388 | 500 | 0.4007 | 0.00479 | 4/25/2006 12:32 | 4/20/2006 18:30 | 0.491 | 0.997 | 26.66% | 1.10% |
| 3A | 180 | 15 | 86 | 0.478 | 0.308 | 500 | 0.3447 | 0.00943 | 4/25/2006 11:03 | 4/20/2006 18:30 | 0.482 | 0.997 | 59.80% | 0.98% |
| 3B | 180 | 17 | 86 | 0.478 | 0.368 | 500 | 0.3527 | 0.00655 | 4/25/2006 11:03 | 4/20/2006 18:30 | 0.482 | 0.997 | 56.20% | 0.99% |
| 3C | 180 | 18 | 75 | 0.417 | 0.436 | 500 | 0.3665 | 0.00535 | 4/25/2006 11:03 | 4/20/2006 18:30 | 0.482 | 0.997 | 46.11% | 1.01% |
| 3D | 180 | 11 | 83 | 0.461 | 0.420 | 500 | 0.3619 | 0.00464 | 4/25/2006 11:03 | 4/20/2006 18:30 | 0.482 | 0.997 | 51.87% | 1.00% |
| 4A | 180 | 11 | 81 | 0.450 | 0.340 | 500 | 0.3421 | 0.00744 | 4/25/2006 11:03 | 4/20/2006 18:30 | 0.482 | 0.997 | 69.88% | 0.97% |
| 4B | 180 | 29 | 78 | 0.433 | 0.502 | 500 | 0.3720 | 0.00196 | 4/25/2006 11:03 | 4/20/2006 18:30 | 0.482 | 0.997 | 48.99% | 1.00% |
| 4C | 180 | 17 | 58 | 0.322 | 0.422 | 500 | 0.3507 | 0.00426 | 4/25/2006 11:03 | 4/20/2006 18:30 | 0.482 | 0.997 | 64.12% | 0.98% |
| 4D | 180 | 27 | 70 | 0.389 | 0.448 | 500 | 0.2944 | 0.00816 | 4/25/2006 11:03 | 4/20/2006 18:30 | 0.482 | 0.997 | 108.79% | 0.94% |
| 3A | 180 | 15 | 60 | 0.333 | 0.308 | 500 | 0.3543 | 0.00943 | 4/25/2006 14:15 | 4/20/2006 18:30 | 0.491 | 0.999 | 51.87% | 1.00% |
| 3B | 180 | 13 | 82 | 0.456 | 0.368 | 500 | 0.3391 | 0.00655 | 4/25/2006 14:15 | 4/20/2006 18:30 | 0.491 | 0.997 | 67.72% | 0.97% |
| 3C | 60 | 5 | 217 | 3.617 | 0.436 | 500 | 0.3501 | 0.00535 | 4/25/2006 14:15 | 4/20/2006 18:30 | 0.488 | 0.997 | 59.80% | 0.98% |
| 3D | 60 | 7 | 201 | 3.350 | 0.420 | 500 | 0.3637 | 0.00464 | 4/25/2006 14:15 | 4/20/2006 18:30 | 0.488 | 0.999 | 50.43% | 1.00% |

Handwritten signature
4/26/06

| Results | | Critical Level | MDA | Sample Act. Conc. | Sample Act. Error | Net Count Rate | Net Count Rate Error | 2 SIGMA Counting Uncertainty | 2 SIGMA Total Prop. Uncertainty | Sample QC | Sample Type | RPD | RER | Nominal | Recovery |
|----------------|--------|----------------|---------|-------------------|-------------------|----------------|----------------------|------------------------------|---------------------------------|-----------|-------------|------|-----|---------|----------|
| Decision Level | pCi/L | pCi/L | pCi/L | | | | | | | | | | | | |
| 1.0796 | 0.7622 | 1.6436 | 11.3779 | 0.0715 | 1.4364 | 0.1015 | 1.5762 | 1.5936 | | | SAMPLE | | | | |
| 1.2048 | 0.8506 | 1.8227 | 0.3935 | 1.1350 | 0.0487 | 0.0552 | 0.8754 | 0.8754 | | | SAMPLE | | | | |
| 1.3010 | 0.9185 | 1.9558 | 0.3071 | 1.5463 | 0.0369 | 0.0601 | 0.9307 | 0.9307 | | | SAMPLE | | | | |
| 1.2125 | 0.8560 | 1.8331 | 0.9089 | 0.5218 | 0.1129 | 0.0589 | 0.9293 | 0.9295 | | | SAMPLE | | | | |
| 1.2166 | 0.8589 | 1.8512 | 0.3370 | 1.3337 | 0.0360 | 0.0507 | 0.8809 | 0.8809 | | | SAMPLE | | | | |
| 1.1174 | 0.7889 | 1.7040 | 1.0293 | 0.4394 | 0.1227 | 0.0539 | 0.8861 | 0.8864 | | | SAMPLE | | | | |
| 1.7667 | 1.2473 | 2.6110 | 1.1534 | 0.6530 | 0.0670 | 0.0437 | 1.4759 | 1.4762 | | | SAMPLE | | | | |
| 1.2405 | 0.8758 | 1.8885 | 1.5452 | 0.3371 | 0.1698 | 0.0572 | 1.0201 | 1.0210 | | | SAMPLE | | | | |
| 1.4101 | 0.9955 | 2.1333 | 1.0389 | 0.5305 | 0.1098 | 0.0582 | 1.0801 | 1.0803 | | | SAMPLE | | | | |
| 1.8001 | 1.2709 | 2.7087 | -0.2146 | 2.9199 | -0.0193 | 0.0565 | 1.2282 | 1.2282 | | | SAMPLE | | | | |
| 1.5902 | 1.1227 | 2.3955 | 0.4107 | 1.4187 | 0.0411 | 0.0583 | 1.1421 | 1.1421 | | | SAMPLE | | | | |
| 1.4043 | 0.9915 | 2.1304 | 1.0787 | 0.5128 | 0.1100 | 0.0564 | 1.0838 | 1.0841 | | | SAMPLE | | | | |
| 1.7911 | 1.2645 | 2.6638 | -0.7068 | 0.8507 | -0.0687 | 0.0584 | 1.1783 | 1.1784 | | | SAMPLE | | | | |
| 1.3306 | 0.9394 | 2.0042 | -0.8321 | 0.5145 | -0.0998 | 0.0513 | 0.8390 | 0.8391 | | | SAMPLE | | | | |
| 0.9627 | 0.6797 | 1.4474 | -0.3462 | 0.9354 | -0.0591 | 0.0553 | 0.6346 | 0.6346 | | | SAMPLE | | | | |
| 1.3612 | 0.9610 | 2.0722 | 0.2530 | 1.9610 | 0.0253 | 0.0497 | 0.9724 | 0.9724 | | | MB | | | | |
| 1.4917 | 1.0532 | 2.2568 | 0.8766 | 0.6529 | 0.0876 | 0.0572 | 1.1216 | 1.1218 | 159242003 | | DUP | 0.0% | | 91.52 | 76.8% |
| 6.2076 | 4.3826 | 9.7619 | 70.2912 | 0.0785 | 3.1807 | 0.2473 | 10.7112 | 10.8217 | 159242003 | | MS | | | 36.52 | 80.7% |
| 2.7750 | 1.9592 | 4.3723 | 29.4923 | 0.0820 | 2.9300 | 0.2381 | 4.6966 | 4.7397 | | | LCS | | | | |

Day 12/10/15

| SampleID | Instr | Time | Alpha | Beta | Count | Start Time | Count | End Time |
|------------|-------|------|-------|------|-----------|------------|-----------|----------|
| 158272001 | 1B | 180 | 15 | 314 | 4/25/2006 | 11:02 | 4/25/2006 | 14:02 |
| 158275001 | 1C | 180 | 15 | 75 | 4/25/2006 | 11:02 | 4/25/2006 | 14:02 |
| 158276001 | 1D | 180 | 17 | 88 | 4/25/2006 | 11:02 | 4/25/2006 | 14:02 |
| 158277001 | 2A | 180 | 13 | 88 | 4/25/2006 | 11:02 | 4/25/2006 | 14:02 |
| 158436001 | 2B | 180 | 18 | 63 | 4/25/2006 | 11:02 | 4/25/2006 | 14:02 |
| 158971001 | 2C | 180 | 9 | 75 | 4/25/2006 | 11:03 | 4/25/2006 | 14:03 |
| 158971002 | 2D | 400 | 25 | 182 | 4/25/2006 | 12:32 | 4/25/2006 | 19:12 |
| 158971003 | 3A | 180 | 15 | 86 | 4/25/2006 | 11:03 | 4/25/2006 | 14:03 |
| 158971004 | 3B | 180 | 17 | 86 | 4/25/2006 | 11:03 | 4/25/2006 | 14:03 |
| 159242001 | 3C | 180 | 18 | 75 | 4/25/2006 | 11:03 | 4/25/2006 | 14:03 |
| 159242002 | 3D | 180 | 11 | 83 | 4/25/2006 | 11:03 | 4/25/2006 | 14:03 |
| 159242003 | 4A | 180 | 11 | 81 | 4/25/2006 | 11:03 | 4/25/2006 | 14:03 |
| 159243001 | 4B | 180 | 29 | 78 | 4/25/2006 | 11:03 | 4/25/2006 | 14:03 |
| 159244001 | 4C | 180 | 17 | 58 | 4/25/2006 | 11:03 | 4/25/2006 | 14:03 |
| 159247001 | 4D | 180 | 27 | 70 | 4/25/2006 | 11:03 | 4/25/2006 | 14:03 |
| 1201070733 | 3A | 180 | 15 | 60 | 4/25/2006 | 14:15 | 4/25/2006 | 17:15 |
| 1201070734 | 3B | 180 | 13 | 82 | 4/25/2006 | 14:15 | 4/25/2006 | 17:15 |
| 1201070735 | 3C | 60 | 5 | 217 | 4/25/2006 | 14:15 | 4/25/2006 | 15:15 |
| 1201070736 | 3D | 60 | 7 | 201 | 4/25/2006 | 14:15 | 4/25/2006 | 15:15 |

John
4/26/06

Radiochemistry Batch Checklist, Rev 4

Batch# 523680 Product: Tetra () Date: 8/26/06

| Criteria: | Yes | No | Comments |
|---|-----|----|----------|
| Sample Solids are less than 100 mg for GAB. | ✓ | | |
| If activity less 10* MDA, error is 150% or less of sample activity. If greater 10* MDA, error is 40% or less. If below the MDA, error is okay. | ✓ | | |
| Instrument source check is within limits. Instrument bkg check is within limits. | ✓ | | |
| Method RDL has been met. | ✓ | | |
| If duplicate activities are less 5* MDA, then rpd is 100% or less. If greater 5* MDA, then rpd 20% or less. If below the MDA, 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. (If rad samples, < 5% of lowest activity) | ✓ | | |
| Sample was run within hold time. Special requirements page checked | ✓ | | |
| Sample was correctly preserved if required. | N/A | | |
| Smears Taken for Radioactive batches. | MA | | |
| Method Spike and LCS are within 75-125% or meets the client's contract acceptance criteria. | ✓ | | |
| No blank spaces on data forms. All lineouts initialed and dated. No transcription errors are apparent. | ✓ | | |
| QC data entered into QC database. Batch entered into Case Narrative. | ✓ | | |
| Batch non-conformances completed If applicable. | MP | | |

General Engineering Laboratories

2/22/2005

Primary Review Performed By: SC 4/26/06

Secondary Review Performed By: SC 4/26/06

Total Uranium Que Sheet

04/24/2006

Batch #: 523680 Analyst: DRS1 Minimum Due Date: 04/20/2006 Comments

Spike Isotope: Natural U Spike Code: 0903 Expiration Date: 3-1-07 Vol: 1.0 Nom Conc: 25.0

LCS Isotope: Natural U LCS Code: 0903 Expiration Date: 3-1-07 Vol: 1.0 Nom Conc: 25.0

Prep Date: 4-24-06 Initials: DRJ Pipet ID: 160845/1829224 Witness: CHS 4/24/06

LCSD Code: 0903 Expiration Date: 3-1-07 Vol: 1.0 Nom Conc: 25.0

LCSD Code: 0903 Expiration Date: 3-1-07 Vol: 1.0 Nom Conc: 25.0

LCSD Code: 0903 Expiration Date: 3-1-07 Vol: 1.0 Nom Conc: 25.0

| Sample I | Client Description | Type | Hazard Code | Min CRDL | Matrix | Client | Bktr# | Sample Aliquot (g or mL) | Aliquot for Analysis (mL) |
|------------|--------------------------------|--------|-------------|---------------------------|--------------|------------|-------|--------------------------|---------------------------|
| 15827001 | 2603140436 TR-10A | SAMPLE | | 1 ug/L | GROUND WATER | MWHL002 | 1 | 5:10 | 1.0 |
| 158275001 | 2603140472 PUMP BLANK | SAMPLE | | 1 ug/L | GROUND WATER | MWHL002 | 2 | 5:10 | 1.0 |
| 158276001 | 2603090347 FB-1 | SAMPLE | | 1 ug/L | GROUND WATER | MWHL002 | 3 | 5:10 | 1.0 |
| 158277001 | 2603100260 EB-1 | SAMPLE | | 1 ug/L | GROUND WATER | MWHL002 | 4 | 5:10 | 1.0 |
| 158436001 | 2603150120 TR-9A | SAMPLE | | 1 ug/L | GROUND WATER | MWHL002 | 5 | 5:10 | 1.0 |
| 158971001 | 2603220347 M-103 | SAMPLE | | 1 ug/L | GROUND WATER | MWHL002 | 6 | 5:10 | 1.0 |
| 158971002 | 2603220348 TR-7 | SAMPLE | | 1 ug/L | GROUND WATER | MWHL002 | 7 | 5:10 | 1.0 |
| 158971003 | 2603220357 TR-9 | SAMPLE | | 1 ug/L | GROUND WATER | MWHL002 | 8 | 5:10 | 1.0 |
| 158971004 | 2603220360 TR-10 | SAMPLE | | 1 ug/L | GROUND WATER | MWHL002 | 9 | 5:10 | 1.0 |
| 159242001 | 2603240118 H-11 | SAMPLE | | 1 ug/L | GROUND WATER | MWHL002 | 10 | 5:10 | 1.0 |
| 159242002 | 2603240122 M-117 | SAMPLE | | 1 ug/L | GROUND WATER | MWHL002 | 11 | 5:10 | 1.0 |
| 159242003 | 2603240135 M-121 | SAMPLE | | 1 ug/L | GROUND WATER | MWHL002 | 12 | 5:10 | 1.0 |
| 159243001 | 2603230197 M-118 | SAMPLE | | 1 ug/L | GROUND WATER | MWHL002 | 13 | 5:10 | 1.0 |
| 159244001 | 2603250005 EB-3 | SAMPLE | | 1 ug/L | GROUND WATER | MWHL002 | 14 | 5:10 | 1.0 |
| 159247001 | 2603230069 M-120 | SAMPLE | | 1 ug/L | GROUND WATER | MWHL002 | 15 | 5:10 | 1.0 |
| 1201077880 | MB for batch 523680 | MB | | UCF ug/L to uGROUND WATER | GROUND WATER | QC ACCOUNT | 16 | 5:10 | 1.0 |
| 1201077881 | 2603240135 M-121(159242003)DUP | DUP | | 1 ug/L | GROUND WATER | QC ACCOUNT | 17 | 5:10 | 1.0 |
| 1201077882 | 2603240135 M-121(159242003)MS | MS | | 1 ug/L | GROUND WATER | QC ACCOUNT | 18 | 5:10 | 1.0 |
| 1201077883 | LCS for batch 523680 | LCS | | UCF ug/L to uGROUND WATER | GROUND WATER | QC ACCOUNT | 19 | 5:10 | 1.0 |
| 1201077884 | LCSD for batch 523680 | LCSD | | UCF ug/L to uGROUND WATER | GROUND WATER | QC ACCOUNT | 20 | 5:10 | 1.0 |

Instrument Used (circle one): KPA-10 S/N 89-05050-0035, KPA-10A S/N 89-05040-025, KPA-11 S/N 94-45050-064

Data Reviewed By: SEL 4/26/06

General Engineering Laboratories, Radiochemistry Division

Page 1 of 1

Uranium Water

Filename : TOTU.XLS
 File type : Excel
 Version # : 1

Spike S/N : 0903
 Spike Exp Date : 3/1/2007
 Spike Activity (ug/L): 250.00
 Spike Volume Added(ml): 1.0

LCS S/N : 0903
 LCS Exp Date : 3/1/2007
 LCS Activity (ug/L): 250.00
 LCS Volume Added(ml): 1.0

Batch : 523680
 Analyst : DRS1
 Prep Date : 4/24/2006
 Nat-U Abundance : 1

Procedure Code : KPATOTUL
 Parmname : Total Uranium

Batch counted on : KPA11AUTO2

Calibration Date : 4/26/2006 9:32:10
 Calibration Due Date : 4/27/2006 9:32:10

Sample Characteristics

KPA Raw Data

| Sample ID | Initial Aliquot L | Initial Sample StDev. | Final Aliquot L | Final Aliquot StDev. | Sample Counted mL | Sample Counted StDev. | Sample Date/Time | Analysis Range | Intensity | Lifetime (us) | R^2 |
|------------|-------------------|-----------------------|-----------------|----------------------|-------------------|-----------------------|------------------|----------------|-----------|---------------|--------|
| 158272001 | 0.005 | 3.7355E-06 | 0.010 | 4.2391E-06 | 1.000 | 5.4802E-03 | 3/13/2006 14:35 | Low | 14837.950 | 205.4560 | 0.9999 |
| 158275001 | 0.005 | 3.7355E-06 | 0.010 | 4.2391E-06 | 1.000 | 5.4802E-03 | 3/13/2006 10:45 | Low | 128.716 | 405.5095 | 0.9078 |
| 158276001 | 0.005 | 3.7355E-06 | 0.010 | 4.2391E-06 | 1.000 | 5.4802E-03 | 3/8/2006 15:30 | Low | 18179.560 | 314.5181 | 0.9997 |
| 158277001 | 0.005 | 3.7355E-06 | 0.010 | 4.2391E-06 | 1.000 | 5.4802E-03 | 3/9/2006 14:00 | Low | 109.785 | 389.9206 | 0.8704 |
| 158436001 | 0.005 | 3.7355E-06 | 0.010 | 4.2391E-06 | 1.000 | 5.4802E-03 | 3/14/2006 14:45 | Low | 8384.440 | 304.4823 | 0.9995 |
| 158971001 | 0.005 | 3.7355E-06 | 0.010 | 4.2391E-06 | 1.000 | 5.4802E-03 | 3/21/2006 14:00 | Low | 11429.830 | 304.0079 | 0.9997 |
| 158971002 | 0.005 | 3.7355E-06 | 0.010 | 4.2391E-06 | 1.000 | 5.4802E-03 | 3/21/2006 12:00 | Low | 8779.347 | 299.2141 | 0.9998 |
| 158971003 | 0.005 | 3.7355E-06 | 0.010 | 4.2391E-06 | 1.000 | 5.4802E-03 | 3/21/2006 9:00 | Low | 7751.080 | 315.1842 | 0.9996 |
| 158971004 | 0.005 | 3.7355E-06 | 0.010 | 4.2391E-06 | 1.000 | 5.4802E-03 | 3/21/2006 10:20 | Low | 14388.240 | 297.1293 | 0.9999 |
| 159242001 | 0.005 | 3.7355E-06 | 0.010 | 4.2391E-06 | 1.000 | 5.4802E-03 | 3/23/2006 15:20 | Low | 338.874 | 217.5325 | 0.9061 |
| 159242002 | 0.005 | 3.7355E-06 | 0.010 | 4.2391E-06 | 1.000 | 5.4802E-03 | 3/23/2006 14:50 | Low | 10709.190 | 301.4254 | 0.9996 |
| 159243001 | 0.005 | 3.7355E-06 | 0.010 | 4.2391E-06 | 1.000 | 5.4802E-03 | 3/23/2006 8:30 | Low | 47166.910 | 294.7017 | 0.9999 |
| 159244001 | 0.005 | 3.7355E-06 | 0.010 | 4.2391E-06 | 1.000 | 5.4802E-03 | 3/22/2006 14:30 | Low | 8510.882 | 301.0075 | 0.9993 |
| 159247001 | 0.005 | 3.7355E-06 | 0.010 | 4.2391E-06 | 1.000 | 5.4802E-03 | 3/24/2006 12:00 | Low | 99.989 | 340.0651 | 0.7262 |
| 1201077880 | 0.005 | 3.7355E-06 | 0.010 | 4.2391E-06 | 1.000 | 5.4802E-03 | 3/22/2006 10:20 | High | 2774.895 | 297.2591 | 0.9995 |
| 1201077881 | 0.005 | 3.7355E-06 | 0.010 | 4.2391E-06 | 1.000 | 5.4802E-03 | 4/24/2006 0:00 | Low | 120.520 | 401.1802 | 0.6136 |
| 1201077882 | 0.005 | 3.7355E-06 | 0.010 | 4.2391E-06 | 1.000 | 5.4802E-03 | 3/23/2006 8:30 | Low | 47183.600 | 296.7125 | 0.9999 |
| 1201077883 | 0.005 | 3.7355E-06 | 0.010 | 4.2391E-06 | 1.000 | 5.4802E-03 | 3/23/2006 8:30 | High | 3843.490 | 294.0193 | 0.9995 |
| 1201077884 | 0.005 | 3.7355E-06 | 0.010 | 4.2391E-06 | 1.000 | 5.4802E-03 | 4/24/2006 0:00 | High | 2185.972 | 323.5353 | 0.9990 |
| 1201077884 | 0.005 | 3.7355E-06 | 0.010 | 4.2391E-06 | 1.000 | 5.4802E-03 | 4/24/2006 0:00 | Low | 17815.530 | 317.4648 | 0.9998 |

Handwritten signatures and initials:
 [Signature]
 [Signature]
 [Signature]

| Ref Ratio | Results (ug/L) | Error (ug/L) | Count Date/Time | Dilution Corrected Results | | | Results (pCi) | | | | | pCi/ug= 0.67 | | | 1 SIGMA | |
|-----------|----------------|--------------|-----------------|----------------------------|----------------|----------------------|----------------------|-----------|-------------------------|-------------------------|----------------------|-------------------------|--|--|---------|--|
| | | | | KPA Result ug/L | KPA Error ug/L | Decision Level pCi/L | Critical Level pCi/L | MDA pCi/L | Sample Act. Conc. pCi/L | Sample Act. Error pCi/L | Counting Uncertainty | Total Prop. Uncertainty | | | | |
| 1.0242 | 2.1947 | 0.0252 | 4/26/2006 10:30 | 4.3894 | 0.0504 | 0.2040 | 0.1440 | 0.2880 | 2.9409 | 0.0077 | 0.0662 | 0.0736 | | | | |
| 1.0268 | 0.0831 | 0.0037 | 4/26/2006 10:32 | 0.1663 | 0.0074 | 0.2040 | 0.1440 | 0.2880 | 0.1114 | 0.0298 | 0.0097 | 0.0098 | | | | |
| 1.0246 | 2.6744 | 0.0305 | 4/26/2006 10:34 | 5.3488 | 0.0610 | 0.2040 | 0.1440 | 0.2880 | 3.5837 | 0.0076 | 0.0801 | 0.0891 | | | | |
| 1.0267 | 0.0804 | 0.0044 | 4/26/2006 10:36 | 0.1608 | 0.0089 | 0.2040 | 0.1440 | 0.2880 | 0.1078 | 0.0371 | 0.0117 | 0.0117 | | | | |
| 1.0188 | 1.2683 | 0.0149 | 4/26/2006 10:38 | 2.5365 | 0.0298 | 0.2040 | 0.1440 | 0.2880 | 1.6995 | 0.0079 | 0.0392 | 0.0433 | | | | |
| 1.0186 | 1.7055 | 0.0196 | 4/26/2006 10:40 | 3.4109 | 0.0391 | 0.2040 | 0.1440 | 0.2880 | 2.2853 | 0.0077 | 0.0514 | 0.0571 | | | | |
| 1.0182 | 1.3250 | 0.0150 | 4/26/2006 10:43 | 2.6499 | 0.0299 | 0.2040 | 0.1440 | 0.2880 | 1.7755 | 0.0076 | 0.0393 | 0.0438 | | | | |
| 1.0126 | 1.1774 | 0.0137 | 4/26/2006 10:45 | 2.3547 | 0.0273 | 0.2040 | 0.1440 | 0.2880 | 1.5777 | 0.0078 | 0.0359 | 0.0398 | | | | |
| 1.0195 | 2.1301 | 0.0239 | 4/26/2006 10:47 | 4.2603 | 0.0478 | 0.2040 | 0.1440 | 0.2880 | 2.8544 | 0.0075 | 0.0628 | 0.0701 | | | | |
| 1.0180 | 0.1133 | 0.0093 | 4/26/2006 10:49 | 0.2266 | 0.0185 | 0.2040 | 0.1440 | 0.2880 | 0.1518 | 0.0548 | 0.0244 | 0.0244 | | | | |
| 1.0307 | 1.6020 | 0.0186 | 4/26/2006 10:51 | 3.2040 | 0.0373 | 0.2040 | 0.1440 | 0.2880 | 2.1467 | 0.0078 | 0.0490 | 0.0543 | | | | |
| 1.0177 | 6.8357 | 0.0763 | 4/26/2006 10:53 | 13.6713 | 0.1527 | 0.2040 | 0.1440 | 0.2880 | 9.1598 | 0.0075 | 0.2005 | 0.2240 | | | | |
| 1.0208 | 1.2864 | 0.0155 | 4/26/2006 10:55 | 2.5728 | 0.0310 | 0.2040 | 0.1440 | 0.2880 | 1.7238 | 0.0081 | 0.0407 | 0.0448 | | | | |
| 1.0279 | 0.0790 | 0.0079 | 4/26/2006 10:57 | 0.1580 | 0.0157 | 0.2040 | 0.1440 | 0.2880 | 0.1059 | 0.0667 | 0.0207 | 0.0207 | | | | |
| 1.0368 | 23.7634 | 0.7311 | 4/26/2006 11:01 | 47.5268 | 1.4621 | 0.2040 | 0.1440 | 0.2880 | 31.8429 | 0.0206 | 1.9201 | 1.9512 | | | | |
| 1.0199 | 0.0820 | 0.0089 | 4/26/2006 10:15 | 0.1639 | 0.0179 | 0.2040 | 0.1440 | 0.2880 | 0.1098 | 0.0730 | 0.0234 | 0.0235 | | | | |
| 1.0191 | 6.8380 | 0.0762 | 4/26/2006 10:18 | 13.6761 | 0.1524 | 0.2040 | 0.1440 | 0.2880 | 9.1630 | 0.0075 | 0.2001 | 0.2236 | | | | |
| 1.0301 | 32.8797 | 1.0119 | 4/26/2006 10:22 | 65.7593 | 2.0237 | 0.2040 | 0.1440 | 0.2880 | 44.0588 | 0.0206 | 2.6576 | 2.7007 | | | | |
| 1.0376 | 18.7377 | 0.5803 | 4/26/2006 10:26 | 37.4754 | 1.1606 | 0.2040 | 0.1440 | 0.2880 | 25.1085 | 0.0207 | 1.5241 | 1.5485 | | | | |
| 1.0327 | 2.6221 | 0.0295 | 4/26/2006 10:27 | 5.2443 | 0.0591 | 0.2040 | 0.1440 | 0.2880 | 3.5137 | 0.0075 | 0.0776 | 0.0865 | | | | |

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MDA Study Information

Effective Date: 4/1/2006
 Expiration Date: 7/1/2006
 Average: 1.090000000
 StDev.: 0.046200000

| Results (ug) Decision Level ug/L | Critical Level ug/L | MDA ug/L | Sample Act. Conc. ug/L | Sample Act. Error ug/L | 2 SIGMA Counting Uncertainty | 2 SIGMA Total Prop. Uncertainty | Sample QC | Sample Type | RPD | RER | Nominal | Recovery |
|-------------------------------------|---------------------|----------|------------------------|------------------------|------------------------------|---------------------------------|-----------|-------------|--------|-----|---------|----------|
| 0.3045 | 0.2150 | 0.4299 | 4.3894 | 0.0115 | 0.0988 | 0.1098 | | SAMPLE | | | | |
| 0.3045 | 0.2150 | 0.4299 | 0.1663 | 0.0445 | 0.0145 | 0.0146 | | SAMPLE | | | | |
| 0.3045 | 0.2150 | 0.4299 | 5.3488 | 0.0114 | 0.1196 | 0.1330 | | SAMPLE | | | | |
| 0.3045 | 0.2150 | 0.4299 | 0.1608 | 0.0553 | 0.0174 | 0.0175 | | SAMPLE | | | | |
| 0.3045 | 0.2150 | 0.4299 | 2.5365 | 0.0118 | 0.0585 | 0.0647 | | SAMPLE | | | | |
| 0.3045 | 0.2150 | 0.4299 | 3.4109 | 0.0115 | 0.0767 | 0.0852 | | SAMPLE | | | | |
| 0.3045 | 0.2150 | 0.4299 | 2.6499 | 0.0113 | 0.0586 | 0.0654 | | SAMPLE | | | | |
| 0.3045 | 0.2150 | 0.4299 | 2.3547 | 0.0116 | 0.0536 | 0.0594 | | SAMPLE | | | | |
| 0.3045 | 0.2150 | 0.4299 | 4.2603 | 0.0112 | 0.0938 | 0.1047 | | SAMPLE | | | | |
| 0.3045 | 0.2150 | 0.4299 | 0.2266 | 0.0818 | 0.0363 | 0.0364 | | SAMPLE | | | | |
| 0.3045 | 0.2150 | 0.4299 | 3.2040 | 0.0116 | 0.0731 | 0.0810 | | SAMPLE | | | | |
| 0.3045 | 0.2150 | 0.4299 | 13.6713 | 0.0112 | 0.2992 | 0.3343 | | SAMPLE | | | | |
| 0.3045 | 0.2150 | 0.4299 | 2.5728 | 0.0120 | 0.0607 | 0.0669 | | SAMPLE | | | | |
| 0.3045 | 0.2150 | 0.4299 | 0.1580 | 0.0995 | 0.0308 | 0.0309 | | SAMPLE | | | | |
| 0.3045 | 0.2150 | 0.4299 | 47.5268 | 0.0308 | 2.8658 | 2.9122 | | SAMPLE | | | | |
| 0.3045 | 0.2150 | 0.4299 | 0.1639 | 0.1089 | 0.0350 | 0.0350 | | MB | | | | |
| 0.3045 | 0.2150 | 0.4299 | 13.6761 | 0.0111 | 0.2986 | 0.3338 | 159242003 | DUP | 0.0% | | 50.00 | 104.2% |
| 0.3045 | 0.2150 | 0.4299 | 65.7593 | 0.0308 | 3.9665 | 4.0308 | 159242003 | MS | | | 50.00 | 75.0% |
| 0.3045 | 0.2150 | 0.4299 | 37.4754 | 0.0310 | 2.2748 | 2.3112 | | LCS | | | 5.00 | 104.9% |
| 0.3045 | 0.2150 | 0.4299 | 5.2443 | 0.0113 | 0.1158 | 0.1291 | | LCS | 150.9% | | | |

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| Sample-ID | Sample-Description | Reference-ReferenceRatio | Sample-Lifetime | Sample-FY2 | Sample-AnalysisDate | Analysis-Range | Sample-Intercept | Result-AnalyticalResult | Result-AnalyticalUncertainty | Standard | Recovery |
|------------|--------------------|--------------------------|-----------------|------------|---------------------|----------------|------------------|-------------------------|------------------------------|----------|----------|
| 2 | C0K1Sid | 1.008336 | 319.8756 | 0.994365 | 4/26/2006 9:48 | Low | 1.3367.54 | 1.983616 | 2.34E-02 | 2 | 99% |
| 5 | C0K1Sid | 0.99957 | 342.7378 | 0.995929 | 4/26/2006 9:48 | Low | 33476.77 | 4.870665 | 5.42E-02 | 5 | 97% |
| 50 | C0K1Sid | 1.012948 | 329.5086 | 0.9939304 | 4/26/2006 9:50 | High | 5836.366 | 1.535339 | 7.505952 | 50 | 100% |
| 250 | C0K1Sid | 1.019718 | 333.4145 | 0.998947 | 4/26/2006 9:52 | High | 28866.09 | 245.6594 | 8.93E-03 | 250 | 98% |
| 1201077880 | 523680 | 1.019894 | 401.1802 | 0.6136399 | 4/26/2006 10:15 | Low | 1.20.5201 | 0.081953 | 7.62E-02 | | |
| 1201077881 | 523680 | 1.019107 | 296.7125 | 0.999429 | 4/26/2006 10:18 | High | 3843.49 | 32.87967 | 1.01187 | | |
| 1201077882 | 523680 | 1.030107 | 294.0193 | 0.995285 | 4/26/2006 10:22 | High | 2185.972 | 18.7377 | 0.5803018 | | |
| 1201077883 | 523680 | 1.037649 | 323.5353 | 0.989103 | 4/26/2006 10:26 | High | 17815.53 | 2.622143 | 2.95E-02 | | |
| 1201077884 | 523680 | 1.032678 | 317.4648 | 0.998407 | 4/26/2006 10:27 | Low | 14837.95 | 2.194699 | 2.52E-02 | | |
| 158272001 | 523680 | 1.024196 | 205.456 | 0.998615 | 4/26/2006 10:30 | Low | 128.7159 | 8.31E-02 | 3.70E-03 | | |
| 158275001 | 523680 | 1.026815 | 405.5095 | 0.9077505 | 4/26/2006 10:32 | Low | 18179.56 | 2.674401 | 3.05E-02 | | |
| 158276001 | 523680 | 1.024587 | 314.5181 | 0.9897399 | 4/26/2006 10:34 | Low | 8.04E-02 | 8.45E-03 | 4.45E-03 | | |
| 158277001 | 523680 | 1.026663 | 389.9206 | 0.8704047 | 4/26/2006 10:36 | Low | 109.7853 | 1.268272 | 1.49E-02 | | |
| 158436001 | 523680 | 1.018835 | 304.4823 | 0.994978 | 4/26/2006 10:38 | Low | 8394.44 | 1.70545 | 1.96E-02 | | |
| 158971001 | 523680 | 1.018559 | 304.0079 | 0.997096 | 4/26/2006 10:40 | Low | 11429.83 | 1.324963 | 1.50E-02 | | |
| 158971002 | 523680 | 1.018247 | 299.2141 | 0.9898404 | 4/26/2006 10:43 | Low | 8779.347 | 1.177351 | 1.37E-02 | | |
| 158971003 | 523680 | 1.012646 | 315.1642 | 0.9956534 | 4/26/2006 10:45 | Low | 7751.08 | 1.177351 | 1.37E-02 | | |
| 158971004 | 523680 | 1.019471 | 297.1293 | 0.998826 | 4/26/2006 10:47 | Low | 14388.24 | 2.130141 | 2.39E-02 | | |
| 159242001 | 523680 | 1.017964 | 217.5325 | 0.9060565 | 4/26/2006 10:49 | Low | 338.8737 | 0.1132985 | 9.27E-03 | | |
| 159242002 | 523680 | 1.030728 | 301.4254 | 0.9896001 | 4/26/2006 10:51 | Low | 10709.19 | 1.601939 | 1.86E-02 | | |
| 159242003 | 523680 | 1.017673 | 294.7017 | 0.999264 | 4/26/2006 10:53 | Low | 47166.91 | 6.835652 | 7.63E-02 | | |
| 159243001 | 523680 | 1.027936 | 301.0075 | 0.9931118 | 4/26/2006 10:55 | Low | 8510.882 | 1.286423 | 1.55E-02 | | |
| 159244001 | 523680 | 1.027936 | 340.0651 | 0.7261768 | 4/26/2006 10:57 | Low | 99.98947 | 7.90E-02 | 7.86E-03 | | |
| 159247001 | 523680 | 1.036805 | 297.2591 | 0.9895376 | 4/26/2006 11:01 | High | 2774.895 | 23.76339 | 0.7310597 | | |
| 2 | C0K1Sid | 1.026711 | 315.8319 | 0.9977725 | 4/26/2006 11:03 | Low | 13813.42 | 2.047624 | 2.39E-02 | 2 | 102% |
| 5 | C0K1Sid | 1.029019 | 335.7921 | 0.998769 | 4/26/2006 11:05 | Low | 33847.09 | 4.923639 | 5.51E-02 | 5 | 96% |
| 50 | C0K1Sid | 1.035069 | 310.615 | 0.998076 | 4/26/2006 11:07 | High | 5863.474 | 50.10752 | 1.558863 | 50 | 100% |
| 250 | C0K1Sid | 1.036787 | 301.1083 | 0.997845 | 4/26/2006 11:10 | High | 28638.64 | 243.7305 | 7.464115 | 250 | 97% |
| 1201077881 | 523680 | 1.033274 | 283.2625 | 0.9999387 | 4/26/2006 11:27 | Low | 48063.77 | 6.9644 | 0.0776911 | | |
| 158272001 | 523680 | 1.039903 | 202.8524 | 0.999159 | 4/26/2006 11:30 | Low | 15430.48 | 2.27976 | 2.58E-02 | | |
| 158276001 | 523680 | 1.027039 | 308.7499 | 0.997751 | 4/26/2006 11:47 | Low | 18313.62 | 2.693646 | 3.06E-02 | | |
| 158246001 | 523680 | 1.035534 | 301.1405 | 0.996915 | 4/26/2006 11:49 | Low | 8599.921 | 1.298205 | 1.49E-02 | | |
| 158971001 | 523680 | 1.034819 | 300.2019 | 0.999371 | 4/26/2006 11:51 | Low | 11599.88 | 1.729862 | 0.0192821 | | |
| 158971002 | 523680 | 1.031847 | 293.1121 | 0.999036 | 4/26/2006 11:53 | Low | 9034.033 | 1.361524 | 1.59E-02 | | |
| 158971003 | 523680 | 1.038871 | 309.3145 | 0.997483 | 4/26/2006 11:55 | Low | 7863.461 | 1.193484 | 1.36E-02 | | |
| 158971004 | 523680 | 1.034165 | 293.3963 | 0.997494 | 4/26/2006 11:57 | Low | 14616.66 | 2.162932 | 2.47E-02 | | |
| 159242002 | 523680 | 1.035918 | 298.0611 | 0.9898549 | 4/26/2006 11:59 | Low | 10856.67 | 1.623171 | 0.018296 | | |
| 159242003 | 523680 | 1.030401 | 289.3569 | 0.999629 | 4/26/2006 12:01 | Low | 48445.08 | 7.019139 | 7.80E-02 | | |
| 159243001 | 523680 | 1.030012 | 299.8838 | 0.999101 | 4/26/2006 12:04 | High | 8531.881 | 1.289438 | 1.44E-02 | | |
| 159247001 | 523680 | 1.036722 | 294.4043 | 0.988551 | 4/26/2006 12:08 | High | 2720.798 | 23.30097 | 0.7258568 | | |
| 2 | C0K1Sid | 1.029769 | 318.2557 | 0.9897624 | 4/26/2006 12:09 | Low | 13542.14 | 4.887516 | 5.46E-02 | 2 | 100% |
| 5 | C0K1Sid | 1.027396 | 335.2649 | 0.9999008 | 4/26/2006 12:12 | Low | 33896.15 | 4.887516 | 5.46E-02 | 5 | 96% |
| 50 | C0K1Sid | 1.026352 | 320.9896 | 0.9933367 | 4/26/2006 12:14 | High | 5919.275 | 50.56372 | 1.55914 | 50 | 101% |
| 250 | C0K1Sid | 1.026453 | 327.4967 | 0.9995558 | 4/26/2006 12:16 | High | 29737.5 | 253.0445 | 7.724933 | 250 | 101% |
| 158275001* | 523680 | 1.017958 | 295.488 | 0.9998349 | 4/26/2006 12:29 | Low | 32062.29 | 4.667323 | 5.28E-02 | | |
| 158277001* | 523680 | 1.025298 | 310.4645 | 0.9994432 | 4/26/2006 12:31 | Low | 31404.84 | 4.572943 | 5.09E-02 | | |
| 159242001* | 523680 | 1.031694 | 110.9822 | 0.9991679 | 4/26/2006 12:33 | Low | 25686.63 | 3.798003 | 6.74E-02 | | |
| 159244001* | 523680 | 1.028704 | 295.5443 | 0.999573 | 4/26/2006 12:36 | Low | 32374.77 | 4.712181 | 5.24E-02 | | |
| 2 | C0K1Sid | 1.027354 | 319.3503 | 0.9997203 | 4/26/2006 12:41 | Low | 13572.92 | 2.013107 | 2.30E-02 | 2 | 101% |
| 5 | C0K1Sid | 1.029881 | 335.6642 | 0.999529 | 4/26/2006 12:44 | Low | 33820.09 | 4.919662 | 5.47E-02 | 5 | 96% |
| 50 | C0K1Sid | 1.03957 | 326.028 | 0.9956777 | 4/26/2006 12:46 | High | 5932.392 | 50.6957 | 1.554156 | 50 | 101% |
| 250 | C0K1Sid | 1.046017 | 323.7836 | 0.999275 | 4/26/2006 12:48 | High | 27518.17 | 234.2311 | 7.15382 | 250 | 94% |

*Denotes original was treated with a post-spike.

Supplied to Analyst

KPAwin© (Version 1.2.8) Multiple Sample Report

Laboratory: ANALYTE: Uranium ANALYST: sa101078

Sample Identification

| Sample ID | Proc ID | Sample Type | Description | Date / Time | SpA | SpG | Atomic Mass | Basis Sample | Customer ID |
|------------|---------|-------------|-------------|---------------------|---------|-----|-------------|--------------|-------------|
| 15827001 | None | CChkStd | CChkStd | 04/26/2006 09:45 AM | 2.5E+04 | 1 | 238.0289 | None | None |
| 15827001 | None | CChkStd | CChkStd | 04/26/2006 09:48 AM | 2.5E+04 | 1 | 238.0289 | None | None |
| 15827001 | None | CChkStd | CChkStd | 04/26/2006 09:50 AM | 2.5E+04 | 1 | 238.0289 | None | None |
| 15827001 | None | CChkStd | CChkStd | 04/26/2006 09:52 AM | 2.5E+04 | 1 | 238.0289 | None | None |
| 1201077880 | None | MtdBlk | 523680 | 04/26/2006 10:15 AM | 2.5E+04 | 1 | 238.0289 | None | None |
| 1201077881 | None | Sample | 523680 | 04/26/2006 10:18 AM | 2.5E+04 | 1 | 238.0289 | None | None |
| 1201077882 | None | Sample | 523680 | 04/26/2006 10:22 AM | 2.5E+04 | 1 | 238.0289 | None | None |
| 1201077883 | None | MtdStd | 523680 | 04/26/2006 10:26 AM | 2.5E+04 | 1 | 238.0289 | None | None |
| 1201077884 | None | MtdStd | 523680 | 04/26/2006 10:27 AM | 2.5E+04 | 1 | 238.0289 | None | None |
| 158272001 | None | Sample | 523680 | 04/26/2006 10:30 AM | 2.5E+04 | 1 | 238.0289 | None | None |
| 158275001 | None | Sample | 523680 | 04/26/2006 10:32 AM | 2.5E+04 | 1 | 238.0289 | None | None |
| 158276001 | None | Sample | 523680 | 04/26/2006 10:34 AM | 2.5E+04 | 1 | 238.0289 | None | None |
| 158277001 | None | Sample | 523680 | 04/26/2006 10:36 AM | 2.5E+04 | 1 | 238.0289 | None | None |
| 158436001 | None | Sample | 523680 | 04/26/2006 10:38 AM | 2.5E+04 | 1 | 238.0289 | None | None |
| 158271001 | None | Sample | 523680 | 04/26/2006 10:40 AM | 2.5E+04 | 1 | 238.0289 | None | None |
| 158271002 | None | Sample | 523680 | 04/26/2006 10:43 AM | 2.5E+04 | 1 | 238.0289 | None | None |
| 158271003 | None | Sample | 523680 | 04/26/2006 10:45 AM | 2.5E+04 | 1 | 238.0289 | None | None |

88129
[Handwritten Signature]

[Handwritten Initials]

KPAWIN® (Version 1.2.8) Multiple Sample Report

Laboratory:

ANALYTE: Uranium

ANALYST:

sal01078

Sample Identification

| Sample ID | Proc ID | Sample Type | Description | Date / Time | SpA | SPG | Atomic Mass | Basis Sample | Customer ID |
|-------------------------|---------|-------------|-------------|---------------------|---------|-----|-------------|--------------|-------------|
| 158271004 <i>97</i> | None | Sample | 523680 | 04/26/2006 10:47 AM | 2.5E+04 | 1 | 238.0289 | None | None |
| 159242001 <i>98</i> | None | Sample | 523680 | 04/26/2006 10:49 AM | 2.5E+04 | 1 | 238.0289 | None | None |
| 159242002 | None | Sample | 523680 | 04/26/2006 10:51 AM | 2.5E+04 | 1 | 238.0289 | None | None |
| 159242003 | None | Sample | 523680 | 04/26/2006 10:53 AM | 2.5E+04 | 1 | 238.0289 | None | None |
| 159243001 | None | Sample | 523680 | 04/26/2006 10:55 AM | 2.5E+04 | 1 | 238.0289 | None | None |
| 159244001 | None | Sample | 523680 | 04/26/2006 10:57 AM | 2.5E+04 | 1 | 238.0289 | None | None |
| 159247001 | None | Sample | 523680 | 04/26/2006 11:01 AM | 2.5E+04 | 1 | 238.0289 | None | None |
| 2.0 | None | CChkStd | CChkStd | 04/26/2006 11:03 AM | 2.5E+04 | 1 | 238.0289 | None | None |
| 5.0 | None | CChkStd | CChkStd | 04/26/2006 11:05 AM | 2.5E+04 | 1 | 238.0289 | None | None |
| 50.0 | None | CChkStd | CChkStd | 04/26/2006 11:07 AM | 2.5E+04 | 1 | 238.0289 | None | None |
| 250.0 | None | CChkStd | CChkStd | 04/26/2006 11:10 AM | 2.5E+04 | 1 | 238.0289 | None | None |
| 1201077881 <i>92</i> | None | Sample | 523680 | 04/26/2006 11:27 AM | 2.5E+04 | 1 | 238.0289 | None | None |
| 158272001 <i>93</i> | None | Sample | 523680 | 04/26/2006 11:30 AM | 2.5E+04 | 1 | 238.0289 | None | None |
| 1201077881 <i>94</i> | None | Sample | 523680 | 04/26/2006 11:34 AM | 2.5E+04 | 1 | 238.0289 | None | None |
| 158272001 <i>95</i> | None | Sample | 523680 | 04/26/2006 11:36 AM | 2.5E+04 | 1 | 238.0289 | None | None |
| 158276001 | None | Sample | 523680 | 04/26/2006 11:47 AM | 2.5E+04 | 1 | 238.0289 | None | None |
| 158246001 | None | Sample | 523680 | 04/26/2006 11:49 AM | 2.5E+04 | 1 | 238.0289 | None | None |

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KPAWIN® (Version 1.2.8) Multiple Sample Report

Laboratory:

ANALYTE: Uranium

ANALYST:

sal01078

Sample Identification

| Sample ID | Proc ID | Sample Type | Description | Date / Time | SpA | SPG | Atomic Mass | Basis Sample | Customer ID |
|-----------|---------|-------------|-------------|---------------------|---------|-----|-------------|--------------|-------------|
| 158271001 | None | Sample | 523680 | 04/26/2006 11:51 AM | 2.5E+04 | 1 | 238.0289 | None | None |
| 158271002 | None | Sample | 523680 | 04/26/2006 11:53 AM | 2.5E+04 | 1 | 238.0289 | None | None |
| 158271003 | None | Sample | 523680 | 04/26/2006 11:55 AM | 2.5E+04 | 1 | 238.0289 | None | None |
| 158271004 | None | Sample | 523680 | 04/26/2006 11:57 AM | 2.5E+04 | 1 | 238.0289 | None | None |
| 159242002 | None | Sample | 523680 | 04/26/2006 11:59 AM | 2.5E+04 | 1 | 238.0289 | None | None |
| 159242003 | None | Sample | 523680 | 04/26/2006 12:01 PM | 2.5E+04 | 1 | 238.0289 | None | None |
| 159243001 | None | Sample | 523680 | 04/26/2006 12:04 PM | 2.5E+04 | 1 | 238.0289 | None | None |
| 159247001 | None | Sample | 523680 | 04/26/2006 12:08 PM | 2.5E+04 | 1 | 238.0289 | None | None |
| 2.0 | None | CChkStd | CChkStd | 04/26/2006 12:09 PM | 2.5E+04 | 1 | 238.0289 | None | None |
| 5.0 | None | CChkStd | CChkStd | 04/26/2006 12:12 PM | 2.5E+04 | 1 | 238.0289 | None | None |
| 50.0 | None | CChkStd | CChkStd | 04/26/2006 12:14 PM | 2.5E+04 | 1 | 238.0289 | None | None |
| 250.0 | None | CChkStd | CChkStd | 04/26/2006 12:16 PM | 2.5E+04 | 1 | 238.0289 | None | None |
| 158275001 | None | Sample | 523680 | 04/26/2006 12:29 PM | 2.5E+04 | 1 | 238.0289 | None | None |
| 158277001 | None | Sample | 523680 | 04/26/2006 12:31 PM | 2.5E+04 | 1 | 238.0289 | None | None |
| 159242001 | None | Sample | 523680 | 04/26/2006 12:33 PM | 2.5E+04 | 1 | 238.0289 | None | None |
| 159244001 | None | Sample | 523680 | 04/26/2006 12:36 PM | 2.5E+04 | 1 | 238.0289 | None | None |
| 2.0 | None | CChkStd | CChkStd | 04/26/2006 12:41 PM | 2.5E+04 | 1 | 238.0289 | None | None |

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KPAWin© (Version 1.2.8) Multiple Sample Report

Laboratory: **Uranium** ANALYTE: **Uranium** ANALYST: **sal01078**

Sample Identification

| Sample ID | Proc ID | Sample Type | Description | Date / Time | SpA | SPG | Atomic Mass | Basis Sample | Customer ID |
|-----------|---------|-------------|-------------|---------------------|---------|-----|-------------|--------------|-------------|
| 148 | None | CChkStd | CChkStd | 04/26/2006 12:44 PM | 2.5E+04 | 1 | 238.0289 | None | None |
| 149 | None | CChkStd | CChkStd | 04/26/2006 12:46 PM | 2.5E+04 | 1 | 238.0289 | None | None |
| 150 | None | CChkStd | CChkStd | 04/26/2006 12:48 PM | 2.5E+04 | 1 | 238.0289 | None | None |

AS

KPAWin® (Version 1.2.8) Multiple Sample Report

Laboratory: ANALYTE: Uranium ANALYST: sal01078

Analytical Results

| Sample ID | Range | Time Gates | Sample Units | Analytical Result | Total Dilution | Sample Type | Final Result | Pulses | Calibration ID | Uncertainty |
|------------|-------|------------|--------------|-------------------|----------------|-------------|--------------|--------|----------------|-------------|
| 2.0 | Low | 5 -39 | µg/l | 1.98E+00 | | CChkStd | | 1000 | 4/26/06 | 2.34E-02 |
| 5.0 | Low | 5 -39 | µg/l | 4.87E+00 | | CChkStd | | 1000 | 4/26/06 | 5.42E-02 |
| 50.0 | High | 5 -39 | µg/l | 4.99E+01 | | CChkStd | | 1000 | 4/26/06 | 1.54E+00 |
| 250.0 | High | 5 -39 | µg/l | 2.46E+02 | | CChkStd | | 1000 | 4/26/06 | 7.51E+00 |
| 1201077880 | Low | 5 -39 | µg/l | 8.20E-02 | 1 | MtdBlk | 8.20E-02 | 1000 | 4/26/06 | 8.93E-03 |
| 1201077881 | Low | 5 -39 | µg/l | 6.84E+00 | 1 | Sample | 6.84E+00 | 1000 | 4/26/06 | 7.62E-02 |
| 1201077882 | High | 5 -39 | µg/l | 3.29E+01 | 1 | Sample | 3.29E+01 | 1000 | 4/26/06 | 1.01E+00 |
| 1201077883 | High | 5 -39 | µg/l | 1.87E+01 | 1 | MtdStd | 1.87E+01 | 1000 | 4/26/06 | 5.80E-01 |
| 1201077884 | Low | 5 -39 | µg/l | 2.62E+00 | 1 | MtdStd | 2.62E+00 | 1000 | 4/26/06 | 2.95E-02 |
| 158272001 | Low | 5 -39 | µg/l | 2.19E+00 | 1 | Sample | 2.19E+00 | 1000 | 4/26/06 | 2.52E-02 |
| 158275001 | Low | 5 -39 | µg/l | 8.31E-02 | 1 | Sample | 8.31E-02 | 1000 | 4/26/06 | 3.70E-03 |
| 158276001 | Low | 5 -39 | µg/l | 2.67E+00 | 1 | Sample | 2.67E+00 | 1000 | 4/26/06 | 3.05E-02 |
| 158277001 | Low | 5 -39 | µg/l | 8.04E-02 | 1 | Sample | 8.04E-02 | 1000 | 4/26/06 | 4.45E-03 |
| 158436001 | Low | 5 -39 | µg/l | 1.27E+00 | 1 | Sample | 1.27E+00 | 1000 | 4/26/06 | 1.49E-02 |
| 158271001 | Low | 5 -39 | µg/l | 1.71E+00 | 1 | Sample | 1.71E+00 | 1000 | 4/26/06 | 1.96E-02 |
| 158271002 | Low | 5 -39 | µg/l | 1.32E+00 | 1 | Sample | 1.32E+00 | 1000 | 4/26/06 | 1.50E-02 |
| 158271003 | Low | 5 -39 | µg/l | 1.18E+00 | 1 | Sample | 1.18E+00 | 1000 | 4/26/06 | 1.37E-02 |

Sal
4/26/06
12:52:14 PM

KPAWIN® (Version 1.2.8) Multiple Sample Report

Laboratory:

ANALYTE: Uranium

ANALYST:

sal01078

Analytical Results

| Sample ID | Range | Time Gates | Sample Units | Analytical Result | Total Dilution | Sample Type | Final Result | Pulses | Calibration ID | Uncertainty |
|------------|-------|------------|--------------|-------------------|----------------|-------------|--------------|--------|----------------|-------------|
| 15871004 | Low | 5 -39 | µg/l | 2.13E+00 | 1 | Sample | 2.13E+00 | 1000 | 4/26/06 | 2.39E-02 |
| 159242001 | Low | 5 -39 | µg/l | 1.13E-01 | 1 | Sample | 1.13E-01 | 1000 | 4/26/06 | 9.27E-03 |
| 159242002 | Low | 5 -39 | µg/l | 1.60E+00 | 1 | Sample | 1.60E+00 | 1000 | 4/26/06 | 1.86E-02 |
| 159242003 | Low | 5 -39 | µg/l | 6.84E+00 | 1 | Sample | 6.84E+00 | 1000 | 4/26/06 | 7.63E-02 |
| 159243001 | Low | 5 -39 | µg/l | 1.29E+00 | 1 | Sample | 1.29E+00 | 1000 | 4/26/06 | 1.55E-02 |
| 159244001 | Low | 5 -39 | µg/l | 7.90E-02 | 1 | Sample | 7.90E-02 | 1000 | 4/26/06 | 7.86E-03 |
| 159247001 | High | 5 -39 | µg/l | 2.38E+01 | 1 | Sample | 2.38E+01 | 1000 | 4/26/06 | 7.31E-01 |
| 2.0 | Low | 5 -39 | µg/l | 2.05E+00 | | CChkStd | | 1000 | 4/26/06 | 2.33E-02 |
| 5.0 | Low | 5 -39 | µg/l | 4.92E+00 | | CChkStd | | 1000 | 4/26/06 | 5.51E-02 |
| 50.0 | High | 5 -39 | µg/l | 5.01E+01 | | CChkStd | | 1000 | 4/26/06 | 1.56E+00 |
| 250.0 | High | 5 -39 | µg/l | 2.44E+02 | | CChkStd | | 1000 | 4/26/06 | 7.46E+00 |
| 1201077881 | Low | 5 -39 | µg/l | 6.96E+00 | 1 | Sample | 6.96E+00 | 1000 | 4/26/06 | 7.77E-02 |
| 158272001 | Low | 5 -39 | µg/l | 2.28E+00 | 1 | Sample | 2.28E+00 | 1000 | 4/26/06 | 2.58E-02 |
| 1201077881 | Low | 5 -39 | µg/l | 7.01E+00 | 1 | Sample | 7.01E+00 | 1000 | 4/26/06 | 7.77E-02 |
| 158272001 | Low | 5 -39 | µg/l | 2.30E+00 | 1 | Sample | 2.30E+00 | 1000 | 4/26/06 | 2.60E-02 |
| 158276001 | Low | 5 -39 | µg/l | 2.69E+00 | 1 | Sample | 2.69E+00 | 1000 | 4/26/06 | 3.06E-02 |
| 158246001 | Low | 5 -39 | µg/l | 1.30E+00 | 1 | Sample | 1.30E+00 | 1000 | 4/26/06 | 1.49E-02 |

KPAWIN® (Version 1.2.8) Multiple Sample Report

Laboratory:

ANALYTE: Uranium

ANALYST:

sal01078

Analytical Results

| Sample ID | Range | Time Gates | Sample Units | Analytical Result | Total Dilution | Sample Type | Final Result | Pulses | Calibration ID | Uncertainty |
|-----------|-------|------------|--------------|-------------------|----------------|-------------|--------------|--------|----------------|-------------|
| 158271001 | Low | 5 -39 | µg/l | 1.73E+00 | 1 | Sample | 1.73E+00 | 1000 | 4/26/06 | 1.93E-02 |
| 158271002 | Low | 5 -39 | µg/l | 1.36E+00 | 1 | Sample | 1.36E+00 | 1000 | 4/26/06 | 1.55E-02 |
| 158271003 | Low | 5 -39 | µg/l | 1.19E+00 | 1 | Sample | 1.19E+00 | 1000 | 4/26/06 | 1.36E-02 |
| 158271004 | Low | 5 -39 | µg/l | 2.16E+00 | 1 | Sample | 2.16E+00 | 1000 | 4/26/06 | 2.47E-02 |
| 159242002 | Low | 5 -39 | µg/l | 1.62E+00 | 1 | Sample | 1.62E+00 | 1000 | 4/26/06 | 1.83E-02 |
| 159242003 | Low | 5 -39 | µg/l | 7.02E+00 | 1 | Sample | 7.02E+00 | 1000 | 4/26/06 | 7.80E-02 |
| 159243001 | Low | 5 -39 | µg/l | 1.29E+00 | 1 | Sample | 1.29E+00 | 1000 | 4/26/06 | 1.44E-02 |
| 159247001 | High | 5 -39 | µg/l | 2.33E+01 | 1 | Sample | 2.33E+01 | 1000 | 4/26/06 | 7.26E-01 |
| 2.0 | Low | 5 -39 | µg/l | 2.01E+00 | | CChkStd | | 1000 | 4/26/06 | 2.28E-02 |
| 5.0 | Low | 5 -39 | µg/l | 4.89E+00 | | CChkStd | | 1000 | 4/26/06 | 5.46E-02 |
| 50.0 | High | 5 -39 | µg/l | 5.06E+01 | | CChkStd | | 1000 | 4/26/06 | 1.56E+00 |
| 250.0 | High | 5 -39 | µg/l | 2.53E+02 | | CChkStd | | 1000 | 4/26/06 | 7.72E+00 |
| 158275001 | Low | 5 -39 | µg/l | 4.67E+00 | 1 | Sample | 4.67E+00 | 1000 | 4/26/06 | 5.28E-02 |
| 158277001 | Low | 5 -39 | µg/l | 4.57E+00 | 1 | Sample | 4.57E+00 | 1000 | 4/26/06 | 5.09E-02 |
| 159242001 | Low | 5 -39 | µg/l | 3.74E+00 | 1 | Sample | 3.74E+00 | 1000 | 4/26/06 | 6.74E-02 |
| 159244001 | Low | 5 -39 | µg/l | 4.71E+00 | 1 | Sample | 4.71E+00 | 1000 | 4/26/06 | 5.24E-02 |
| 2.0 | Low | 5 -39 | µg/l | 2.01E+00 | | CChkStd | | 1000 | 4/26/06 | 2.30E-02 |

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KPAWin© (Version 1.2.8) Multiple Sample Report

Laboratory: ANALYTE: Uranium ANALYST: sal01078

Analytical Results

| Sample ID | Range | Time Gates | Sample Units | Analytical Result | Total Dilution | Sample Type | Final Result | Pulses | Calibration ID | Uncertainty |
|-----------|-------|------------|--------------|-------------------|----------------|-------------|--------------|--------|----------------|-------------|
| 5.0 | Low | 5 -39 | µg/l | 4.92E+00 | | CchkStd | | 1000 | 4/26/06 | 5.47E-02 |
| 50.0 | High | 5 -39 | µg/l | 5.07E+01 | | CchkStd | | 1000 | 4/26/06 | 1.55E+00 |
| 250.0 | High | 5 -39 | µg/l | 2.34E+02 | | CchkStd | | 1000 | 4/26/06 | 7.15E+00 |

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KPAWin® (Version 1.2.8) Multiple Sample Report

Laboratory:

ANALYTE: Uranium

ANALYST:

sal01078

Quality Control

| Sample ID | Basis Sample | Reference Lifetime | R ² Intensity | Reference Ratio | Sample Lifetime | Sample Intercept | IDL / MDL | Recovery (%) | RPD (%) | AW Flags |
|------------|--------------|--------------------|--------------------------|-----------------|-----------------|------------------|--------------|--------------|---------|--------------|
| 152.0 | None | 297 | .9994 | 1.00084 | 320 | 13368 | 0E+00/ 0E+00 | 99.18 | | |
| 155.0 | None | 297 | .9999 | .99957 | 343 | 33479 | 0E+00/ 0E+00 | 97.41 | | |
| 50.0 | None | 297 | .9994 | 1.01295 | 330 | 5836 | 0E+00/ 0E+00 | 99.75 | | |
| 250.0 | None | 295 | .9999 | 1.01972 | 333 | 28866 | 0E+00/ 0E+00 | 98.26 | | |
| 1201077880 | None | 294 | .6136 | 1.01989 | 401 | 121 | 0E+00/ 0E+00 | | | A8, A10 |
| 1201077881 | None | 294 | .9999 | 1.01911 | 297 | 47184 | 0E+00/ 0E+00 | | | |
| 1201077882 | None | 295 | .9995 | 1.03011 | 294 | 3843 | 0E+00/ 0E+00 | | | |
| 1201077883 | None | 294 | .9990 | 1.03765 | 324 | 2186 | 0E+00/ 0E+00 | 1873.77 | | |
| 1201077884 | None | 293 | .9998 | 1.03268 | 317 | 17816 | 0E+00/ 0E+00 | 262.21 | | |
| 158272001 | None | 295 | .9999 | 1.02420 | 205 | 14838 | 0E+00/ 0E+00 | | | |
| 158275001 | None | 295 | .9078 | 1.02681 | 406 | 129 | 0E+00/ 0E+00 | | | A8, A10, A73 |
| 158276001 | None | 295 | .9997 | 1.02460 | 315 | 18180 | 0E+00/ 0E+00 | | | |
| 158277001 | None | 292 | .8704 | 1.02666 | 390 | 110 | 0E+00/ 0E+00 | | | A8, A10, A73 |
| 158436001 | None | 294 | .9995 | 1.01883 | 304 | 8384 | 0E+00/ 0E+00 | | | |
| 158471001 | None | 291 | .9997 | 1.01856 | 304 | 11430 | 0E+00/ 0E+00 | | | |
| 158471002 | None | 291 | .9998 | 1.01825 | 299 | 8779 | 0E+00/ 0E+00 | | | |
| 158471003 | None | 293 | .9996 | 1.01265 | 315 | 7751 | 0E+00/ 0E+00 | | | |

4/26/06
Sal

KPAWin® (Version 1.2.8) Multiple Sample Report

Laboratory: ANALYTE: Uranium ANALYST: sal01078

Quality Control

| Sample ID | Basis Sample | Reference Lifetime | R Intensity | Reference Ratio | Sample Lifetime | Sample Intercept | IDL / MDL | Recovery (%) | RPD (%) | AW Flags |
|-----------|--------------|--------------------|-------------|-----------------|-----------------|------------------|-----------|--------------|---------|----------|
| 54 | 158771004 | None | 291 | .9999 | 1.01947 | 297 | 14388 | 0E+00/ 0E+00 | | |
| 55 | 159242001 | None | 292 | .9061 | 1.01796 | 218 | 339 | 0E+00/ 0E+00 | | A8, A73 |
| 56 | 159242002 | None | 288 | .9996 | 1.03073 | 301 | 10709 | 0E+00/ 0E+00 | | |
| 57 | 159242003 | None | 292 | .9999 | 1.01767 | 295 | 47167 | 0E+00/ 0E+00 | | |
| | 159243001 | None | 290 | .9993 | 1.02075 | 301 | 8511 | 0E+00/ 0E+00 | | |
| | 159244001 | None | 289 | .7262 | 1.02794 | 340 | 100 | 0E+00/ 0E+00 | | A8, A73 |
| | 159247001 | None | 289 | .9995 | 1.03681 | 297 | 2775 | 0E+00/ 0E+00 | | |
| 2.0 | | None | 288 | .9998 | 1.02671 | 316 | 13813 | 0E+00/ 0E+00 | 102.38 | |
| 5.0 | | None | 288 | .9999 | 1.02902 | 336 | 33847 | 0E+00/ 0E+00 | 98.47 | |
| 50.0 | | None | 288 | .9988 | 1.03507 | 311 | 5863 | 0E+00/ 0E+00 | 100.22 | |
| 250.0 | | None | 288 | .9998 | 1.03679 | 301 | 28639 | 0E+00/ 0E+00 | 97.49 | |
| | 1201077881 | None | 285 | .9999 | 1.03327 | 283 | 48064 | 0E+00/ 0E+00 | | |
| | 158272001 | None | 286 | .9999 | 1.03390 | 203 | 15430 | 0E+00/ 0E+00 | | |
| | 1201077881 | None | 286 | 1.0000 | 1.03072 | 290 | 48394 | 0E+00/ 0E+00 | | |
| | 158272001 | None | 286 | .9999 | 1.03448 | 203 | 15555 | 0E+00/ 0E+00 | | |
| | 158276001 | None | 287 | .9998 | 1.02704 | 309 | 18314 | 0E+00/ 0E+00 | | |
| | 158246001 | None | 286 | .9997 | 1.03553 | 301 | 8600 | 0E+00/ 0E+00 | | |

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KPAWin© (Version 1.2.8) Multiple Sample Report

Laboratory:

ANALYTE:

Uranium

ANALYST:

sal01078

Quality Control

| Sample ID | Basis Sample | Reference Lifetime | R ² Intensity | Reference Ratio | Sample Lifetime | Sample Intercept | IDL / MDL | Recovery (%) | RPD (%) | AW Flags |
|-----------|--------------|--------------------|--------------------------|-----------------|-----------------|------------------|--------------|--------------|---------|----------|
| 158271001 | None | 287 | .9999 | 1.03482 | 300 | 11600 | 0E+00/ 0E+00 | | | |
| 158271002 | None | 288 | .9998 | 1.03185 | 293 | 9034 | 0E+00/ 0E+00 | | | |
| 158271003 | None | 286 | .9997 | 1.03887 | 309 | 7863 | 0E+00/ 0E+00 | | | |
| 158271004 | None | 289 | .9997 | 1.03416 | 293 | 14617 | 0E+00/ 0E+00 | | | |
| 159242002 | None | 287 | .9999 | 1.03592 | 298 | 10857 | 0E+00/ 0E+00 | | | |
| 159242003 | None | 287 | 1.0000 | 1.03040 | 289 | 48445 | 0E+00/ 0E+00 | | | |
| 159243001 | None | 286 | .9999 | 1.03012 | 300 | 8532 | 0E+00/ 0E+00 | | | |
| 159247001 | None | 285 | .9989 | 1.03672 | 294 | 2721 | 0E+00/ 0E+00 | | | |
| 2.0 | None | 285 | .9998 | 1.02977 | 318 | 13542 | 0E+00/ 0E+00 | 100.43 | | |
| 5.0 | None | 285 | .9999 | 1.02740 | 335 | 33596 | 0E+00/ 0E+00 | 97.75 | | |
| 50.0 | None | 285 | .9993 | 1.02635 | 321 | 5919 | 0E+00/ 0E+00 | 101.17 | | |
| 250.0 | None | 286 | 1.0000 | 1.02645 | 327 | 29738 | 0E+00/ 0E+00 | 101.22 | | |
| 158275001 | None | 283 | .9998 | 1.01796 | 295 | 32062 | 0E+00/ 0E+00 | | | |
| 158277001 | None | 284 | .9999 | 1.02530 | 310 | 31405 | 0E+00/ 0E+00 | | | |
| 159242001 | None | 283 | .9992 | 1.03169 | 111 | 25589 | 0E+00/ 0E+00 | | | A9 |
| 159244001 | None | 284 | 1.0000 | 1.02870 | 296 | 32375 | 0E+00/ 0E+00 | | | |
| 2.0 | None | 284 | .9997 | 1.02735 | 319 | 13573 | 0E+00/ 0E+00 | 100.66 | | |

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KPAWin© (Version 1.2.8) Multiple Sample Report

Laboratory: ANALYTE: Uranium ANALYST: sa101078

Quality Control

| Sample ID | Basis Sample | Reference Lifetime | R ² Intensity | Reference Ratio | Sample Lifetime | Sample Intercept | IDL / MDL | Recovery (%) | RPD (%) | AW Flags |
|-----------|--------------|--------------------|--------------------------|-----------------|-----------------|------------------|---------------|--------------|---------|----------|
| 156.0 | None | 284 | 1.0000 | 1.02988 | 336 | 33820 | 0E+00 / 0E+00 | 98.39 | | |
| 150.0 | None | 283 | .9997 | 1.03957 | 326 | 5932 | 0E+00 / 0E+00 | 101.39 | | |
| 250.0 | None | 282 | .9999 | 1.04602 | 324 | 27518 | 0E+00 / 0E+00 | 93.69 | | |

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KPAWin® (Version 1.2.8) Multiple Sample Report

Laboratory: **ANALYTE:** Uranium **ANALYST:** sal01078

Calibration Report Results

Low Calibration ID - 4/26/06 High Calibration ID - 4/26/06 Batch ID - 1973
 Date - 4/26/2006 9:32:10 AM

Calibration Report Results

| Range | Used | Sample ID | Std Conc | Std ID | Intercept | Uncert | Percent Time Reference | | R ² | AW Flags | |
|-------|------|-----------|----------|--------|-----------|--------|------------------------|-------|----------------|----------|--------|
| | | | | | | | Discrep | Gates | | | |
| Low | + | BckGnd | 0.000 | | 488 | 22 | .000 | 5-39 | 1.0000 | 303 | .9613 |
| Low | + | 1.0 ug/L | 1.000 | 0836 | 7000 | 84 | 6.950 | 5-39 | 1.0010 | 314 | .9996 |
| Low | + | 3.0 ug/L | 3.000 | 0838 | 20203 | 142 | -1.172 | 5-39 | 1.0067 | 324 | .9998 |
| Low | + | 5.0 ug/L | 5.000 | 0839 | 33851 | 184 | -1.517 | 5-39 | 1.0118 | 345 | .9998 |
| Low | + | 10.0 ug/L | 10.000 | 0840 | 69499 | 264 | .415 | 5-39 | 1.0100 | 318 | 1.0000 |
| ----- | | | | | | | | | | | |
| High | + | BckGnd | 0.000 | | 5 | 3 | .000 | 5-20 | 1.0000 | 154 | .5912 |
| High | + | 10.0 ug/L | 10.000 | 0840 | 1162 | 34 | -.001 | 5-39 | 1.0129 | 320 | .9991 |
| High | + | 250 ug/L | 250.000 | 0856 | 29378 | 171 | .000 | 5-39 | 1.0110 | 326 | .9999 |
| High | + | 500 ug/L | 500.000 | 0842 | 58986 | 243 | .000 | 5-39 | 1.0105 | 320 | .9999 |

Handwritten signature: [Signature]

KPAWIN Detailed Calibration Report

Laboratory:

Calibration Details

| | | | |
|-----------------------|-------------|------------------|----------------------|
| Laboratory ID | KPA11AUTO2 | Customer ID | None |
| Analyst | sal01078 | Procedure ID | None |
| Calibration Config ID | 1001 Config | Calibration Date | 4/26/2006 9:32:10 AM |
| Calibration Batch ID | 1973 | | |

| | <u>Low Range Details</u> | <u>High Range Details</u> |
|-----------------------------|--------------------------|------------------------------|
| User Calibration | True | True |
| Calibration Id | 4/26/06 | 4/26/06 |
| Minimum Number of Standards | 3 | 3 |
| Calibration Alarms | 0.9996973 | 1 |
| Calibration R ² | 7.35E+03 | 2.13E-09 |
| Variance | Y= +6966.018X -450.366 | Y= +0.002X^2 +117.107X -8.91 |
| Calibration Equation | | |



Radiochemistry Batch Checklist, Rev 4

Batch# 57605 Product: Ra-226 Date: 4/11/06

| Criteria: | Yes | No | Comments |
|---|-----|----|---|
| Sample Solids are less than 100 mg for GAB. | | | NA |
| If activity less 10* MDA, error is 150% or less of sample activity. If greater 10* MDA, error is 40% or less. If below the MDA, error is okay. | ✓ | | |
| Instrument source check is within limits. | ✓ | | |
| Instrument bkg check is within limits. | ✓ | | |
| Method RDL has been met. | ✓ | | |
| If duplicate activities are less 5* MDA, then rpd is 100% or less. If greater 5* MDA, then rpd 20% or less. If below the MDA, 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. | | | NA |
| Method blank is less than the RDL. (If rad samples, < 5% of lowest activity) | ✓ | | Case narrative ^{MA} 4/11/06 |
| Sample was run within hold time. | | | |
| Special requirements page checked | ✓ | | |
| Sample was correctly preserved if required. | ✓ | | |
| 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 lineouts initialed and dated. | ✓ | | |
| No transcription errors are apparent. | ✓ | | |
| QC data entered into QC database. | | | |
| Batch entered into Case Narrative. | ✓ | | |
| Batch non-conformances completed If applicable. | | | NA |

General Engineering Laboratories

2/22/2005
Primary Review Performed By: Ymlanie D. Aycock 4/11/06

Secondary Review Performed By: RO 4/12/06

4/20-4/27
MOTIL

Radium-226 Que Sheet

04/04/2006

General Engineering Laboratories, Radiochemistry Division

Batch #: 517605

Analyst: SG

Minimum Due Date: 04/20/2006

Spike Isotope: Radium-226

Spike Code: 0638-A

Expiration Date: /-17-07

Nom Conc: 25.11

LCS Isotope: Radium-226

LCS Code: 0638-B

Expiration Date: /-17-07

Nom Conc: 25.11

Sample Count Time: 30/15 (Min)

Prep Date: 4-6-06

Pipet ID: 1479303

Initials: SD6

Witness: JKS 4/6/06

Bkg Count Time: 30 (Min)

Page 16 of 21

| Sample I | Client Description | Hazard Type | Matrix | Min CRDL | Client | Vol (mL) | End Init | End LN De-em | Start Count | Cell # | Det # | Bkg cpm | Total Counts |
|------------|----------------------------------|-------------|------------|----------|------------|----------|-------------|--------------|--------------|--------|-------|---------|--------------|
| 158275001 | 2603140472 PUMP BLANK | SAMPLE | GROUND WA1 | 2 pCi/L | MWHL002 | 500 | 4-7-06 0950 | 4-11-06 0450 | 4-11-06 0800 | 105 | 1 | 1 | 95 (15 min) |
| 158276001 | 2603090347 FB-1 | SAMPLE | GROUND WA1 | 2 pCi/L | MWHL002 | 500 | 4-7-06 0950 | 4-11-06 0450 | 4-11-06 0800 | 202 | 2 | 6 | 20 |
| 158277001 | 2603100260 EB-1 | SAMPLE | GROUND WA1 | 2 pCi/L | MWHL002 | 500 | 4-7-06 0950 | 4-11-06 0450 | 4-11-06 0800 | 302 | 3 | 7 | 17 |
| 158436001 | 2603150120 TR-9A | SAMPLE | GROUND WA1 | 2 pCi/L | MWHL002 | 500 | 4-7-06 0950 | 4-11-06 0450 | 4-11-06 0800 | 407 | 4 | 8 | 10 |
| 158783001 | 2603210144 | SAMPLE | GROUND WA1 | 2 pCi/L | MWHL002 | 500 | 4-7-06 0950 | 4-11-06 0450 | 4-11-06 0800 | 570 | 5 | 6 | 13 |
| 158783002 | 2603210150 | SAMPLE | GROUND WA1 | 2 pCi/L | MWHL002 | 500 | 4-7-06 0950 | 4-11-06 0450 | 4-11-06 0800 | 610 | 6 | 7 | 19 |
| 158783003 | 2603210153 | SAMPLE | GROUND WA1 | 2 pCi/L | MWHL002 | 500 | 4-7-06 0950 | 4-11-06 0450 | 4-11-06 0800 | 702 | 1 | 8 | 34 |
| 158783004 | 2603210155 | SAMPLE | GROUND WA1 | 2 pCi/L | MWHL002 | 500 | 4-7-06 0950 | 4-11-06 0450 | 4-11-06 0800 | 210 | 2 | 7 | 17 |
| 158783005 | 2603210156 | SAMPLE | GROUND WA1 | 2 pCi/L | MWHL002 | 500 | 4-7-06 0950 | 4-11-06 0450 | 4-11-06 0800 | 302 | 3 | 7 | 15 |
| 158971001 | 2603220347 M-103 | SAMPLE | GROUND WA1 | 2 pCi/L | MWHL002 | 500 | 4-7-06 0950 | 4-11-06 0450 | 4-11-06 0800 | 403 | 4 | 8 | 20 |
| 158971002 | 2603220348 TR-7 | SAMPLE | GROUND WA1 | 2 pCi/L | MWHL002 | 500 | 4-7-06 0950 | 4-11-06 0450 | 4-11-06 0800 | 503 | 5 | 8 | 23 |
| 158971003 | 2603220357 TR-9 | SAMPLE | GROUND WA1 | 2 pCi/L | MWHL002 | 500 | 4-7-06 0950 | 4-11-06 0450 | 4-11-06 0800 | 612 | 6 | 7 | 19 |
| 158971004 | 2603220360 TR-10 | SAMPLE | GROUND WA1 | 2 pCi/L | MWHL002 | 500 | 4-7-06 0950 | 4-11-06 0450 | 4-11-06 0800 | 110 | 1 | 8 | 31 |
| 159242003 | 2603240135 M-121 | SAMPLE | GROUND WA1 | 2 pCi/L | MWHL002 | 500 | 4-7-06 0950 | 4-11-06 0450 | 4-11-06 0800 | 203 | 2 | 7 | 21 parallel |
| 1201063978 | MB for batch 517605 | MB | GROUND WA1 | 2 pCi/L | QC ACCOUNT | 500 | 4-7-06 0950 | 4-11-06 0450 | 4-11-06 0800 | 304 | 3 | 5 | 204 (15 min) |
| 1201063982 | 2603240135 M-121(159242003)DUP | MB | GROUND WA1 | 2 pCi/L | QC ACCOUNT | 500 | 4-7-06 0950 | 4-11-06 0450 | 4-11-06 0800 | 409 | 4 | 8 | 11 |
| 1201063983 | 2603240135 M-121(159242003)MEMIS | MB | GROUND WA1 | 2 pCi/L | QC ACCOUNT | 500 | 4-7-06 0950 | 4-11-06 0450 | 4-11-06 0800 | 504 | 5 | 8 | 650 |
| 1201063981 | LCS for batch 517605 | LCS | GROUND WA1 | 2 pCi/L | QC ACCOUNT | 500 | 4-7-06 0950 | 4-11-06 0450 | 4-11-06 0800 | 611 | 6 | 7 | 788 |

Indistinct

Data Reviewed By: Maxwell

Comments:
Instrument ID's:
LUCAS1:90988, LUCAS2:136917, LUCAS3:90989, LUCAS4:102753, LUC5:132286, LUC6:170055

Radium-226 Water

Filename : RA226.XLS
 File type : Excel
 Version # : 1

Spike S/N : 0638-B
 Spike Exp Date : 1/17/2007
 Spike Activity (dpm/ml): 278.76
 Spike Volume Added: 0.1

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

Batch : 517605
 Analyst : SG
 Prep Date : 4/6/2006
 Ra-226 Abundance : 1
 Calibration Date : 5/9/2005
 Calibration Due Date : 5/9/2006

Procedure Code : LUC26RAL
 Parmname : Radium-226
 Required MDA: 2 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 | | | |
|------------------------|------------------|-----------------------|------------------|----------------|---------------|--------------|-----------|-------------------|-------|------------|---------------------|
| Sample ID | Sample Aliquot L | Sample Aliquot StDev. | Sample Date/Time | Cell Number | Counting Time | Gross Counts | Gross CPM | Counts | CPM | Count Time | Detector Efficiency |
| 158275001 | 0.500 | 2.0256E-05 | 3/13/2006 10:45 | 105 | 15 | 5 | 0.333 | 1 | 0.033 | 30 | 1.5740 |
| 158276001 | 0.500 | 2.0256E-05 | 3/8/2006 15:30 | 202 | 30 | 20 | 0.667 | 6 | 0.200 | 30 | 1.7750 |
| 158277001 | 0.500 | 2.0256E-05 | 3/9/2006 14:00 | 301 | 30 | 17 | 0.567 | 7 | 0.233 | 30 | 1.8210 |
| 158436001 | 0.500 | 2.0256E-05 | 3/14/2006 14:45 | 407 | 30 | 10 | 0.333 | 8 | 0.267 | 30 | 1.8030 |
| 158783001 | 0.500 | 2.0256E-05 | 3/20/2006 8:00 | 510 | 30 | 13 | 0.433 | 6 | 0.200 | 30 | 1.7730 |
| 158783002 | 0.500 | 2.0256E-05 | 3/20/2006 10:00 | 610 | 30 | 19 | 0.633 | 7 | 0.233 | 30 | 1.8880 |
| 158783003 | 0.500 | 2.0256E-05 | 3/20/2006 15:00 | 101 | 30 | 34 | 1.133 | 8 | 0.267 | 30 | 1.6500 |
| 158783004 | 0.500 | 2.0256E-05 | 3/20/2006 14:00 | 210 | 30 | 17 | 0.567 | 7 | 0.233 | 30 | 1.7260 |
| 158783005 | 0.500 | 2.0256E-05 | 3/20/2006 12:00 | 302 | 30 | 15 | 0.500 | 7 | 0.233 | 30 | 1.7770 |
| 158971001 | 0.500 | 2.0256E-05 | 3/21/2006 14:00 | 403 | 30 | 20 | 0.667 | 8 | 0.267 | 30 | 1.8910 |
| 158971002 | 0.500 | 2.0256E-05 | 3/21/2006 12:00 | 503 | 30 | 23 | 0.767 | 8 | 0.267 | 30 | 1.7430 |
| 158971003 | 0.500 | 2.0256E-05 | 3/21/2006 9:00 | 612 | 30 | 19 | 0.633 | 7 | 0.233 | 30 | 1.8340 |
| 158971004 | 0.500 | 2.0256E-05 | 3/21/2006 10:20 | 110 | 30 | 31 | 1.033 | 8 | 0.267 | 30 | 1.6640 |
| 159242003 | 0.500 | 2.0256E-05 | 3/23/2006 8:30 | 203 | 30 | 21 | 0.700 | 7 | 0.233 | 30 | 1.8230 |
| 1201063978 | 0.500 | 2.0256E-05 | 4/6/2006 0:00 | 304 | 15 | 4 | 0.267 | 5 | 0.167 | 30 | 1.7770 |
| 1201063982 | 0.500 | 2.0256E-05 | 3/23/2006 8:30 | 409 | 30 | 11 | 0.367 | 8 | 0.267 | 30 | 1.8770 |
| 1201063983 | 0.500 | 2.0256E-05 | 3/23/2006 8:30 | 504 | 30 | 650 | 21.667 | 8 | 0.267 | 30 | 1.6760 |
| 1201063981 | 0.500 | 2.0256E-05 | 4/6/2006 0:00 | 611 | 30 | 788 | 26.267 | 7 | 0.233 | 30 | 1.7730 |

MANC/ML/1/10/06
no y/12/06

| Detector Efficiency Error | De-Gas Date/Time | Rn-222 Ingrow End Date/Time | Count Start Date/Time | De-Gas to Ingrowth | Rn-222 Corrections | | Ra-226 Decay |
|---------------------------|------------------|-----------------------------|-----------------------|--------------------|--------------------|--------------|--------------|
| | | | | | Ingrowth to Count | During Count | |
| 0.02415 | 4/7/2006 9:50 | 4/11/2006 4:50 | 4/11/2006 11:25 | 0.497 | 0.951 | 1.001 | 1.000 |
| 0.02691 | 4/7/2006 9:50 | 4/11/2006 4:50 | 4/11/2006 8:00 | 0.497 | 0.976 | 1.002 | 1.000 |
| 0.00980 | 4/7/2006 9:50 | 4/11/2006 4:50 | 4/11/2006 8:00 | 0.497 | 0.976 | 1.002 | 1.000 |
| 0.01759 | 4/7/2006 9:50 | 4/11/2006 4:50 | 4/11/2006 8:00 | 0.497 | 0.976 | 1.002 | 1.000 |
| 0.02843 | 4/7/2006 9:50 | 4/11/2006 4:50 | 4/11/2006 8:00 | 0.497 | 0.976 | 1.002 | 1.000 |
| 0.02655 | 4/7/2006 9:50 | 4/11/2006 4:50 | 4/11/2006 8:00 | 0.497 | 0.976 | 1.002 | 1.000 |
| 0.02415 | 4/7/2006 9:50 | 4/11/2006 5:25 | 4/11/2006 8:35 | 0.499 | 0.976 | 1.002 | 1.000 |
| 0.02691 | 4/7/2006 9:50 | 4/11/2006 5:25 | 4/11/2006 8:35 | 0.499 | 0.976 | 1.002 | 1.000 |
| 0.00980 | 4/7/2006 9:50 | 4/11/2006 5:25 | 4/11/2006 8:35 | 0.499 | 0.976 | 1.002 | 1.000 |
| 0.01759 | 4/7/2006 9:50 | 4/11/2006 5:25 | 4/11/2006 8:35 | 0.499 | 0.976 | 1.002 | 1.000 |
| 0.02843 | 4/7/2006 9:50 | 4/11/2006 5:25 | 4/11/2006 8:35 | 0.499 | 0.976 | 1.002 | 1.000 |
| 0.02655 | 4/7/2006 9:50 | 4/11/2006 5:25 | 4/11/2006 8:35 | 0.499 | 0.976 | 1.002 | 1.000 |
| 0.02415 | 4/7/2006 9:50 | 4/11/2006 5:55 | 4/11/2006 9:15 | 0.501 | 0.975 | 1.002 | 1.000 |
| 0.00980 | 4/7/2006 9:50 | 4/11/2006 5:55 | 4/11/2006 9:15 | 0.501 | 0.959 | 1.001 | 1.000 |
| 0.01759 | 4/7/2006 9:50 | 4/11/2006 5:55 | 4/11/2006 9:15 | 0.501 | 0.975 | 1.002 | 1.000 |
| 0.02843 | 4/7/2006 9:50 | 4/11/2006 5:55 | 4/11/2006 9:15 | 0.501 | 0.975 | 1.002 | 1.000 |
| 0.02655 | 4/7/2006 9:50 | 4/11/2006 5:55 | 4/11/2006 9:15 | 0.501 | 0.975 | 1.002 | 1.000 |

March 11, 2007

| Results Decision Level pCi/L | Critical Level pCi/L | MDA pCi/L | Sample Act. Conc. | Sample Act. Error | Net Count Rate | Net Count Rate Error | 2 SIGMA | | 2 SIGMA | | Sample QC | Sample Type | RPD | RER | Nominal | Recovery |
|---------------------------------------|----------------------------|--------------|----------------------|----------------------|-------------------|-------------------------|-------------------------|----------------------------|-------------------------|----------------------------|--------------|----------------|-----|-------|---------|----------|
| | | | | | | | Counting Uncertainty | Total Prop. Uncertainty | Counting Uncertainty | Total Prop. Uncertainty | | | | | | |
| 0.1878 | 0.1326 | 0.4832 | 0.3627 | 0.5097 | 0.3000 | 0.1528 | 0.3619 | 0.3623 | 0.3619 | | SAMPLE | | | | | |
| 0.2808 | 0.1982 | 0.4906 | 0.4871 | 0.3652 | 0.4667 | 0.1700 | 0.3477 | 0.3486 | 0.3477 | | SAMPLE | | | | | |
| 0.2956 | 0.2087 | 0.5092 | 0.3391 | 0.4900 | 0.3333 | 0.1633 | 0.3256 | 0.3257 | 0.3256 | | SAMPLE | | | | | |
| 0.3192 | 0.2254 | 0.5434 | 0.0685 | 2.1214 | 0.0667 | 0.1414 | 0.2848 | 0.2848 | 0.2848 | | SAMPLE | | | | | |
| 0.2811 | 0.1985 | 0.4912 | 0.2438 | 0.6233 | 0.2333 | 0.1453 | 0.2976 | 0.2979 | 0.2976 | | SAMPLE | | | | | |
| 0.2851 | 0.2013 | 0.4911 | 0.3925 | 0.4257 | 0.4000 | 0.1700 | 0.3269 | 0.3275 | 0.3269 | | SAMPLE | | | | | |
| 0.3473 | 0.2452 | 0.5912 | 0.9687 | 0.2504 | 0.8667 | 0.2160 | 0.4733 | 0.4755 | 0.4733 | | SAMPLE | | | | | |
| 0.3105 | 0.2192 | 0.5349 | 0.3562 | 0.4906 | 0.3333 | 0.1633 | 0.3420 | 0.3425 | 0.3420 | | SAMPLE | | | | | |
| 0.3016 | 0.2129 | 0.5195 | 0.2768 | 0.5864 | 0.2667 | 0.1563 | 0.3181 | 0.3181 | 0.3181 | | SAMPLE | | | | | |
| 0.3030 | 0.2139 | 0.5158 | 0.3901 | 0.4413 | 0.4000 | 0.1764 | 0.3372 | 0.3374 | 0.3372 | | SAMPLE | | | | | |
| 0.3287 | 0.2321 | 0.5596 | 0.5291 | 0.3723 | 0.5000 | 0.1856 | 0.3849 | 0.3860 | 0.3849 | | SAMPLE | | | | | |
| 0.2922 | 0.2063 | 0.5034 | 0.4023 | 0.4257 | 0.4000 | 0.1700 | 0.3350 | 0.3357 | 0.3350 | | SAMPLE | | | | | |
| 0.3435 | 0.2425 | 0.5847 | 0.8476 | 0.2726 | 0.7667 | 0.2082 | 0.4511 | 0.4529 | 0.4511 | | SAMPLE | | | | | |
| 0.2933 | 0.2070 | 0.5051 | 0.4709 | 0.3789 | 0.4667 | 0.1764 | 0.3489 | 0.3498 | 0.3489 | | SAMPLE | | | | | |
| 0.3659 | 0.2583 | 0.7066 | 0.1053 | 1.5276 | 0.1000 | 0.1528 | 0.3154 | 0.3154 | 0.3154 | | MB | | | | | |
| 0.3045 | 0.2150 | 0.5184 | 0.0980 | 1.4531 | 0.1000 | 0.1453 | 0.2791 | 0.2791 | 0.2791 | 159242003 | DUP | 0.0% | | 25.11 | 93.5% | |
| 0.3410 | 0.2408 | 0.5805 | 23.4902 | 0.0490 | 21.4000 | 0.8551 | 1.8396 | 2.2578 | 1.8396 | 159242003 | MS | | | 25.11 | 107.6% | |
| 0.3015 | 0.2129 | 0.5194 | 27.0123 | 0.0448 | 26.0333 | 0.9399 | 1.9114 | 2.3726 | 1.9114 | | LCS | | | | | |

Handwritten signature

METHOD CALIBRATION DATA

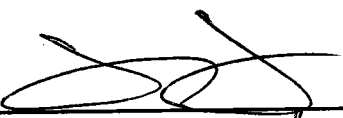
General Engineering Laboratories

2040 Savage Road, Charleston, SC 29414
(843)556-8171

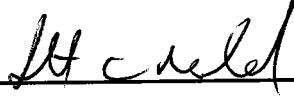
Gas Flow Proportional Counter Calibration Package

Method: Pb-210

| | YES | NO | Comments |
|--|-------------------------------------|----|----------|
| 1) Is all calibration standard information enclosed for: primary standard certificate? secondard standard(s) documentation? standard preparation information? 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? beta absorption curves? beta plateau? | <input checked="" type="checkbox"/> | | |
| | <input checked="" type="checkbox"/> | | |
| 3) Is the raw count data included for: the plateau generation? the absorption curve generation? the calibration verification? 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? are verification recoveries 100% +/- 25% | <input checked="" type="checkbox"/> | | |
| | <input checked="" type="checkbox"/> | | |

Prepared By: 

Date: 7/29/05

Reviewed By: 

Date: 7/30/05

Effective Date: 7/29/05

0356

DEUTSCHER KALIBRIERDIENST **DKD**

Kalibrierlaboratorium für Meßgrößen der Radioaktivität
Calibration laboratory for measurements of radioactivity

AKKREDITIERT DURCH DIE
PHYSIKALISCH-TECHNISCHE BUNDESANSTALT (PTB)



AEA Technology QSA GmbH
Postfach 58 42 Gieselweg 1
D-38049 Braunschweig D-38110 Braunschweig

Tel. +49 (0) 5307 932-0
Fax +49 (0) 5307 932-194

Source no. FX 248

| |
|-------------|
| 08640 |
| DKD-K-06501 |
| 01-01 |

Kalibrierschein
Calibration Certificate

Kalibrierzeichen
Calibration mark

Gegenstand
Object

Reference Solution

Dieser Kalibrierschein dokumentiert die Rückführung auf nationale Normale zur Darstellung der Einheiten in Übereinstimmung mit dem Internationalen Einheitensystem (SI).

Hersteller
Manufacturer

AEA Technology QSA GmbH

Der Deutsche Kalibrierdienst ist Unterzeichner des multilateralen Übereinkommens der European co-operation for Accreditation (EA) zur gegenseitigen Anerkennung der Kalibrierscheine.

Typ
Type

RBZB44

Für die Einhaltung einer angemessenen Frist zur Wiederholung der Kalibrierung ist der Benutzer verantwortlich.

Strahler-Nr.
Source number

FX 248

Auftraggeber
Customer

AEA TECHNOLOGY QSA, INC.
USA-BURLINGTON MA 01803

This calibration certificate documents the traceability to national standards, which realize the units of measurement according to the International System of Units (SI).

Auftragsnummer
Order No.

CO 34622

The Deutscher Kalibrierdienst is signatory to the multilateral agreement of the European co-operation for (EA) for the mutual recognition of calibration certificates.

Anzahl der Seiten des Kalibrierscheines
Number of pages of the certificate

2

The user is obliged to have the object recalibrated at appropriate intervals.

Referenzdatum
Reference date

1 January 2001

Dieser Kalibrierschein darf nur vollständig und unverändert weiterverbreitet werden. Auszüge oder Änderungen bedürfen der Genehmigung sowohl der Physikalisch-Technischen Bundesanstalt als auch des ausstellenden Kalibrierlaboratoriums. Kalibrierscheine ohne Unterschrift und Stempel haben keine Gültigkeit.

This calibration certificate may not be reproduced other than in full except with the permission of both the Physikalisch-Technische Bundesanstalt and the issuing laboratory. Calibration certificates without signature and seal are not valid.

| | | | | |
|-------------------------------|-----------------------------|---|--|--|
| Stempel <i>Seal</i> | Datum <i>Date</i> | Leiter des Kalibrierlaboratoriums <i>Head of the calibration laboratory</i> | Stellvertreter <i>Deputy</i> | Bearbeiter <i>Person in charge</i> |
| | 31 January 2001 | | Schott | |
| | | Dr. Thieme | Schott | Linke / Schott / Schüler |

mm 7/29/05

Reference Solution

| | |
|---------------------------|---|
| Solution no. | FX 248 |
| Drawing | VZ-2058/1 |
| Nuclide | Lead-210 |
| Radioactive concentration | 34.2 kBq/g |
| Reference date | 1 January 20001 at 12.00 GMT |
| Mass of solution | (5.182 ± 0.001) g |
| Volume of solution | approx. 5 ml |
| Contamination test | Wipe test according to ISO 9978. |
| Date of wipe test | 30 January 2001 |
| Chemical composition | Solution in 1.2 M HNO ₃ ; Carrier: Pb(NO ₃) ₂ , Bi(NO ₃) ₃ ; each 20 mg/l of the corresponding element. |
| Measuring method | The activity was determined by comparison with a reference solution by measurement with a Ge-detector with MCA. |
| Traceability | Additional to the direct traceability to the PTB through the DKD this product complies with the requirements for traceability to NIST specified in the American National Standard "Traceability of Radioactive Sources to the NIST and Associated Instrument Quality Control (ANSI N42.22-1995)". As a requirement of the ANSI N42.22-1995 AEA Technology QSA GmbH participates in the NEI/NIST Measurements Assurance Program of the Nuclear Power Industry. |
| Uncertainty | The relative uncertainty of the activity is 3 %. The reported uncertainty is based on a standard uncertainty multiplied by a coverage factor k = 2, providing a level of confidence of approximately 95 %. (Ref. NIST Technical Note 1297/"Guide to the Expression of Uncertainty in Measurement" ISO Guide, 1995) |
| Radioactive impurities | Related to Pb-210 (equal 100 %) the following radioactive impurities were detected: Ra-226: 0.003 % |
| Quality assurance system | The quality assurance system of AEA Technology QSA GmbH was certified by Lloyd's Register Quality Assurance (LRQA) according to ISO 9001, issue 1994. Isotrak products meet the requirements of 10CFR50 Appendix B in the USA. |
| Remark | |

1297/29/02

Explanations for Certificates (Page 2 of Certificates)

Overall uncertainty

The reported uncertainty is based on standard uncertainty multiplied by a coverage factor $k = 2$, providing a level of confidence of approximately 95 %. (ISO Guide, 1995)

Traceability

This certificate documents the traceability of measurement results to national standards, standard measuring equipment and methods for the realisation of physical units of measurement according to the International System of Units (SI). Traceability is defined as 'the property of a result of a measurement whereby it can be related to appropriate standards, generally International or national standards, through an unbroken chain of comparisons'.

AEA Technology QSA GmbH has been accredited as DKD (Deutscher Kalibrierdienst) calibration laboratory by the Physikalisch-Technische Bundesanstalt (PTB) and is authorized to issue reference sources which are traceable to national standards held at the PTB in Germany. Because of the European co-operation for Accreditation (EA) mutual recognition agreement the certificates are also accepted by all EA-members (e. g. NAMAS, UK).

This product complies with the requirements for traceability to NIST specified in the American National Standard 'Traceability of Radioactive Sources to the NIST and Associated Instrument Quality Control (ANSI N42.22-1995)'. As a requirement for the ANSI N42.22-1995 AEA Technology QSA participates in the NEVNIST Measurements Assurance Program of the Nuclear Power Industry.

Leakage and contamination tests

Stringent tests for leakage are an essential feature of radioactive sources production. They are based on ISO 9978. Some standard methods used for testing radiation sources are listed below.

Wipe test I

The source is wiped with a swab or tissue, moistened with ethanol or water, the activity removed is measured. Limit: 185 Bq

Immersion test II

The source is immersed in a suitable liquid at 50 °C for at least 4 hours and the activity removed is measured. Limit: 185 Bq

Bubble test III

The source is immersed in water or a suitable liquid and the pressure in the vessel reduced to 13 kPa (100 mm Hg). No bubbles must be observed. (This test conforms to ISO 9978 except that for some sources, the 100 mm³ free volume requirement is not met.)

Emanation test IV

The source is placed in a gas tight enclosure with activated carbon as absorber and is left there for at least 3 h. The source is considered leak tight when not more than 185 Bq Radon related to a collection time of 12 h can be measured afterwards.

ISO classification

The International Organization for Standardization (ISO) has proposed a system of classification of sealed radioactive sources based on safety requirements for typical uses (see ISO 2919). This system provides a manufacturer of sealed radioactive sources with a set of tests to evaluate the safety of his products. It also assists a user of such sealed sources to select types which suit the application he has in mind. The tests to which specimen sources are subjected are listed in the following table.

Classification of sealed source performance standard according to ISO 2919

| | Class 1 | 2 | 3 | 4 | 5 | 6 |
|-------------------|---------|--|---|---|--|--|
| Temperature | No test | - 40 °C (20 min) + 80 °C (1 h) | - 40 °C (20 min) + 180 °C (1 h) | - 40 °C (20 min) + 400 °C (1 h) and thermal shock 400 °C to 20 °C | - 40 °C (20 min) + 600 °C (1 h) and thermal shock 600 °C to 20 °C | - 40 °C (20 min) + 800 °C (1 h) and thermal shock 800 °C to 20 °C |
| External Pressure | No test | 25 kPa absolute | 25 kPa absolute to 2 MPa absolute | 25 kPa absolute to 7 MPa absolute | 25 kPa absolute to 70 MPa absolute | 25 kPa absolute to 170 MPa absolute |
| Impact | No test | 50 g from 1 m | 200 g from 1 m | 2 kg from 1 m | 5 kg from 1 m | 20 kg from 1 m |
| Vibration | No test | 3 x 10 min 25 - 500 Hz at 5 g peak amplitude | 3 x 10 min 25 - 50 Hz at 5 g peak amplitude and 50 - 90 Hz at 0.635 mm amplitude peak to peak and 90 - 500 Hz at 10 g peak amplitude | 3 x 30 min 25 - 80 Hz at 1.5 mm amplitude peak to peak and 80 - 2000 Hz at 20 g peak amplitude | | |
| Puncture | No test | 1 g from 1 m | 10 g from 1 m | 50 g from 1 m | 300 g from 1 m | 1 kg from 1 m |

Special applications

No test programme can cover all possible combinations of environments to which a source may be exposed. Users should therefore consult our experts before using sources in potentially adverse environments.

IAEA Special Form

'Special Form' is a test specification for sealed sources given in the IAEA transport regulations (IAEA Safety Series No. 6, 1985, revised edition). It is used in determining the maximum acceptable activities for various types of transport containers.

Quality assurance system

The quality assurance system of AEA Technology QSA GmbH was certified by Lloyd's Register Quality Assurance (LRQA) according to ISO 9001, issue 1994. Isotrak products meet the requirements of 10CFR50 Appendix B.



ms/ector





Standard Traceability Log Rad

| Source Material Info | |
|----------------------|--------------|
| Parent Code: | 0356 |
| Prepared By: | Angela Albee |
| Carrier Conc: | 1.2M HNO3 |
| Reference Date: | 01/01/2001 |
| Ampoule Mass (g): | 5.182 g |
| Uncertainty: | +/- 3 % |
| LogBook No: | RC S 034 16b |

| A Solution Material Info | |
|--------------------------|--------------|
| Isotope: | Lead-210 |
| Prepared By: | Angela Albee |
| Prep Date: | 04/03/2001 |
| Verification Date: | 07/12/2005 |
| Expiration Date: | 07/12/2006 |
| Primary Code: | 0356-A |
| Dilution(mL): | 100 mL |
| Mass of Parent(g): | 4.275 g |
| Density(g/mL): | 1.0290 |

Calculations Converting parent activity to dpm/mL/dpm/g

| |
|---|
| $(\text{Mass of parent(g)}) * (\text{Parm Activity (kBq/g)}) * (\text{conversion dpm to kBq}) / (\text{Dilution Vol}) = \text{Parent Activity (dpm/mL)}$ |
| $(\text{Mass of parent(g)}) * (\text{Parm Activity (kBq/g)}) * (\text{conversion dpm to kBq}) / \text{Density (g/mL)} / (\text{Dilution Vol}) = \text{Parent Activity (dpm/g)}$ |
| $(4.275 \text{ g}) * (34.2 \text{ kBq/g}) * (60000 \text{ dpm/kBq}) / (100 \text{ mL}) = 87723.0000 \text{ dpm/mL}$ |
| $(4.275 \text{ g}) * (34.2 \text{ kBq/g}) * (60000 \text{ dpm/kBq}) / (1.0290 \text{ g/mL}) / (100 \text{ mL}) = 85250.5630 \text{ dpm/g}$ |

Secondary Standards

| Prep Date | Preparer | Mass Primary | Dilution (mL) | Code | Conc dpm/mL | Verification Date | Expiration Date |
|-----------|----------|--------------|---------------|------|-------------|-------------------|-----------------|
|-----------|----------|--------------|---------------|------|-------------|-------------------|-----------------|

General Engineering Laboratories, LLC
Version 1.0 9/18/2000

Angela Albee

Verification for Pb-210 Standard 0356-A

| A. Fehr 7/12/2005 | | Standard | |
|----------------------|--------------|----------|------------|
| Isotope | Detector CPM | BKG CPM | NET CPM |
| 0356-A N1 | 20294.0000 | 21.7000 | 20294.0000 |
| 0356-A N2 | 20276.6000 | 21.7000 | 20276.6000 |
| 0356-A N3 | 20079.7000 | 21.7000 | 20079.7000 |
| | | | Average = |

| Detector Eff Mass. Used (mL) | Source DPM/mL |
|------------------------------|---------------|
| 0.1000 | 76051.19747 |
| 0.1000 | 75985.99146 |
| 0.1000 | 75248.11421 |
| | 75761.76771 |

| Mean Value (Counting) = | 75761.76771 | dpm/g | 99.4402909 | Pass |
|-------------------------|-------------|-------|------------|--------------------|
| Stdev = | 446.03015 | dpm/g | 0.00588727 | Rule 3 (Pass/Fail) |
| Certificate Value = | 76188.2 | dpm/g | | |
| Lower Limit = | 74869.70741 | dpm/g | | |
| Upper Limit = | 76653.82801 | dpm/g | | |
| Rule 1 Pass/Fail | Pass | | | |
| Two sigma = | 892.0603001 | | | |
| 10 % of Mean = | 7576.176771 | | | |
| 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 calibration sources for source 0356-A by transferring portions of the standard to tared 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 calibration vials and background source were dark adapted for two hours and counted on LSC Yellow (Wallac) using Protocol 31 for Pb-210 standard verification. The efficiency calibration which was used for verification calculations was performed on 7/12/05 using source ET491-A (Pb-210). 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.

mm 7/22/05

Angela D. Johnson 7/29/05

PROTOCOL : 31 Pb-210 Verification
DATE : 2005/07/12
TIME : 05:29
ID : P31AS005

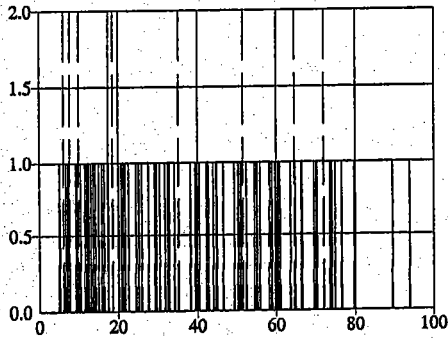
Wallac 1414 WinSpectral v1.40 S/N 4140127
Counting mode : CPM
Isotope(s) : Pb210
Pb210 = 5- 520,21.00 y
Protocol name : Pb-210 Verification
Counting time : 300
Repeats : 1
Cycles : 1
Replicates : 1
2 sigma % : 0.01
Minimum cpm : 0.00 Checking time: 10
Advanced modes : Chemilum,PSA
PSA level : 35
Output to Display :
 POS,CTIME,DATE,TIME,RACKPOS,CPMw1,CPM,SQPI,CPM1
Additions to Display : Spectrum,Header,Listing
Spectrum : Alpha,Beta
Window 1 : 685- 745 /Alpha
Window 2 : 1-1024 /Beta
Window 3 : 1-1024 /Beta
Window 4 : 1-1024 /Beta
Window 5 : 1-1024 /Beta
Window 6 : 1-1024 /Beta
FNCT1 = FNCT1 :
FNCT2 = FNCT2 :
FNCT3 = FNCT3 :
FNCT4 = FNCT4 :

Total count rate:
 Pb210 72372.3 CPM

per 1/29/05
 Oct 7/12/05

AAQ
 7/29/05

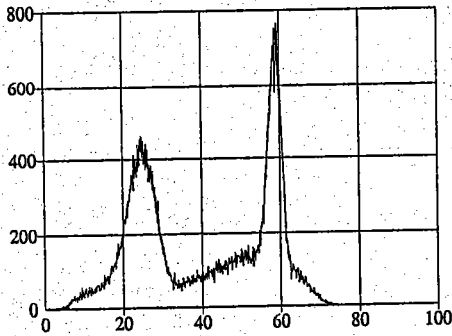
| POS | CTIME | DATE | TIME | RACKPOS | CPM |
|-----|-------|-----------|---------|---------|-------|
| 1 | 300 | 7/12/2005 | 5:29 AM | 1 | 20.20 |



Counts Alpha
Counts Beta

Bkg

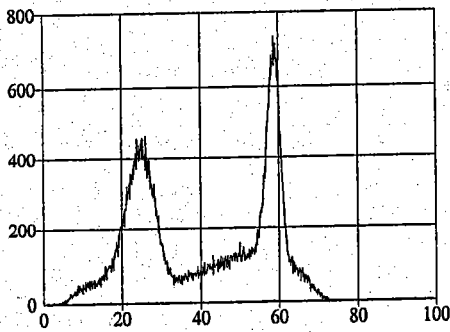
| | | | | | |
|---|-----|-----------|---------|---|----------|
| 2 | 300 | 7/12/2005 | 5:35 AM | 2 | 22785.60 |
|---|-----|-----------|---------|---|----------|



Counts Alpha
Counts Beta

ET491-A

| | | | | | |
|---|-----|-----------|---------|---|----------|
| 3 | 300 | 7/12/2005 | 5:41 AM | 3 | 22178.60 |
|---|-----|-----------|---------|---|----------|



Counts Alpha
Counts Beta

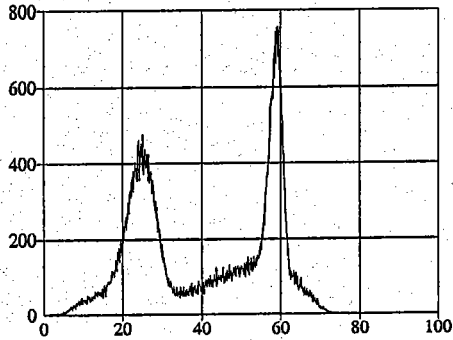
ET491-A

ms 7/29/05

ALF 7/12/05

AdQ
7/29/05

| POS | CTIME | DATE | TIME | RACKPOS | CPM |
|-----|-------|-----------|---------|---------|----------|
| 4 | 300 | 7/12/2005 | 5:46 AM | 4 | 22065.70 |
| 5 | 300 | 7/12/2005 | 5:52 AM | 5 | 21.70 |
| 6 | 300 | 7/12/2005 | 5:58 AM | 6 | 20294.00 |

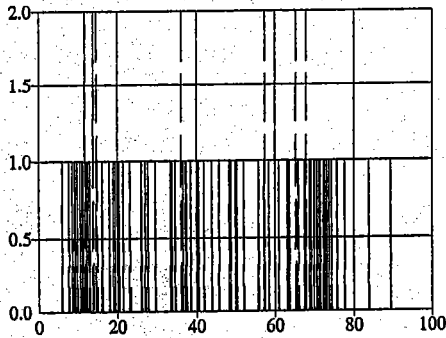


Counts Alpha

Counts Beta

ET491-A

| | | | | | |
|---|-----|-----------|---------|---|-------|
| 5 | 300 | 7/12/2005 | 5:52 AM | 5 | 21.70 |
|---|-----|-----------|---------|---|-------|

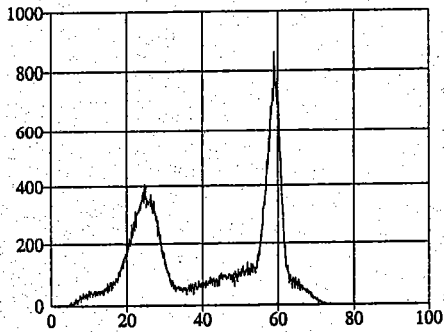


Counts Alpha

Counts Beta

Bkg

| | | | | | |
|---|-----|-----------|---------|---|----------|
| 6 | 300 | 7/12/2005 | 5:58 AM | 6 | 20294.00 |
|---|-----|-----------|---------|---|----------|



Counts Alpha

Counts Beta

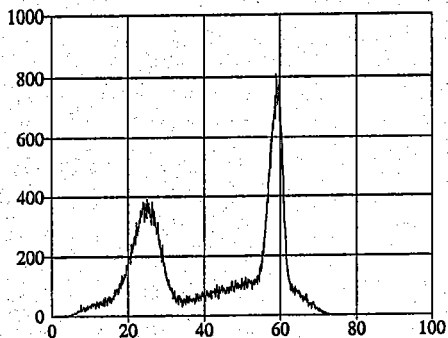
0356-A

ms/rales

ALF7/12/05

ALF
7/29/05

| POS | CTIME | DATE | TIME | RACKPOS | CPM |
|-----|-------|-----------|---------|---------|----------|
| 7 | 300 | 7/12/2005 | 6:04 AM | 7 | 20276.60 |

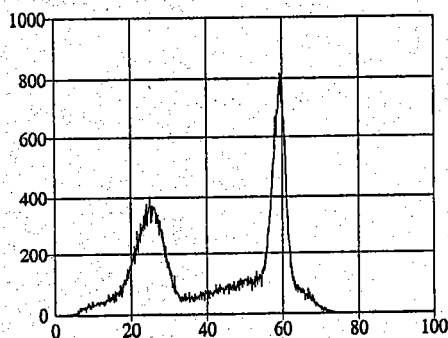


Counts Alpha

Counts Beta

0356-A

| | | | | | |
|---|-----|-----------|---------|---|----------|
| 8 | 300 | 7/12/2005 | 6:09 AM | 8 | 20079.70 |
|---|-----|-----------|---------|---|----------|



Counts Alpha

Counts Beta

0356-A

pm 7/29/05
ALF 7/12/05

ALF
7/29/05

**General Engineering Laboratories
Calibration Source Preparation Sheet**

Applicable SOP Number GL-RAD-A-018 Isotope Pb-210
 Date Standards Prepared 7/14/05 Cocktail Type Used NA
 Standard ID 0356-A Matrix of Vial/Planchett Lead chromate precipitate on Tuffryn filter
 Amount Used (g or ml) 0.5 Type of Scintillation Vial N/A
 Standard Activity (DPM/g or ml) 87723 Pipette ID Used 2440913
 Reference Date 11/1/05 Balance ID Used R 12/1/04
 Expiration Date 7/12/06 Residue/Carrier Agent Lead Carrier 14.65 μ g/ml Quenching Agent NIA

Separation Date / Time: 7/14/05 0800

| Standard Number | Quenching Vol (uL)/ Residue Volume (mL) | Initial Wt. (g) | Final Wt. (g) | Net Wt. (mg) |
|-----------------|--|--------------------|-------------------|-----------------|
| C1 | 0.1 | 0.0844 | 0.0850 | 0.6 |
| C2 | 0.2 | 0.0851 | 0.0865 | 1.4 |
| C3 | 0.3 | 0.0845 | 0.0880 | 3.5 |
| C4 | 0.4 | 0.0849 | 0.0913 | 6.4 |
| C5 | 0.5 | 0.0847 | 0.0926 | 7.9 |
| C6 | 0.6 | 0.0874 | 0.0975 | 10.1 |
| C7 | 0.7 | 0.0860 | 0.0950 | 9.0 |
| C8 | 0.8 | 0.0879 | 0.1000 | 12.1 |
| C9 | 0.9 | 0.0846 | 0.0966 | 12.0 |
| C10 | 1.0 | 0.0852 | 0.1000 | 14.8 |
| C11 | 1.1 | 0.0841 | 0.1010 | 16.9 |
| C12 | 1.3 | 0.0865 | 0.1033 | 18.8 |
| | | 0.0850 | 0.1053 | |
| | | 0.0713/05 | | |

0.0854 1.0
0.0875 2.4

Prepared By: [Signature] Date 7/22/05
 Reviewed By: [Signature] Date 7/26/05

Rev 1 RLM 9/10/97

| INSTR_ID | SAMPLE_ID | CNT_TIME | A | B | TIME | USER2 | BATCH_ID |
|------------------|-----------|----------|-----|-------|-----------------|-------|----------|
| Instrument 1 - A | 1 | 2 | 84 | 22018 | 7/28/2005 7:55 | 1575 | PbCal705 |
| Instrument 1 - A | 2 | 2 | 84 | 22854 | 7/28/2005 8:20 | 1575 | PbCal705 |
| Instrument 1 - A | 3 | 2 | 102 | 20935 | 7/28/2005 8:05 | 1575 | PbCal705 |
| Instrument 1 - A | 4 | 2 | 99 | 22720 | 7/28/2005 8:01 | 1575 | PbCal705 |
| Instrument 1 - A | 5 | 2 | 95 | 22892 | 7/28/2005 10:09 | 1575 | PbCal705 |
| Instrument 1 - A | 6 | 2 | 83 | 23217 | 7/28/2005 10:25 | 1575 | PbCal705 |
| Instrument 1 - A | 7 | 2 | 63 | 19193 | 7/28/2005 10:20 | 1575 | PbCal705 |
| Instrument 1 - A | 8 | 2 | 78 | 20620 | 7/28/2005 10:16 | 1575 | PbCal705 |
| Instrument 1 - A | 9 | 2 | 65 | 18730 | 7/28/2005 9:35 | 1575 | PbCal705 |
| Instrument 1 - A | 10 | 2 | 73 | 20335 | 7/28/2005 10:06 | 1575 | PbCal705 |
| Instrument 1 - A | 11 | 2 | 81 | 19694 | 7/28/2005 10:02 | 1575 | PbCal705 |
| Instrument 1 - A | 12 | 2 | 89 | 20801 | 7/28/2005 9:43 | 1575 | PbCal705 |
| Instrument 1 - B | 1 | 2 | 56 | 21763 | 7/28/2005 8:01 | 1575 | PbCal705 |
| Instrument 1 - B | 2 | 2 | 78 | 22474 | 7/28/2005 7:55 | 1575 | PbCal705 |
| Instrument 1 - B | 3 | 2 | 73 | 20359 | 7/28/2005 8:20 | 1575 | PbCal705 |
| Instrument 1 - B | 4 | 2 | 58 | 22111 | 7/28/2005 8:05 | 1575 | PbCal705 |
| Instrument 1 - B | 5 | 2 | 71 | 23056 | 7/28/2005 10:16 | 1575 | PbCal705 |
| Instrument 1 - B | 6 | 2 | 72 | 22905 | 7/28/2005 10:09 | 1575 | PbCal705 |
| Instrument 1 - B | 7 | 2 | 62 | 18664 | 7/28/2005 10:25 | 1575 | PbCal705 |
| Instrument 1 - B | 8 | 2 | 56 | 20619 | 7/28/2005 10:21 | 1575 | PbCal705 |
| Instrument 1 - B | 9 | 2 | 62 | 18705 | 7/28/2005 9:43 | 1575 | PbCal705 |
| Instrument 1 - B | 10 | 2 | 45 | 19770 | 7/28/2005 9:35 | 1575 | PbCal705 |
| Instrument 1 - B | 11 | 2 | 42 | 19125 | 7/28/2005 10:06 | 1575 | PbCal705 |
| Instrument 1 - B | 12 | 2 | 56 | 20230 | 7/28/2005 10:02 | 1575 | PbCal705 |
| Instrument 1 - C | 1 | 2 | 132 | 22038 | 7/28/2005 8:06 | 1575 | PbCal705 |
| Instrument 1 - C | 2 | 2 | 151 | 22700 | 7/28/2005 8:01 | 1575 | PbCal705 |
| Instrument 1 - C | 3 | 2 | 161 | 20552 | 7/28/2005 7:55 | 1575 | PbCal705 |
| Instrument 1 - C | 4 | 2 | 179 | 22690 | 7/28/2005 8:20 | 1575 | PbCal705 |
| Instrument 1 - C | 5 | 2 | 149 | 23030 | 7/28/2005 10:21 | 1575 | PbCal705 |
| Instrument 1 - C | 6 | 2 | 163 | 22975 | 7/28/2005 10:16 | 1575 | PbCal705 |
| Instrument 1 - C | 7 | 2 | 137 | 19131 | 7/28/2005 10:09 | 1575 | PbCal705 |
| Instrument 1 - C | 8 | 2 | 136 | 20712 | 7/28/2005 10:25 | 1575 | PbCal705 |
| Instrument 1 - C | 9 | 2 | 132 | 19007 | 7/28/2005 10:02 | 1575 | PbCal705 |
| Instrument 1 - C | 10 | 2 | 129 | 20055 | 7/28/2005 9:43 | 1575 | PbCal705 |
| Instrument 1 - C | 11 | 2 | 110 | 19004 | 7/28/2005 9:35 | 1575 | PbCal705 |
| Instrument 1 - C | 12 | 2 | 125 | 20586 | 7/28/2005 10:06 | 1575 | PbCal705 |
| Instrument 1 - D | 1 | 2 | 314 | 21985 | 7/28/2005 8:20 | 1575 | PbCal705 |
| Instrument 1 - D | 2 | 2 | 339 | 22577 | 7/28/2005 8:06 | 1575 | PbCal705 |
| Instrument 1 - D | 3 | 2 | 302 | 20759 | 7/28/2005 8:01 | 1575 | PbCal705 |
| Instrument 1 - D | 4 | 2 | 337 | 22777 | 7/28/2005 7:55 | 1575 | PbCal705 |
| Instrument 1 - D | 5 | 2 | 299 | 23052 | 7/28/2005 10:25 | 1575 | PbCal705 |
| Instrument 1 - D | 6 | 2 | 273 | 22954 | 7/28/2005 10:21 | 1575 | PbCal705 |
| Instrument 1 - D | 7 | 2 | 234 | 19018 | 7/28/2005 10:16 | 1575 | PbCal705 |
| Instrument 1 - D | 8 | 2 | 275 | 20545 | 7/28/2005 10:09 | 1575 | PbCal705 |
| Instrument 1 - D | 9 | 2 | 253 | 18798 | 7/28/2005 10:06 | 1575 | PbCal705 |
| Instrument 1 - D | 10 | 2 | 272 | 20117 | 7/28/2005 10:02 | 1575 | PbCal705 |
| Instrument 1 - D | 11 | 2 | 259 | 19117 | 7/28/2005 9:43 | 1575 | PbCal705 |
| Instrument 1 - D | 12 | 2 | 229 | 20856 | 7/28/2005 9:35 | 1575 | PbCal705 |
| Instrument 2 - A | 1 | 2 | 225 | 21853 | 7/28/2005 8:42 | 1575 | PbCal705 |
| Instrument 2 - A | 2 | 2 | 264 | 22781 | 7/28/2005 9:21 | 1575 | PbCal705 |
| Instrument 2 - A | 3 | 2 | 246 | 20682 | 7/28/2005 8:52 | 1575 | PbCal705 |

| | | | | | | | |
|------------------|----|---|-----|-------|-----------------|------|----------|
| Instrument 2 - A | 4 | 2 | 230 | 22878 | 7/28/2005 8:49 | 1575 | PbCal705 |
| Instrument 2 - A | 5 | 2 | 266 | 23137 | 7/28/2005 7:55 | 1575 | PbCal705 |
| Instrument 2 - A | 6 | 2 | 231 | 23217 | 7/28/2005 8:20 | 1575 | PbCal705 |
| Instrument 2 - A | 7 | 2 | 172 | 19166 | 7/28/2005 8:06 | 1575 | PbCal705 |
| Instrument 2 - A | 8 | 2 | 193 | 20672 | 7/28/2005 8:01 | 1575 | PbCal705 |
| Instrument 2 - A | 9 | 2 | 201 | 19025 | 7/28/2005 10:09 | 1575 | PbCal705 |
| Instrument 2 - A | 10 | 2 | 188 | 20237 | 7/28/2005 10:25 | 1575 | PbCal705 |
| Instrument 2 - A | 11 | 2 | 194 | 19477 | 7/28/2005 10:21 | 1575 | PbCal705 |
| Instrument 2 - A | 12 | 2 | 193 | 20724 | 7/28/2005 10:17 | 1575 | PbCal705 |
| Instrument 2 - B | 1 | 2 | 9 | 22048 | 7/28/2005 8:49 | 1575 | PbCal705 |
| Instrument 2 - B | 2 | 2 | 15 | 23045 | 7/28/2005 8:42 | 1575 | PbCal705 |
| Instrument 2 - B | 3 | 2 | 16 | 20750 | 7/28/2005 9:21 | 1575 | PbCal705 |
| Instrument 2 - B | 4 | 2 | 9 | 22958 | 7/28/2005 8:52 | 1575 | PbCal705 |
| Instrument 2 - B | 5 | 2 | 12 | 23347 | 7/28/2005 8:01 | 1575 | PbCal705 |
| Instrument 2 - B | 6 | 2 | 12 | 22888 | 7/28/2005 7:55 | 1575 | PbCal705 |
| Instrument 2 - B | 7 | 2 | 12 | 19018 | 7/28/2005 8:20 | 1575 | PbCal705 |
| Instrument 2 - B | 8 | 2 | 9 | 20774 | 7/28/2005 8:06 | 1575 | PbCal705 |
| Instrument 2 - B | 9 | 2 | 12 | 18915 | 7/28/2005 10:17 | 1575 | PbCal705 |
| Instrument 2 - B | 10 | 2 | 10 | 20157 | 7/28/2005 10:10 | 1575 | PbCal705 |
| Instrument 2 - B | 11 | 2 | 14 | 19263 | 7/28/2005 10:25 | 1575 | PbCal705 |
| Instrument 2 - B | 12 | 2 | 8 | 20483 | 7/28/2005 10:21 | 1575 | PbCal705 |
| Instrument 2 - C | 1 | 2 | 280 | 21996 | 7/28/2005 8:52 | 1575 | PbCal705 |
| Instrument 2 - C | 2 | 2 | 292 | 22508 | 7/28/2005 8:49 | 1575 | PbCal705 |
| Instrument 2 - C | 3 | 2 | 244 | 20689 | 7/28/2005 8:42 | 1575 | PbCal705 |
| Instrument 2 - C | 4 | 2 | 283 | 22518 | 7/28/2005 9:21 | 1575 | PbCal705 |
| Instrument 2 - C | 5 | 2 | 264 | 23133 | 7/28/2005 8:06 | 1575 | PbCal705 |
| Instrument 2 - C | 6 | 2 | 268 | 22568 | 7/28/2005 8:01 | 1575 | PbCal705 |
| Instrument 2 - C | 7 | 2 | 240 | 18943 | 7/28/2005 7:55 | 1575 | PbCal705 |
| Instrument 2 - C | 8 | 2 | 239 | 20584 | 7/28/2005 8:20 | 1575 | PbCal705 |
| Instrument 2 - C | 9 | 2 | 222 | 18740 | 7/28/2005 10:21 | 1575 | PbCal705 |
| Instrument 2 - C | 10 | 2 | 222 | 19943 | 7/28/2005 10:17 | 1575 | PbCal705 |
| Instrument 2 - C | 11 | 2 | 221 | 19199 | 7/28/2005 10:10 | 1575 | PbCal705 |
| Instrument 2 - C | 12 | 2 | 234 | 20523 | 7/28/2005 10:25 | 1575 | PbCal705 |
| Instrument 2 - D | 1 | 2 | 280 | 22194 | 7/28/2005 9:21 | 1575 | PbCal705 |
| Instrument 2 - D | 2 | 2 | 338 | 23021 | 7/28/2005 8:53 | 1575 | PbCal705 |
| Instrument 2 - D | 3 | 2 | 288 | 20861 | 7/28/2005 8:49 | 1575 | PbCal705 |
| Instrument 2 - D | 4 | 2 | 282 | 22714 | 7/28/2005 8:42 | 1575 | PbCal705 |
| Instrument 2 - D | 5 | 2 | 254 | 23276 | 7/28/2005 8:20 | 1575 | PbCal705 |
| Instrument 2 - D | 6 | 2 | 282 | 23097 | 7/28/2005 8:06 | 1575 | PbCal705 |
| Instrument 2 - D | 7 | 2 | 232 | 19264 | 7/28/2005 8:02 | 1575 | PbCal705 |
| Instrument 2 - D | 8 | 2 | 274 | 21105 | 7/28/2005 7:55 | 1575 | PbCal705 |
| Instrument 2 - D | 9 | 2 | 221 | 19341 | 7/28/2005 10:25 | 1575 | PbCal705 |
| Instrument 2 - D | 10 | 2 | 250 | 20334 | 7/28/2005 10:21 | 1575 | PbCal705 |
| Instrument 2 - D | 11 | 2 | 210 | 19513 | 7/28/2005 10:17 | 1575 | PbCal705 |
| Instrument 2 - D | 12 | 2 | 241 | 20672 | 7/28/2005 10:10 | 1575 | PbCal705 |
| Instrument 3 - A | 1 | 2 | 151 | 21669 | 7/28/2005 9:34 | 1575 | PbCal705 |
| Instrument 3 - A | 2 | 2 | 140 | 21967 | 7/28/2005 10:05 | 1575 | PbCal705 |
| Instrument 3 - A | 3 | 2 | 151 | 20088 | 7/28/2005 10:01 | 1575 | PbCal705 |
| Instrument 3 - A | 4 | 2 | 162 | 21796 | 7/28/2005 9:42 | 1575 | PbCal705 |
| Instrument 3 - A | 5 | 2 | 165 | 22294 | 7/28/2005 8:42 | 1575 | PbCal705 |
| Instrument 3 - A | 6 | 2 | 180 | 22353 | 7/28/2005 9:21 | 1575 | PbCal705 |
| Instrument 3 - A | 7 | 2 | 95 | 18346 | 7/28/2005 8:53 | 1575 | PbCal705 |

M 7/29/05

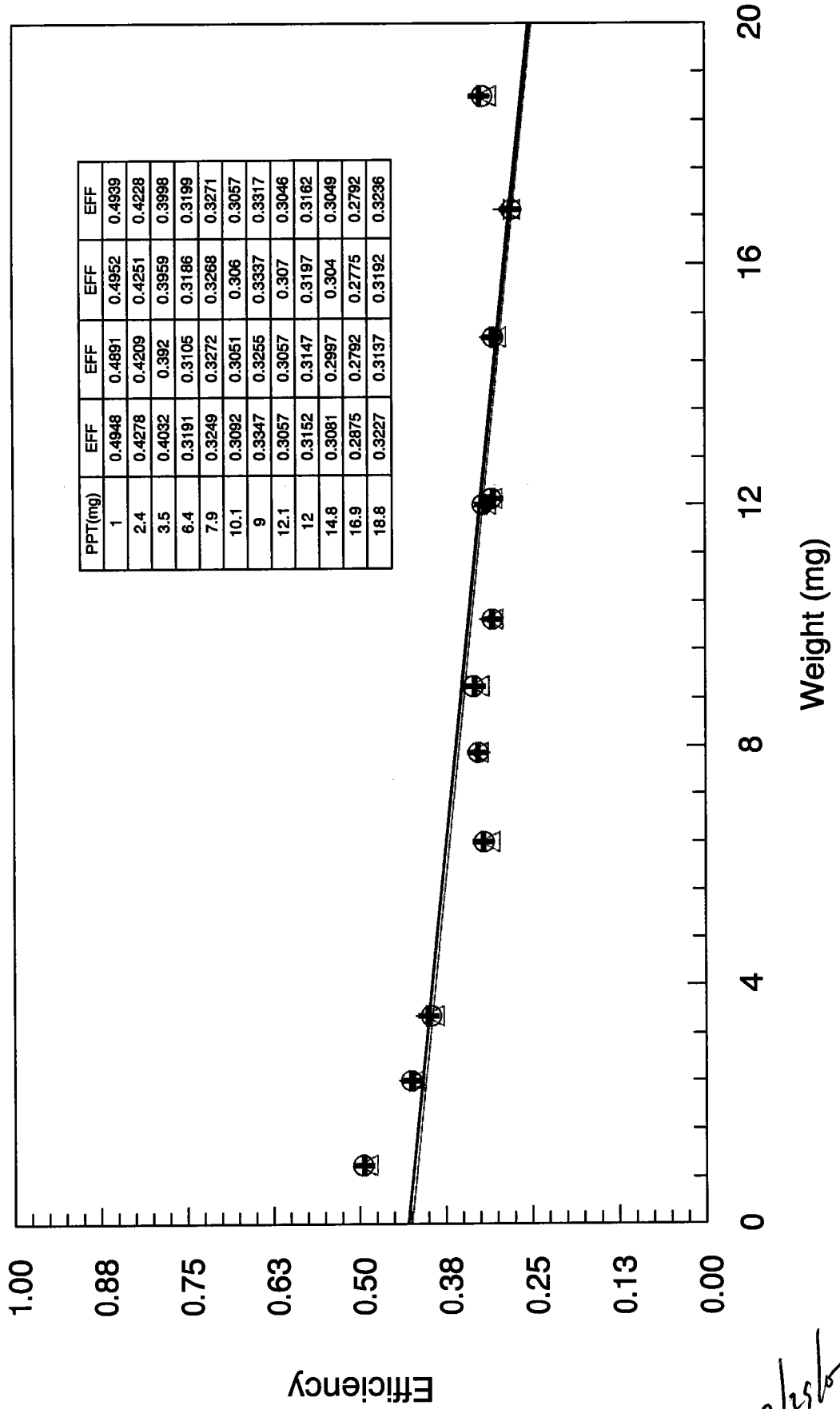
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|------------------|----|---|-----|-------|-----------------|------|----------|
| Instrument 3 - A | 8 | 2 | 136 | 19841 | 7/28/2005 8:49 | 1575 | PbCal705 |
| Instrument 3 - A | 9 | 2 | 104 | 18127 | 7/28/2005 7:56 | 1575 | PbCal705 |
| Instrument 3 - A | 10 | 2 | 176 | 19341 | 7/28/2005 8:20 | 1575 | PbCal705 |
| Instrument 3 - A | 11 | 2 | 120 | 18537 | 7/28/2005 8:06 | 1575 | PbCal705 |
| Instrument 3 - A | 12 | 2 | 142 | 20233 | 7/28/2005 8:02 | 1575 | PbCal705 |
| Instrument 3 - B | 1 | 2 | 236 | 21613 | 7/28/2005 9:42 | 1575 | PbCal705 |
| Instrument 3 - B | 2 | 2 | 219 | 22011 | 7/28/2005 9:34 | 1575 | PbCal705 |
| Instrument 3 - B | 3 | 2 | 220 | 20493 | 7/28/2005 10:05 | 1575 | PbCal705 |
| Instrument 3 - B | 4 | 2 | 235 | 22109 | 7/28/2005 10:01 | 1575 | PbCal705 |
| Instrument 3 - B | 5 | 2 | 244 | 22536 | 7/28/2005 8:49 | 1575 | PbCal705 |
| Instrument 3 - B | 6 | 2 | 221 | 22658 | 7/28/2005 8:42 | 1575 | PbCal705 |
| Instrument 3 - B | 7 | 2 | 207 | 18626 | 7/28/2005 9:21 | 1575 | PbCal705 |
| Instrument 3 - B | 8 | 2 | 216 | 20102 | 7/28/2005 8:53 | 1575 | PbCal705 |
| Instrument 3 - B | 9 | 2 | 188 | 18433 | 7/28/2005 8:02 | 1575 | PbCal705 |
| Instrument 3 - B | 10 | 2 | 228 | 19517 | 7/28/2005 7:56 | 1575 | PbCal705 |
| Instrument 3 - B | 11 | 2 | 189 | 19126 | 7/28/2005 8:20 | 1575 | PbCal705 |
| Instrument 3 - B | 12 | 2 | 205 | 20505 | 7/28/2005 8:06 | 1575 | PbCal705 |
| Instrument 3 - C | 1 | 2 | 322 | 21556 | 7/28/2005 10:01 | 1575 | PbCal705 |
| Instrument 3 - C | 2 | 2 | 360 | 22173 | 7/28/2005 9:43 | 1575 | PbCal705 |
| Instrument 3 - C | 3 | 2 | 329 | 20388 | 7/28/2005 9:34 | 1575 | PbCal705 |
| Instrument 3 - C | 4 | 2 | 326 | 22168 | 7/28/2005 10:05 | 1575 | PbCal705 |
| Instrument 3 - C | 5 | 2 | 338 | 23046 | 7/28/2005 8:53 | 1575 | PbCal705 |
| Instrument 3 - C | 6 | 2 | 378 | 22957 | 7/28/2005 8:49 | 1575 | PbCal705 |
| Instrument 3 - C | 7 | 2 | 283 | 18866 | 7/28/2005 8:42 | 1575 | PbCal705 |
| Instrument 3 - C | 8 | 2 | 308 | 20233 | 7/28/2005 9:21 | 1575 | PbCal705 |
| Instrument 3 - C | 9 | 2 | 291 | 18650 | 7/28/2005 8:06 | 1575 | PbCal705 |
| Instrument 3 - C | 10 | 2 | 305 | 19515 | 7/28/2005 8:02 | 1575 | PbCal705 |
| Instrument 3 - C | 11 | 2 | 290 | 19302 | 7/28/2005 7:56 | 1575 | PbCal705 |
| Instrument 3 - C | 12 | 2 | 318 | 20119 | 7/28/2005 8:20 | 1575 | PbCal705 |
| Instrument 3 - D | 1 | 2 | 244 | 21693 | 7/28/2005 10:05 | 1575 | PbCal705 |
| Instrument 3 - D | 2 | 2 | 239 | 22623 | 7/28/2005 10:01 | 1575 | PbCal705 |
| Instrument 3 - D | 3 | 2 | 241 | 20563 | 7/28/2005 9:43 | 1575 | PbCal705 |
| Instrument 3 - D | 4 | 2 | 244 | 22484 | 7/28/2005 9:34 | 1575 | PbCal705 |
| Instrument 3 - D | 5 | 2 | 258 | 23049 | 7/28/2005 9:21 | 1575 | PbCal705 |
| Instrument 3 - D | 6 | 2 | 262 | 22650 | 7/28/2005 8:53 | 1575 | PbCal705 |
| Instrument 3 - D | 7 | 2 | 196 | 19014 | 7/28/2005 8:50 | 1575 | PbCal705 |
| Instrument 3 - D | 8 | 2 | 234 | 20041 | 7/28/2005 8:42 | 1575 | PbCal705 |
| Instrument 3 - D | 9 | 2 | 213 | 18822 | 7/28/2005 8:20 | 1575 | PbCal705 |
| Instrument 3 - D | 10 | 2 | 239 | 19800 | 7/28/2005 8:06 | 1575 | PbCal705 |
| Instrument 3 - D | 11 | 2 | 221 | 18990 | 7/28/2005 8:02 | 1575 | PbCal705 |
| Instrument 3 - D | 12 | 2 | 234 | 20049 | 7/28/2005 7:56 | 1575 | PbCal705 |
| Instrument 4 - A | 1 | 2 | 179 | 22048 | 7/28/2005 10:09 | 1575 | PbCal705 |
| Instrument 4 - A | 2 | 2 | 167 | 22217 | 7/28/2005 10:24 | 1575 | PbCal705 |
| Instrument 4 - A | 3 | 2 | 149 | 20830 | 7/28/2005 10:20 | 1575 | PbCal705 |
| Instrument 4 - A | 4 | 2 | 133 | 22551 | 7/28/2005 10:16 | 1575 | PbCal705 |
| Instrument 4 - A | 5 | 2 | 137 | 23240 | 7/28/2005 9:34 | 1575 | PbCal705 |
| Instrument 4 - A | 6 | 2 | 164 | 22718 | 7/28/2005 10:05 | 1575 | PbCal705 |
| Instrument 4 - A | 7 | 2 | 130 | 19096 | 7/28/2005 10:01 | 1575 | PbCal705 |
| Instrument 4 - A | 8 | 2 | 139 | 20375 | 7/28/2005 9:43 | 1575 | PbCal705 |
| Instrument 4 - A | 9 | 2 | 126 | 18833 | 7/28/2005 8:42 | 1575 | PbCal705 |
| Instrument 4 - A | 10 | 2 | 128 | 20217 | 7/28/2005 9:21 | 1575 | PbCal705 |
| Instrument 4 - A | 11 | 2 | 149 | 19209 | 7/28/2005 8:53 | 1575 | PbCal705 |

| | | | | | | | |
|------------------|----|---|-----|-------|-----------------|------|----------|
| Instrument 4 - A | 12 | 2 | 141 | 20634 | 7/28/2005 8:50 | 1575 | PbCal705 |
| Instrument 4 - B | 1 | 2 | 19 | 22035 | 7/28/2005 10:16 | 1575 | PbCal705 |
| Instrument 4 - B | 2 | 2 | 17 | 22750 | 7/28/2005 10:09 | 1575 | PbCal705 |
| Instrument 4 - B | 3 | 2 | 21 | 21081 | 7/28/2005 10:24 | 1575 | PbCal705 |
| Instrument 4 - B | 4 | 2 | 19 | 22859 | 7/28/2005 10:20 | 1575 | PbCal705 |
| Instrument 4 - B | 5 | 2 | 19 | 23403 | 7/28/2005 9:43 | 1575 | PbCal705 |
| Instrument 4 - B | 6 | 2 | 24 | 23177 | 7/28/2005 9:34 | 1575 | PbCal705 |
| Instrument 4 - B | 7 | 2 | 13 | 19259 | 7/28/2005 10:05 | 1575 | PbCal705 |
| Instrument 4 - B | 8 | 2 | 16 | 20883 | 7/28/2005 10:01 | 1575 | PbCal705 |
| Instrument 4 - B | 9 | 2 | 12 | 19153 | 7/28/2005 8:50 | 1575 | PbCal705 |
| Instrument 4 - B | 10 | 2 | 15 | 20262 | 7/28/2005 8:42 | 1575 | PbCal705 |
| Instrument 4 - B | 11 | 2 | 23 | 19727 | 7/28/2005 9:21 | 1575 | PbCal705 |
| Instrument 4 - B | 12 | 2 | 23 | 20878 | 7/28/2005 8:53 | 1575 | PbCal705 |
| Instrument 4 - C | 1 | 2 | 249 | 22116 | 7/28/2005 10:20 | 1575 | PbCal705 |
| Instrument 4 - C | 2 | 2 | 278 | 22252 | 7/28/2005 10:16 | 1575 | PbCal705 |
| Instrument 4 - C | 3 | 2 | 254 | 20864 | 7/28/2005 10:09 | 1575 | PbCal705 |
| Instrument 4 - C | 4 | 2 | 272 | 22535 | 7/28/2005 10:24 | 1575 | PbCal705 |
| Instrument 4 - C | 5 | 2 | 272 | 23428 | 7/28/2005 10:02 | 1575 | PbCal705 |
| Instrument 4 - C | 6 | 2 | 262 | 23097 | 7/28/2005 9:43 | 1575 | PbCal705 |
| Instrument 4 - C | 7 | 2 | 208 | 19113 | 7/28/2005 9:35 | 1575 | PbCal705 |
| Instrument 4 - C | 8 | 2 | 217 | 20633 | 7/28/2005 10:05 | 1575 | PbCal705 |
| Instrument 4 - C | 9 | 2 | 233 | 18843 | 7/28/2005 8:53 | 1575 | PbCal705 |
| Instrument 4 - C | 10 | 2 | 209 | 20281 | 7/28/2005 8:50 | 1575 | PbCal705 |
| Instrument 4 - C | 11 | 2 | 244 | 19412 | 7/28/2005 8:43 | 1575 | PbCal705 |
| Instrument 4 - C | 12 | 2 | 239 | 20691 | 7/28/2005 9:21 | 1575 | PbCal705 |
| Instrument 4 - D | 1 | 2 | 522 | 21545 | 7/28/2005 10:25 | 1575 | PbCal705 |
| Instrument 4 - D | 2 | 2 | 521 | 22295 | 7/28/2005 10:20 | 1575 | PbCal705 |
| Instrument 4 - D | 3 | 2 | 520 | 20598 | 7/28/2005 10:16 | 1575 | PbCal705 |
| Instrument 4 - D | 4 | 2 | 528 | 22522 | 7/28/2005 10:09 | 1575 | PbCal705 |
| Instrument 4 - D | 5 | 2 | 519 | 23125 | 7/28/2005 10:05 | 1575 | PbCal705 |
| Instrument 4 - D | 6 | 2 | 539 | 23225 | 7/28/2005 10:02 | 1575 | PbCal705 |
| Instrument 4 - D | 7 | 2 | 422 | 18621 | 7/28/2005 9:43 | 1575 | PbCal705 |
| Instrument 4 - D | 8 | 2 | 490 | 20410 | 7/28/2005 9:35 | 1575 | PbCal705 |
| Instrument 4 - D | 9 | 2 | 450 | 18857 | 7/28/2005 9:21 | 1575 | PbCal705 |
| Instrument 4 - D | 10 | 2 | 477 | 20057 | 7/28/2005 8:53 | 1575 | PbCal705 |
| Instrument 4 - D | 11 | 2 | 424 | 19123 | 7/28/2005 8:50 | 1575 | PbCal705 |
| Instrument 4 - D | 12 | 2 | 484 | 20501 | 7/28/2005 8:43 | 1575 | PbCal705 |

Pb-210 Efficiency Curve 7/05

Instrument 1

+ 1-A Δ 1-B ○ 1-C + 1-D

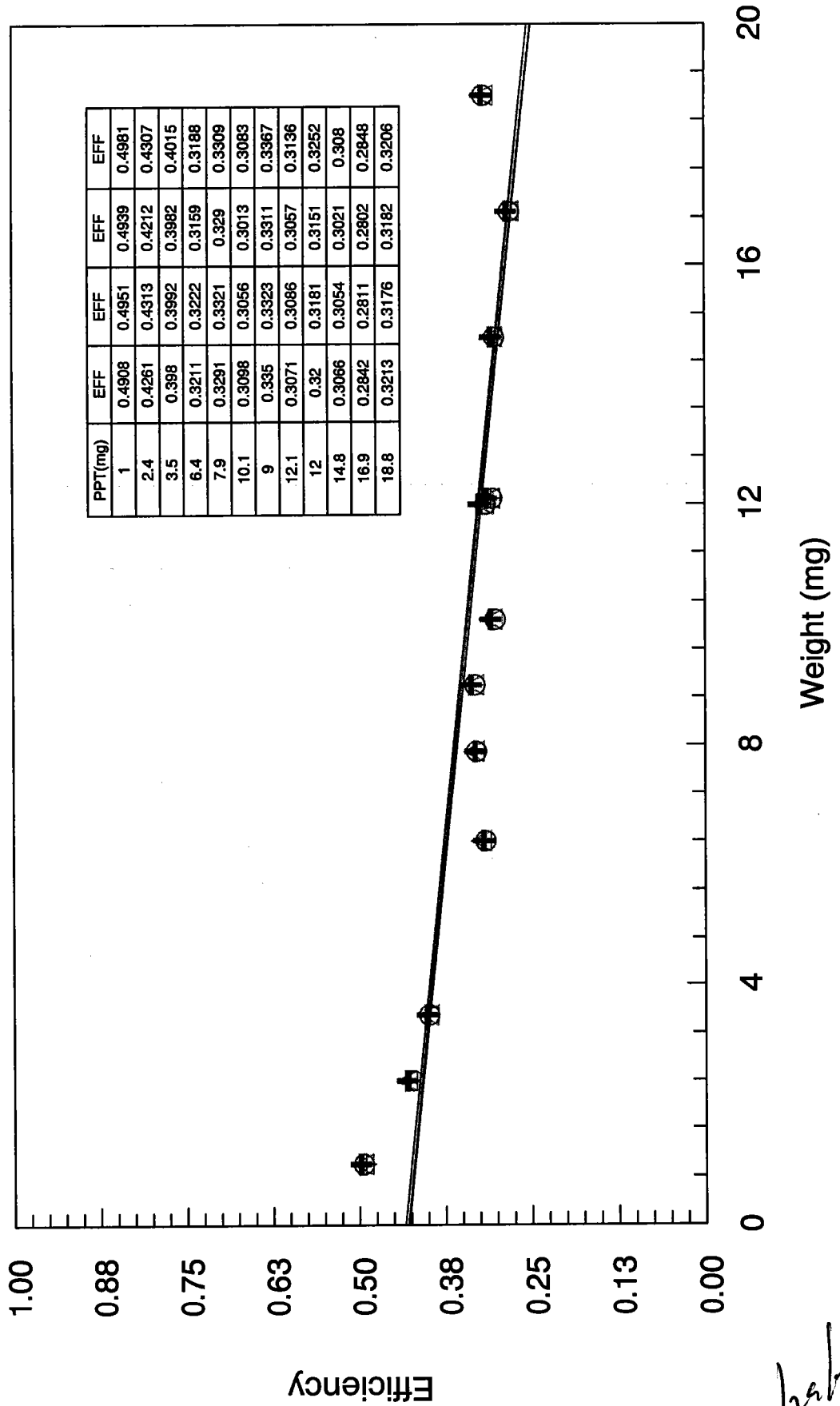


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Pb-210 Efficiency Curve 7/05

Instrument 2

+ 2-A Δ 2-B ○ 2-C + 2-D

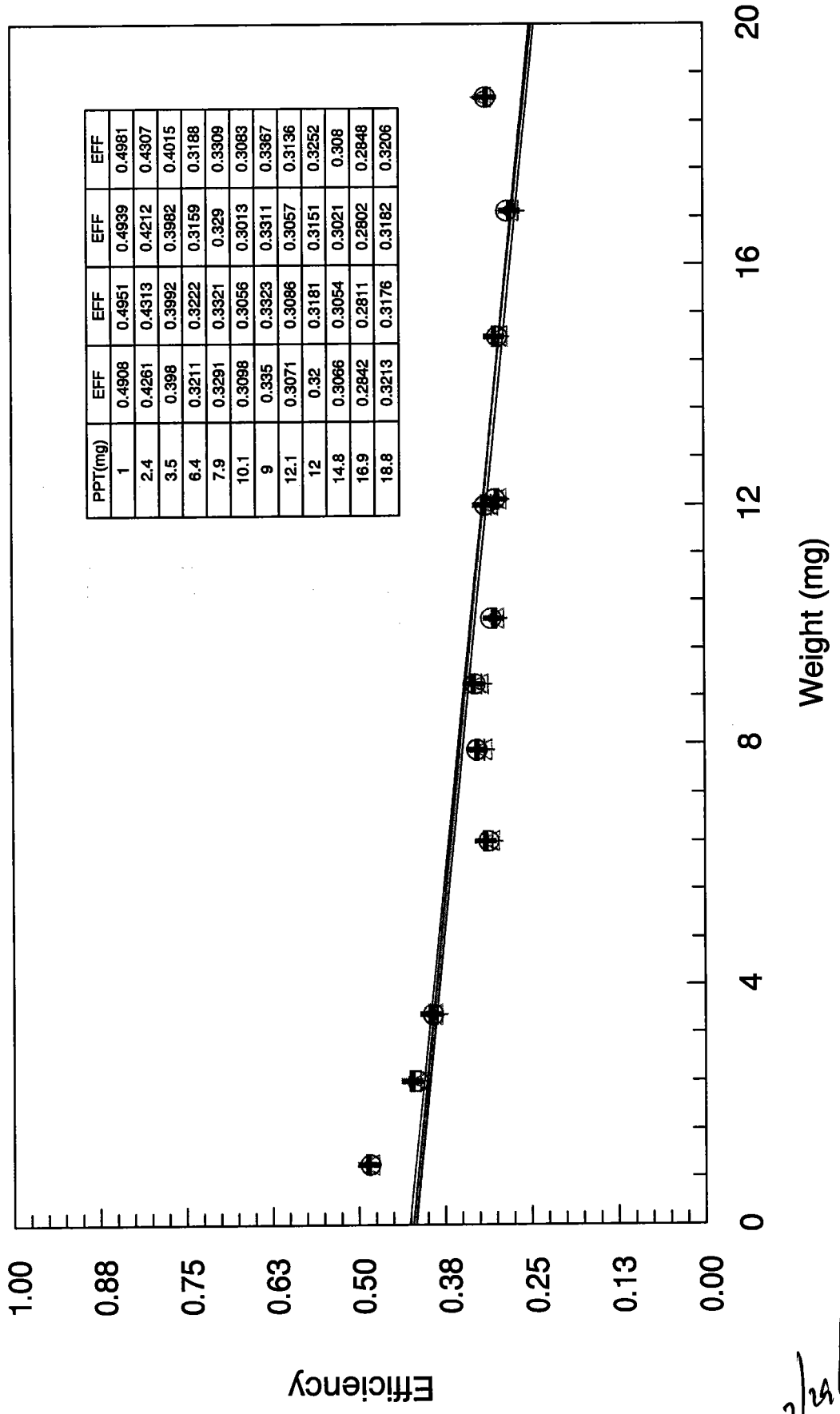


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Pb-210 Efficiency Curve 7/05

Instrument 3

+ 3-A Δ 3-B ○ 3-C + 3-D

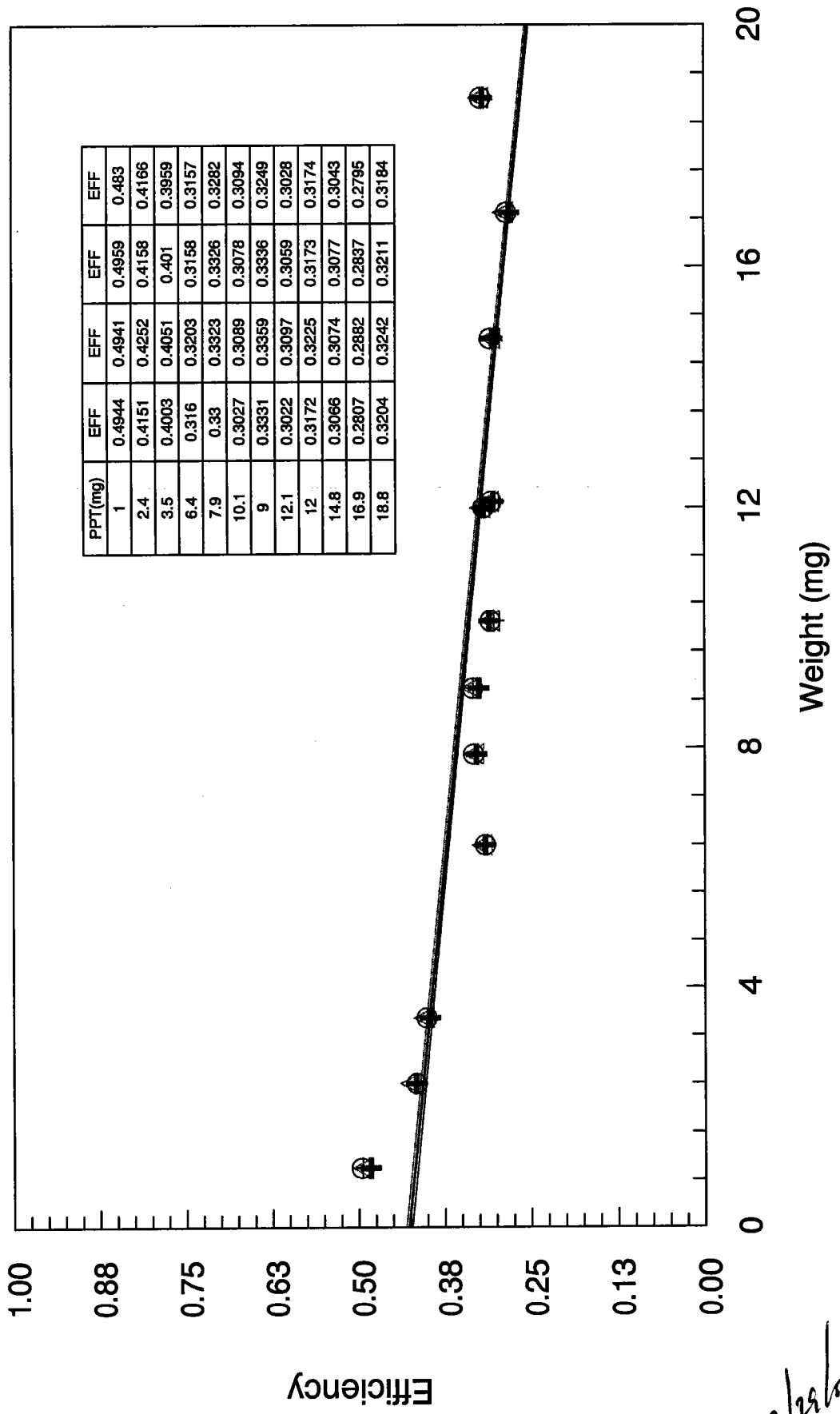


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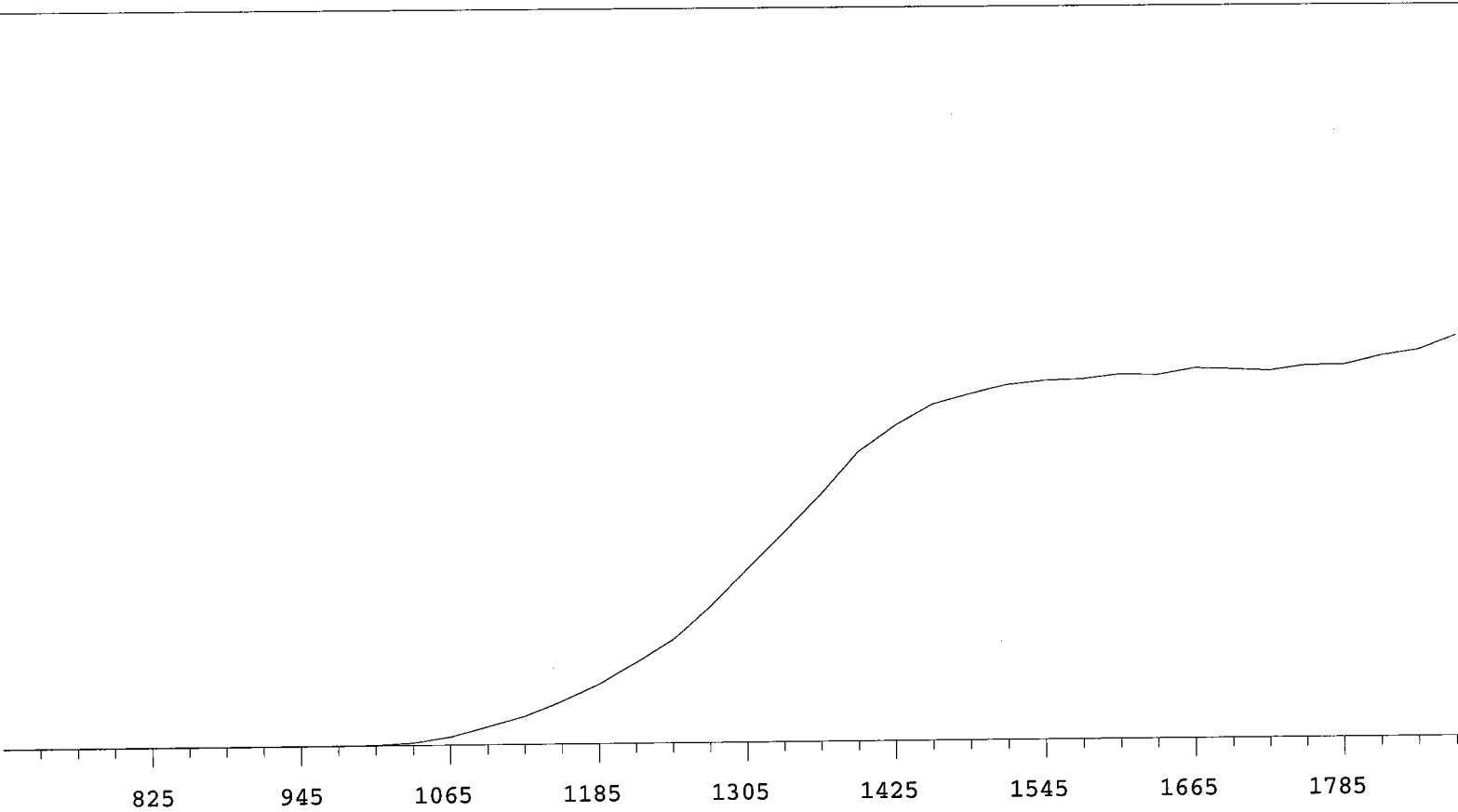
Pb-210 Efficiency Curve 7/05

Instrument 4

+ 4-A Δ 4-B ○ 4-C + 4-D

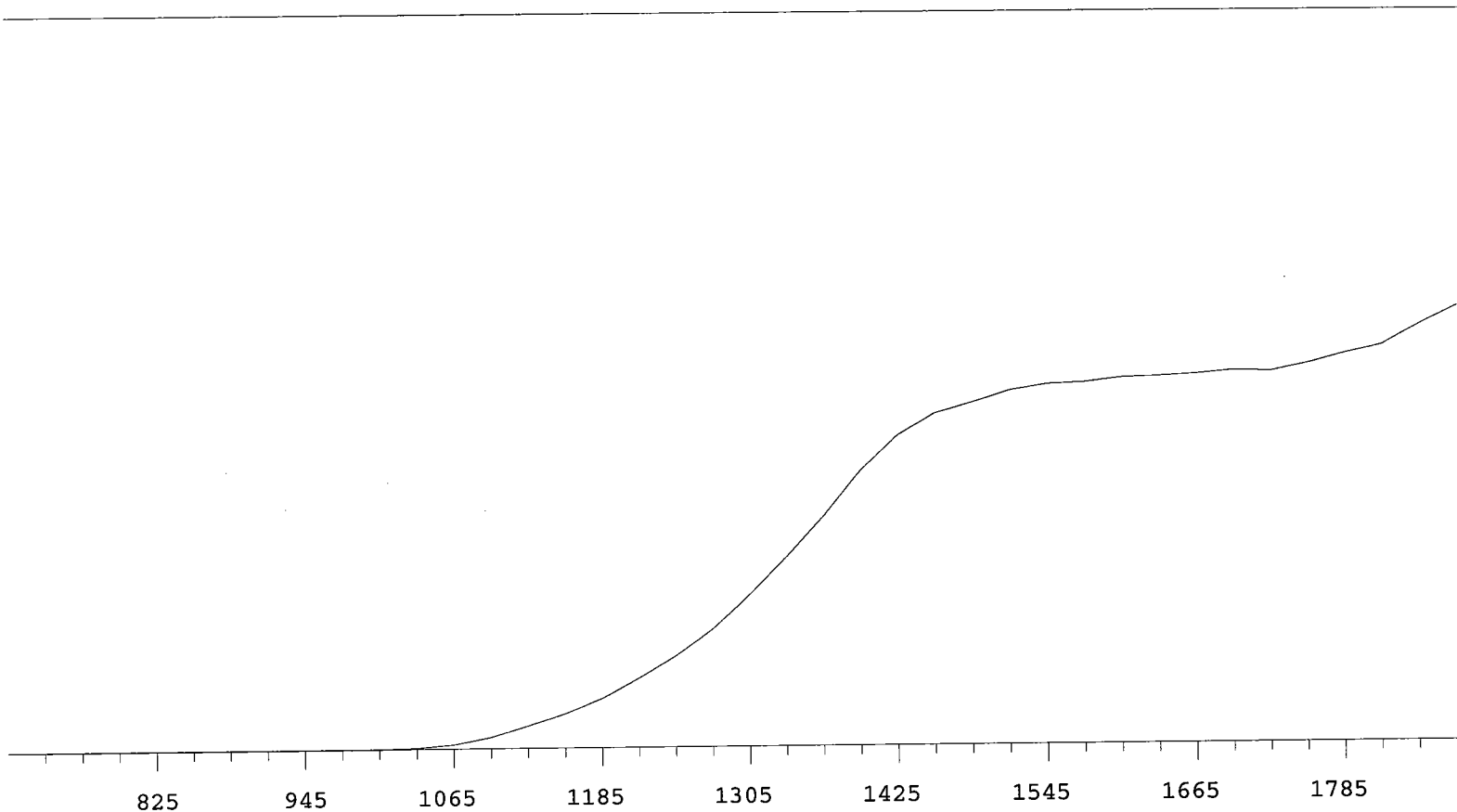


7/2/05



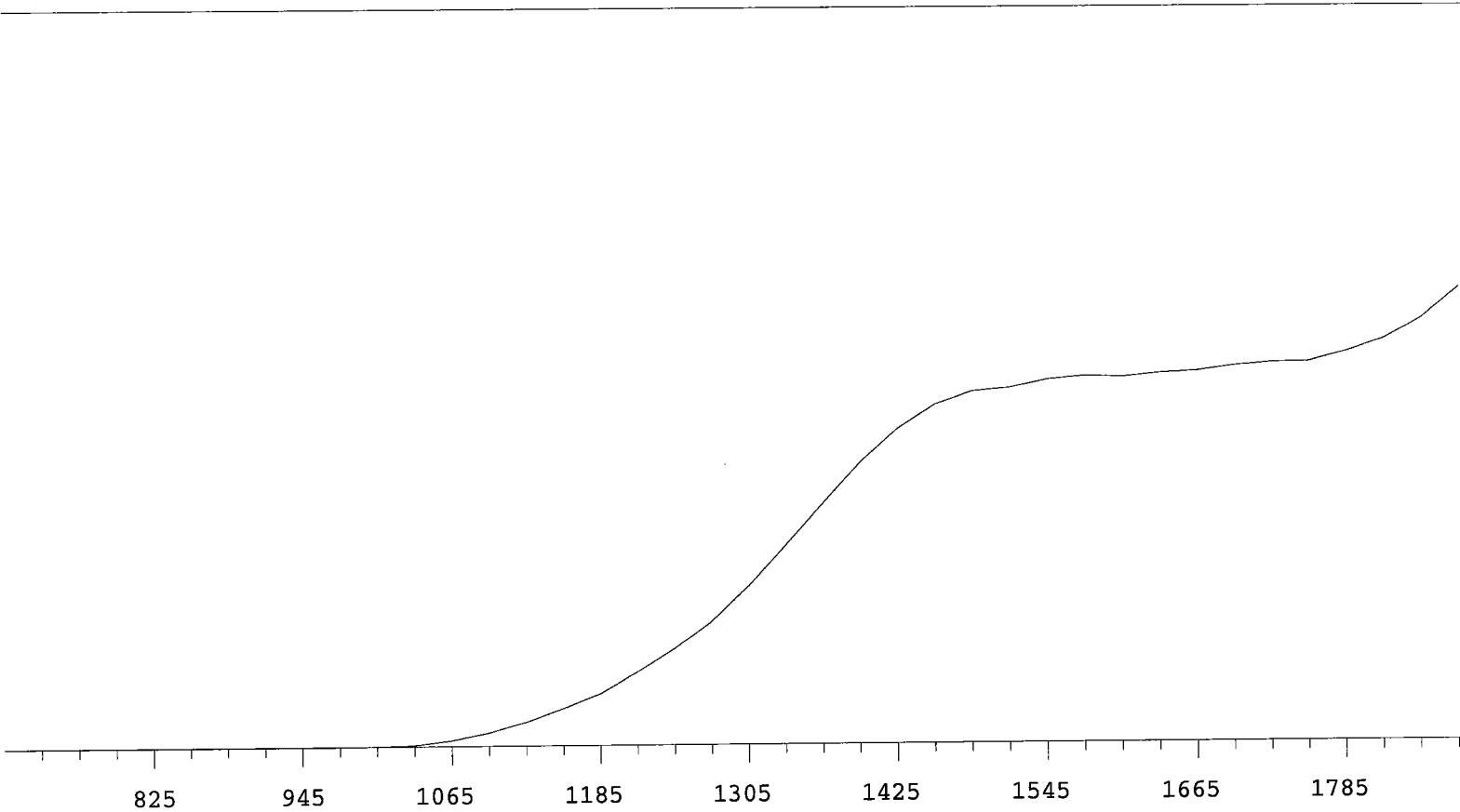
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|-------|--------|-------------|-------|--------|-------------|
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| 735 | 1 | | 1335 | 19739 | +60.77 |
| 765 | 1 | -18.52 | 1365 | 23317 | +49.57 |
| 795 | 2 | >100 | 1395 | 27238 | +38.47 |
| 825 | 2 | +76.92 | 1425 | 29745 | +26.87 |
| 855 | 6 | +0.00 | 1455 | 31733 | +16.81 |
| 885 | 2 | +0.00 | 1485 | 32738 | +10.51 |
| 915 | 2 | +0.00 | 1515 | 33561 | +5.83 |
| 945 | 4 | >100 | 1545 | 33929 | +3.90 |
| 975 | 5 | >100 | 1575 | 34042 | +2.13 |
| 1005 | 45 | >100 | 1605 | 34473 | +2.40 |
| 1035 | 260 | >100 | 1635 | 34376 | +2.14 |
| 1065 | 800 | >100 | 1665 | 34998 | +0.99 |
| 1095 | 1706 | >100 | 1695 | 34891 | +1.35 |
| 1125 | 2681 | >100 | 1725 | 34732 | +0.78 |
| 1155 | 4043 | >100 | 1755 | 35214 | +2.68 |
| 1185 | 5606 | +98.69 | 1785 | 35247 | +4.20 |
| 1215 | 7546 | +90.11 | 1815 | 36051 | +6.12 |
| 1245 | 9680 | +84.91 | 1845 | 36556 | |
| 1275 | 12706 | +78.21 | 1875 | 37879 | |

Yurkalo



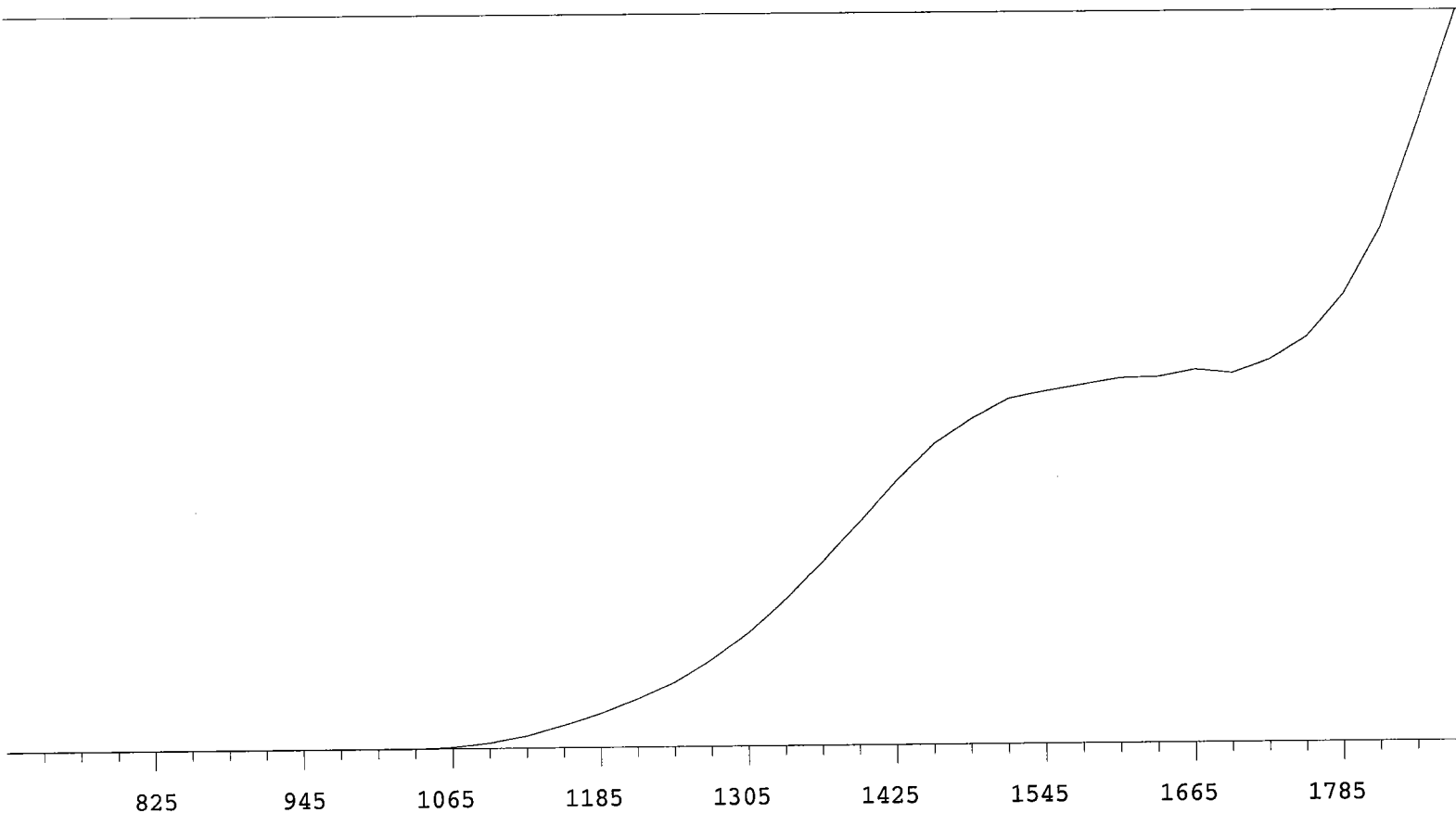
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| 735 | 2 | | 1335 | 19934 | +67.06 |
| 765 | 3 | +33.33 | 1365 | 24065 | +57.27 |
| 795 | 2 | -15.15 | 1395 | 28750 | +45.17 |
| 825 | 2 | -30.30 | 1425 | 32437 | +31.43 |
| 855 | 2 | +0.00 | 1455 | 34703 | +19.63 |
| 885 | 2 | +55.56 | 1485 | 35773 | +11.94 |
| 915 | 2 | +71.43 | 1515 | 37013 | +7.34 |
| 945 | 4 | >100 | 1545 | 37643 | +5.08 |
| 975 | 4 | >100 | 1575 | 37795 | +2.85 |
| 1005 | 7 | >100 | 1605 | 38223 | +2.11 |
| 1035 | 115 | >100 | 1635 | 38341 | +2.22 |
| 1065 | 458 | >100 | 1665 | 38578 | +1.47 |
| 1095 | 1190 | >100 | 1695 | 38896 | +2.28 |
| 1125 | 2315 | >100 | 1725 | 38794 | +3.94 |
| 1155 | 3550 | >100 | 1755 | 39562 | +5.68 |
| 1185 | 5136 | >100 | 1785 | 40569 | +9.25 |
| 1215 | 7197 | +97.45 | 1815 | 41402 | +11.70 |
| 1245 | 9511 | +89.47 | 1845 | 43531 | |
| 1275 | 12416 | +81.91 | 1875 | 45470 | |

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| VOLTS | COUNTS | %/100 Volts | VOLTS | COUNTS | %/100 Volts |
|-------|--------|-------------|-------|--------|-------------|
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| 735 | 0 | | 1335 | 20402 | +66.21 |
| 765 | 0 | | 1365 | 24668 | +55.06 |
| 795 | 1 | >100 | 1395 | 28808 | +42.90 |
| 825 | 0 | >100 | 1425 | 32235 | +30.71 |
| 855 | 2 | +95.24 | 1455 | 34745 | +19.08 |
| 885 | 2 | >100 | 1485 | 36123 | +11.26 |
| 915 | 2 | +64.10 | 1515 | 36502 | +6.50 |
| 945 | 3 | >100 | 1545 | 37333 | +3.68 |
| 975 | 4 | >100 | 1575 | 37699 | +2.82 |
| 1005 | 17 | >100 | 1605 | 37570 | +1.69 |
| 1035 | 154 | >100 | 1635 | 37966 | +2.25 |
| 1065 | 602 | >100 | 1665 | 38158 | +3.13 |
| 1095 | 1390 | >100 | 1695 | 38687 | +2.67 |
| 1125 | 2520 | >100 | 1725 | 39009 | +3.61 |
| 1155 | 3909 | >100 | 1755 | 39083 | +5.36 |
| 1185 | 5395 | >100 | 1785 | 40069 | +9.12 |
| 1215 | 7579 | +92.75 | 1815 | 41344 | +14.50 |
| 1245 | 9892 | +86.09 | 1845 | 43429 | |
| 1275 | 12623 | +79.89 | 1875 | 46557 | |

perkins



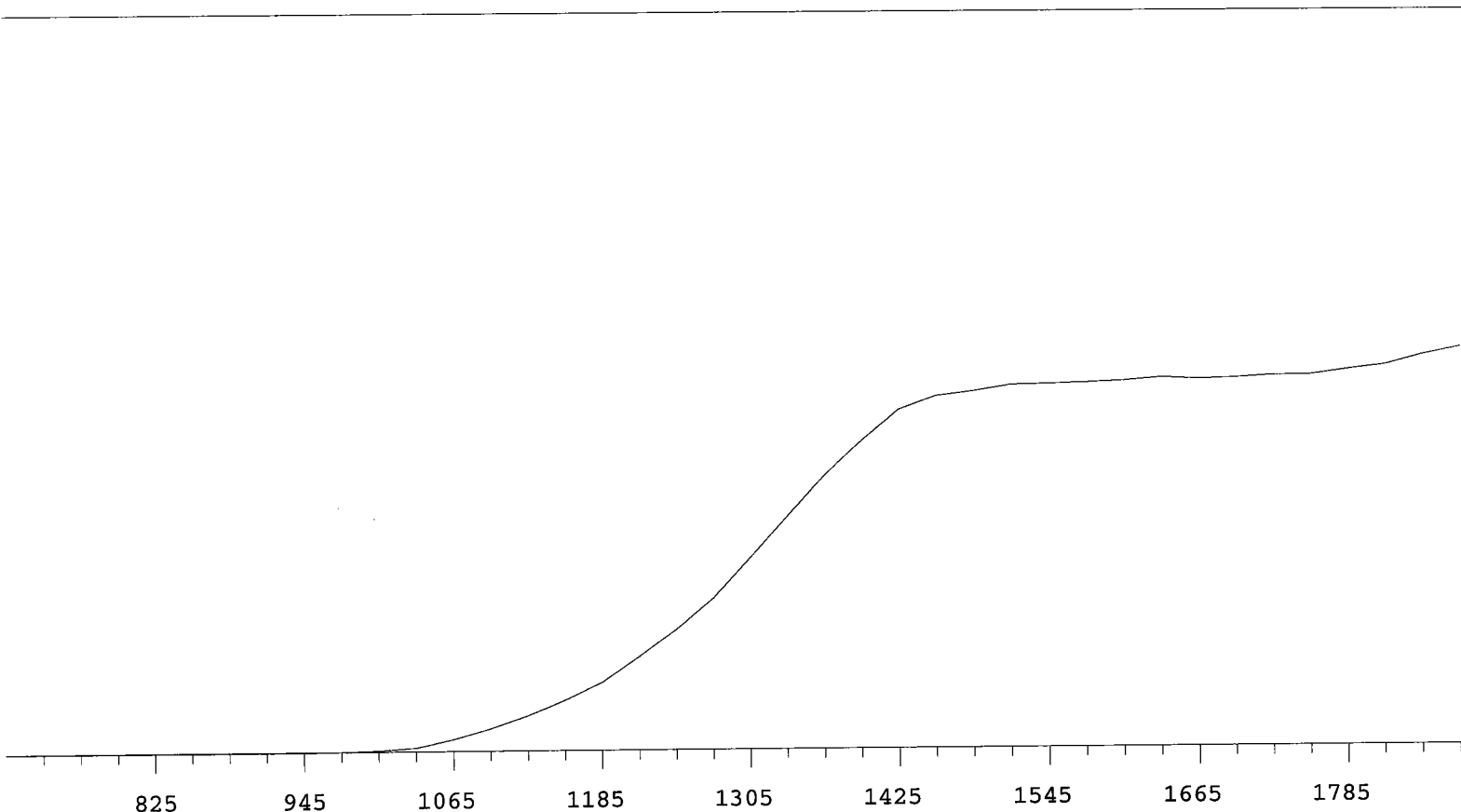
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| 735 | 1 | |
| 765 | 2 | +0.00 |
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| 825 | 0 | >100 |
| 855 | 1 | +0.00 |
| 885 | 0 | +0.00 |
| 915 | 1 | +83.33 |
| 945 | 0 | >100 |
| 975 | 2 | >100 |
| 1005 | 1 | >100 |
| 1035 | 13 | >100 |
| 1065 | 134 | >100 |
| 1095 | 511 | >100 |
| 1125 | 1129 | >100 |
| 1155 | 2134 | >100 |
| 1185 | 3197 | >100 |
| 1215 | 4542 | >100 |
| 1245 | 6086 | +97.20 |
| 1275 | 8291 | +90.92 |

| VOLTS | COUNTS | %/100 Volts |
|-------|--------|-------------|
| 1305 | 10971 | +84.34 |
| 1335 | 14097 | +75.14 |
| 1365 | 17622 | +66.59 |
| 1395 | 21247 | +57.12 |
| 1425 | 25202 | +45.74 |
| 1455 | 28604 | +34.50 |
| 1485 | 30899 | +22.78 |
| 1515 | 32756 | +13.99 |
| 1545 | 33437 | +8.81 |
| 1575 | 34038 | +5.07 |
| 1605 | 34638 | +4.42 |
| 1635 | 34735 | +2.60 |
| 1665 | 35372 | +3.37 |
| 1695 | 35026 | +7.70 |
| 1725 | 36274 | +15.84 |
| 1755 | 38436 | +28.19 |
| 1785 | 42586 | +41.27 |
| 1815 | 48885 | +52.29 |
| 1845 | 58919 | |
| 1875 | 71030 | |

Y 7/25/05

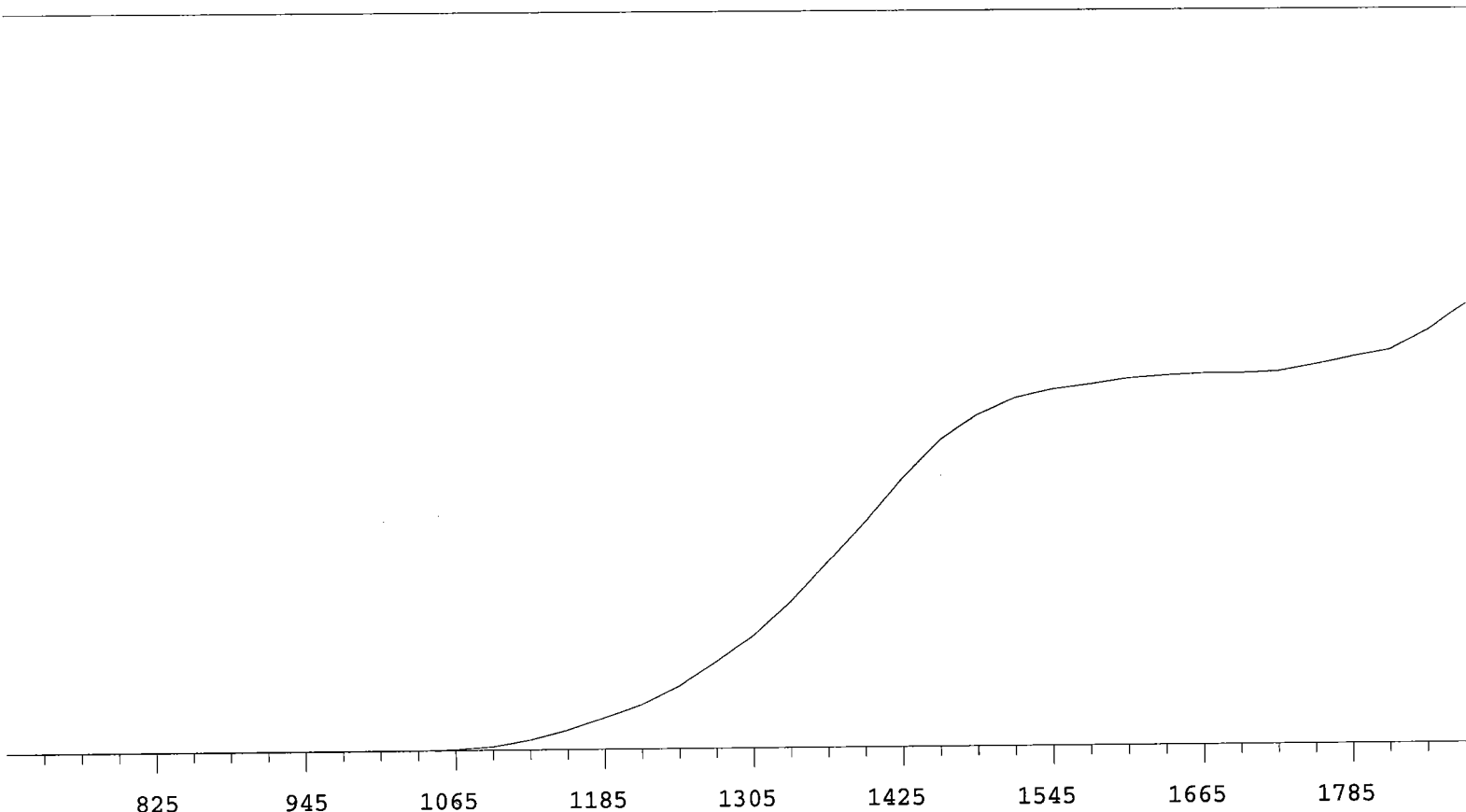
Alpha Volts: 705

Beta Volts: 1575



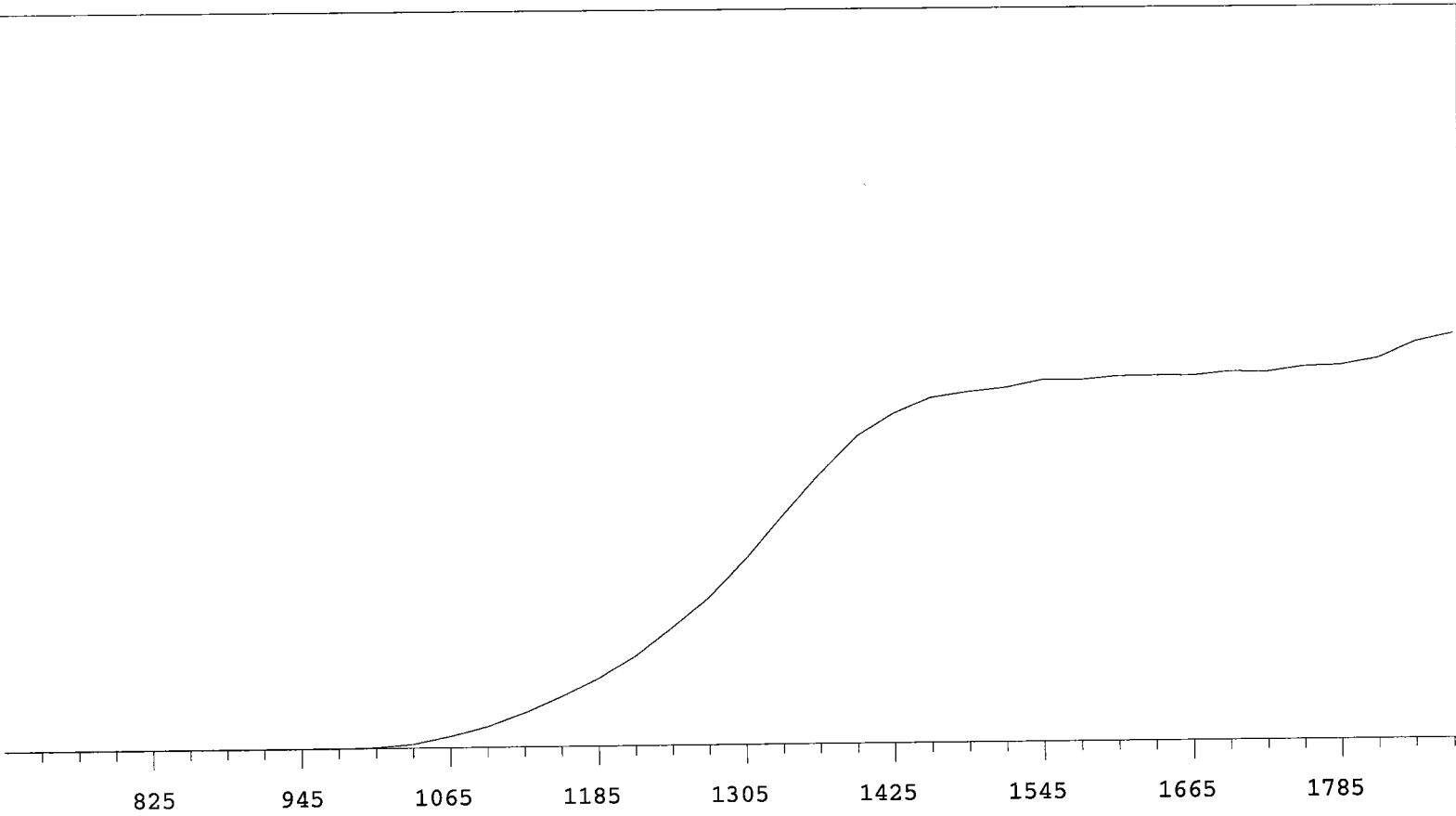
| VOLTS | COUNTS | %/100 Volts | VOLTS | COUNTS | %/100 Volts |
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| 735 | 0 | | 1335 | 27016 | +56.65 |
| 765 | 0 | | 1365 | 31730 | +46.09 |
| 795 | 0 | >100 | 1395 | 35861 | +34.20 |
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| 855 | 0 | >100 | 1455 | 41096 | +12.55 |
| 885 | 4 | +33.33 | 1485 | 41618 | +5.70 |
| 915 | 1 | >100 | 1515 | 42360 | +2.97 |
| 945 | 0 | >100 | 1545 | 42428 | +1.93 |
| 975 | 25 | >100 | 1575 | 42562 | +1.42 |
| 1005 | 123 | >100 | 1605 | 42743 | +1.15 |
| 1035 | 462 | >100 | 1635 | 43108 | +0.84 |
| 1065 | 1382 | >100 | 1665 | 42891 | +0.79 |
| 1095 | 2620 | >100 | 1695 | 43031 | +0.67 |
| 1125 | 4094 | >100 | 1725 | 43288 | +1.82 |
| 1155 | 5833 | >100 | 1755 | 43345 | +2.62 |
| 1185 | 7915 | +97.20 | 1785 | 43916 | +4.27 |
| 1215 | 10844 | +88.32 | 1815 | 44430 | +5.91 |
| 1245 | 14050 | +81.59 | 1845 | 45569 | |
| 1275 | 17692 | +73.63 | 1875 | 46488 | |

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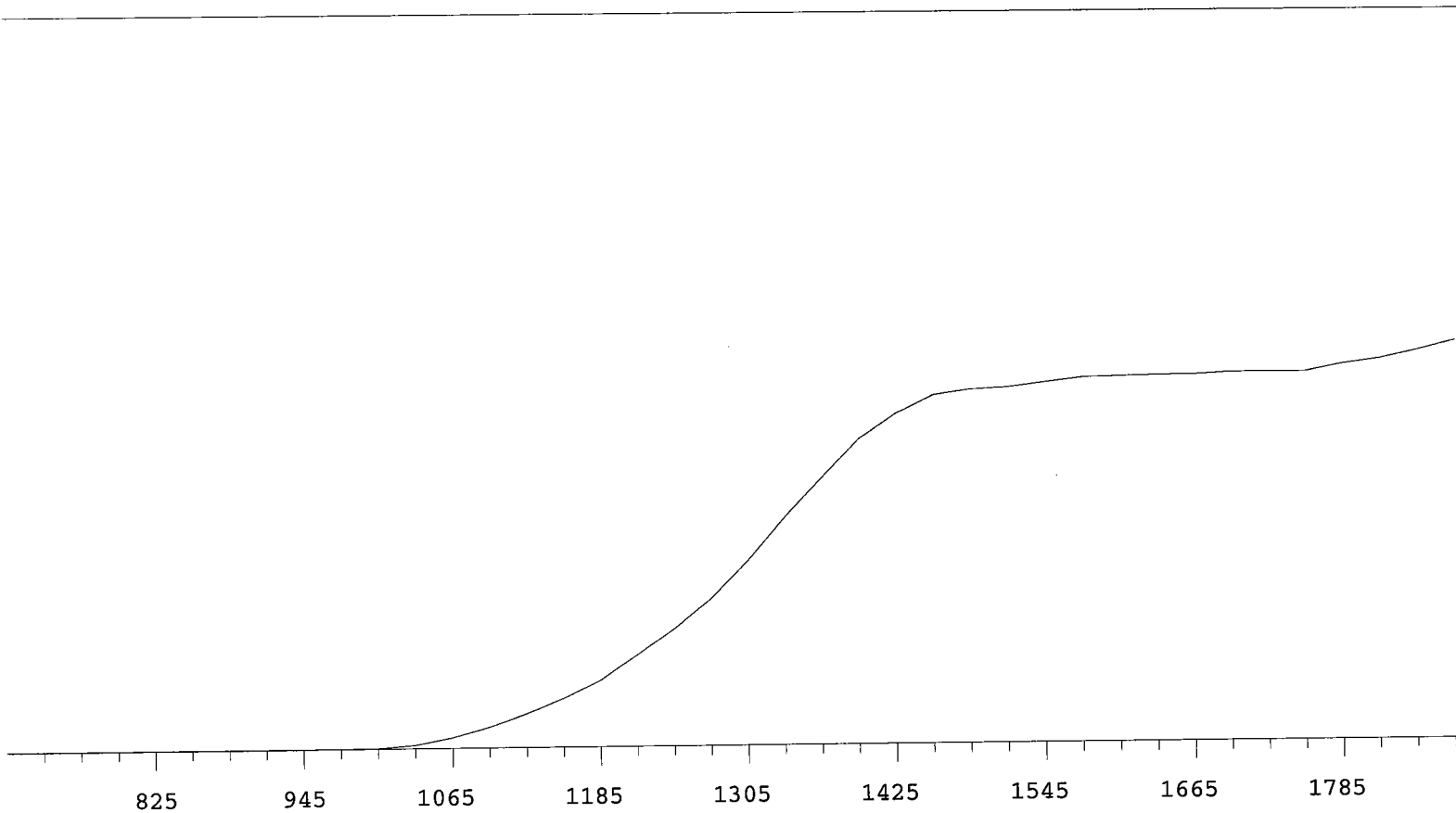
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| 795 | 1 | -27.78 | 1395 | 22846 | +58.63 |
| 825 | 1 | +0.00 | 1425 | 27157 | +46.27 |
| 855 | 1 | >100 | 1455 | 30851 | +34.04 |
| 885 | 2 | +74.07 | 1485 | 33326 | +22.12 |
| 915 | 3 | +0.00 | 1515 | 34995 | +13.15 |
| 945 | 2 | +51.28 | 1545 | 35846 | +7.97 |
| 975 | 1 | >100 | 1575 | 36351 | +4.94 |
| 1005 | 5 | >100 | 1605 | 36888 | +3.44 |
| 1035 | 11 | >100 | 1635 | 37159 | +2.18 |
| 1065 | 76 | >100 | 1665 | 37334 | +1.21 |
| 1095 | 354 | >100 | 1695 | 37337 | +1.96 |
| 1125 | 989 | >100 | 1725 | 37477 | +3.64 |
| 1155 | 1937 | >100 | 1755 | 38192 | +5.29 |
| 1185 | 3197 | >100 | 1785 | 38972 | +8.13 |
| 1215 | 4514 | >100 | 1815 | 39629 | +11.94 |
| 1245 | 6395 | >100 | 1845 | 41535 | |
| 1275 | 8812 | +93.25 | 1875 | 44161 | |

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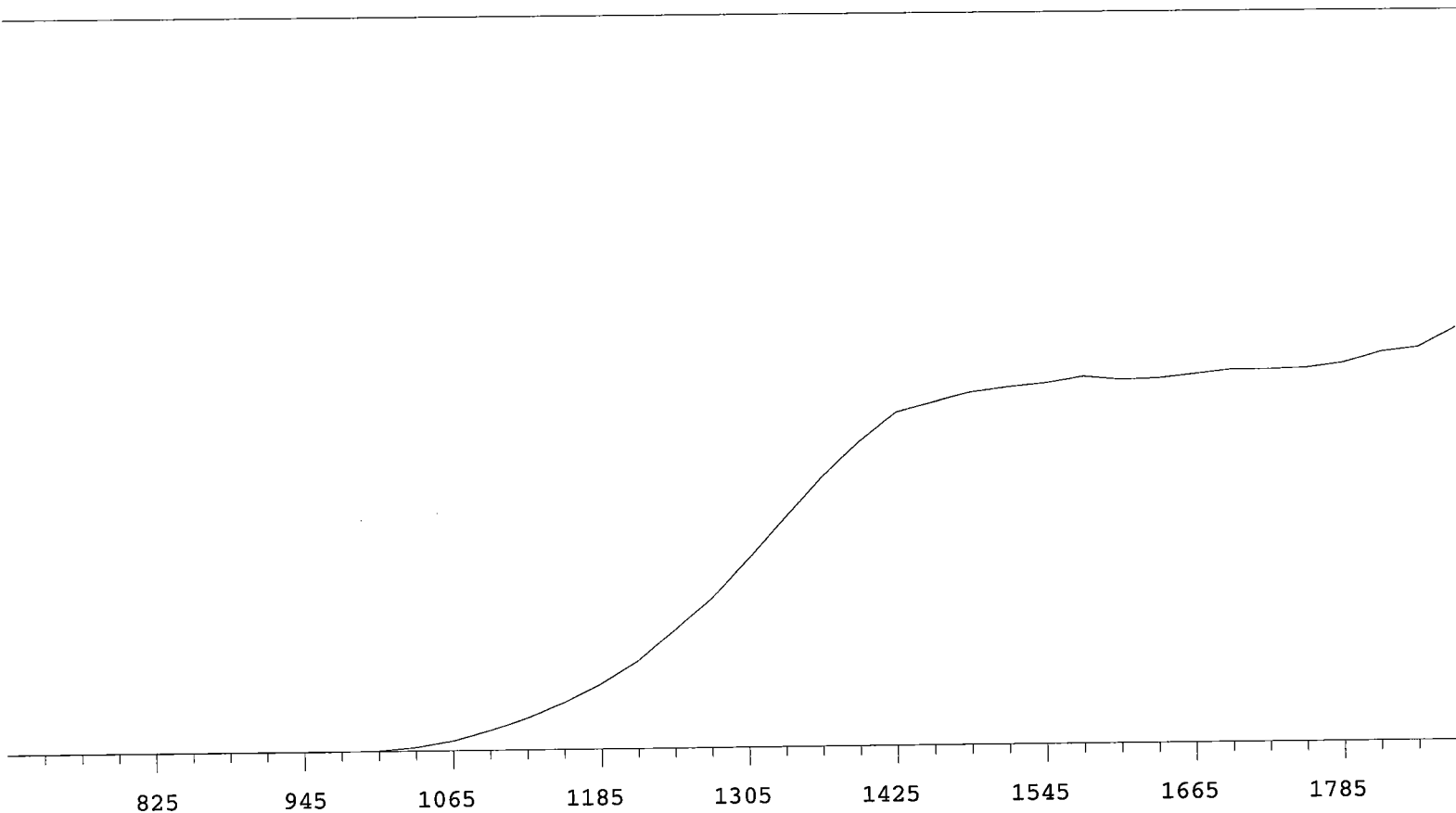
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| 735 | 6 | | 1335 | 20077 | +59.09 |
| 765 | 3 | -20.83 | 1365 | 23789 | +46.51 |
| 795 | 2 | -58.82 | 1395 | 27076 | +33.20 |
| 825 | 3 | -41.67 | 1425 | 29091 | +20.71 |
| 855 | 3 | -66.67 | 1455 | 30421 | +11.33 |
| 885 | 1 | -30.30 | 1485 | 30894 | +6.95 |
| 915 | 1 | >100 | 1515 | 31231 | +4.14 |
| 945 | 3 | >100 | 1545 | 31889 | +3.39 |
| 975 | 9 | >100 | 1575 | 31864 | +2.37 |
| 1005 | 87 | >100 | 1605 | 32186 | +0.96 |
| 1035 | 349 | >100 | 1635 | 32217 | +1.30 |
| 1065 | 1009 | >100 | 1665 | 32174 | +0.81 |
| 1095 | 1793 | >100 | 1695 | 32499 | +1.72 |
| 1125 | 2982 | >100 | 1725 | 32437 | +2.17 |
| 1155 | 4367 | >100 | 1755 | 32922 | +2.82 |
| 1185 | 5942 | +97.04 | 1785 | 33023 | +5.92 |
| 1215 | 7886 | +87.16 | 1815 | 33599 | +7.59 |
| 1245 | 10422 | +80.66 | 1845 | 35066 | |
| 1275 | 13013 | +74.57 | 1875 | 35778 | |

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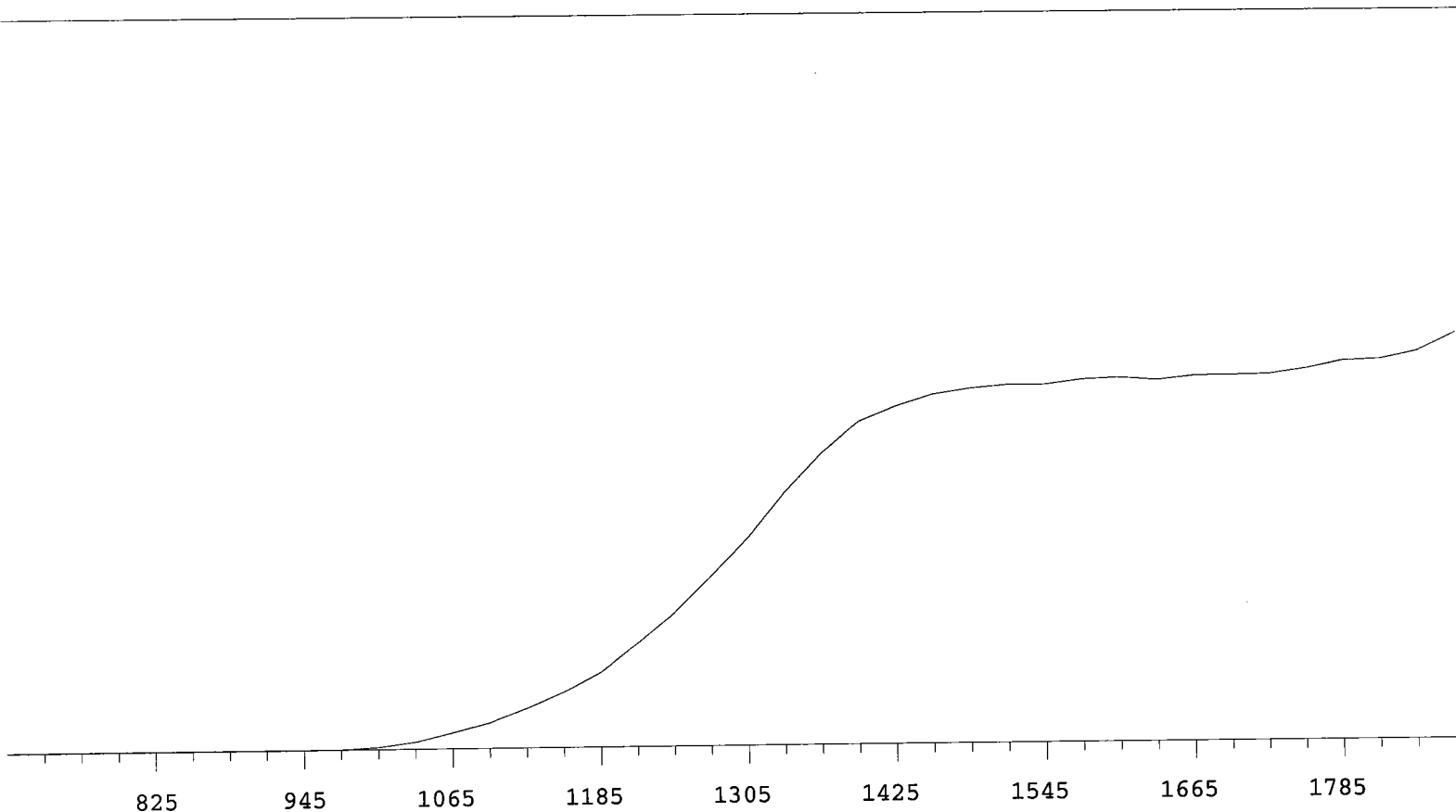
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| 765 | 3 | -55.56 | 1365 | 32713 | +46.35 |
| 795 | 0 | -23.81 | 1395 | 37461 | +34.14 |
| 825 | 2 | >100 | 1425 | 40450 | +22.38 |
| 855 | 1 | >100 | 1455 | 42675 | +12.11 |
| 885 | 0 | +66.67 | 1485 | 43308 | +6.46 |
| 915 | 5 | >100 | 1515 | 43568 | +3.76 |
| 945 | 2 | >100 | 1545 | 44157 | +3.14 |
| 975 | 19 | >100 | 1575 | 44714 | +2.51 |
| 1005 | 86 | >100 | 1605 | 44814 | +1.32 |
| 1035 | 451 | >100 | 1635 | 44910 | +0.82 |
| 1065 | 1295 | >100 | 1665 | 44945 | +0.82 |
| 1095 | 2525 | >100 | 1695 | 45204 | +0.66 |
| 1125 | 4114 | >100 | 1725 | 45222 | +1.70 |
| 1155 | 5953 | >100 | 1755 | 45215 | +2.80 |
| 1185 | 8113 | +98.45 | 1785 | 46095 | +4.67 |
| 1215 | 11136 | +88.70 | 1815 | 46688 | +6.29 |
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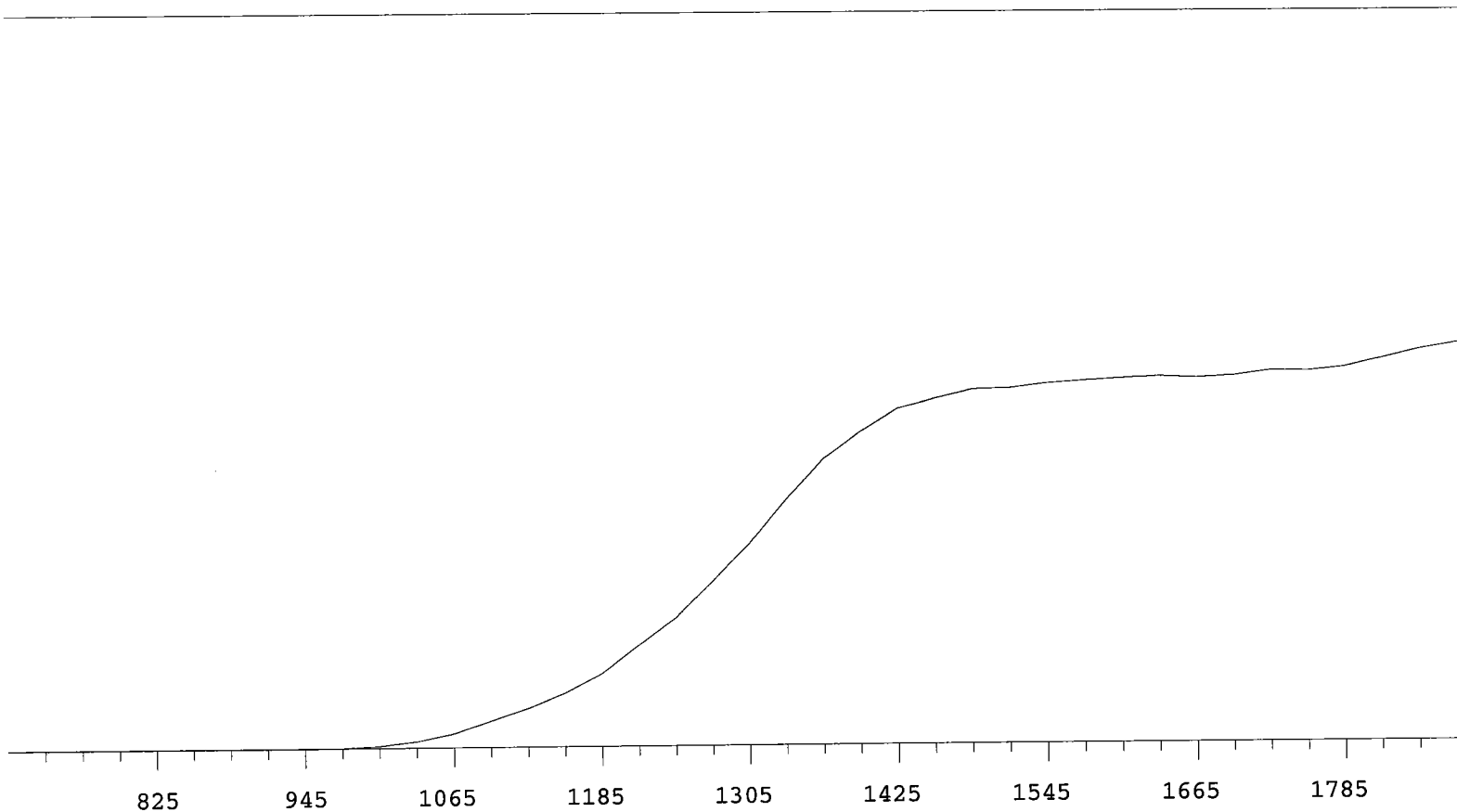
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| 735 | 4 | | 1335 | 24246 | +57.28 |
| 765 | 0 | | 1365 | 28539 | +46.21 |
| 795 | 0 | +18.52 | 1395 | 32266 | +33.26 |
| 825 | 1 | >100 | 1425 | 35414 | +21.60 |
| 855 | 4 | +100.00 | 1455 | 36466 | +12.52 |
| 885 | 3 | -30.30 | 1485 | 37462 | +6.66 |
| 915 | 2 | +20.83 | 1515 | 37985 | +5.29 |
| 945 | 1 | >100 | 1545 | 38363 | +3.02 |
| 975 | 6 | >100 | 1575 | 39020 | +1.64 |
| 1005 | 71 | >100 | 1605 | 38677 | +1.19 |
| 1035 | 402 | >100 | 1635 | 38778 | +1.48 |
| 1065 | 1048 | >100 | 1665 | 39179 | +2.33 |
| 1095 | 2130 | >100 | 1695 | 39636 | +2.03 |
| 1125 | 3384 | >100 | 1725 | 39616 | +1.90 |
| 1155 | 4976 | >100 | 1755 | 39758 | +3.40 |
| 1185 | 6855 | >100 | 1785 | 40252 | +4.91 |
| 1215 | 9208 | +92.12 | 1815 | 41367 | +7.87 |
| 1245 | 12454 | +85.04 | 1845 | 41801 | |
| 1275 | 15798 | +76.70 | 1875 | 43872 | |

msk



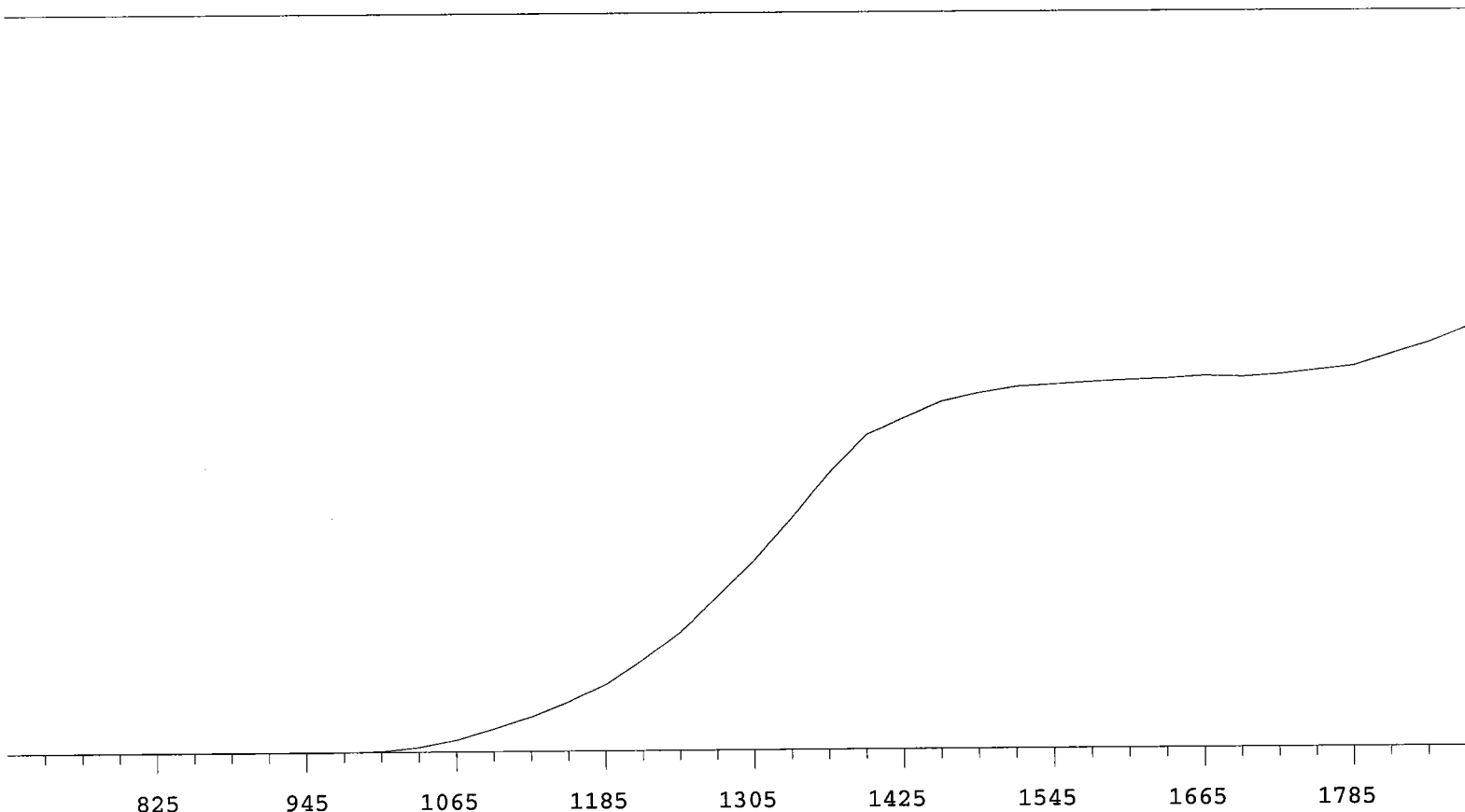
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| 735 | 0 | | 1335 | 21059 | +51.03 |
| 765 | 1 | | 1365 | 24146 | +38.17 |
| 795 | 2 | >100 | 1395 | 26716 | +25.34 |
| 825 | 3 | +0.00 | 1425 | 27972 | +15.55 |
| 855 | 2 | -33.33 | 1455 | 28941 | +8.73 |
| 885 | 1 | -33.33 | 1485 | 29433 | +4.91 |
| 915 | 2 | >100 | 1515 | 29724 | +2.97 |
| 945 | 2 | >100 | 1545 | 29727 | +2.22 |
| 975 | 23 | >100 | 1575 | 30112 | +1.21 |
| 1005 | 188 | >100 | 1605 | 30235 | +1.21 |
| 1035 | 628 | >100 | 1635 | 30012 | +0.64 |
| 1065 | 1402 | >100 | 1665 | 30324 | +0.75 |
| 1095 | 2202 | >100 | 1695 | 30358 | +1.95 |
| 1125 | 3405 | >100 | 1725 | 30404 | +3.02 |
| 1155 | 4734 | >100 | 1755 | 30862 | +3.77 |
| 1185 | 6329 | +95.04 | 1785 | 31464 | +4.62 |
| 1215 | 8730 | +88.10 | 1815 | 31575 | +6.76 |
| 1245 | 11220 | +79.46 | 1845 | 32217 | |
| 1275 | 14252 | +70.70 | 1875 | 33728 | |

mshab



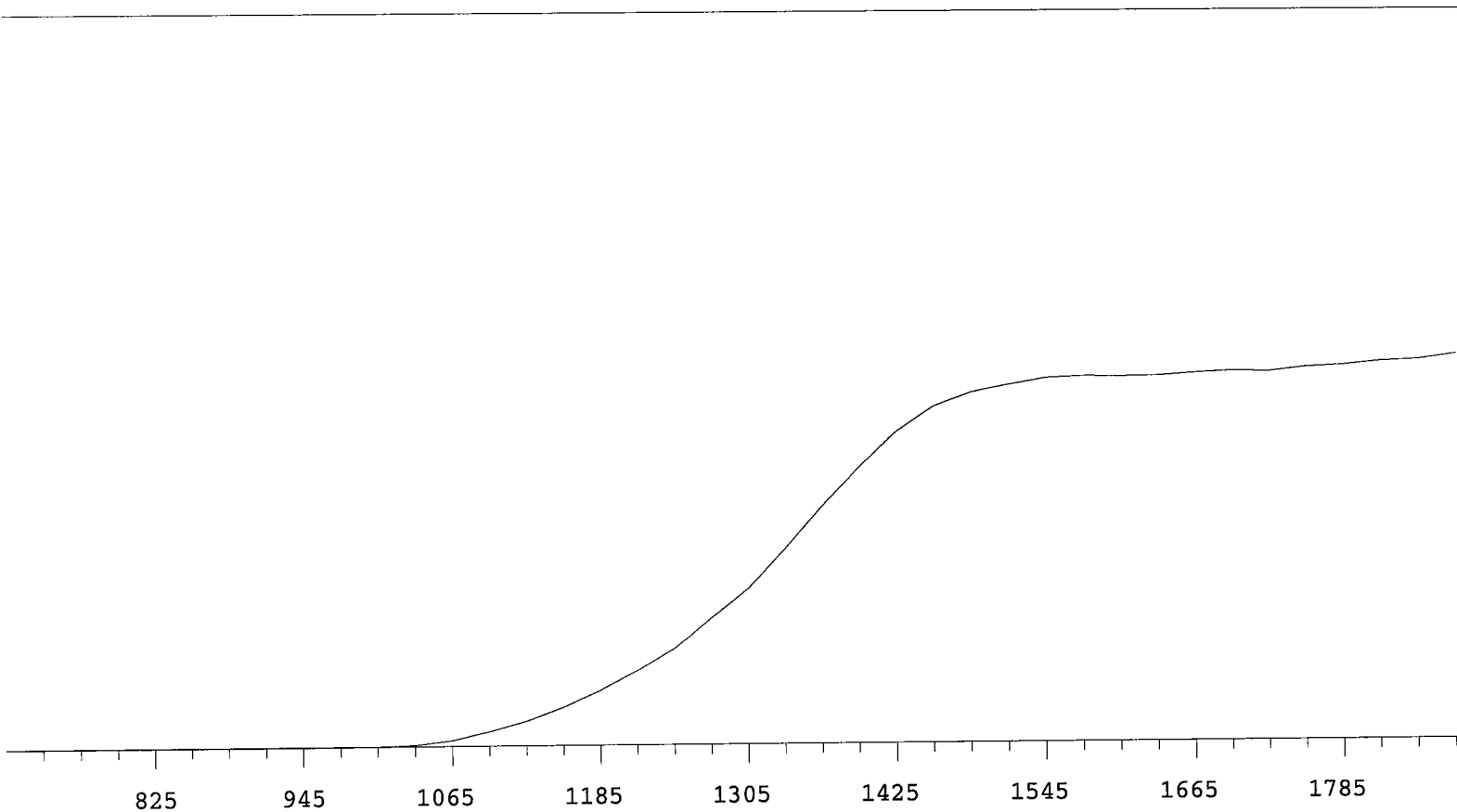
| VOLTS | COUNTS | %/100 Volts | VOLTS | COUNTS | %/100 Volts |
|-------|--------|-------------|-------|--------|-------------|
| 705 | 0 | | 1305 | 19992 | +64.10 |
| 735 | 1 | | 1335 | 24434 | +52.32 |
| 765 | 2 | -55.56 | 1365 | 28341 | +40.24 |
| 795 | 0 | -83.33 | 1395 | 31016 | +27.00 |
| 825 | 0 | >100 | 1425 | 33244 | +17.26 |
| 855 | 1 | >100 | 1455 | 34234 | +10.11 |
| 885 | 0 | >100 | 1485 | 35116 | +5.57 |
| 915 | 1 | >100 | 1515 | 35198 | +3.72 |
| 945 | 7 | >100 | 1545 | 35658 | +2.57 |
| 975 | 26 | >100 | 1575 | 35928 | +2.43 |
| 1005 | 201 | >100 | 1605 | 36121 | +1.20 |
| 1035 | 622 | >100 | 1635 | 36271 | +0.67 |
| 1065 | 1395 | >100 | 1665 | 36135 | +1.26 |
| 1095 | 2589 | >100 | 1695 | 36285 | +1.47 |
| 1125 | 3807 | >100 | 1725 | 36799 | +2.20 |
| 1155 | 5311 | >100 | 1755 | 36745 | +3.29 |
| 1185 | 7258 | +96.60 | 1785 | 37112 | +4.71 |
| 1215 | 10100 | +88.77 | 1815 | 37953 | +6.34 |
| 1245 | 12793 | +79.49 | 1845 | 38842 | |
| 1275 | 16338 | +71.46 | 1875 | 39499 | |

Jan 12 2006



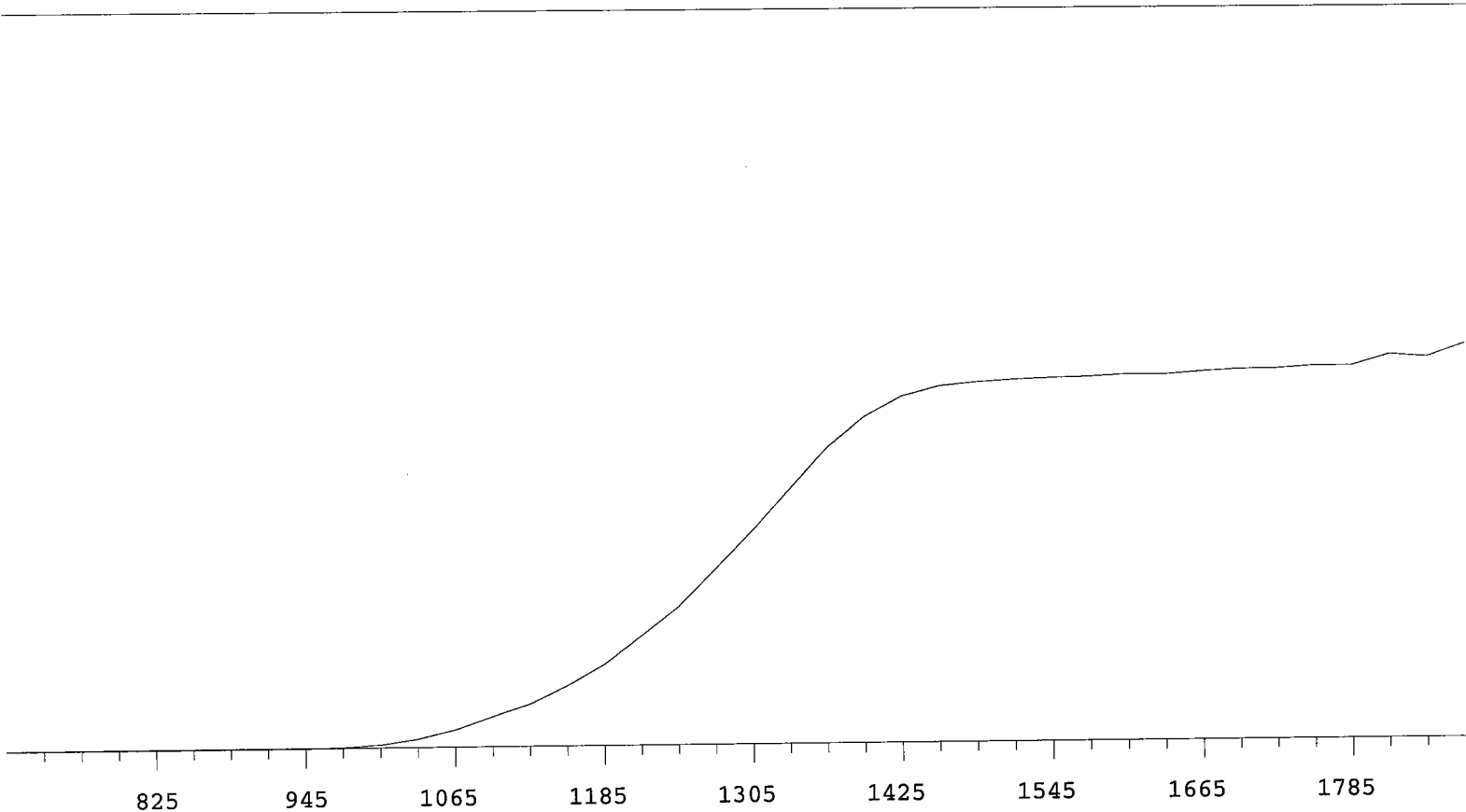
| VOLTS | COUNTS | %/100 Volts | VOLTS | COUNTS | %/100 Volts |
|-------|--------|-------------|-------|--------|-------------|
| 705 | 3 | | 1305 | 20823 | +66.52 |
| 735 | 0 | | 1335 | 25209 | +57.37 |
| 765 | 0 | -27.78 | 1365 | 30058 | +44.75 |
| 795 | 1 | >100 | 1395 | 34207 | +31.58 |
| 825 | 2 | +41.67 | 1425 | 35961 | +19.48 |
| 855 | 0 | +27.78 | 1455 | 37712 | +11.46 |
| 885 | 1 | +0.00 | 1485 | 38621 | +7.54 |
| 915 | 2 | >100 | 1515 | 39266 | +4.27 |
| 945 | 1 | >100 | 1545 | 39505 | +2.69 |
| 975 | 12 | >100 | 1575 | 39765 | +1.77 |
| 1005 | 101 | >100 | 1605 | 39960 | +1.71 |
| 1035 | 505 | >100 | 1635 | 40095 | +1.10 |
| 1065 | 1271 | >100 | 1665 | 40363 | +0.99 |
| 1095 | 2435 | >100 | 1695 | 40227 | +1.48 |
| 1125 | 3717 | >100 | 1725 | 40494 | +2.25 |
| 1155 | 5349 | >100 | 1755 | 40925 | +4.61 |
| 1185 | 7264 | +98.50 | 1785 | 41387 | +6.78 |
| 1215 | 9948 | +91.79 | 1815 | 42624 | +9.20 |
| 1245 | 13035 | +83.57 | 1845 | 43902 | |
| 1275 | 16927 | +74.29 | 1875 | 45583 | |

m7/25/05



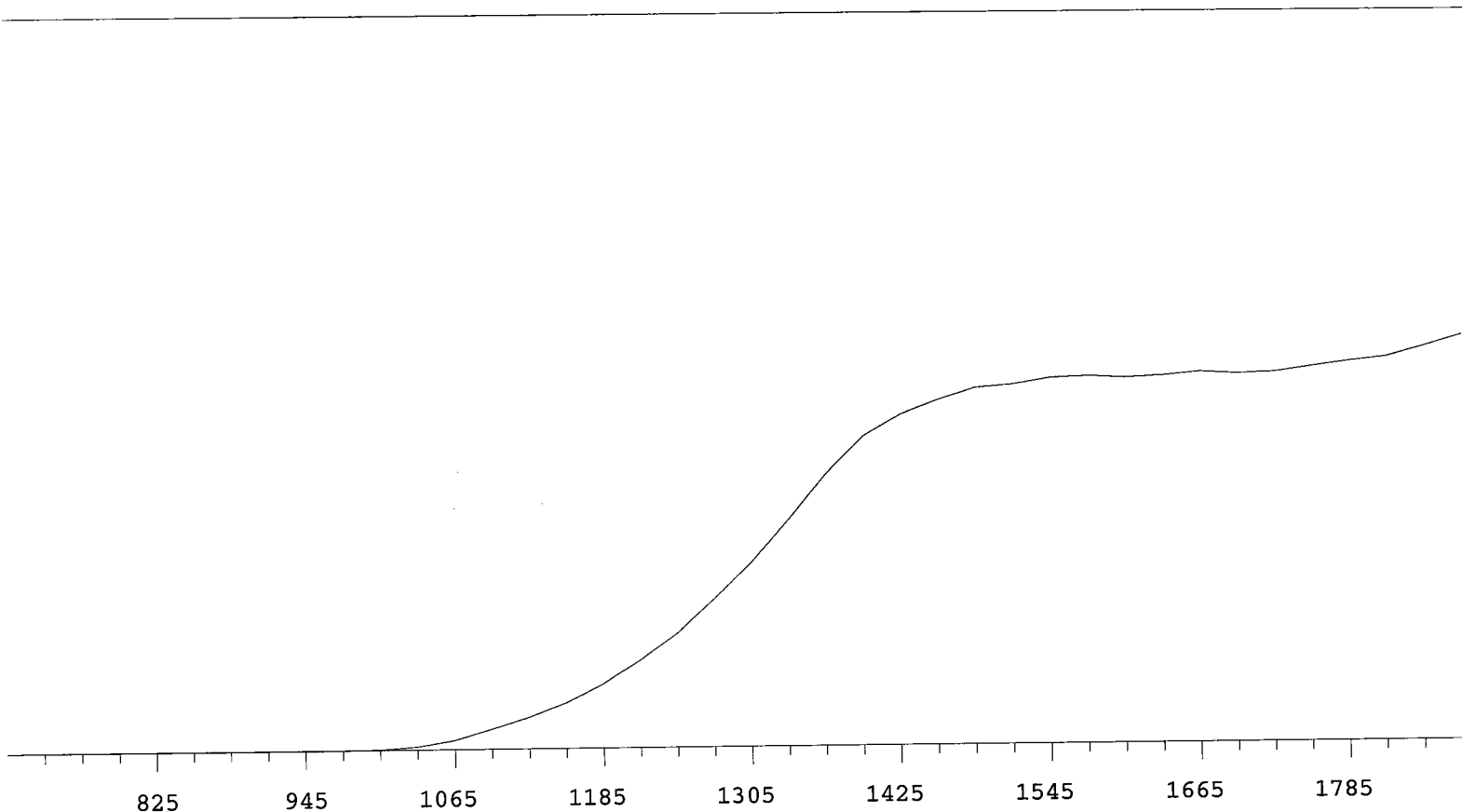
| VOLTS | COUNTS | %/100 Volts | VOLTS | COUNTS | %/100 Volts |
|-------|--------|-------------|-------|--------|-------------|
| 705 | 2 | | 1305 | 18669 | +72.76 |
| 735 | 0 | | 1335 | 23370 | +64.55 |
| 765 | 0 | +66.67 | 1365 | 28550 | +55.91 |
| 795 | 0 | >100 | 1395 | 33260 | +43.78 |
| 825 | 3 | +83.33 | 1425 | 37418 | +31.11 |
| 855 | 0 | -83.33 | 1455 | 40334 | +20.16 |
| 885 | 1 | >100 | 1485 | 41951 | +12.02 |
| 915 | 0 | >100 | 1515 | 42838 | +6.74 |
| 945 | 1 | >100 | 1545 | 43602 | +3.50 |
| 975 | 3 | >100 | 1575 | 43809 | +1.61 |
| 1005 | 34 | >100 | 1605 | 43735 | +0.82 |
| 1035 | 190 | >100 | 1635 | 43823 | +1.13 |
| 1065 | 725 | >100 | 1665 | 44134 | +1.17 |
| 1095 | 1724 | >100 | 1695 | 44358 | +1.41 |
| 1125 | 2937 | >100 | 1725 | 44239 | +1.42 |
| 1155 | 4543 | >100 | 1755 | 44705 | +1.95 |
| 1185 | 6429 | >100 | 1785 | 44909 | +2.35 |
| 1215 | 8789 | +94.33 | 1815 | 45328 | +2.52 |
| 1245 | 11443 | +85.00 | 1845 | 45509 | |
| 1275 | 15155 | +78.33 | 1875 | 46116 | |

msh



| VOLTS | COUNTS | %/100 Volts | VOLTS | COUNTS | %/100 Volts |
|-------|--------|-------------|-------|--------|-------------|
| 705 | 3 | | 1305 | 17564 | +61.34 |
| 735 | 2 | | 1335 | 20983 | +50.92 |
| 765 | 1 | -66.67 | 1365 | 24340 | +39.30 |
| 795 | 4 | +45.45 | 1395 | 26885 | +26.88 |
| 825 | 0 | +30.30 | 1425 | 28563 | +15.81 |
| 855 | 4 | +0.00 | 1455 | 29365 | +8.25 |
| 885 | 2 | >100 | 1485 | 29683 | +3.89 |
| 915 | 3 | >100 | 1515 | 29898 | +2.00 |
| 945 | 6 | >100 | 1545 | 30019 | +1.51 |
| 975 | 42 | >100 | 1575 | 30093 | +1.01 |
| 1005 | 244 | >100 | 1605 | 30263 | +1.18 |
| 1035 | 697 | >100 | 1635 | 30232 | +1.46 |
| 1065 | 1429 | >100 | 1665 | 30485 | +1.36 |
| 1095 | 2487 | >100 | 1695 | 30648 | +1.63 |
| 1125 | 3483 | >100 | 1725 | 30678 | +1.10 |
| 1155 | 4980 | >100 | 1755 | 30883 | +2.70 |
| 1185 | 6683 | +92.69 | 1785 | 30876 | +2.89 |
| 1215 | 8988 | +84.24 | 1815 | 31805 | +4.51 |
| 1245 | 11345 | +76.74 | 1845 | 31569 | |
| 1275 | 14366 | +68.74 | 1875 | 32673 | |

Handwritten signature



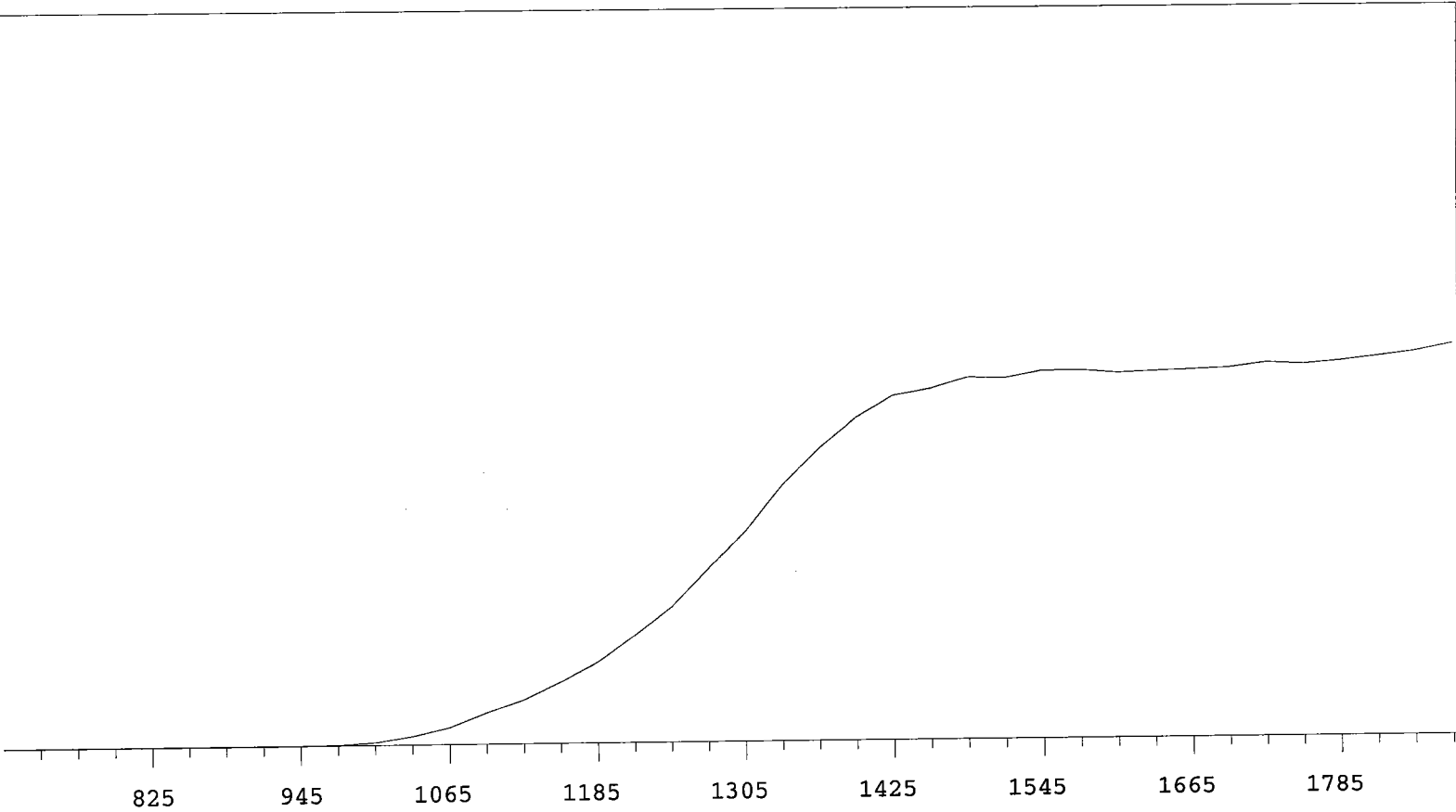
| VOLTS | COUNTS | %/100 Volts | VOLTS | COUNTS | %/100 Volts |
|-------|--------|-------------|-------|--------|-------------|
| 705 | 1 | | 1305 | 17606 | +68.88 |
| 735 | 0 | | 1335 | 21599 | +59.41 |
| 765 | 0 | | 1365 | 25809 | +47.05 |
| 795 | 0 | >100 | 1395 | 29372 | +33.37 |
| 825 | 2 | >100 | 1425 | 31486 | +21.76 |
| 855 | 0 | +100.00 | 1455 | 32894 | +12.91 |
| 885 | 1 | >100 | 1485 | 34077 | +8.33 |
| 915 | 2 | >100 | 1515 | 34357 | +5.14 |
| 945 | 4 | >100 | 1545 | 34948 | +2.35 |
| 975 | 10 | >100 | 1575 | 35100 | +1.39 |
| 1005 | 53 | >100 | 1605 | 34930 | +0.94 |
| 1035 | 327 | >100 | 1635 | 35093 | +0.78 |
| 1065 | 902 | >100 | 1665 | 35444 | +1.03 |
| 1095 | 1970 | >100 | 1695 | 35257 | +1.49 |
| 1125 | 3079 | >100 | 1725 | 35393 | +2.34 |
| 1155 | 4435 | >100 | 1755 | 35908 | +3.77 |
| 1185 | 6202 | +99.16 | 1785 | 36373 | +5.15 |
| 1215 | 8385 | +91.20 | 1815 | 36800 | +6.47 |
| 1245 | 10930 | +83.12 | 1845 | 37764 | |
| 1275 | 14132 | +75.94 | 1875 | 38815 | |

Handwritten signature/initials

Plateau 07/18/05
Alpha Volts: 705

Instrument 4 MPC 9604 Detector D
Beta Volts: 1575

7/18/2005



| VOLTS | COUNTS | %/100 Volts | VOLTS | COUNTS | %/100 Volts |
|-------|--------|-------------|-------|--------|-------------|
| 705 | 4 | | 1305 | 21893 | +61.23 |
| 735 | 3 | | 1335 | 26615 | +50.22 |
| 765 | 1 | | 1365 | 30345 | +39.18 |
| 795 | 1 | >100 | 1395 | 33570 | +25.90 |
| 825 | 0 | >100 | 1425 | 35845 | +16.79 |
| 855 | 1 | >100 | 1455 | 36520 | +8.95 |
| 885 | 5 | >100 | 1485 | 37628 | +5.26 |
| 915 | 3 | >100 | 1515 | 37539 | +3.72 |
| 945 | 14 | >100 | 1545 | 38268 | +1.30 |
| 975 | 77 | >100 | 1575 | 38301 | +0.80 |
| 1005 | 298 | >100 | 1605 | 37985 | -0.13 |
| 1035 | 932 | >100 | 1635 | 38135 | +0.48 |
| 1065 | 1829 | >100 | 1665 | 38276 | +1.84 |
| 1095 | 3311 | >100 | 1695 | 38429 | +1.51 |
| 1125 | 4603 | >100 | 1725 | 38899 | +1.48 |
| 1155 | 6424 | +96.24 | 1755 | 38695 | +1.85 |
| 1185 | 8451 | +88.86 | 1785 | 39003 | +2.37 |
| 1215 | 11201 | +83.16 | 1815 | 39457 | +4.14 |
| 1245 | 14170 | +76.31 | 1845 | 39914 | |
| 1275 | 18128 | +69.83 | 1875 | 40696 | |

mu 9/29/05

Pb-210 WATER

Batch : CALVER

Analyst : JMJ

Date : 7/28/2005

Required MDA : 5.00 pCi/L

Bkg Count Time : 500 min

Procedure Code : GFC_PBL

Parname : Lead-210

Batch Counted On : PIC

Lead Carrier Weight : 14.65 mg/mL

| Sample ID | Sample Aliquot L | Sample Date/Time | Prep Date | Carrier Weight mg | Bi-210 Start Time | Bi-210 Ingrowth Factor | Detector Number# | Count Time min |
|-----------|------------------|------------------|-----------|-------------------|-------------------|------------------------|------------------|----------------|
| V1 | 1.000 | 7/14/2005 0:00 | 7/14/2005 | 1.30 | 7/14/2005 8:00 | 0.858 | 1A | 10 |
| V2 | 1.000 | 7/14/2005 0:00 | 7/14/2005 | 2.10 | 7/14/2005 8:00 | 0.858 | 1B | 10 |
| V3 | 1.000 | 7/14/2005 0:00 | 7/14/2005 | 3.60 | 7/14/2005 8:00 | 0.858 | 1C | 10 |
| V4 | 1.000 | 7/14/2005 0:00 | 7/14/2005 | 5.00 | 7/14/2005 8:00 | 0.858 | 1D | 10 |
| V5 | 1.000 | 7/14/2005 0:00 | 7/14/2005 | 7.00 | 7/14/2005 8:00 | 0.858 | 2A | 10 |
| V6 | 1.000 | 7/14/2005 0:00 | 7/14/2005 | 8.80 | 7/14/2005 8:00 | 0.858 | 2B | 10 |
| V7 | 1.000 | 7/14/2005 0:00 | 7/14/2005 | 11.70 | 7/14/2005 8:00 | 0.858 | 2C | 10 |
| V8 | 1.000 | 7/14/2005 0:00 | 7/14/2005 | 13.40 | 7/14/2005 8:00 | 0.858 | 2D | 10 |
| V9 | 1.000 | 7/14/2005 0:00 | 7/14/2005 | 12.90 | 7/14/2005 8:00 | 0.858 | 3A | 10 |
| V10 | 1.000 | 7/14/2005 0:00 | 7/14/2005 | 15.30 | 7/14/2005 8:00 | 0.858 | 3B | 10 |
| V11 | 1.000 | 7/14/2005 0:00 | 7/14/2005 | 15.70 | 7/14/2005 8:00 | 0.858 | 3C | 10 |
| V12 | 1.000 | 7/14/2005 0:00 | 7/14/2005 | 19.80 | 7/14/2005 8:00 | 0.858 | 3D | 10 |
| V1 | 1.000 | 7/14/2005 0:00 | 7/14/2005 | 1.30 | 7/14/2005 8:00 | 0.858 | 4A | 10 |
| V2 | 1.000 | 7/14/2005 0:00 | 7/14/2005 | 2.10 | 7/14/2005 8:00 | 0.858 | 4B | 10 |
| V3 | 1.000 | 7/14/2005 0:00 | 7/14/2005 | 3.60 | 7/14/2005 8:00 | 0.858 | 4C | 10 |
| V4 | 1.000 | 7/14/2005 0:00 | 7/14/2005 | 5.00 | 7/14/2005 8:00 | 0.858 | 4D | 10 |

Handwritten signature/initials

Pb-210 0.1 ML
 ET491-A 80900.6 DPM
 3644.17 pCi/L

| Total Beta Counts | Raw cpm | Detector Efficiency dec | BKG cpm | Counted Time | Sample Decay Factor | Test Rec. dec | Pb-210 MDA pCi/L | Pb-210 RESULT pCi/L | Pb-210 Recovery (%) |
|-------------------|---------|-------------------------|---------|-----------------|---------------------|---------------|------------------|---------------------|---------------------|
| 22806 | 2280.60 | 0.4191 | 0.362 | 7/28/2005 10:51 | 0.999 | 0.8874 | 1.636 | 3223.022 | 88.44% |
| 23555 | 2355.50 | 0.4061 | 0.296 | 7/28/2005 10:51 | 0.999 | 0.7167 | 1.937 | 4252.948 | 116.71% |
| 25567 | 2556.70 | 0.3977 | 0.36 | 7/28/2005 10:51 | 0.999 | 0.8191 | 1.864 | 4124.728 | 113.19% |
| 23587 | 2358.70 | 0.3846 | 0.338 | 7/28/2005 10:51 | 0.999 | 0.8532 | 1.806 | 3777.228 | 103.65% |
| 26230 | 2623.00 | 0.3682 | 0.348 | 7/28/2005 10:52 | 0.999 | 0.9556 | 1.703 | 3917.583 | 107.50% |
| 25997 | 2599.70 | 0.3528 | 0.386 | 7/28/2005 10:52 | 0.999 | 1.0011 | 1.766 | 3868.023 | 106.14% |
| 26435 | 2643.50 | 0.3237 | 0.42 | 7/28/2005 10:52 | 0.999 | 1.1409 | 1.745 | 3762.025 | 103.23% |
| 26101 | 2610.10 | 0.3139 | 0.414 | 7/28/2005 10:52 | 0.999 | 1.1433 | 1.786 | 3822.424 | 104.89% |
| 22288 | 2228.80 | 0.3046 | 0.32 | 7/28/2005 10:52 | 0.999 | 0.9784 | 1.948 | 3930.475 | 107.86% |
| 24112 | 2411.20 | 0.2889 | 0.366 | 7/28/2005 10:52 | 0.999 | 1.0444 | 2.025 | 4199.302 | 115.23% |
| 22831 | 2283.10 | 0.2864 | 0.402 | 7/28/2005 10:52 | 0.999 | 0.9742 | 2.271 | 4300.541 | 118.01% |
| 21369 | 2136.90 | 0.2483 | 0.384 | 7/28/2005 10:53 | 0.999 | 1.0396 | 2.411 | 4349.436 | 119.35% |
| 22530 | 2253.00 | 0.4156 | 0.334 | 7/28/2005 11:09 | 0.999 | 0.8874 | 1.600 | 3210.006 | 88.09% |
| 24318 | 2431.80 | 0.4129 | 0.32 | 7/28/2005 11:09 | 0.999 | 0.7167 | 1.961 | 4317.153 | 118.47% |
| 25689 | 2568.90 | 0.3967 | 0.35 | 7/28/2005 11:09 | 0.999 | 0.8191 | 1.848 | 4153.294 | 113.97% |
| 23412 | 2341.20 | 0.3802 | 0.394 | 7/28/2005 11:09 | 0.999 | 0.8532 | 1.937 | 3791.786 | 104.05% |

VERRAW.XLS

| INSTR_ID | SAMPLE_ID | CNT_TIME | A | B | TIME | USER2 |
|------------------|-----------|----------|-----|-------|-----------------|-------|
| Instrument 1 - A | 1 | 10 | 112 | 22806 | 7/28/2005 10:51 | 1575 |
| Instrument 1 - B | 2 | 10 | 88 | 23555 | 7/28/2005 10:51 | 1575 |
| Instrument 1 - C | 3 | 10 | 212 | 25567 | 7/28/2005 10:51 | 1575 |
| Instrument 1 - D | 4 | 10 | 331 | 23587 | 7/28/2005 10:51 | 1575 |
| Instrument 2 - A | 5 | 10 | 310 | 26230 | 7/28/2005 10:52 | 1575 |
| Instrument 2 - B | 6 | 10 | 14 | 25997 | 7/28/2005 10:52 | 1575 |
| Instrument 2 - C | 7 | 10 | 357 | 26435 | 7/28/2005 10:52 | 1575 |
| Instrument 2 - D | 8 | 10 | 314 | 26101 | 7/28/2005 10:52 | 1575 |
| Instrument 3 - A | 9 | 10 | 192 | 22288 | 7/28/2005 10:52 | 1575 |
| Instrument 3 - B | 10 | 10 | 240 | 24112 | 7/28/2005 10:52 | 1575 |
| Instrument 3 - C | 11 | 10 | 308 | 22831 | 7/28/2005 10:52 | 1575 |
| Instrument 3 - D | 12 | 10 | 276 | 21369 | 7/28/2005 10:53 | 1575 |
| Instrument 4 - A | 1 | 10 | 183 | 22530 | 7/28/2005 11:09 | 1575 |
| Instrument 4 - B | 2 | 10 | 30 | 24318 | 7/28/2005 11:09 | 1575 |
| Instrument 4 - C | 3 | 10 | 273 | 25689 | 7/28/2005 11:09 | 1575 |
| Instrument 4 - D | 4 | 10 | 602 | 23412 | 7/28/2005 11:09 | 1575 |

for 2005

**General Engineering Laboratories
Verification Source Preparation Sheet**

Applicable SOP Number GL-RAD-A-018 Isotope Pb-210
 Date Standards Prepared 7/14/05 Cocktail Type Used N/A
 Standard ID ET491-A Matrix of Vial/Planchett Lead chromate precipitate on Tuffryn filter
 Amount Used (g or ml) 0.1 Type of Scintillation Vial N/A
 Standard Activity (DPM/g or ml) 112301.8 Pipette ID Used 1429303
 Reference Date 1/1/95 Balance ID Used N/A
 Expiration Date 11/1/05 Quenching Agent N/A
 Residue/Carrier Agent Lead Carrier 14.65 ^{ug}/ml

Separation Date/Time: 7/14/05 0800

| Standard Number | Quenching Vol (uL)/ Residue Volume (mL) | Initial Wt. (g) | Final Wt. (g) | Net Wt. (mg) |
|-----------------|--|--------------------|-------------------|------------------------|
| V1 | 0.1 | 0.0839 | 0.0843 | 0.49 0.0852 |
| V2 | 0.2 | 0.0841 | 0.0856 | 1.5 0.0862 |
| V3 | 0.3 | 0.0840 | 0.0876 | 3.6 |
| V4 | 0.4 | 0.0856 | 0.0906 | 5.0 |
| V5 | 0.5 | 0.0846 | 0.0916 | 7.0 |
| V6 | 0.6 | 0.0844 | 0.0932 | 8.8 |
| V7 | 0.7 | 0.0839 | 0.0956 | 11.7 |
| V8 | 0.8 | 0.0859 | 0.0993 | 13.4 |
| V9 | 0.9 | 0.0879 | 0.1008 | 12.9 |
| V10 | 1.0 | 0.0844 | 0.0997 | 15.3 |
| V11 | 1.1 | 0.0867 | 0.1024 | 13.7 |
| V12 | 1.3 | 0.0840 | 0.1038 | 19.8 |
| | | | | |
| | | | | |

1.3
2.1

Prepared By: [Signature]

Date

7/29/05

Reviewed By: [Signature]

Date

2/20/08

Rev 1 RLM 9/10/97

DEUTSCHER KALIBRIERDIENST (DKD)

Kalibrierlaboratorium für Meßgrößen der Radioaktivität
 Calibration laboratory for measurements of radioactivity

AKKREDITIERT DURCH DIE PHYSIKALISCH-TECHNISCHE BUNDESANSTALT (PTB)



Amersham Buchler GmbH & Co KG
 Postfach 11 49 Gieselweg 1
 D-38001 Braunschweig D-38110 Braunschweig

Telefon (05307) 930-0
 Telefax (05307) 930-293
 Telefax-Zentrale 930-237

Kalibrierschein Calibration Certificate

Kalibrierzeichen
 Calibration mark

| |
|-----------------|
| 02628 |
| DKD-K- 06501 |
| 95-10 |

| | |
|--|--|
| Gegenstand <i>Object</i> | Radioactive Reference Solution |
| Hersteller <i>Manufacturer</i> | Amersham Buchler GmbH & Co KG Postfach 11 49 Gieselweg 1 D-38001 Braunschweig D-38110 Braunschweig |
| Typ <i>Type</i> | RBZB44 |
| Strahler-Nr. <i>Source number</i> | ET 491 |
| Auftraggeber <i>Customer</i> | Amersham Corporation 2636 S. Clearbrook Drive Arlington Heights, IL 60005 USA-Arlington Heights, IL |
| Auftragsnummer <i>Work order number</i> | 112116 |
| Anzahl der Seiten des Kalibrierscheines <i>Number of pages of the certificate</i> | 2 |
| Referenzdatum <i>Reference date</i> | 1 January 1995 |

Der Deutsche Kalibrierdienst ist Unterzeichner des multilateralen Übereinkommens der Western European Calibration Cooperation (WECC) zur gegenseitigen Anerkennung der Kalibrierscheine. Die Kalibrierung erfolgt auf der Grundlage des zwischen der Physikalisch-Technischen Bundesanstalt und dem Träger abgeschlossenen Vertrages. Dieser Kalibrierschein dokumentiert die Rückführbarkeit auf nationale Normale zur Darstellung der physikalischen Einheiten in Übereinstimmung mit dem Internationalen Einheitensystem (SI). Für die Einhaltung einer angemessenen Frist zur Wiederholung der Kalibrierung ist der Benutzer verantwortlich. *The Deutscher Kalibrierdienst is signatory to the multilateral agreement of the Western European Calibration Cooperation (WECC) for the mutual recognition of calibration certificates. The calibration is performed according to the stipulations of the contract between the Physikalisch-Technische Bundesanstalt and the holder of the calibration laboratory. This calibration certificate documents the traceability to national standards, which realize the physical units of measurement according to the International System of Units (SI). The user is obliged to have the object recalibrated at appropriate intervals.*

Dieser Kalibrierschein darf nur vollständig und unverändert weiterverbreitet werden. Auszüge oder Änderungen bedürfen der Genehmigung sowohl der Physikalisch-Technischen Bundesanstalt als auch des ausstellenden Kalibrierlaboratoriums. Kalibrierscheine ohne Unterschrift und Stempel haben keine Gültigkeit. *This calibration certificate may not be reproduced other than in full except with the permission of both the Physikalisch-Technische Bundesanstalt and the issuing laboratory. Calibration certificates without signature and seal are not valid.*

| | | | | |
|------------------------|----------------------|--|---------------------------------|---|
| Stempel <i>Seal</i> | Datum <i>Date</i> | Leiter des Kalibrierlaboratoriums <i>Head of the calibration laboratory</i> | Stellvertreter <i>Deputy</i> | Bearbeiter <i>Person responsible</i> |
| | 18 October 1995 | Dr. Dornhöfer | Dr. Thieme | E. Schuber PC-5-013-4 |



DEUTSCHER KALIBRIERDIENST (DKD)

PAGE 2 OF CALIBRATION CERTIFICATE FROM 18 October 1995

| |
|-------------|
| 02628 |
| DKD-K-06501 |
| 95-10 |

Radioactive Reference Solution

Solution No.: ET 491

Drawing No.: VZ-2058

Nuclide: Lead-210

Radioactive concentration: 38.1 kBq/g

Reference date: 1 January 1995 at 12.00 GMT

Mass of solution: (5.182 ± 0.001) g

Volume of solution: approx. 5 ml

Chemical composition: Solution in 1.2 M HNO₃
Carrier: Pb (NO₃)₂, Bi (NO₃)₃; each 20 mg/l of the corresponding element.

Measuring method: The activity was determined by comparison with a reference solution by measurement with a Ge-detector with MCA.

Traceability: Additional to the direct traceability to the PTB through the DKD this product satisfies the quality assurance requirements of USNRC Regulatory Guide 4.15 Revision 1, February 1979, for achieving NIST traceability through Amersham's participation in the NEI-NIST Measurements Assurance Program of the Nuclear Power Industry.

Uncertainty: The relative uncertainty of the activity is ± 3 %.

The declared uncertainty U is an expanded uncertainty $U = k \cdot u_c$ with a coverage factor of $k = 3$. The combined uncertainty u_c is the sum of all uncertainties which can be evaluated by statistical means (uncertainty type A, u_A) and all other uncertainties (uncertainty type B, u_B) whereby $u_c^2 = u_A^2 + u_B^2$.
(Ref.: NIST Technical Note 1297 / WECC-Doc. 19-1990)

Radioactive impurities: Related to Pb-210 (equal 100 %) the following radioactive impurities were detected:
Ra-226: 0.003 %



Handwritten signature and date: 18/10/95
Handwritten reference: LC-5-013-4A



TRACEABILITY TO NIST

Amersham Corporation
2636 S. Clearbrook Drive
Arlington Heights, IL 60005
tel (708) 593-6300
fax (708) 593-8091



Traceability is the ability to relate the accuracy of measurement of radionuclides to the National Institute of Standards and Technology (NIST). Traceability is achieved by participation in a Measurements Assurance Program linked to NIST and production of certified materials in accordance with a quality assurance program.

Amersham participates in measurement assurance programs conducted by NIST in cooperation with the Nuclear Energy Institute (NEI, formerly USCEA). Additionally, our production facilities and measurement laboratories operate under routinely audited quality assurance programs.

Therefore, Amersham certified standardized products meet or exceed, the NRC requirements for measurements traceable to NIST.

278004C

mu 7/25/0

RC-S-013-4B



Standard Traceability Log Rad

| Source Material Info | |
|----------------------|--------------|
| Parent Code: | ET491 |
| Prepared By: | Garret Ray |
| Carrier Conc: | 1.2M HNO3 |
| Reference Date: | 01/01/1995 |
| Ampoule Mass (g): | 5.182 g |
| Uncertainty: | +/- 3 % |
| LogBook No: | RC S 014 004 |

| A Solution Material Info | |
|--------------------------|------------|
| Isotope: | Lead-210 |
| Prepared By: | Garret Ray |
| Prep Date: | 03/01/1996 |
| Verification Date: | 07/12/2005 |
| Expiration Date: | 07/12/2006 |
| Primary Code: | ET491-A |
| Dilution(mL): | 100 mL |
| Mass of Parent(g): | 5.0547 g |
| Density(g/mL): | 1.0000 |

Calculations Converting parent activity to dpm/mL|dpm/g

| |
|---|
| $(\text{Mass of parent(g)}) * (\text{Parm Activity (kBq/g)}) * (\text{conversion dpm to kBq}) / (\text{Dilution Vol}) = \text{Parent Activity (dpm/mL)}$ |
| $(\text{Mass of parent(g)}) * (\text{Parm Activity (kBq/g)}) * (\text{conversion dpm to kBq}) / \text{Density (g/mL)} / (\text{Dilution Vol}) = \text{Parent Activity (dpm/g)}$ |
| $(5.0547 \text{ g}) * (38.1 \text{ kBq/g}) * (60000 \text{ dpm/kBq}) / (100 \text{ mL}) = 115550.4420 \text{ dpm/mL}$ |
| $(5.0547 \text{ g}) * (38.1 \text{ kBq/g}) * (60000 \text{ dpm/kBq}) / (1.0000 \text{ g/mL}) / (100 \text{ mL}) = 115550.4420 \text{ dpm/g}$ |

Secondary Standards

| Prep Date | Preparer | Mass Primary | Dilution (mL) | Code | Conc dpm/mL | Verification Date | Expiration Date |
|------------|----------------|--------------|---------------|---------|---------------|-------------------|-----------------|
| 10/20/1997 | Richard Kinney | .467 | 100 | ET491-B | 524.45 dpm/ml | 03/01/1997 | 03/01/1998 |
| 10/29/1997 | Richard Kinney | 3.0992 | 500 | ET491-C | 696.09 dpm/mL | 10/29/1998 | 10/29/1999 |
| 04/03/2001 | Angela Albee | .5184 | 100 | ET491-D | 582.17 dpm/mL | 04/16/2003 | 04/16/2004 |
| 09/15/2003 | Angela Albee | .5132 | 100 | ET491-E | 576.33 dpm/mL | 11/11/2004 | 11/11/2005 |

General Engineering Laboratories, LLC
Version 1.0 9/18/2000

m 7/29/05

Verification for Pb-210 Standard ET491-A

A. Fehr
7/12/2005

AG
7/29/05

| Isotope | Detector CPM | BKG CPM | NET CPM | Detector Eff | Mass. Used (g) | Source DPM/ μ rc ⁻² g |
|------------|--------------|---------|------------|--------------|----------------|--------------------------------------|
| ET491-E N1 | 22785.6000 | 20.2000 | 22785.6000 | 2.63365 | 0.1038 | 83349.97114 |
| ET491-E N2 | 22178.6000 | 20.2000 | 22178.6000 | 2.63365 | 0.1033 | 81522.24763 |
| ET491-E N3 | 22065.7000 | 20.2000 | 22065.7000 | 2.63365 | 0.1031 | 81264.5963 |
| | | | | | Average = | 82045.60502 |

Mean Value (Counting) = 82045.60502 **101.400909** **Pass**
 Stdev = 1136.936355 **0.01385737** **Rule 3 (Pass/Fail)**

Certificate Value = 80912.1
 Lower Limit = 79771.73231
 Upper Limit = 84319.47773
 Rule 1 Pass/Fail **Pass**
 Two sigma = 2273.872711
 10 % of Mean = 8204.560502
 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 calibration sources for source ET491-A by transferring 0.1 mL portions of the standard to 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 calibration vials and background source were dark adapted for two hours and counted on LSC Yellow (Wallac) using Protocol 31 for Pb-210 standard verification. The efficiency calibration which was used for verification calculations was performed on 7/12/05 using source 0356-A (Pb-210). 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

7/29/05

Angela D. Johnson
7/29/05

PROTOCOL : 31 Pb-210 Verification
DATE : 2005/07/12
TIME : 05:29
ID : P31AS005

Wallac 1414 WinSpectral v1.40 S/N 4140127

Counting mode : CPM
Isotope(s) : Pb210
Pb210 = 5- 520,21.00 y
Protocol name : Pb-210 Verification
Counting time : 300
Repeats : 1
Cycles : 1
Replicates : 1
2 sigma % : 0.01
Minimum cpm : 0.00 **Checking time: 10**
Advanced modes : Chemilum,PSA
PSA level : 35
Output to Display :
POS,CTIME,DATE,TIME,RACKPOS,CPMw1,CPM,SQPI,CPM1
Additions to Display : Spectrum,Header,Listing
Spectrum : Alpha,Beta
Window 1 : 685- 745 /Alpha
Window 2 : 1-1024 /Beta
Window 3 : 1-1024 /Beta
Window 4 : 1-1024 /Beta
Window 5 : 1-1024 /Beta
Window 6 : 1-1024 /Beta
FNCT1 = FNCT1 :
FNCT2 = FNCT2 :
FNCT3 = FNCT3 :
FNCT4 = FNCT4 :

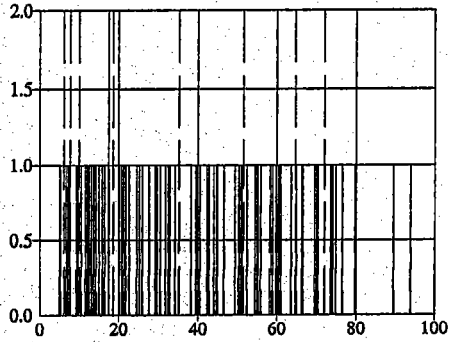
Total count rate:
Pb210 72372.3 CPM

ast 7/12/05

Handwritten signatures and dates:
 pm 7/29/05
 JAG
 7/29/05

POS CTIME DATE TIME RACKPOS CPM

1 300 7/12/2005 5:29 AM 1 20.20

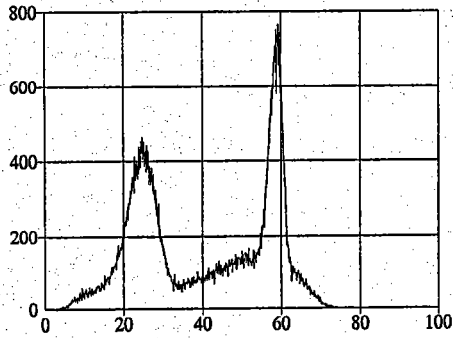


Counts Alpha

Counts Beta

Bkg

2 300 7/12/2005 5:35 AM 2 22785.60

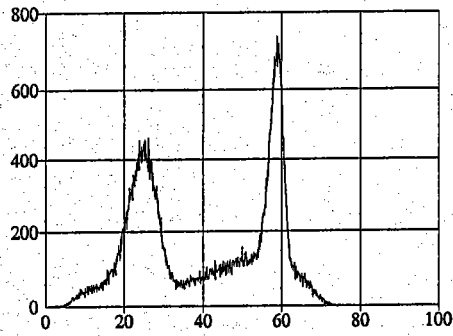


Counts Alpha

Counts Beta

ET491-A

3 300 7/12/2005 5:41 AM 3 22178.60



Counts Alpha

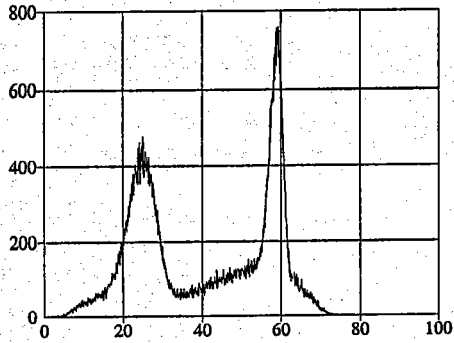
Counts Beta

ET491-A

acf 7/12/05

m 7/24/05
7/29/05

| POS | CTIME | DATE | TIME | RACKPOS | CPM |
|-----|-------|-----------|---------|---------|----------|
| 4 | 300 | 7/12/2005 | 5:46 AM | 4 | 22065.70 |

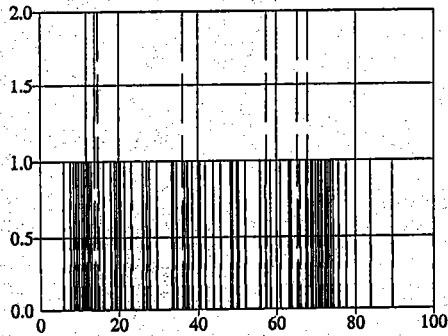


Counts Alpha

Counts Beta

ET491-A

| | | | | | |
|---|-----|-----------|---------|---|-------|
| 5 | 300 | 7/12/2005 | 5:52 AM | 5 | 21.70 |
|---|-----|-----------|---------|---|-------|

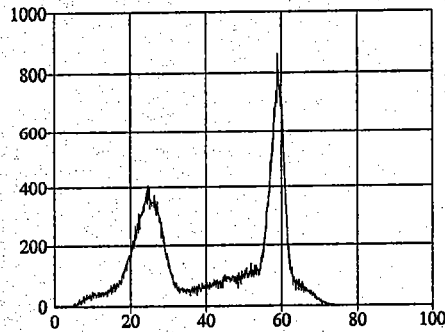


Counts Alpha

Counts Beta

Bkg

| | | | | | |
|---|-----|-----------|---------|---|----------|
| 6 | 300 | 7/12/2005 | 5:58 AM | 6 | 20294.00 |
|---|-----|-----------|---------|---|----------|



Counts Alpha

Counts Beta

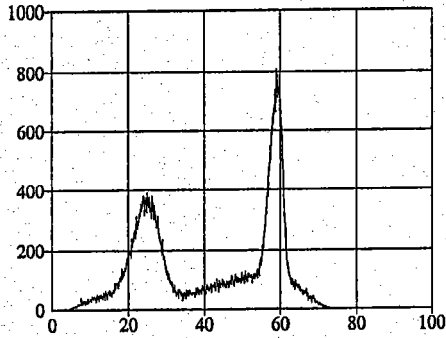
0356-A

awf7/12/05

Jan 7/2005

*ADQ
7/29/05*

| POS | CTIME | DATE | TIME | RACKPOS | CPM |
|-----|-------|-----------|---------|---------|----------|
| 7 | 300 | 7/12/2005 | 6:04 AM | 7 | 20276.60 |

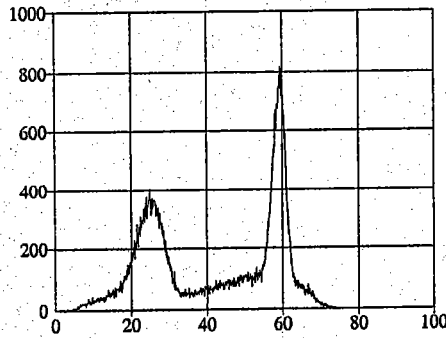


Counts Alpha

Counts Beta

0356-A

| | | | | | |
|---|-----|-----------|---------|---|----------|
| 8 | 300 | 7/12/2005 | 6:09 AM | 8 | 20079.70 |
|---|-----|-----------|---------|---|----------|



Counts Alpha

Counts Beta

0356-A

AWF 7/12/05

AWF 7/12/05
AWF
7/29/05

General Engineering Laboratories

2040 Savage Road, Charleston, SC 29414
(843)556-8171

Gas Flow Proportional Counter Calibration Package

Method: RA-228

| | YES | NO | Comments |
|---|-------------------------------------|----|----------|
| 1) Is all calibration standard information enclosed for: primary standard certificate? second standard(s) documentation? standard preparation information? 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? beta absorption curves? beta plateau? | | | N/A |
| | <input checked="" type="checkbox"/> | | |
| 3) Is the raw count data included for: the plateau generation? the absorption curve generation? the calibration verification? the crosstalk calculations? | <input checked="" type="checkbox"/> | | |
| | | | N/A |
| | <input checked="" type="checkbox"/> | | |
| | <input checked="" type="checkbox"/> | | |
| 4) Are the calibration verification calculations included? are verification recoveries 100% +/- 25% | <input checked="" type="checkbox"/> | | |
| | <input checked="" type="checkbox"/> | | |
| 5) Is the method Carrier Standardization included? | | | N/A |

Prepared By: 

Date: 4/22/05

Reviewed By: 

Date: 4/23/05

Effective Date: 4/22/05

CERTIFICATE OF CALIBRATION

Standard Radionuclide Source

68229-278

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): | 2.524 E4 |
| HALF-LIFE: | 5.75 years |
| CALIBRATION DATE: | April 26, 2004 12:00 EST |
| RELATIVE EXPANDED UNCERTAINTY (k=2): | 3.3% |

Impurities: γ -impurities (other than decay products) <0.1%

5.00087 grams 0.1M HCl solution with 25 μ g/g Ba carrier.

P O NUMBER 3240 RD, Item 1

SOURCE PREPARED BY:

M. Dimitrova
M. Dimitrova, Radiochemist

Q A APPROVED:

ACM 4/28/04

RECEIVED
4/29/04
TCW

my 4/28/04



Standard Traceability Log Rad

| Source Material Info | |
|----------------------|--------------|
| Parent Code: | 0683 |
| Prepared By: | Amanda Fehr |
| Carrier Conc: | 0.1M HCl |
| Reference Date: | 04/26/2004 |
| Ampoule Mass (g): | 5.00087 g |
| Uncertainty: | +/- 3.3 % |
| LogBook No: | RC-S-037-082 |

| A Solution Material Info | |
|--------------------------|-------------|
| Isotope: | Radium-228 |
| Prepared By: | Amanda Fehr |
| Prep Date: | 02/03/2005 |
| Verification Date: | 02/04/2005 |
| Expiration Date: | 02/04/2006 |
| Primary Code: | 0683-A |
| Dilution(mL): | 100 mL |
| Mass of Parent(g): | 4.7315 g |
| Density(g/mL): | 0.9985 |

Calculations Converting parent activity to dpm/mL|dpm/g

| |
|---|
| $(\text{Mass of parent(g)} * (\text{Parent Activity (dps)}) * (\text{conversion dpm to dps}) / (\text{Ampoule Mass(g)} * (\text{Dilution Vol})) = \text{Parent Activity (dpm/mL)}$ |
| $(\text{Mass of parent(g)} * (\text{Parent Activity (dps)}) * (\text{conversion dpm to dps}) / \text{Density} / (\text{Ampoule Mass (g)} * (\text{Dilution Vol})) = \text{Parent Activity (dpm/g)}$ |
| $(4.7315 \text{ g}) * (25240 \text{ dps}) * (59.9 \text{ dpm/dps}) / (5.00087 \text{ g} * 100 \text{ mL}) = 14304.3936 \text{ dpm/mL}$ |
| $(4.7315 \text{ g}) * (25240 \text{ dps}) * (59.9 \text{ dpm/dps}) / (0.9985 \text{ g/mL}) / (5.00087 \text{ g} * 100 \text{ mL}) = 14325.2288 \text{ dpm/g}$ |

Secondary Standards

| Prep Date | Preparer | Mass Primary | Dilution (mL) | Code | Conc dpm/mL | Verification Date | Expiration Date |
|-----------|----------|--------------|---------------|------|-------------|-------------------|-----------------|
|-----------|----------|--------------|---------------|------|-------------|-------------------|-----------------|

General Engineering Laboratories, LLC
Version 1.0 9/18/2000

m4k205

Verification for Ra-228 Standard 0683-A

| A. Fehr 2/4/2005 | Isotope | Detector CPM | BKG CPM | NET CPM | Detector Eff Mass. Used (mL) | Standard Source dPPM/mL |
|---------------------|-----------|--------------|---------|------------|------------------------------|-------------------------|
| | 0683-A N1 | 46898.2000 | 33.7000 | 46864.5000 | 3.5679424 | 1.0000 13134.88131 |
| | 0683-A N2 | 46663.7000 | 33.7000 | 46630.0000 | 3.5679424 | 1.0000 13069.15716 |
| | 0683-A N3 | 46478.8000 | 33.7000 | 46445.1000 | 3.5679424 | 1.0000 13017.33457 |
| | | | | | | Average = 13073.79102 |

Mean Value (Counting) = 13073.79102 dpm/mL 100.210719 % of known
 Stdev = 58.91021579 dpm/mL 0.00450598

Certificate Value = 13046.3 dpm/mL
 Lower Limit = 12955.97058 dpm/mL
 Upper Limit = 13191.61145 dpm/mL
 Rule 1 Pass/Fail Pass
 Two sigma = 117.8204316
 10 % of Mean = 1307.379102
 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.

The analyst prepared three standard verification sources for Ra-228 source 0683-A 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 Yellow (Wallac) using Protocol 23 for Ra-228 source standard verification. The Ra-228 efficiency calibration which was used for verification calculations was performed on 4/26/04 using Analytic's source 0503-A (Ra-228). Calibration data is recorded in this logbook under Ra-228 0503. 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

Amanda D. Fehr 2/14/05
[Signature] 2/11/05

[Handwritten signature]

PROTOCOL : 23 Radium Std Ver.
DATE : 2005/02/04
TIME : 14:12
ID : P23AS003

Wallac 1414 WinSpectral v1.40 S/N 4140127

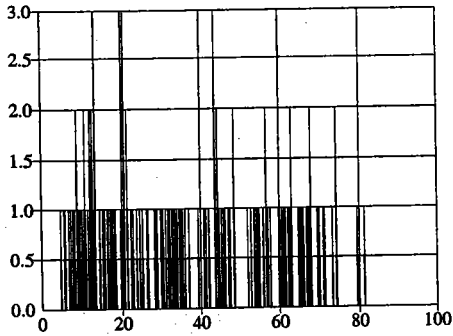
Counting mode : CPM
Isotope(s) : H3
H3 = 5- 350,12.43 y
Protocol name : Radium Std Ver.
Counting time : 300
Repeats : 1
Cycles : 1
Replicates : 1
2 sigma % : 0.01
Minimum cpm : 0.00 Checking time: 10
Output to Display :
POS,CTIME,DATE,TIME,RACKPOS,CPMw1,CPM,SQPI,CPM1
Additions to Display : Spectrum,Header,Listing
Spectrum : Beta
Window 1 : 1-1024 /Beta
Window 2 : 1-1024 /Beta
Window 3 : 1-1024 /Beta
Window 4 : 1-1024 /Beta
Window 5 : 1-1024 /Beta
Window 6 : 1-1024 /Beta
FNCT1 = FNCT1 :
FNCT2 = FNCT2 :
FNCT3 = FNCT3 :
FNCT4 = FNCT4 :

Total count rate:
H3 30936.7 CPM

atf 2/4/05

proyector

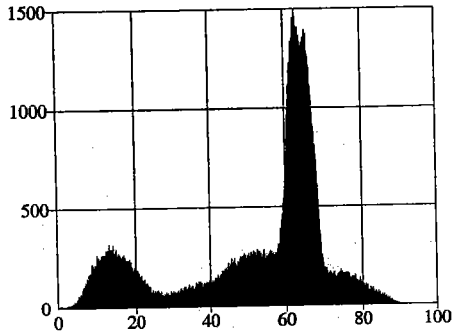
| POS | CTIME | DATE | TIME | RACKPOS | CPMW1 | CPM |
|-----|-------|----------|---------|---------|-------|-------|
| 1 | 300 | 2/4/2005 | 2:12 PM | 1 | 33.70 | 33.70 |
| | | | | | 17.30 | |



Counts Beta

Bkg

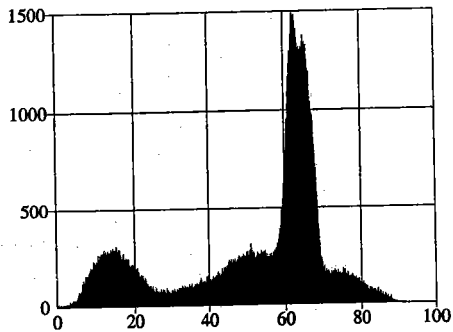
| | | | | | | |
|---|-----|----------|---------|---|----------|----------|
| 2 | 300 | 2/4/2005 | 2:18 PM | 2 | 46899.00 | 46898.20 |
| | | | | | 9470.20 | |



Counts Beta

0683-A

| | | | | | | |
|---|-----|----------|---------|---|----------|----------|
| 3 | 300 | 2/4/2005 | 2:23 PM | 3 | 46664.80 | 46663.70 |
| | | | | | 9499.90 | |



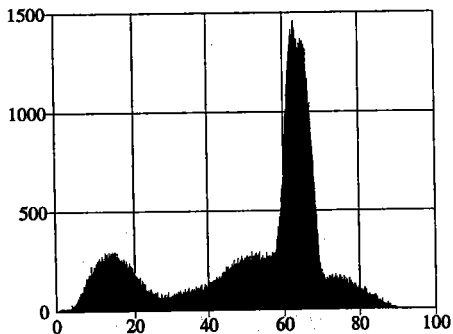
Counts Beta

0683-A

ALF 2/4/05

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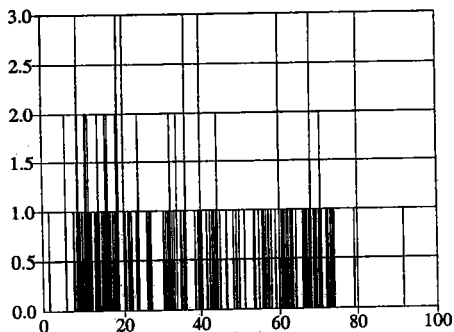
| POS | CTIME | DATE | TIME | RACKPOS | CPMW1 | CPM |
|-----|-------|----------|---------|---------|----------|----------|
| 4 | 300 | 2/4/2005 | 2:29 PM | 4 | 46479.40 | 46478.80 |
| | | | | | 9454.60 | |



Counts Beta

0683-A

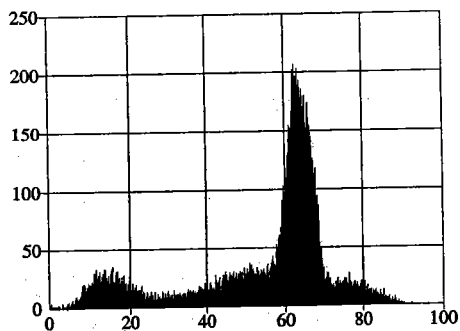
| | | | | | | |
|---|-----|----------|---------|---|-------|-------|
| 5 | 300 | 2/4/2005 | 2:34 PM | 5 | 34.60 | 34.60 |
| | | | | | 19.00 | |



Counts Beta

BLG

| | | | | | | |
|---|-----|----------|---------|---|---------|---------|
| 6 | 300 | 2/4/2005 | 2:40 PM | 6 | 5372.10 | 5371.90 |
| | | | | | 832.00 | |



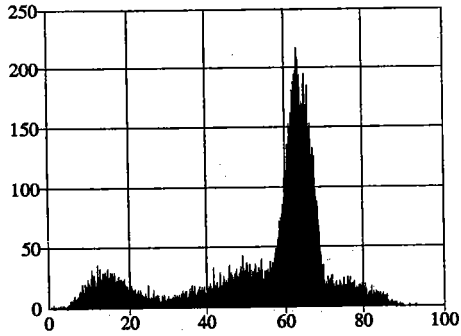
Counts Beta

0553-A

af 2/4/05

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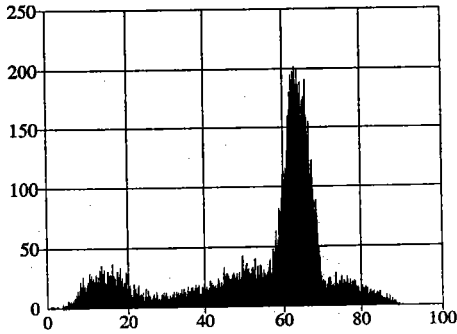
| POS | CTIME | DATE | TIME | RACKPOS | CPMW1 | CPM |
|-----|-------|----------|---------|---------|---------|---------|
| 7 | 300 | 2/4/2005 | 2:45 PM | 7 | 5421.80 | 5421.80 |
| | | | | | 816.10 | |



Counts Beta

0553-A

| | | | | | | |
|---|-----|----------|---------|---|---------|---------|
| 8 | 300 | 2/4/2005 | 2:51 PM | 8 | 5340.60 | 5340.60 |
| | | | | | 827.60 | |



Counts Beta

0553-A
2/4/05
0553-A

all 2/4/05

Handwritten signature

General Engineering Laboratories Calibration Source Preparation Sheet

Applicable SOP Number GL-RAD-A-009 Isotope Ra-228
 Date Standards Prepared 4/22/05 Cocktail Type Used NA
 Standard ID 0683-A Matrix of Vial/Planchett 0.1m POLYPROPYLENE
 Amount Used (g or ml) 5.0 FILTER ATTACHED TO
 Standard Activity (DPM/g or ml) 14328.27 SS PLANCHETTE
 Reference Date 2/3/05 Type of Scintillation Vial NA
 Expiration Date 2/4/06 Pipette ID Used _____
 Residue/Carrier Agent _____ Balance ID Used _____
 Quenching Agent _____

Separation Date / Time: 4/22/05 / 0615

| | Standard Number | Quenching Vol (uL)/ Residue Volume(mL) | Initial Wt. (g) | Final Wt. (g) | Net Wt. (mg) |
|--|-----------------|---|--------------------|------------------|-----------------|
| | 1 | | | | |
| | 2 | | | | |
| | 3 | | | | |
| | 4 | | | | |
| | 5 | | | | |
| | 6 | | | | |
| | 7 | | | | |
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Prepared By: Angela A. Johnson Date 4/22/05
 Reviewed By: _____ Date 4/22/05

| | | | | | | | | | | | | | |
|-----|---|---|------|-------|----------|--------|------|------|---------|----------|------|------------|-----------------|
| 3-B | 1 | 4 | 1240 | 17817 | 17817.00 | 0.0482 | 0.28 | 0.52 | 1.00 | 33897.33 | 1470 | | 4/22/2005 11:58 |
| 3-B | 1 | 5 | 1178 | 16876 | 16876.00 | 0.0482 | 0.28 | 0.52 | 1.00 | 32222.98 | 1470 | | 4/22/2005 12:06 |
| 3-B | 1 | 6 | 1317 | 18221 | 18221.00 | 0.0482 | 0.28 | 0.52 | 1.00 | 35018.34 | 1470 | | 4/22/2005 12:03 |
| 3-B | 1 | 7 | 1089 | 15238 | 15238.00 | 0.0482 | 0.28 | 0.51 | 1.00 | 29723.59 | 1470 | Ra-228 | 4/22/2005 12:11 |
| 3-B | 1 | 8 | 1428 | 19248 | 19248.00 | 0.0482 | 0.28 | 0.51 | 1.00 | 37350.47 | 1470 | Efficiency | 4/22/2005 12:09 |
| | | | | | | | | | Average | 33739.92 | | 0.4832 | |
| 3-C | 1 | 1 | 739 | 18087 | 18087.00 | 0.0407 | 0.46 | 0.52 | 1.00 | 34445.09 | 1470 | | 4/22/2005 11:58 |
| 3-C | 1 | 2 | 681 | 17872 | 17872.00 | 0.0407 | 0.46 | 0.53 | 1.00 | 33548.15 | 1470 | | 4/22/2005 11:56 |
| 3-C | 1 | 3 | 702 | 17887 | 17887.00 | 0.0407 | 0.46 | 0.53 | 1.00 | 33824.18 | 1470 | | 4/22/2005 11:53 |
| 3-C | 1 | 4 | 747 | 17811 | 17811.00 | 0.0407 | 0.46 | 0.52 | 1.00 | 34118.75 | 1470 | | 4/22/2005 12:01 |
| 3-C | 1 | 5 | 731 | 17040 | 17040.00 | 0.0407 | 0.46 | 0.51 | 1.00 | 33137.20 | 1470 | | 4/22/2005 12:09 |
| 3-C | 1 | 6 | 855 | 18315 | 18315.00 | 0.0407 | 0.46 | 0.52 | 1.00 | 35455.36 | 1470 | | 4/22/2005 12:06 |
| 3-C | 1 | 7 | 687 | 15413 | 15413.00 | 0.0407 | 0.46 | 0.52 | 1.00 | 29678.59 | 1470 | Ra-228 | 4/22/2005 12:04 |
| 3-C | 1 | 8 | 838 | 19109 | 19109.00 | 0.0407 | 0.46 | 0.51 | 1.00 | 37349.86 | 1470 | Efficiency | 4/22/2005 12:11 |
| | | | | | | | | | Average | 33944.37 | | 0.4961 | |
| 3-D | 1 | 1 | 599 | 18431 | 18431.00 | 0.0429 | 0.73 | 0.52 | 1.00 | 35321.89 | 1470 | | 4/22/2005 12:01 |
| 3-D | 1 | 2 | 533 | 17875 | 17875.00 | 0.0429 | 0.73 | 0.52 | 1.00 | 34089.55 | 1470 | | 4/22/2005 11:58 |
| 3-D | 1 | 3 | 530 | 18135 | 18135.00 | 0.0429 | 0.73 | 0.53 | 1.00 | 34438.15 | 1470 | | 4/22/2005 11:58 |
| 3-D | 1 | 4 | 484 | 18298 | 18298.00 | 0.0429 | 0.73 | 0.53 | 1.00 | 34594.85 | 1470 | | 4/22/2005 11:53 |
| 3-D | 1 | 5 | 549 | 17038 | 17038.00 | 0.0429 | 0.73 | 0.51 | 1.00 | 33319.81 | 1470 | | 4/22/2005 12:12 |
| 3-D | 1 | 6 | 640 | 18362 | 18362.00 | 0.0429 | 0.73 | 0.51 | 1.00 | 35722.19 | 1470 | | 4/22/2005 12:09 |
| 3-D | 1 | 7 | 502 | 15895 | 15895.00 | 0.0429 | 0.73 | 0.52 | 1.00 | 30790.80 | 1470 | Ra-228 | 4/22/2005 12:06 |
| 3-D | 1 | 8 | 606 | 19562 | 19562.00 | 0.0429 | 0.73 | 0.52 | 1.00 | 37699.31 | 1470 | Efficiency | 4/22/2005 12:04 |
| | | | | | | | | | Average | 34495.77 | | 0.4940 | |
| 4-A | 1 | 1 | 436 | 18783 | 18783.00 | 0.0578 | 0.34 | 0.52 | 1.00 | 36202.39 | 1470 | | 4/22/2005 12:04 |
| 4-A | 1 | 2 | 442 | 17978 | 17978.00 | 0.0578 | 0.34 | 0.51 | 1.00 | 35180.82 | 1470 | | 4/22/2005 12:12 |
| 4-A | 1 | 3 | 410 | 18198 | 18198.00 | 0.0578 | 0.34 | 0.51 | 1.00 | 35418.59 | 1470 | | 4/22/2005 12:09 |
| 4-A | 1 | 4 | 379 | 18683 | 18683.00 | 0.0578 | 0.34 | 0.52 | 1.00 | 36204.68 | 1470 | | 4/22/2005 12:07 |
| 4-A | 1 | 5 | 398 | 18198 | 18198.00 | 0.0578 | 0.34 | 0.53 | 1.00 | 34416.71 | 1470 | | 4/22/2005 11:54 |
| 4-A | 1 | 6 | 437 | 19420 | 19420.00 | 0.0578 | 0.34 | 0.52 | 1.00 | 37227.02 | 1470 | | 4/22/2005 12:01 |
| 4-A | 1 | 7 | 377 | 16781 | 16781.00 | 0.0578 | 0.34 | 0.52 | 1.00 | 32007.32 | 1470 | Ra-228 | 4/22/2005 11:58 |
| 4-A | 1 | 8 | 451 | 20737 | 20737.00 | 0.0578 | 0.34 | 0.53 | 1.00 | 39388.88 | 1470 | Efficiency | 4/22/2005 11:56 |
| | | | | | | | | | Average | 35755.80 | | 0.5121 | |
| 4-B | 1 | 1 | 73 | 19059 | 19059.00 | 0.0800 | 0.37 | 0.52 | 1.00 | 36969.81 | 1470 | | 4/22/2005 12:07 |
| 4-B | 1 | 2 | 62 | 18836 | 18836.00 | 0.0800 | 0.37 | 0.52 | 1.00 | 35962.06 | 1470 | | 4/22/2005 12:04 |
| 4-B | 1 | 3 | 63 | 18870 | 18870.00 | 0.0800 | 0.37 | 0.51 | 1.00 | 36980.44 | 1470 | | 4/22/2005 12:12 |
| 4-B | 1 | 4 | 53 | 19050 | 19050.00 | 0.0800 | 0.37 | 0.51 | 1.00 | 37122.57 | 1470 | | 4/22/2005 12:08 |
| 4-B | 1 | 5 | 53 | 18563 | 18563.00 | 0.0800 | 0.37 | 0.53 | 1.00 | 35299.98 | 1470 | | 4/22/2005 11:56 |
| 4-B | 1 | 6 | 50 | 20222 | 20222.00 | 0.0800 | 0.37 | 0.53 | 1.00 | 38288.88 | 1470 | | 4/22/2005 11:54 |
| 4-B | 1 | 7 | 66 | 16906 | 16906.00 | 0.0800 | 0.37 | 0.52 | 1.00 | 32446.75 | 1470 | Ra-228 | 4/22/2005 12:01 |
| 4-B | 1 | 8 | 55 | 21570 | 21570.00 | 0.0800 | 0.37 | 0.52 | 1.00 | 41194.45 | 1470 | Efficiency | 4/22/2005 11:58 |
| | | | | | | | | | Average | 36763.12 | | 0.5268 | |
| 4-C | 1 | 1 | 749 | 18454 | 18454.00 | 0.0364 | 0.36 | 0.51 | 1.00 | 35919.42 | 1470 | | 4/22/2005 12:09 |
| 4-C | 1 | 2 | 710 | 18119 | 18119.00 | 0.0364 | 0.36 | 0.52 | 1.00 | 35111.47 | 1470 | | 4/22/2005 12:07 |
| 4-C | 1 | 3 | 706 | 18128 | 18128.00 | 0.0364 | 0.36 | 0.52 | 1.00 | 34943.12 | 1470 | | 4/22/2005 12:04 |
| 4-C | 1 | 4 | 731 | 18045 | 18045.00 | 0.0364 | 0.36 | 0.51 | 1.00 | 35325.39 | 1470 | | 4/22/2005 12:12 |
| 4-C | 1 | 5 | 688 | 17757 | 17757.00 | 0.0364 | 0.36 | 0.52 | 1.00 | 33883.05 | 1470 | | 4/22/2005 11:58 |
| 4-C | 1 | 6 | 755 | 19232 | 19232.00 | 0.0364 | 0.36 | 0.53 | 1.00 | 36532.89 | 1470 | | 4/22/2005 11:56 |
| 4-C | 1 | 7 | 583 | 16571 | 16571.00 | 0.0364 | 0.36 | 0.53 | 1.00 | 31349.77 | 1470 | Ra-228 | 4/22/2005 11:54 |
| 4-C | 1 | 8 | 619 | 20415 | 20415.00 | 0.0364 | 0.36 | 0.52 | 1.00 | 39142.72 | 1470 | Efficiency | 4/22/2005 12:01 |
| | | | | | | | | | Average | 35275.96 | | 0.5052 | |
| 4-D | 1 | 1 | 1271 | 18178 | 18178.00 | 0.0431 | 0.58 | 0.51 | 1.00 | 35563.92 | 1470 | | 4/22/2005 12:12 |
| 4-D | 1 | 2 | 1275 | 17622 | 17622.00 | 0.0431 | 0.58 | 0.51 | 1.00 | 34248.58 | 1470 | | 4/22/2005 12:09 |
| 4-D | 1 | 3 | 1334 | 18020 | 18020.00 | 0.0431 | 0.58 | 0.52 | 1.00 | 34863.03 | 1470 | | 4/22/2005 12:07 |
| 4-D | 1 | 4 | 1337 | 18346 | 18346.00 | 0.0431 | 0.58 | 0.52 | 1.00 | 35311.38 | 1470 | | 4/22/2005 12:04 |
| 4-D | 1 | 5 | 1245 | 17305 | 17305.00 | 0.0431 | 0.58 | 0.52 | 1.00 | 33129.96 | 1470 | | 4/22/2005 12:01 |
| 4-D | 1 | 6 | 1357 | 19186 | 19186.00 | 0.0431 | 0.58 | 0.52 | 1.00 | 36557.46 | 1470 | | 4/22/2005 11:58 |
| 4-D | 1 | 7 | 1108 | 16383 | 16383.00 | 0.0431 | 0.58 | 0.53 | 1.00 | 31041.97 | 1470 | Ra-228 | 4/22/2005 11:56 |
| 4-D | 1 | 8 | 1366 | 20538 | 20538.00 | 0.0431 | 0.58 | 0.53 | 1.00 | 36795.26 | 1470 | Efficiency | 4/22/2005 11:54 |
| | | | | | | | | | Average | 34937.70 | | 0.5004 | |

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| INSTR_ID | SAMPLE_ID | CNT_TIME | A | B | TIME | USER2 | BATCH_ID |
|------------------|-----------|----------|-----|-------|-----------------|-------|-----------|
| Instrument 1 - A | 1 | 1 | 223 | 19812 | 4/22/2005 11:33 | 1575 | Ra2280422 |
| Instrument 1 - A | 2 | 1 | 221 | 19161 | 4/22/2005 11:40 | 1575 | Ra2280422 |
| Instrument 1 - A | 3 | 1 | 217 | 19209 | 4/22/2005 11:38 | 1575 | Ra2280422 |
| Instrument 1 - A | 4 | 1 | 190 | 19664 | 4/22/2005 11:35 | 1575 | Ra2280422 |
| Instrument 1 - A | 5 | 1 | 252 | 18527 | 4/22/2005 11:43 | 1575 | Ra2280422 |
| Instrument 1 - A | 6 | 1 | 270 | 20152 | 4/22/2005 11:50 | 1575 | Ra2280422 |
| Instrument 1 - A | 7 | 1 | 209 | 17009 | 4/22/2005 11:48 | 1575 | Ra2280422 |
| Instrument 1 - A | 8 | 1 | 226 | 21455 | 4/22/2005 11:45 | 1575 | Ra2280422 |
| Instrument 1 - B | 1 | 1 | 193 | 19678 | 4/22/2005 11:36 | 1575 | Ra2280422 |
| Instrument 1 - B | 2 | 1 | 160 | 19041 | 4/22/2005 11:33 | 1575 | Ra2280422 |
| Instrument 1 - B | 3 | 1 | 169 | 19027 | 4/22/2005 11:41 | 1575 | Ra2280422 |
| Instrument 1 - B | 4 | 1 | 156 | 19202 | 4/22/2005 11:38 | 1575 | Ra2280422 |
| Instrument 1 - B | 5 | 1 | 168 | 18254 | 4/22/2005 11:45 | 1575 | Ra2280422 |
| Instrument 1 - B | 6 | 1 | 178 | 20148 | 4/22/2005 11:43 | 1575 | Ra2280422 |
| Instrument 1 - B | 7 | 1 | 159 | 16811 | 4/22/2005 11:50 | 1575 | Ra2280422 |
| Instrument 1 - B | 8 | 1 | 177 | 21320 | 4/22/2005 11:48 | 1575 | Ra2280422 |
| Instrument 1 - C | 1 | 1 | 190 | 19929 | 4/22/2005 11:38 | 1575 | Ra2280422 |
| Instrument 1 - C | 2 | 1 | 222 | 19736 | 4/22/2005 11:36 | 1575 | Ra2280422 |
| Instrument 1 - C | 3 | 1 | 215 | 20230 | 4/22/2005 11:33 | 1575 | Ra2280422 |
| Instrument 1 - C | 4 | 1 | 198 | 19844 | 4/22/2005 11:41 | 1575 | Ra2280422 |
| Instrument 1 - C | 5 | 1 | 216 | 18760 | 4/22/2005 11:48 | 1575 | Ra2280422 |
| Instrument 1 - C | 6 | 1 | 247 | 20456 | 4/22/2005 11:46 | 1575 | Ra2280422 |
| Instrument 1 - C | 7 | 1 | 191 | 17262 | 4/22/2005 11:43 | 1575 | Ra2280422 |
| Instrument 1 - C | 8 | 1 | 228 | 21665 | 4/22/2005 11:50 | 1575 | Ra2280422 |
| Instrument 1 - D | 1 | 1 | 38 | 19654 | 4/22/2005 11:41 | 1575 | Ra2280422 |
| Instrument 1 - D | 2 | 1 | 53 | 19466 | 4/22/2005 11:38 | 1575 | Ra2280422 |
| Instrument 1 - D | 3 | 1 | 56 | 19457 | 4/22/2005 11:36 | 1575 | Ra2280422 |
| Instrument 1 - D | 4 | 1 | 44 | 19353 | 4/22/2005 11:33 | 1575 | Ra2280422 |
| Instrument 1 - D | 5 | 1 | 53 | 18235 | 4/22/2005 11:51 | 1575 | Ra2280422 |
| Instrument 1 - D | 6 | 1 | 59 | 20122 | 4/22/2005 11:48 | 1575 | Ra2280422 |
| Instrument 1 - D | 7 | 1 | 49 | 17027 | 4/22/2005 11:46 | 1575 | Ra2280422 |
| Instrument 1 - D | 8 | 1 | 56 | 21170 | 4/22/2005 11:43 | 1575 | Ra2280422 |
| Instrument 2 - A | 1 | 1 | 737 | 19237 | 4/22/2005 11:44 | 1575 | Ra2280422 |
| Instrument 2 - A | 2 | 1 | 698 | 18742 | 4/22/2005 11:51 | 1575 | Ra2280422 |
| Instrument 2 - A | 3 | 1 | 766 | 18800 | 4/22/2005 11:48 | 1575 | Ra2280422 |
| Instrument 2 - A | 4 | 1 | 671 | 19000 | 4/22/2005 11:46 | 1575 | Ra2280422 |
| Instrument 2 - A | 5 | 1 | 620 | 18971 | 4/22/2005 11:33 | 1575 | Ra2280422 |
| Instrument 2 - A | 6 | 1 | 767 | 20367 | 4/22/2005 11:41 | 1575 | Ra2280422 |
| Instrument 2 - A | 7 | 1 | 612 | 17288 | 4/22/2005 11:38 | 1575 | Ra2280422 |
| Instrument 2 - A | 8 | 1 | 717 | 21526 | 4/22/2005 11:36 | 1575 | Ra2280422 |
| Instrument 2 - B | 1 | 1 | 158 | 19990 | 4/22/2005 11:46 | 1575 | Ra2280422 |
| Instrument 2 - B | 2 | 1 | 125 | 19577 | 4/22/2005 11:44 | 1575 | Ra2280422 |
| Instrument 2 - B | 3 | 1 | 114 | 19354 | 4/22/2005 11:51 | 1575 | Ra2280422 |
| Instrument 2 - B | 4 | 1 | 136 | 19264 | 4/22/2005 11:48 | 1575 | Ra2280422 |
| Instrument 2 - B | 5 | 1 | 144 | 19226 | 4/22/2005 11:36 | 1575 | Ra2280422 |

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|------------------|---|---|------|-------|-----------------|------|-----------|
| Instrument 2 - B | 6 | 1 | 137 | 20876 | 4/22/2005 11:34 | 1575 | Ra2280422 |
| Instrument 2 - B | 7 | 1 | 114 | 17642 | 4/22/2005 11:41 | 1575 | Ra2280422 |
| Instrument 2 - B | 8 | 1 | 157 | 22249 | 4/22/2005 11:38 | 1575 | Ra2280422 |
| | | | | | | | |
| Instrument 2 - C | 1 | 1 | 811 | 19238 | 4/22/2005 11:48 | 1575 | Ra2280422 |
| Instrument 2 - C | 2 | 1 | 821 | 18388 | 4/22/2005 11:46 | 1575 | Ra2280422 |
| Instrument 2 - C | 3 | 1 | 787 | 18847 | 4/22/2005 11:44 | 1575 | Ra2280422 |
| Instrument 2 - C | 4 | 1 | 783 | 18544 | 4/22/2005 11:51 | 1575 | Ra2280422 |
| Instrument 2 - C | 5 | 1 | 721 | 18272 | 4/22/2005 11:38 | 1575 | Ra2280422 |
| Instrument 2 - C | 6 | 1 | 861 | 20306 | 4/22/2005 11:36 | 1575 | Ra2280422 |
| Instrument 2 - C | 7 | 1 | 716 | 17078 | 4/22/2005 11:34 | 1575 | Ra2280422 |
| Instrument 2 - C | 8 | 1 | 850 | 20865 | 4/22/2005 11:41 | 1575 | Ra2280422 |
| | | | | | | | |
| Instrument 2 - D | 1 | 1 | 764 | 18765 | 4/22/2005 11:51 | 1575 | Ra2280422 |
| Instrument 2 - D | 2 | 1 | 845 | 18699 | 4/22/2005 11:48 | 1575 | Ra2280422 |
| Instrument 2 - D | 3 | 1 | 879 | 18907 | 4/22/2005 11:46 | 1575 | Ra2280422 |
| Instrument 2 - D | 4 | 1 | 860 | 19192 | 4/22/2005 11:44 | 1575 | Ra2280422 |
| Instrument 2 - D | 5 | 1 | 832 | 18606 | 4/22/2005 11:41 | 1575 | Ra2280422 |
| Instrument 2 - D | 6 | 1 | 942 | 20333 | 4/22/2005 11:39 | 1575 | Ra2280422 |
| Instrument 2 - D | 7 | 1 | 739 | 17047 | 4/22/2005 11:36 | 1575 | Ra2280422 |
| Instrument 2 - D | 8 | 1 | 886 | 21415 | 4/22/2005 11:34 | 1575 | Ra2280422 |
| | | | | | | | |
| Instrument 3 - A | 1 | 1 | 2133 | 17349 | 4/22/2005 11:53 | 1575 | Ra2280422 |
| Instrument 3 - A | 2 | 1 | 2284 | 16837 | 4/22/2005 12:01 | 1575 | Ra2280422 |
| Instrument 3 - A | 3 | 1 | 2165 | 16897 | 4/22/2005 11:58 | 1575 | Ra2280422 |
| Instrument 3 - A | 4 | 1 | 2100 | 17023 | 4/22/2005 11:56 | 1575 | Ra2280422 |
| Instrument 3 - A | 5 | 1 | 2111 | 16224 | 4/22/2005 12:03 | 1575 | Ra2280422 |
| Instrument 3 - A | 6 | 1 | 2324 | 17122 | 4/22/2005 12:11 | 1575 | Ra2280422 |
| Instrument 3 - A | 7 | 1 | 1975 | 14677 | 4/22/2005 12:09 | 1575 | Ra2280422 |
| Instrument 3 - A | 8 | 1 | 2513 | 18247 | 4/22/2005 12:06 | 1575 | Ra2280422 |
| | | | | | | | |
| Instrument 3 - B | 1 | 1 | 1229 | 18301 | 4/22/2005 11:56 | 1575 | Ra2280422 |
| Instrument 3 - B | 2 | 1 | 1119 | 17820 | 4/22/2005 11:53 | 1575 | Ra2280422 |
| Instrument 3 - B | 3 | 1 | 1193 | 17468 | 4/22/2005 12:01 | 1575 | Ra2280422 |
| Instrument 3 - B | 4 | 1 | 1240 | 17817 | 4/22/2005 11:58 | 1575 | Ra2280422 |
| Instrument 3 - B | 5 | 1 | 1176 | 16676 | 4/22/2005 12:06 | 1575 | Ra2280422 |
| Instrument 3 - B | 6 | 1 | 1317 | 18221 | 4/22/2005 12:03 | 1575 | Ra2280422 |
| Instrument 3 - B | 7 | 1 | 1089 | 15236 | 4/22/2005 12:11 | 1575 | Ra2280422 |
| Instrument 3 - B | 8 | 1 | 1428 | 19246 | 4/22/2005 12:09 | 1575 | Ra2280422 |
| | | | | | | | |
| Instrument 3 - C | 1 | 1 | 739 | 18067 | 4/22/2005 11:58 | 1575 | Ra2280422 |
| Instrument 3 - C | 2 | 1 | 661 | 17672 | 4/22/2005 11:56 | 1575 | Ra2280422 |
| Instrument 3 - C | 3 | 1 | 702 | 17897 | 4/22/2005 11:53 | 1575 | Ra2280422 |
| Instrument 3 - C | 4 | 1 | 747 | 17811 | 4/22/2005 12:01 | 1575 | Ra2280422 |
| Instrument 3 - C | 5 | 1 | 731 | 17040 | 4/22/2005 12:09 | 1575 | Ra2280422 |
| Instrument 3 - C | 6 | 1 | 855 | 18315 | 4/22/2005 12:06 | 1575 | Ra2280422 |
| Instrument 3 - C | 7 | 1 | 687 | 15413 | 4/22/2005 12:04 | 1575 | Ra2280422 |
| Instrument 3 - C | 8 | 1 | 838 | 19109 | 4/22/2005 12:11 | 1575 | Ra2280422 |
| | | | | | | | |
| Instrument 3 - D | 1 | 1 | 569 | 18431 | 4/22/2005 12:01 | 1575 | Ra2280422 |
| Instrument 3 - D | 2 | 1 | 533 | 17875 | 4/22/2005 11:58 | 1575 | Ra2280422 |
| Instrument 3 - D | 3 | 1 | 530 | 18135 | 4/22/2005 11:56 | 1575 | Ra2280422 |

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|------------------|---|---|------|-------|-----------------|------|-----------|
| Instrument 3 - D | 4 | 1 | 484 | 18296 | 4/22/2005 11:53 | 1575 | Ra2280422 |
| Instrument 3 - D | 5 | 1 | 549 | 17038 | 4/22/2005 12:12 | 1575 | Ra2280422 |
| Instrument 3 - D | 6 | 1 | 640 | 18362 | 4/22/2005 12:09 | 1575 | Ra2280422 |
| Instrument 3 - D | 7 | 1 | 502 | 15895 | 4/22/2005 12:06 | 1575 | Ra2280422 |
| Instrument 3 - D | 8 | 1 | 606 | 19562 | 4/22/2005 12:04 | 1575 | Ra2280422 |
| | | | | | | | |
| Instrument 4 - A | 1 | 1 | 436 | 18783 | 4/22/2005 12:04 | 1575 | Ra2280422 |
| Instrument 4 - A | 2 | 1 | 442 | 17978 | 4/22/2005 12:12 | 1575 | Ra2280422 |
| Instrument 4 - A | 3 | 1 | 410 | 18198 | 4/22/2005 12:09 | 1575 | Ra2280422 |
| Instrument 4 - A | 4 | 1 | 379 | 18683 | 4/22/2005 12:07 | 1575 | Ra2280422 |
| Instrument 4 - A | 5 | 1 | 398 | 18198 | 4/22/2005 11:54 | 1575 | Ra2280422 |
| Instrument 4 - A | 6 | 1 | 437 | 19420 | 4/22/2005 12:01 | 1575 | Ra2280422 |
| Instrument 4 - A | 7 | 1 | 377 | 16781 | 4/22/2005 11:58 | 1575 | Ra2280422 |
| Instrument 4 - A | 8 | 1 | 451 | 20737 | 4/22/2005 11:56 | 1575 | Ra2280422 |
| | | | | | | | |
| Instrument 4 - B | 1 | 1 | 73 | 19059 | 4/22/2005 12:07 | 1575 | Ra2280422 |
| Instrument 4 - B | 2 | 1 | 62 | 18636 | 4/22/2005 12:04 | 1575 | Ra2280422 |
| Instrument 4 - B | 3 | 1 | 63 | 18870 | 4/22/2005 12:12 | 1575 | Ra2280422 |
| Instrument 4 - B | 4 | 1 | 53 | 19050 | 4/22/2005 12:09 | 1575 | Ra2280422 |
| Instrument 4 - B | 5 | 1 | 53 | 18563 | 4/22/2005 11:56 | 1575 | Ra2280422 |
| Instrument 4 - B | 6 | 1 | 50 | 20222 | 4/22/2005 11:54 | 1575 | Ra2280422 |
| Instrument 4 - B | 7 | 1 | 66 | 16906 | 4/22/2005 12:01 | 1575 | Ra2280422 |
| Instrument 4 - B | 8 | 1 | 55 | 21570 | 4/22/2005 11:58 | 1575 | Ra2280422 |
| | | | | | | | |
| Instrument 4 - C | 1 | 1 | 749 | 18454 | 4/22/2005 12:09 | 1575 | Ra2280422 |
| Instrument 4 - C | 2 | 1 | 710 | 18119 | 4/22/2005 12:07 | 1575 | Ra2280422 |
| Instrument 4 - C | 3 | 1 | 706 | 18126 | 4/22/2005 12:04 | 1575 | Ra2280422 |
| Instrument 4 - C | 4 | 1 | 731 | 18045 | 4/22/2005 12:12 | 1575 | Ra2280422 |
| Instrument 4 - C | 5 | 1 | 688 | 17757 | 4/22/2005 11:58 | 1575 | Ra2280422 |
| Instrument 4 - C | 6 | 1 | 755 | 19232 | 4/22/2005 11:56 | 1575 | Ra2280422 |
| Instrument 4 - C | 7 | 1 | 583 | 16571 | 4/22/2005 11:54 | 1575 | Ra2280422 |
| Instrument 4 - C | 8 | 1 | 819 | 20415 | 4/22/2005 12:01 | 1575 | Ra2280422 |
| | | | | | | | |
| Instrument 4 - D | 1 | 1 | 1271 | 18178 | 4/22/2005 12:12 | 1575 | Ra2280422 |
| Instrument 4 - D | 2 | 1 | 1275 | 17622 | 4/22/2005 12:09 | 1575 | Ra2280422 |
| Instrument 4 - D | 3 | 1 | 1334 | 18020 | 4/22/2005 12:07 | 1575 | Ra2280422 |
| Instrument 4 - D | 4 | 1 | 1337 | 18346 | 4/22/2005 12:04 | 1575 | Ra2280422 |
| Instrument 4 - D | 5 | 1 | 1245 | 17305 | 4/22/2005 12:01 | 1575 | Ra2280422 |
| Instrument 4 - D | 6 | 1 | 1357 | 19186 | 4/22/2005 11:59 | 1575 | Ra2280422 |
| Instrument 4 - D | 7 | 1 | 1108 | 16363 | 4/22/2005 11:56 | 1575 | Ra2280422 |
| Instrument 4 - D | 8 | 1 | 1366 | 20538 | 4/22/2005 11:54 | 1575 | Ra2280422 |

| Detector | Weight (mg) | Sample I.D. | Act. Time | Alpha | Beta | Voltage | Date/Time | Alpha Xtlk |
|----------|-------------|-------------|-----------|--------|-------|---------|-----------------|-------------|
| 1-A | 0 | 1 | 4 | 123180 | 7004 | 1575 | 7/19/2004 12:45 | 0.05685988 |
| 1-A | 2.6 | 2 | 4 | 132201 | 10981 | 1575 | 7/19/2004 13:05 | 0.083062912 |
| 1-A | 6.6 | 3 | 4 | 138183 | 11002 | 1575 | 7/19/2004 12:59 | 0.079619056 |
| 1-A | 9.7 | 4 | 4 | 118680 | 9570 | 1575 | 7/19/2004 12:51 | 0.080637007 |
| 1-A | 13.8 | 5 | 4 | 143739 | 11066 | 1575 | 7/19/2004 14:06 | 0.076986761 |
| 1-A | 16.5 | 6 | 4 | 153621 | 11776 | 1575 | 7/19/2004 14:23 | 0.076656186 |
| 1-A | 24.4 | 7 | 4 | 128978 | 9363 | 1575 | 7/19/2004 14:17 | 0.072593776 |
| 1-A | 34.5 | 8 | 4 | 123306 | 9830 | 1575 | 7/19/2004 14:11 | 0.07972037 |
| 1-A | 54.1 | 9 | 4 | 120306 | 9399 | 1575 | 7/19/2004 13:40 | 0.078125779 |
| 1-A | 75 | 10 | 4 | 96614 | 8151 | 1575 | 7/19/2004 13:58 | 0.084366655 |
| 1-A | 108.1 | 11 | 4 | 101216 | 8301 | 1575 | 7/19/2004 13:51 | 0.082012725 |
| 1-A | 128.6 | 12 | 4 | 99107 | 7975 | 1575 | 7/19/2004 13:45 | 0.080468584 |
| 1-B | 0 | 1 | 4 | 120045 | 9546 | 1575 | 7/19/2004 12:51 | 0.07952018 |
| 1-B | 2.6 | 2 | 4 | 126842 | 15082 | 1575 | 7/19/2004 12:45 | 0.118903833 |
| 1-B | 6.6 | 3 | 4 | 131004 | 15988 | 1575 | 7/19/2004 13:05 | 0.122042075 |
| 1-B | 9.7 | 4 | 4 | 114350 | 12711 | 1575 | 7/19/2004 12:59 | 0.111158723 |
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| 2-D | 75 | 10 | 4 | 98974 | 5113 | 1575 | 7/19/2004 14:18 | 0.051660032 |
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| 4-A | 6.6 | 3 | 4 | 135773 | 8094 | 1575 | 7/19/2004 14:18 | 0.059614209 |
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| 4-A | 13.8 | 5 | 4 | 140420 | 8331 | 1575 | 7/19/2004 13:40 | 0.059329155 |
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| 4-A | 24.4 | 7 | 4 | 126148 | 7123 | 1575 | 7/19/2004 13:51 | 0.056465422 |
| 4-A | 34.5 | 8 | 4 | 121316 | 7207 | 1575 | 7/19/2004 13:46 | 0.059406838 |
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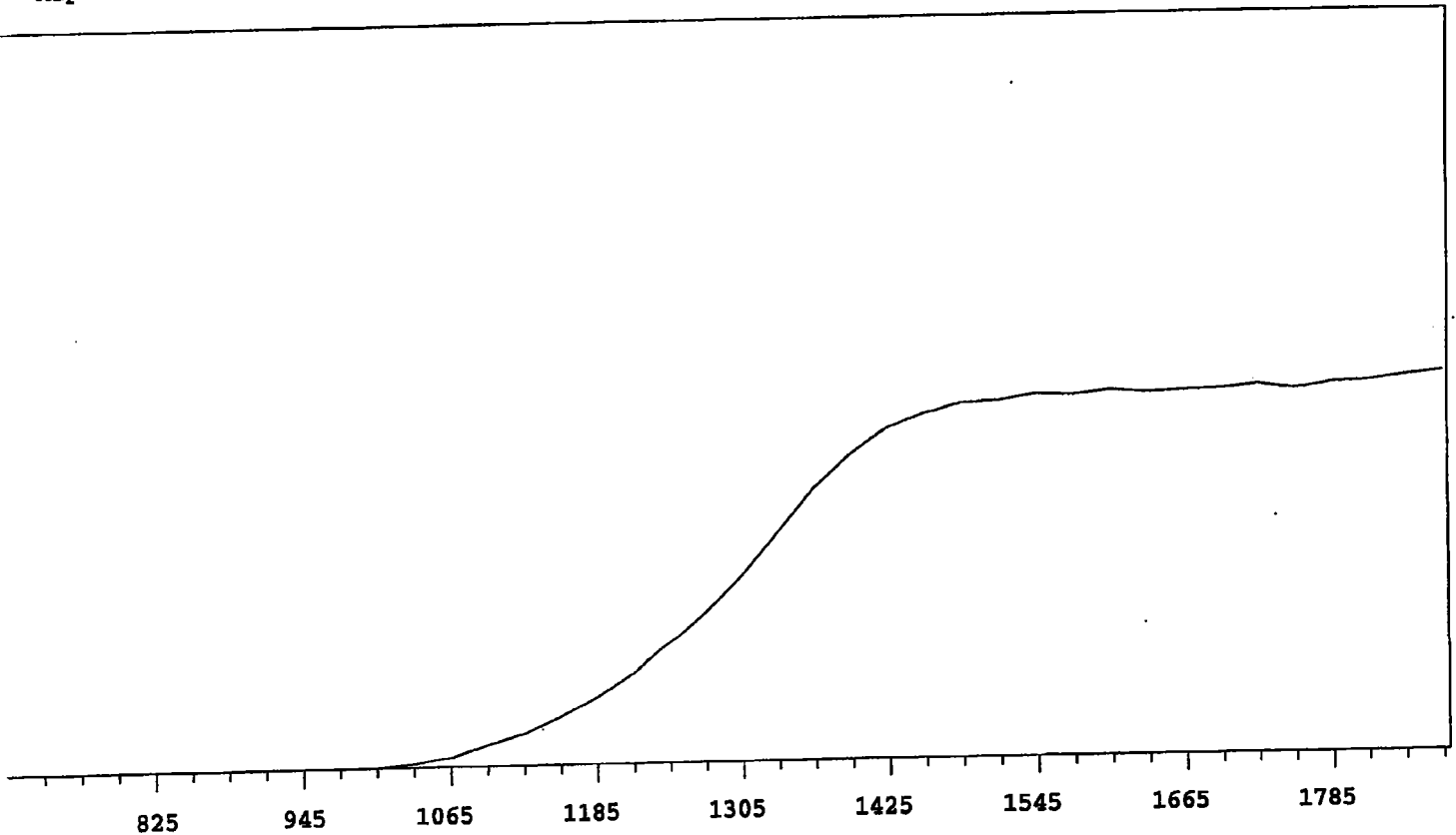
Plateau 07/04

Instrument 1 MPC 9604 Detector A

7/19/2004

Alpha Volts: 1575

Beta Volts: 1575



| VOLTS | COUNTS | %/100 Volts | VOLTS | COUNTS | %/100 Volts |
|-------|--------|-------------|-------|--------|-------------|
| 705 | 0 | | 1305 | 19647 | +66.40 |
| 735 | 1 | | 1335 | 24085 | +56.97 |
| 765 | 0 | | 1365 | 28472 | +45.24 |
| 795 | 0 | >100 | 1395 | 31886 | +32.36 |
| 825 | 0 | >100 | 1425 | 34566 | +21.39 |
| 855 | 0 | >100 | 1455 | 36094 | +12.77 |
| 885 | 0 | >100 | 1485 | 37160 | +7.52 |
| 915 | 0 | >100 | 1515 | 37374 | +4.09 |
| 945 | 2 | >100 | 1545 | 38060 | +2.67 |
| 975 | 9 | >100 | 1575 | 37933 | +1.53 |
| 1005 | 93 | >100 | 1605 | 38395 | +0.47 |
| 1035 | 472 | >100 | 1635 | 38079 | +0.70 |
| 1065 | 1107 | >100 | 1665 | 38254 | +0.98 |
| 1095 | 2321 | >100 | 1695 | 38405 | +0.88 |
| 1125 | 3514 | >100 | 1725 | 38794 | +0.97 |
| 1155 | 5227 | >100 | 1755 | 38316 | +1.20 |
| 1185 | 7099 | +98.30 | 1785 | 38858 | +2.01 |
| 1215 | 9425 | +88.55 | 1815 | 39067 | +3.46 |
| 1245 | 12574 | +81.27 | 1845 | 39590 | |
| 1275 | 15807 | +74.39 | 1875 | 39984 | |

Handwritten signature or initials

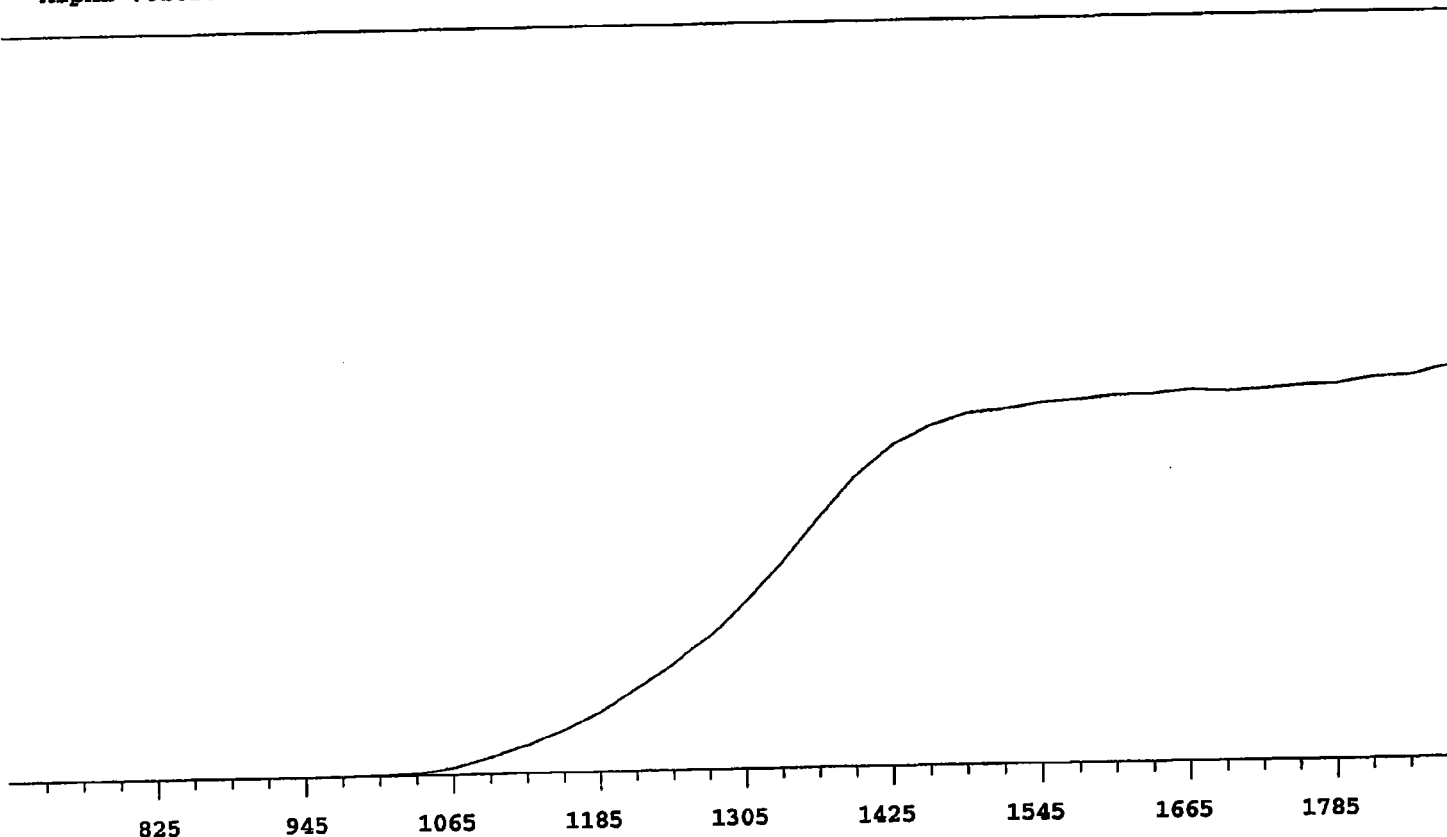
Plateau 07/04

Instrument 1 MPC 9604 Detector B

7/19/2004

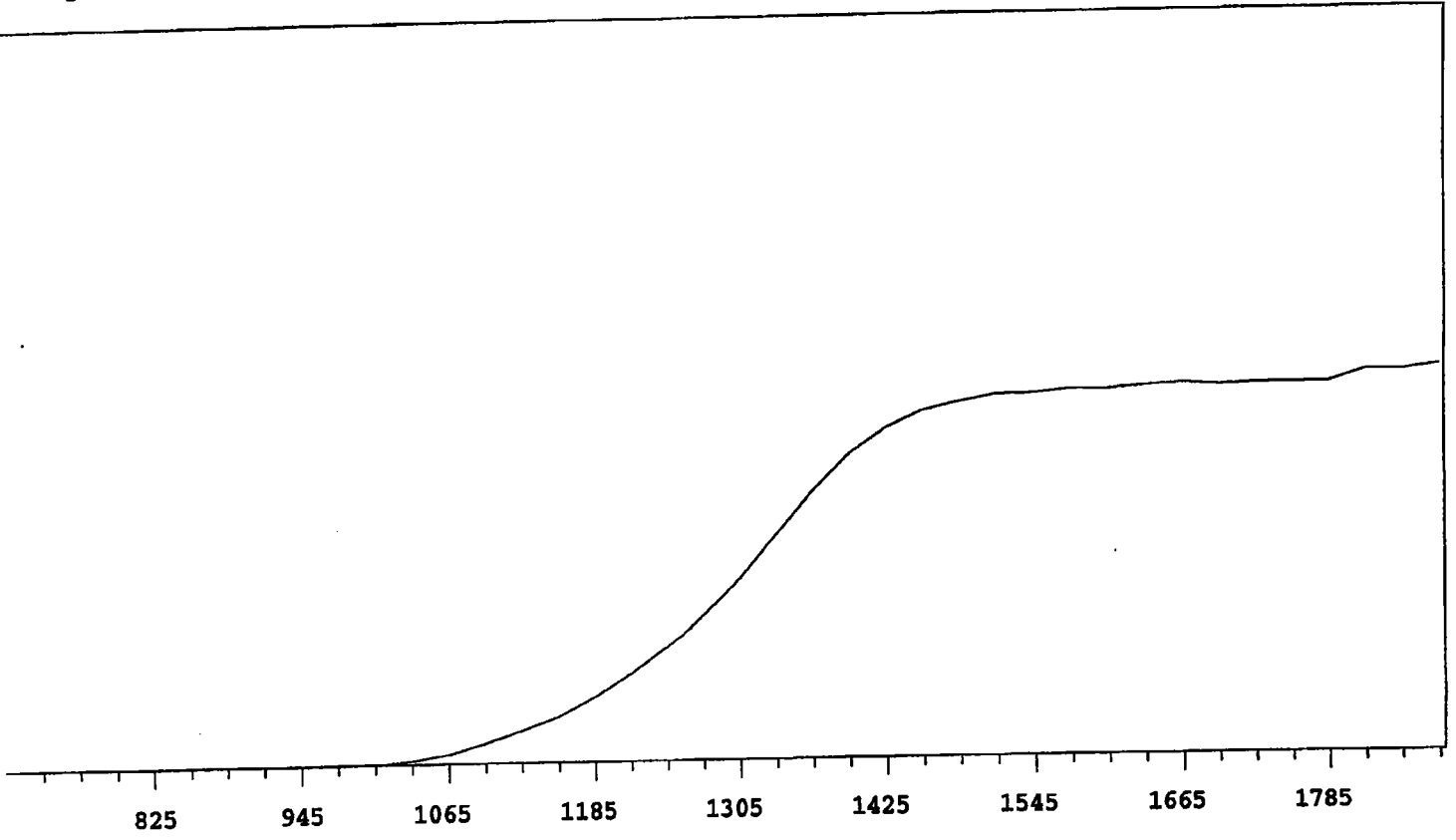
Alpha Volts: 1575

Beta Volts: 1575



| VOLTS | COUNTS | %/100 Volts | VOLTS | COUNTS | %/100 Volts |
|-------|--------|-------------|-------|--------|-------------|
| 705 | 0 | | 1305 | 18233 | +71.56 |
| 735 | 0 | | 1335 | 22329 | +63.09 |
| 765 | 0 | | 1365 | 26957 | +52.29 |
| 795 | 0 | >100 | 1395 | 31333 | +40.07 |
| 825 | 0 | >100 | 1425 | 34676 | +27.41 |
| 855 | 0 | >100 | 1455 | 36745 | +16.34 |
| 885 | 0 | >100 | 1485 | 38047 | +9.30 |
| 915 | 0 | >100 | 1515 | 38436 | +5.37 |
| 945 | 1 | >100 | 1545 | 39049 | +3.58 |
| 975 | 1 | >100 | 1575 | 39332 | +2.73 |
| 1005 | 28 | >100 | 1605 | 39689 | +2.17 |
| 1035 | 189 | >100 | 1635 | 39721 | +1.41 |
| 1065 | 694 | >100 | 1665 | 40142 | +0.97 |
| 1095 | 1704 | >100 | 1695 | 39944 | +1.22 |
| 1125 | 2895 | >100 | 1725 | 40159 | +1.15 |
| 1155 | 4335 | >100 | 1755 | 40445 | +2.43 |
| 1185 | 6174 | >100 | 1785 | 40586 | +2.67 |
| 1215 | 8490 | +93.12 | 1815 | 41204 | +3.66 |
| 1245 | 11048 | +85.61 | 1845 | 41412 | |
| 1275 | 14282 | +78.12 | 1875 | 42292 | |

Handwritten signature: jmh/keator



| VOLTS | COUNTS | %/100 Volts | VOLTS | COUNTS | %/100 Volts |
|-------|--------|-------------|-------|--------|-------------|
| 705 | 0 | | 1305 | 19843 | +68.09 |
| 735 | 0 | | 1335 | 24383 | +58.12 |
| 765 | 0 | | 1365 | 28965 | +46.47 |
| 795 | 0 | >100 | 1395 | 32739 | +33.67 |
| 825 | 0 | >100 | 1425 | 35363 | +22.02 |
| 855 | 0 | >100 | 1455 | 37211 | +13.59 |
| 885 | 0 | >100 | 1485 | 38118 | +7.60 |
| 915 | 0 | >100 | 1515 | 38793 | +4.20 |
| 945 | 0 | >100 | 1545 | 38869 | +2.24 |
| 975 | 6 | >100 | 1575 | 39257 | +1.56 |
| 1005 | 67 | >100 | 1605 | 39192 | +1.77 |
| 1035 | 384 | >100 | 1635 | 39548 | +0.99 |
| 1065 | 1049 | >100 | 1665 | 39770 | +0.83 |
| 1095 | 2181 | >100 | 1695 | 39557 | +0.19 |
| 1125 | 3529 | >100 | 1725 | 39678 | +0.06 |
| 1155 | 4985 | >100 | 1755 | 39708 | +2.33 |
| 1185 | 7117 | +98.92 | 1785 | 39728 | +3.00 |
| 1215 | 9603 | +91.00 | 1815 | 40929 | +3.79 |
| 1245 | 12383 | +81.78 | 1845 | 40873 | |
| 1275 | 16035 | +75.02 | 1875 | 41442 | |

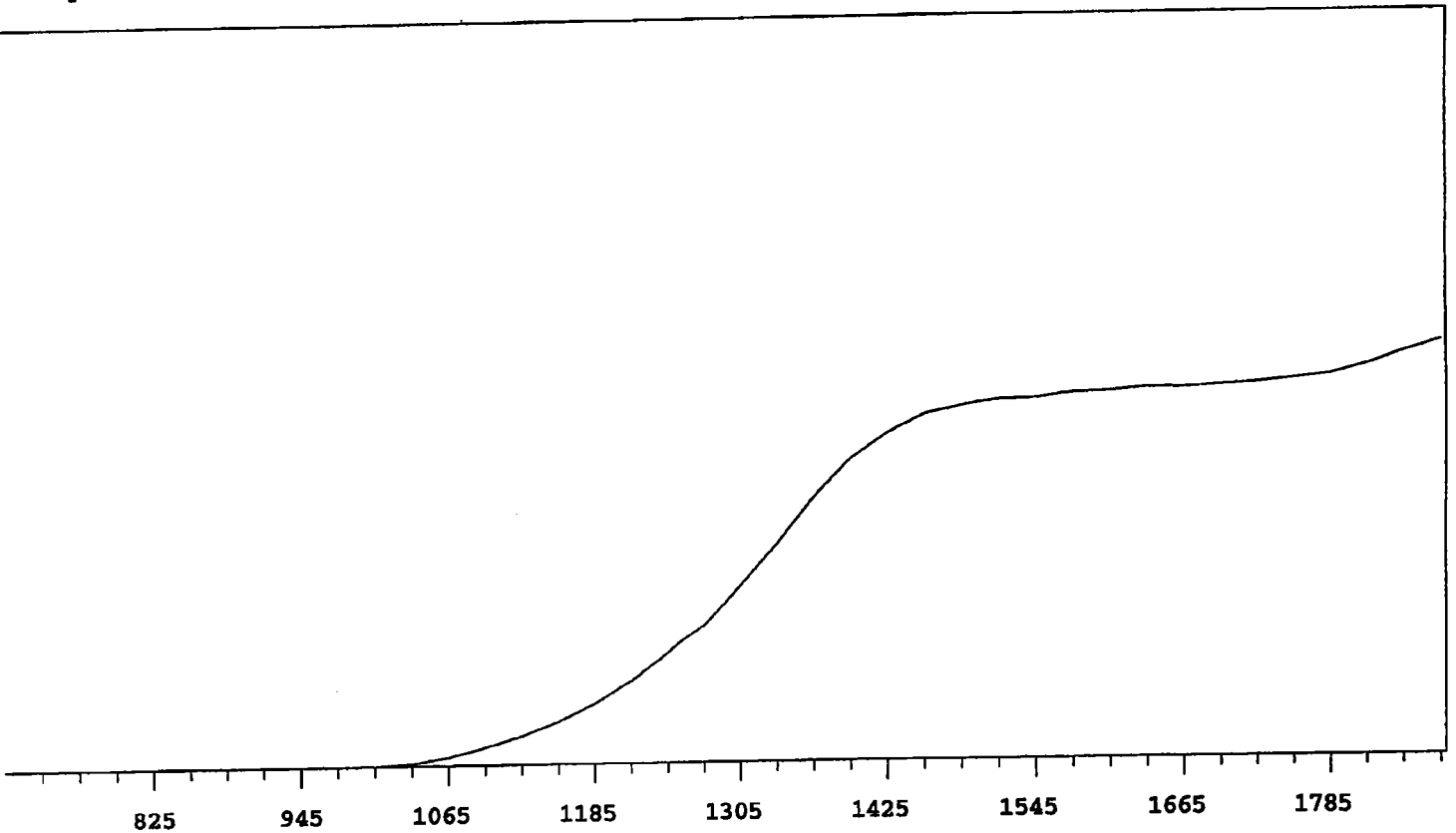
Handwritten signature or initials

Plateau 07/04

Instrument 1 MPC 9604 Detector D

7/19/2004

Alpha Volts: 1575 Beta Volts: 1575



| VOLTS | COUNTS | %/100 Volts | VOLTS | COUNTS | %/100 Volts |
|-------|--------|-------------|-------|--------|-------------|
| 705 | 0 | | 1305 | 18119 | +70.98 |
| 735 | 0 | | 1335 | 22262 | +62.06 |
| 765 | 0 | | 1365 | 26838 | +49.29 |
| 795 | 0 | >100 | 1395 | 30731 | +36.23 |
| 825 | 0 | >100 | 1425 | 33292 | +23.33 |
| 855 | 0 | >100 | 1455 | 35153 | +13.90 |
| 885 | 1 | >100 | 1485 | 35963 | +7.60 |
| 915 | 0 | >100 | 1515 | 36553 | +4.34 |
| 945 | 1 | >100 | 1545 | 36642 | +2.93 |
| 975 | 3 | >100 | 1575 | 37178 | +2.39 |
| 1005 | 38 | >100 | 1605 | 37266 | +1.96 |
| 1035 | 235 | >100 | 1635 | 37570 | +1.40 |
| 1065 | 812 | >100 | 1665 | 37540 | +1.51 |
| 1095 | 1784 | >100 | 1695 | 37829 | +1.86 |
| 1125 | 2940 | >100 | 1725 | 37991 | +2.68 |
| 1155 | 4370 | >100 | 1755 | 38402 | +4.04 |
| 1185 | 6148 | >100 | 1785 | 38788 | +6.23 |
| 1215 | 8306 | +93.10 | 1815 | 39767 | +7.92 |
| 1245 | 11151 | +85.86 | 1845 | 40972 | |
| 1275 | 14209 | +78.51 | 1875 | 42061 | |

Handwritten signature

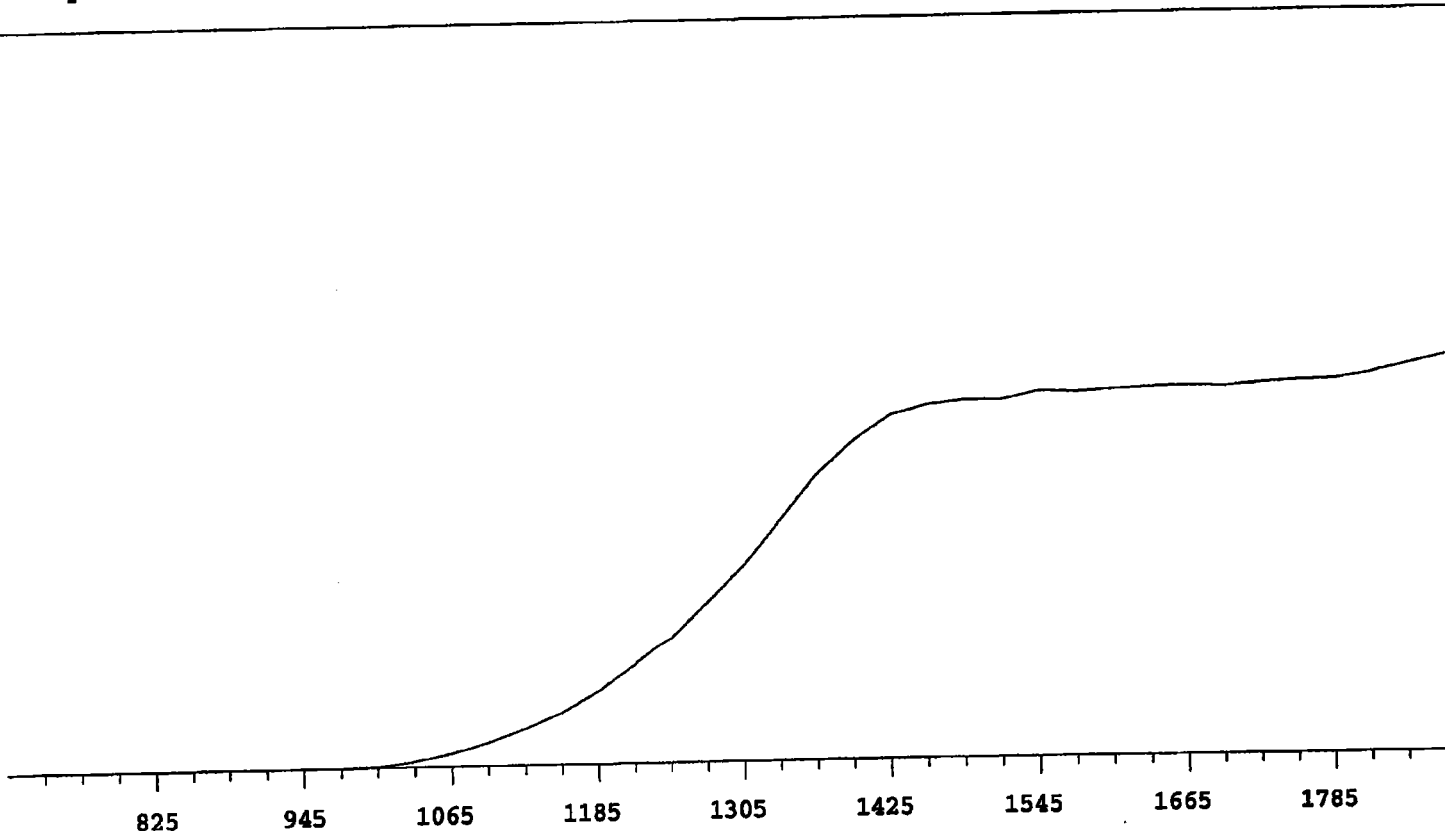
Plateau 07/04

Instrument 2 MPC 9604 Detector A

7/19/2004

Alpha Volts: 705

Beta Volts: 1575



| VOLTS | COUNTS | %/100 Volts | VOLTS | COUNTS | %/100 Volts |
|-------|--------|-------------|-------|--------|-------------|
| 705 | 0 | | 1305 | 23851 | +64.66 |
| 735 | 0 | | 1335 | 29020 | +54.28 |
| 765 | 0 | | 1365 | 34107 | +43.53 |
| 795 | 0 | >100 | 1395 | 37915 | +30.25 |
| 825 | 0 | >100 | 1425 | 41080 | +18.36 |
| 855 | 0 | >100 | 1455 | 42265 | +9.28 |
| 885 | 0 | >100 | 1485 | 42852 | +4.65 |
| 915 | 0 | >100 | 1515 | 42788 | +2.83 |
| 945 | 1 | >100 | 1545 | 43789 | +2.26 |
| 975 | 31 | >100 | 1575 | 43625 | +2.13 |
| 1005 | 186 | >100 | 1605 | 43907 | +1.05 |
| 1035 | 709 | >100 | 1635 | 44123 | +0.93 |
| 1065 | 1655 | >100 | 1665 | 44235 | +0.77 |
| 1095 | 2913 | >100 | 1695 | 44074 | +1.03 |
| 1125 | 4590 | >100 | 1725 | 44441 | +1.31 |
| 1155 | 6428 | >100 | 1755 | 44707 | +2.55 |
| 1185 | 8824 | +94.92 | 1785 | 44790 | +3.80 |
| 1215 | 11872 | +87.83 | 1815 | 45612 | +5.33 |
| 1245 | 15239 | +79.24 | 1845 | 46564 | |
| 1275 | 19527 | +71.87 | 1875 | 47485 | |

mmh

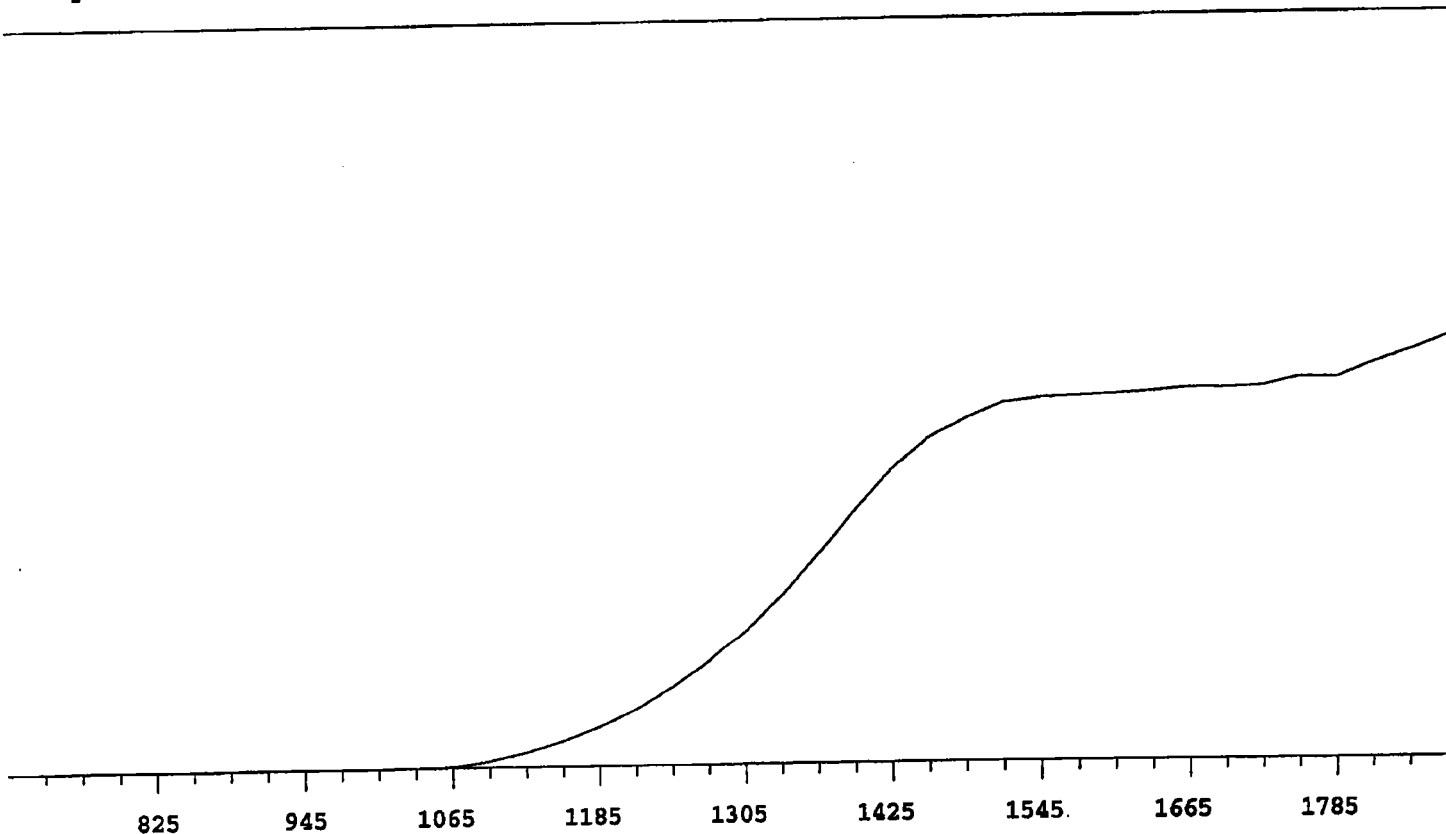
Plateau 07/04

Instrument 2 MPC 9604 Detector B

7/19/2004

Alpha Volts: 705

Beta Volts: 1575



| VOLTS | COUNTS | %/100 Volts |
|-------|--------|-------------|
| 705 | 0 | |
| 735 | 0 | |
| 765 | 1 | +0.00 |
| 795 | 0 | >100 |
| 825 | 0 | >100 |
| 855 | 0 | >100 |
| 885 | 0 | >100 |
| 915 | 0 | >100 |
| 945 | 0 | >100 |
| 975 | 1 | >100 |
| 1005 | 1 | >100 |
| 1035 | 25 | >100 |
| 1065 | 181 | >100 |
| 1095 | 642 | >100 |
| 1125 | 1508 | >100 |
| 1155 | 2634 | >100 |
| 1185 | 4092 | >100 |
| 1215 | 5839 | >100 |
| 1245 | 8055 | +95.00 |
| 1275 | 10574 | +86.26 |
| 1305 | 13796 | +79.13 |
| 1335 | 17365 | +72.79 |
| 1365 | 21609 | +64.02 |
| 1395 | 26226 | +52.97 |
| 1425 | 30369 | +39.49 |
| 1455 | 33493 | +27.22 |
| 1485 | 35403 | +16.91 |
| 1515 | 36977 | +9.40 |
| 1545 | 37438 | +4.79 |
| 1575 | 37579 | +2.09 |
| 1605 | 37762 | +1.97 |
| 1635 | 37995 | +1.78 |
| 1665 | 38346 | +1.51 |
| 1695 | 38303 | +2.41 |
| 1725 | 38472 | +2.43 |
| 1755 | 39326 | +4.86 |
| 1785 | 39246 | +7.18 |
| 1815 | 40775 | +8.99 |
| 1845 | 42052 | |
| 1875 | 43445 | |

| VOLTS | COUNTS | %/100 Volts |
|-------|--------|-------------|
| 1305 | 13796 | +79.13 |
| 1335 | 17365 | +72.79 |
| 1365 | 21609 | +64.02 |
| 1395 | 26226 | +52.97 |
| 1425 | 30369 | +39.49 |
| 1455 | 33493 | +27.22 |
| 1485 | 35403 | +16.91 |
| 1515 | 36977 | +9.40 |
| 1545 | 37438 | +4.79 |
| 1575 | 37579 | +2.09 |
| 1605 | 37762 | +1.97 |
| 1635 | 37995 | +1.78 |
| 1665 | 38346 | +1.51 |
| 1695 | 38303 | +2.41 |
| 1725 | 38472 | +2.43 |
| 1755 | 39326 | +4.86 |
| 1785 | 39246 | +7.18 |
| 1815 | 40775 | +8.99 |
| 1845 | 42052 | |
| 1875 | 43445 | |

Handwritten signature

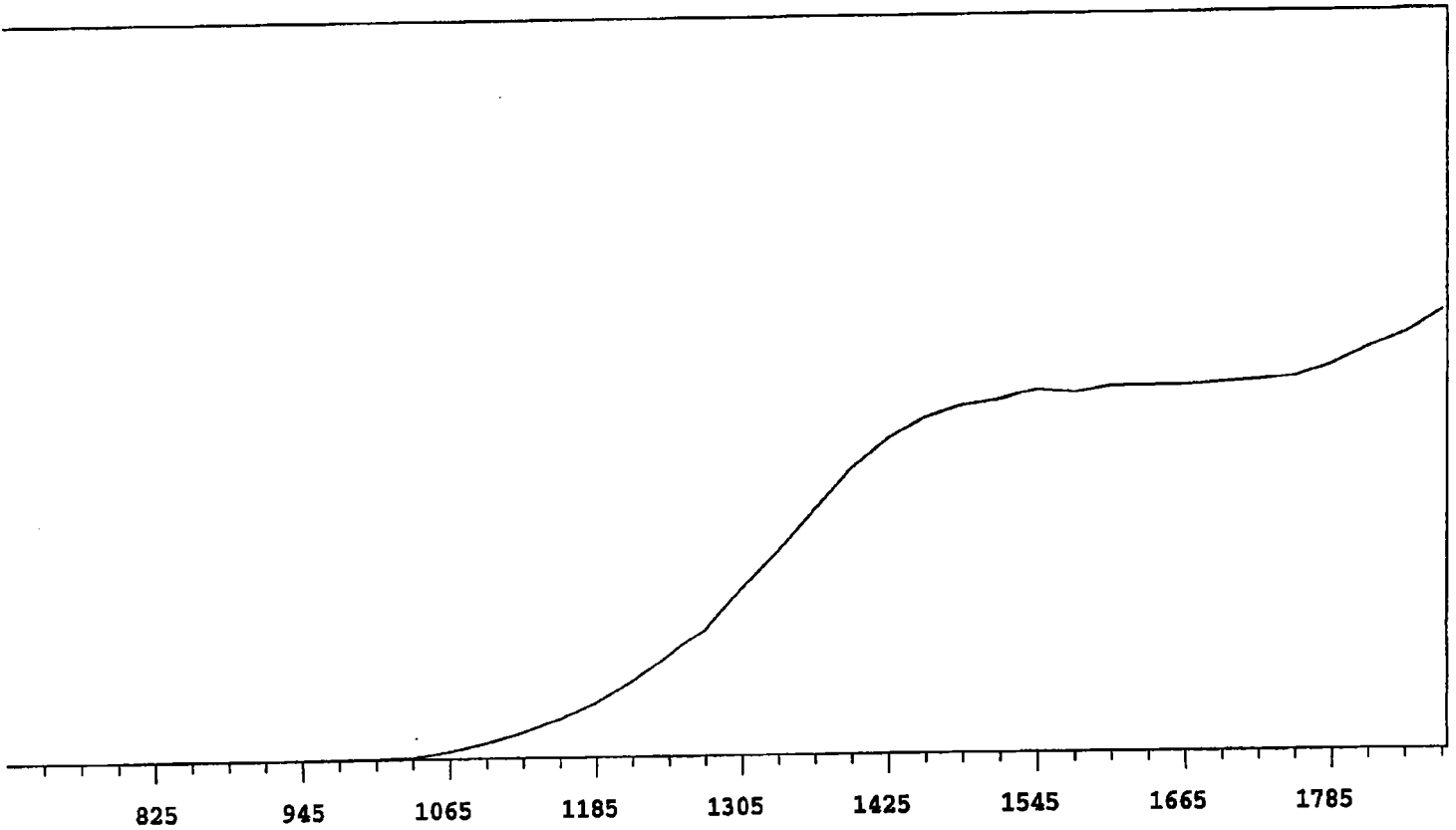
Plateau 07/04

Instrument 2 MPC 9604 Detector C

7/19/2004

Alpha Volts: 705

Beta Volts: 1575



| VOLTS | COUNTS | %/100 Volts | VOLTS | COUNTS | %/100 Volts |
|-------|--------|-------------|-------|--------|-------------|
| 705 | 0 | | 1305 | 15462 | +71.07 |
| 735 | 0 | | 1335 | 18841 | +62.11 |
| 765 | 0 | | 1365 | 22516 | +50.11 |
| 795 | 0 | >100 | 1395 | 26055 | +38.36 |
| 825 | 0 | >100 | 1425 | 28616 | +26.36 |
| 855 | 0 | >100 | 1455 | 30333 | +16.13 |
| 885 | 0 | >100 | 1485 | 31358 | +10.48 |
| 915 | 0 | >100 | 1515 | 31858 | +5.90 |
| 945 | 0 | >100 | 1545 | 32724 | +4.01 |
| 975 | 2 | >100 | 1575 | 32459 | +2.65 |
| 1005 | 34 | >100 | 1605 | 33001 | +1.27 |
| 1035 | 198 | >100 | 1635 | 33015 | +1.78 |
| 1065 | 678 | >100 | 1665 | 33071 | +1.30 |
| 1095 | 1441 | >100 | 1695 | 33306 | +2.08 |
| 1125 | 2391 | >100 | 1725 | 33504 | +4.14 |
| 1155 | 3604 | >100 | 1755 | 33840 | +7.46 |
| 1185 | 5105 | >100 | 1785 | 34896 | +10.40 |
| 1215 | 7080 | +93.85 | 1815 | 36461 | +13.37 |
| 1245 | 9331 | +87.10 | 1845 | 37695 | |
| 1275 | 11919 | +78.91 | 1875 | 39769 | |

Handwritten signature/initials

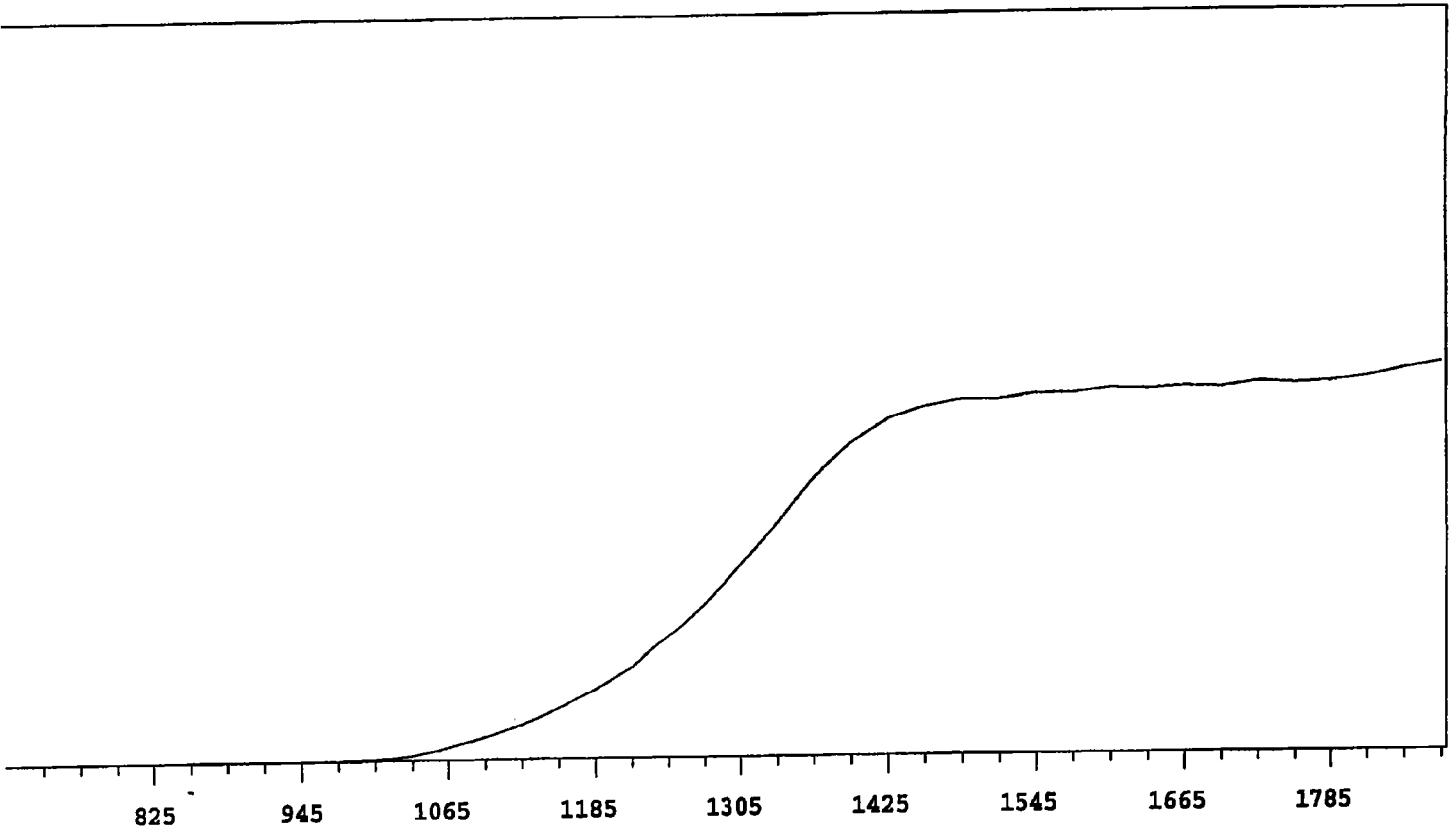
Plateau 07/04

Instrument 2 MPC 9604 Detector D

7/19/2004

Alpha Volts: 705

Beta Volts: 1575



| VOLTS | COUNTS | %/100 Volts | VOLTS | COUNTS | %/100 Volts |
|-------|--------|-------------|-------|--------|-------------|
| 705 | 0 | | 1305 | 24635 | +66.12 |
| 735 | 0 | | 1335 | 29835 | +56.19 |
| 765 | 0 | | 1365 | 35285 | +43.75 |
| 795 | 0 | >100 | 1395 | 39469 | +30.76 |
| 825 | 0 | >100 | 1425 | 42337 | +19.13 |
| 855 | 0 | >100 | 1455 | 43919 | +10.31 |
| 885 | 0 | >100 | 1485 | 44875 | +5.61 |
| 915 | 0 | >100 | 1515 | 44862 | +3.06 |
| 945 | 2 | >100 | 1545 | 45596 | +2.54 |
| 975 | 19 | >100 | 1575 | 45621 | +2.21 |
| 1005 | 153 | >100 | 1605 | 46227 | +1.45 |
| 1035 | 638 | >100 | 1635 | 46064 | +0.97 |
| 1065 | 1652 | >100 | 1665 | 46372 | +1.14 |
| 1095 | 2965 | >100 | 1695 | 46217 | +1.30 |
| 1125 | 4560 | >100 | 1725 | 46942 | +1.05 |
| 1155 | 6605 | >100 | 1755 | 46688 | +1.70 |
| 1185 | 9052 | +95.03 | 1785 | 46874 | +2.68 |
| 1215 | 11639 | +87.08 | 1815 | 47445 | +4.76 |
| 1245 | 15562 | +81.12 | 1845 | 48467 | |
| 1275 | 19691 | +74.76 | 1875 | 49304 | |

Handwritten signature
7/19/2004

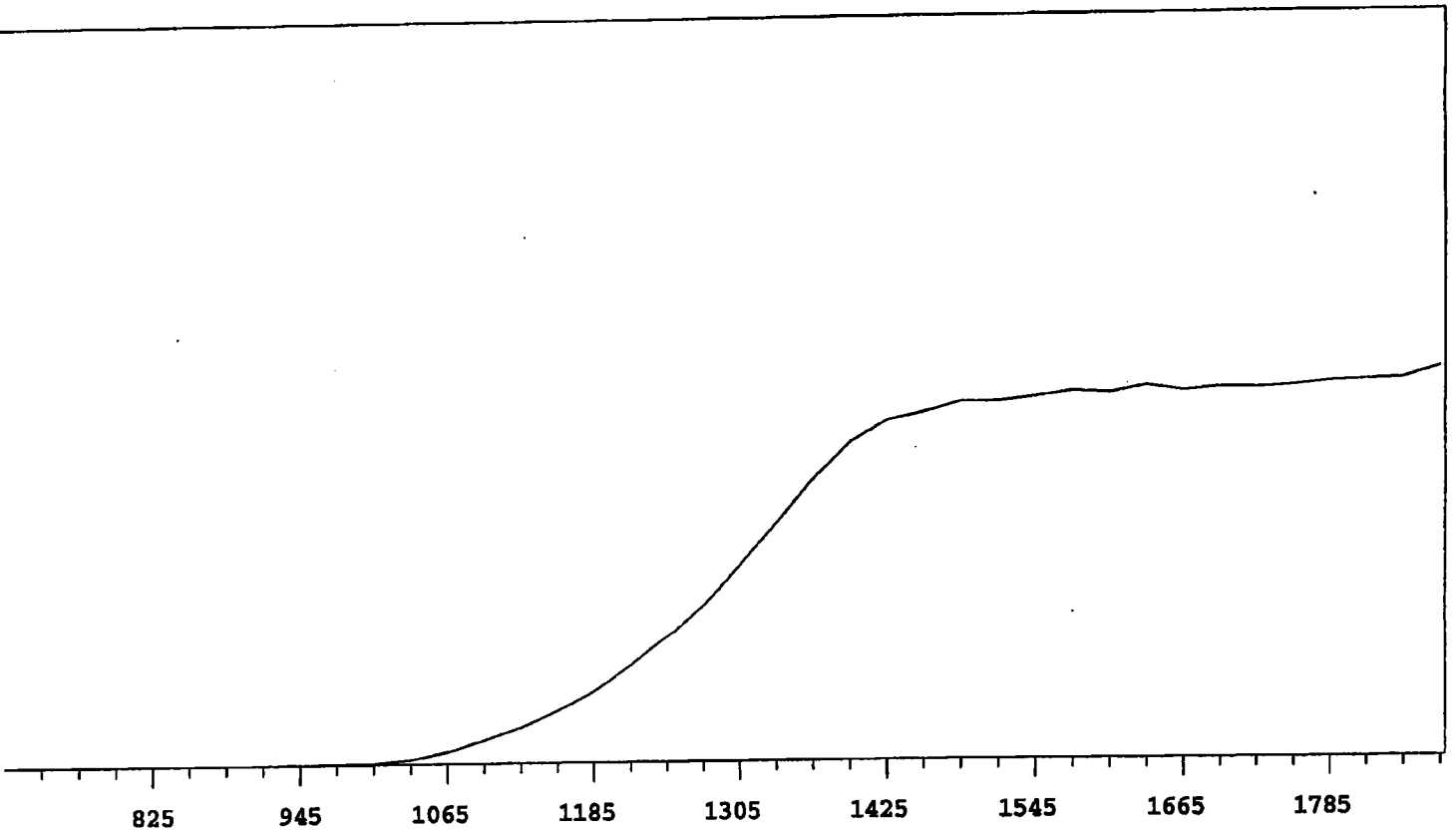
Plateau 07/04

Instrument 3 MPC 9604 Detector A

7/19/2004

Alpha Volts: 705

Beta Volts: 1575



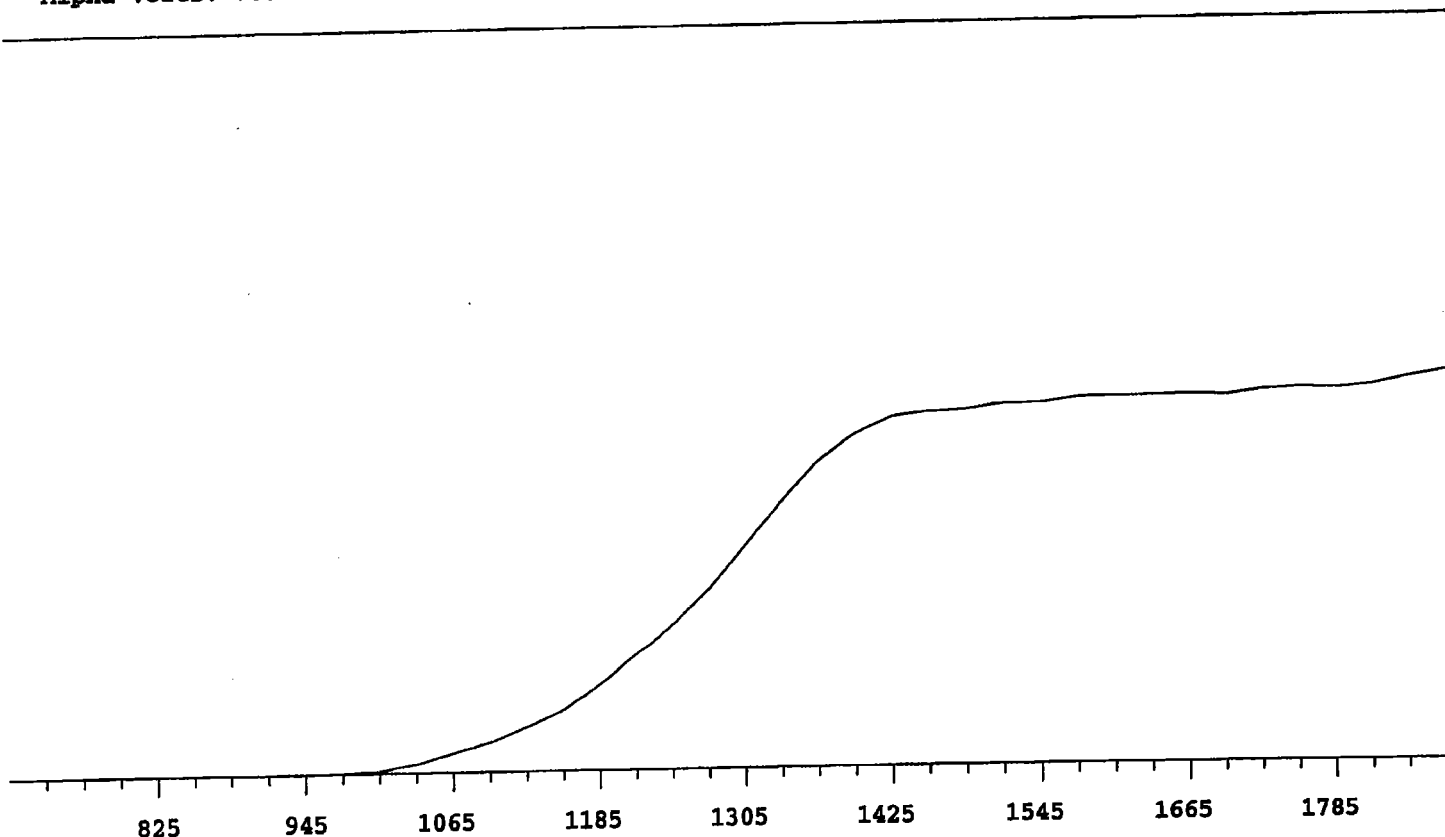
| VOLTS | COUNTS | %/100 Volts | VOLTS | COUNTS | %/100 Volts |
|-------|--------|-------------|-------|--------|-------------|
| 705 | 0 | | 1305 | 21575 | +65.87 |
| 735 | 0 | | 1335 | 26174 | +56.59 |
| 765 | 0 | | 1365 | 30896 | +44.00 |
| 795 | 0 | >100 | 1395 | 34809 | +29.89 |
| 825 | 1 | +0.00 | 1425 | 37134 | +18.34 |
| 855 | 0 | >100 | 1455 | 38035 | +9.55 |
| 885 | 0 | >100 | 1485 | 39191 | +5.33 |
| 915 | 0 | >100 | 1515 | 39178 | +4.07 |
| 945 | 0 | >100 | 1545 | 39651 | +2.17 |
| 975 | 18 | >100 | 1575 | 40203 | +2.85 |
| 1005 | 109 | >100 | 1605 | 39970 | +1.23 |
| 1035 | 454 | >100 | 1635 | 40729 | +0.64 |
| 1065 | 1261 | >100 | 1665 | 40127 | +0.51 |
| 1095 | 2472 | >100 | 1695 | 40509 | +0.10 |
| 1125 | 3802 | >100 | 1725 | 40387 | +1.66 |
| 1155 | 5583 | >100 | 1755 | 40662 | +1.77 |
| 1185 | 7639 | +99.85 | 1785 | 41060 | +2.16 |
| 1215 | 10514 | +89.69 | 1815 | 41255 | +3.34 |
| 1245 | 13685 | +81.66 | 1845 | 41417 | |
| 1275 | 17277 | +73.24 | 1875 | 42557 | |

g 7/22/04

Plateau 07/04

Instrument 3 MPC 9604 Detector B 7/19/2004

Alpha Volts: 705 Beta Volts: 1575



| VOLTS | COUNTS | %/100 Volts | VOLTS | COUNTS | %/100 Volts |
|-------|--------|-------------|-------|--------|-------------|
| 705 | 0 | | 1305 | 19165 | +59.15 |
| 735 | 0 | | 1335 | 22642 | +47.93 |
| 765 | 0 | | 1365 | 25877 | +34.84 |
| 795 | 0 | >100 | 1395 | 28084 | +22.41 |
| 825 | 0 | >100 | 1425 | 29543 | +12.08 |
| 855 | 0 | >100 | 1455 | 29959 | +6.28 |
| 885 | 0 | >100 | 1485 | 30142 | +3.11 |
| 915 | 0 | >100 | 1515 | 30579 | +2.97 |
| 945 | 4 | >100 | 1545 | 30642 | +2.65 |
| 975 | 46 | >100 | 1575 | 31069 | +1.73 |
| 1005 | 241 | >100 | 1605 | 31120 | +1.39 |
| 1035 | 763 | >100 | 1635 | 31142 | +0.31 |
| 1065 | 1642 | >100 | 1665 | 31255 | +0.92 |
| 1095 | 2578 | >100 | 1695 | 31148 | +1.60 |
| 1125 | 3908 | >100 | 1725 | 31549 | +1.43 |
| 1155 | 5339 | >100 | 1755 | 31750 | +1.73 |
| 1185 | 7437 | +92.71 | 1785 | 31631 | +2.34 |
| 1215 | 9881 | +83.26 | 1815 | 31928 | +3.75 |
| 1245 | 12503 | +75.07 | 1845 | 32580 | |
| 1275 | 15447 | +67.35 | 1875 | 33087 | |

Jan 7/2004

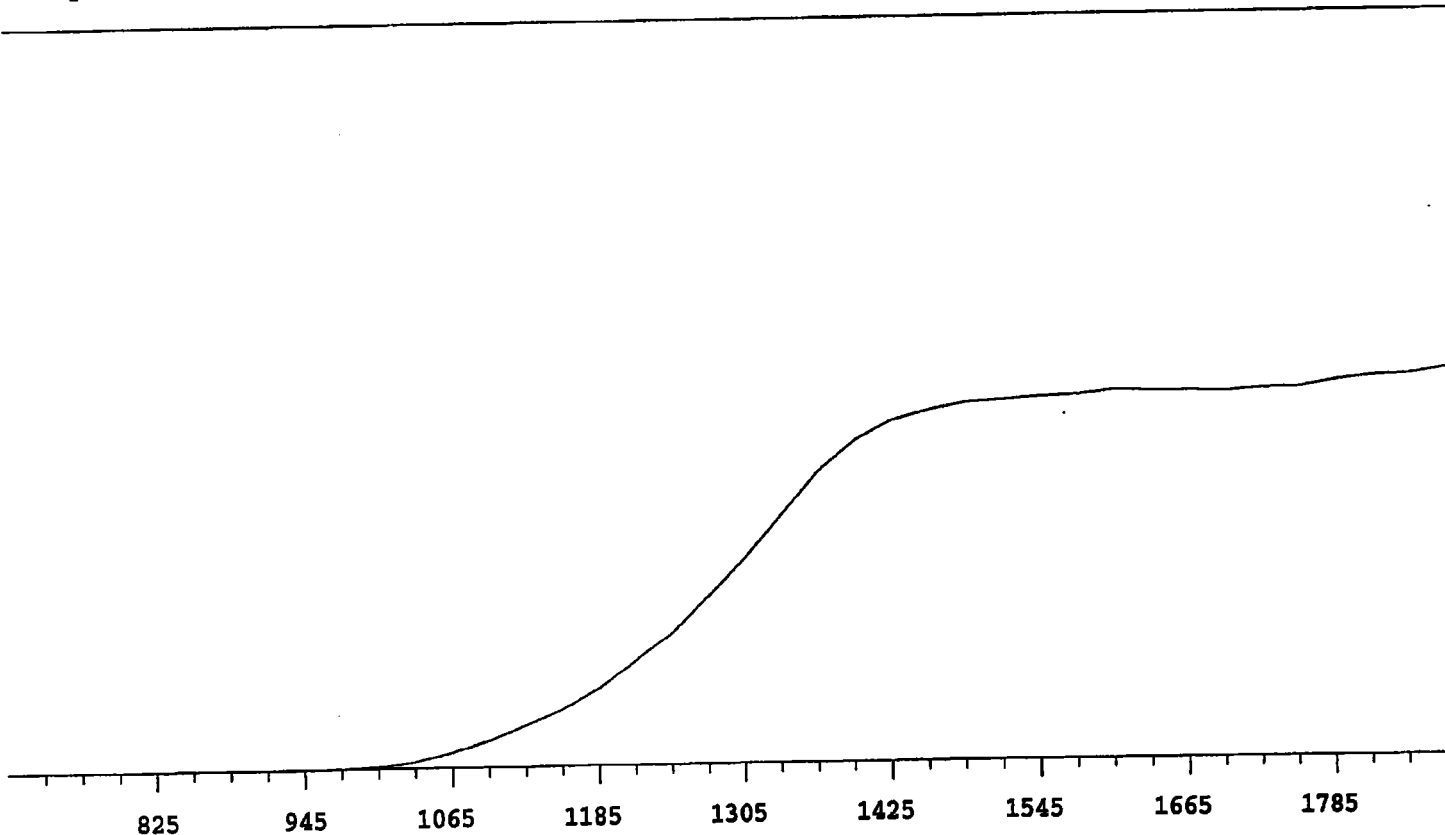
Plateau 07/04

Instrument 3 MPC 9604 Detector C

7/19/2004

Alpha Volts: 705

Beta Volts: 1575



| VOLTS | COUNTS | %/100 Volts | VOLTS | COUNTS | %/100 Volts |
|-------|--------|-------------|-------|--------|-------------|
| 705 | 1 | | 1305 | 21337 | +62.41 |
| 735 | 0 | | 1335 | 25676 | +51.87 |
| 765 | 0 | | 1365 | 30007 | +39.96 |
| 795 | 0 | >100 | 1395 | 33079 | +26.87 |
| 825 | 0 | >100 | 1425 | 35034 | +16.03 |
| 855 | 0 | >100 | 1455 | 36048 | +8.88 |
| 885 | 0 | >100 | 1485 | 36739 | +4.80 |
| 915 | 1 | >100 | 1515 | 36965 | +2.78 |
| 945 | 2 | >100 | 1545 | 37198 | +2.19 |
| 975 | 33 | >100 | 1575 | 37358 | +1.72 |
| 1005 | 226 | >100 | 1605 | 37766 | +1.06 |
| 1035 | 678 | >100 | 1635 | 37648 | +0.24 |
| 1065 | 1589 | >100 | 1665 | 37650 | +0.01 |
| 1095 | 2696 | >100 | 1695 | 37553 | +0.60 |
| 1125 | 4193 | >100 | 1725 | 37820 | +1.80 |
| 1155 | 5866 | >100 | 1755 | 37904 | +3.02 |
| 1185 | 7961 | +94.24 | 1785 | 38499 | +3.09 |
| 1215 | 10746 | +87.02 | 1815 | 38941 | +3.56 |
| 1245 | 13783 | +78.35 | 1845 | 39086 | |
| 1275 | 17549 | +69.99 | 1875 | 39684 | |

Handwritten signature

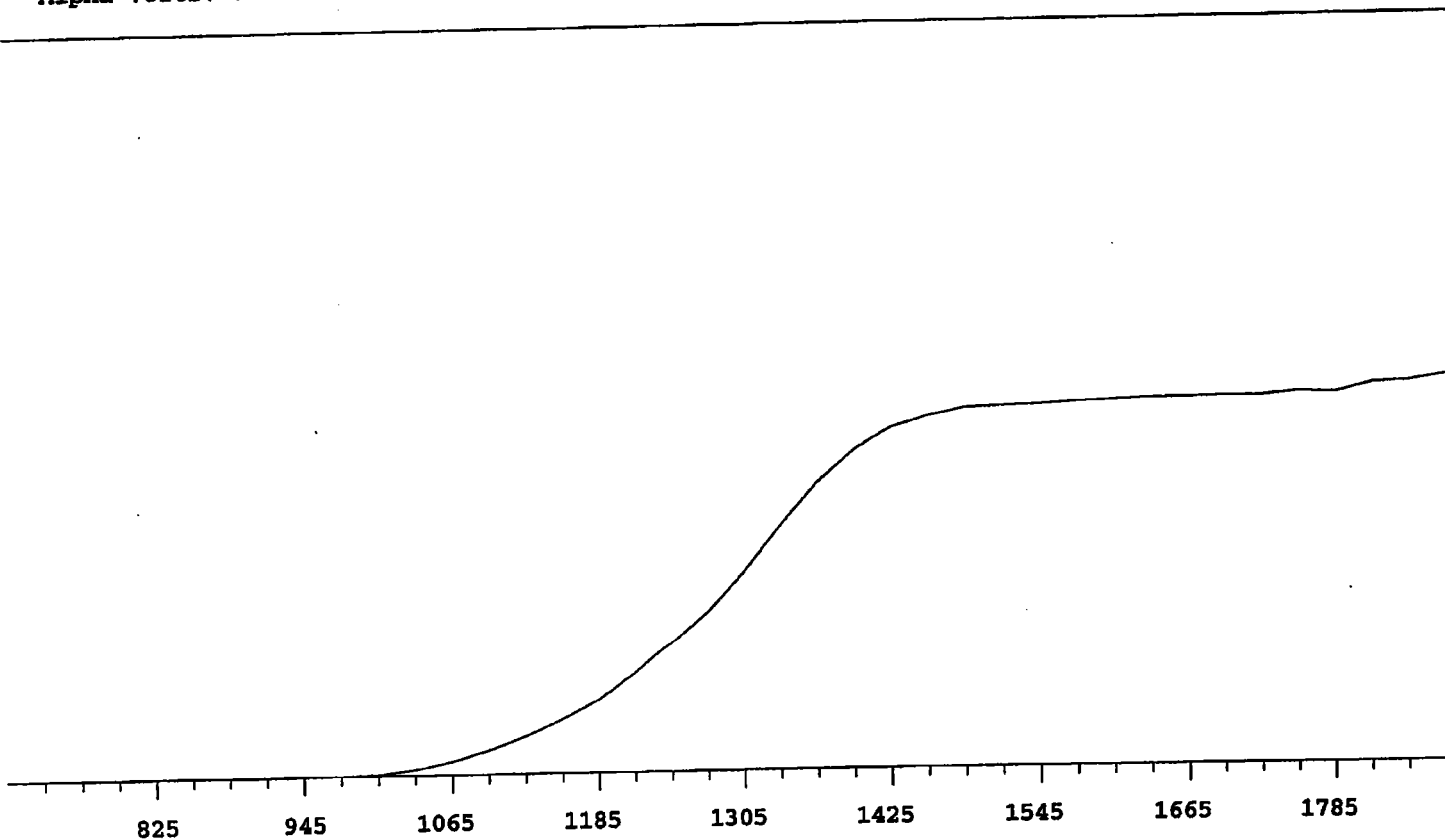
Plateau 07/04

Instrument 3 MPC 9604 Detector D

7/19/2004

Alpha Volts: 705

Beta Volts: 1575



| VOLTS | COUNTS | %/100 Volts | VOLTS | COUNTS | %/100 Volts |
|-------|--------|-------------|-------|--------|-------------|
| 705 | 0 | | 1305 | 22384 | +64.91 |
| 735 | 0 | | 1335 | 27338 | +55.29 |
| 765 | 0 | | 1365 | 31944 | +42.57 |
| 795 | 0 | >100 | 1395 | 35658 | +29.20 |
| 825 | 1 | >100 | 1425 | 38071 | +18.44 |
| 855 | 0 | +0.00 | 1455 | 39378 | +10.29 |
| 885 | 1 | +0.00 | 1485 | 40341 | +5.25 |
| 915 | 0 | >100 | 1515 | 40508 | +2.75 |
| 945 | 1 | >100 | 1545 | 40640 | +1.56 |
| 975 | 24 | >100 | 1575 | 40893 | +1.60 |
| 1005 | 140 | >100 | 1605 | 41098 | +1.34 |
| 1035 | 643 | >100 | 1635 | 41263 | +0.92 |
| 1065 | 1519 | >100 | 1665 | 41279 | +0.44 |
| 1095 | 2739 | >100 | 1695 | 41369 | +0.81 |
| 1125 | 4191 | >100 | 1725 | 41320 | +0.79 |
| 1155 | 6042 | >100 | 1755 | 41747 | +2.17 |
| 1185 | 8080 | +96.76 | 1785 | 41579 | +2.94 |
| 1215 | 10986 | +87.61 | 1815 | 42600 | +3.47 |
| 1245 | 14405 | +80.38 | 1845 | 42748 | |
| 1275 | 17994 | +72.82 | 1875 | 43368 | |

Jan 7/2004

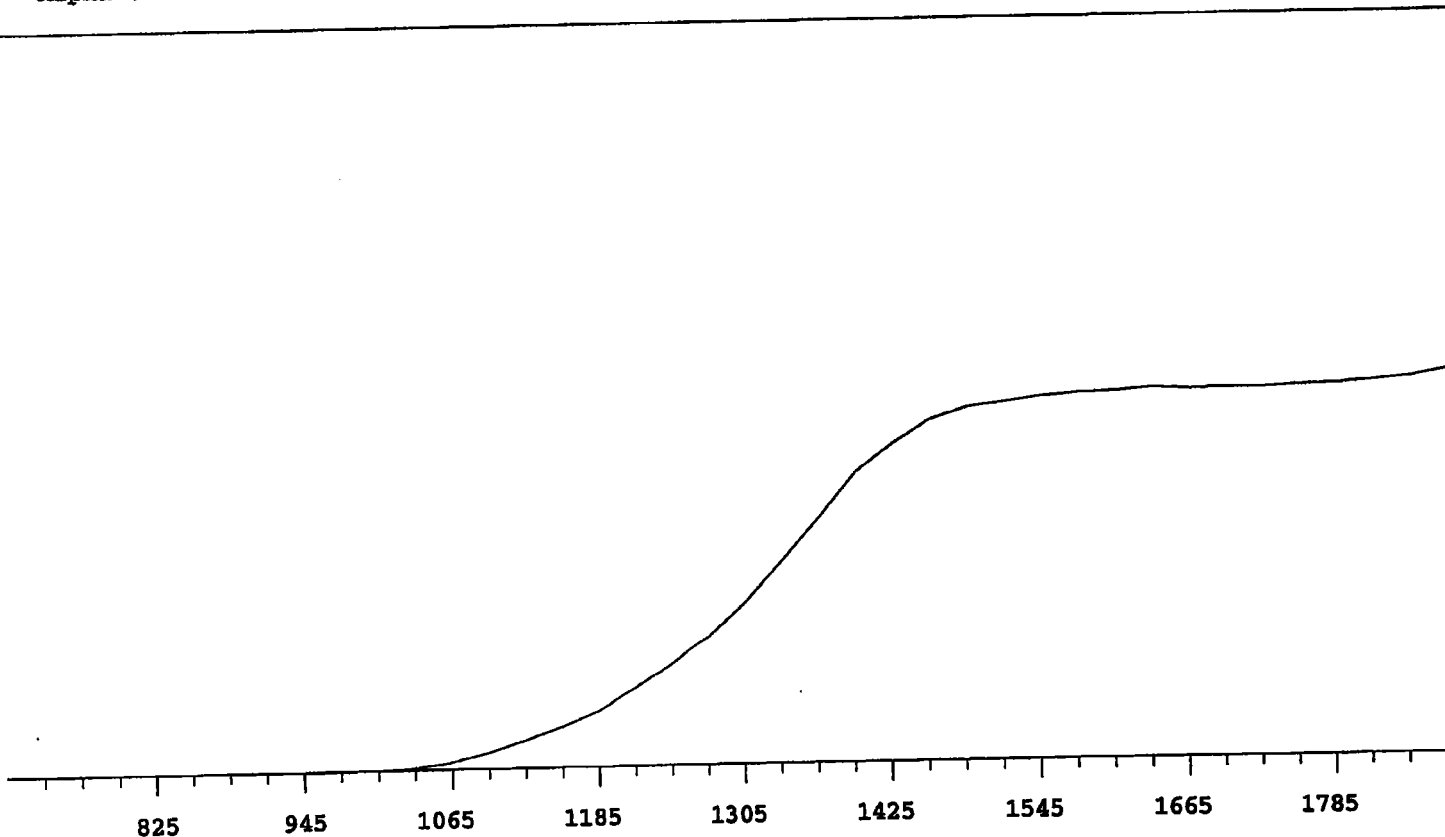
Plateau 07/04

Instrument 4 MPC 9604 Detector A

7/19/2004

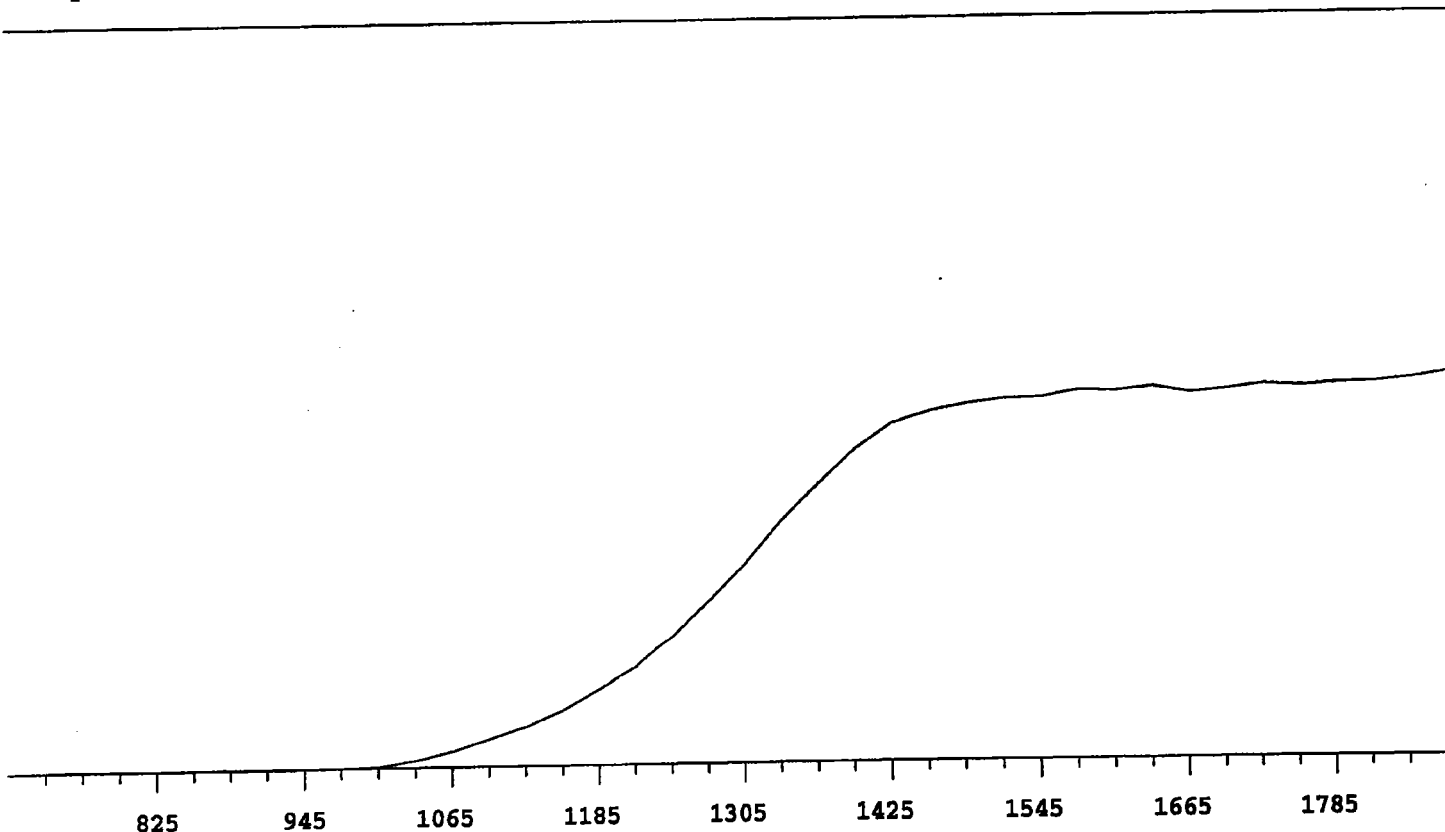
Alpha Volts: 705

Beta Volts: 1575



| VOLTS | COUNTS | %/100 Volts | VOLTS | COUNTS | %/100 Volts |
|-------|--------|-------------|-------|--------|-------------|
| 705 | 0 | | 1305 | 20196 | +70.92 |
| 735 | 0 | | 1335 | 25093 | +64.47 |
| 765 | 0 | | 1365 | 30252 | +53.89 |
| 795 | 0 | >100 | 1395 | 35803 | +41.42 |
| 825 | 0 | >100 | 1425 | 39177 | +28.43 |
| 855 | 0 | >100 | 1455 | 42048 | +16.73 |
| 885 | 0 | >100 | 1485 | 43395 | +9.95 |
| 915 | 0 | >100 | 1515 | 43954 | +5.33 |
| 945 | 1 | >100 | 1545 | 44588 | +3.24 |
| 975 | 3 | >100 | 1575 | 44953 | +2.66 |
| 1005 | 38 | >100 | 1605 | 45053 | +1.37 |
| 1035 | 245 | >100 | 1635 | 45510 | +0.69 |
| 1065 | 830 | >100 | 1665 | 45235 | +0.28 |
| 1095 | 1955 | >100 | 1695 | 45331 | +0.23 |
| 1125 | 3389 | >100 | 1725 | 45336 | +0.89 |
| 1155 | 4997 | >100 | 1755 | 45617 | +1.20 |
| 1185 | 6863 | >100 | 1785 | 45696 | +1.76 |
| 1215 | 9674 | +92.94 | 1815 | 45975 | +2.73 |
| 1245 | 12535 | +84.46 | 1845 | 46363 | |
| 1275 | 16168 | +76.69 | 1875 | 47175 | |

7/19/04



| VOLTS | COUNTS | %/100 Volts | VOLTS | COUNTS | %/100 Volts |
|-------|--------|-------------|-------|--------|-------------|
| 705 | 0 | | 1305 | 16703 | +61.95 |
| 735 | 0 | | 1335 | 20386 | +52.74 |
| 765 | 0 | | 1365 | 23431 | +42.22 |
| 795 | 0 | >100 | 1395 | 26285 | +29.61 |
| 825 | 0 | >100 | 1425 | 28336 | +19.32 |
| 855 | 0 | >100 | 1455 | 29277 | +11.04 |
| 885 | 0 | >100 | 1485 | 29890 | +5.68 |
| 915 | 0 | >100 | 1515 | 30279 | +4.18 |
| 945 | 2 | >100 | 1545 | 30360 | +2.81 |
| 975 | 36 | >100 | 1575 | 30933 | +2.50 |
| 1005 | 158 | >100 | 1605 | 30845 | +0.95 |
| 1035 | 577 | >100 | 1635 | 31188 | -0.15 |
| 1065 | 1316 | >100 | 1665 | 30673 | +0.82 |
| 1095 | 2298 | >100 | 1695 | 30948 | +0.70 |
| 1125 | 3318 | >100 | 1725 | 31344 | +1.72 |
| 1155 | 4684 | >100 | 1755 | 31181 | +1.01 |
| 1185 | 6422 | +93.30 | 1785 | 31359 | +1.04 |
| 1215 | 8326 | +85.47 | 1815 | 31414 | +2.60 |
| 1245 | 10922 | +77.15 | 1845 | 31716 | |
| 1275 | 13740 | +71.11 | 1875 | 32233 | |

7/19/04

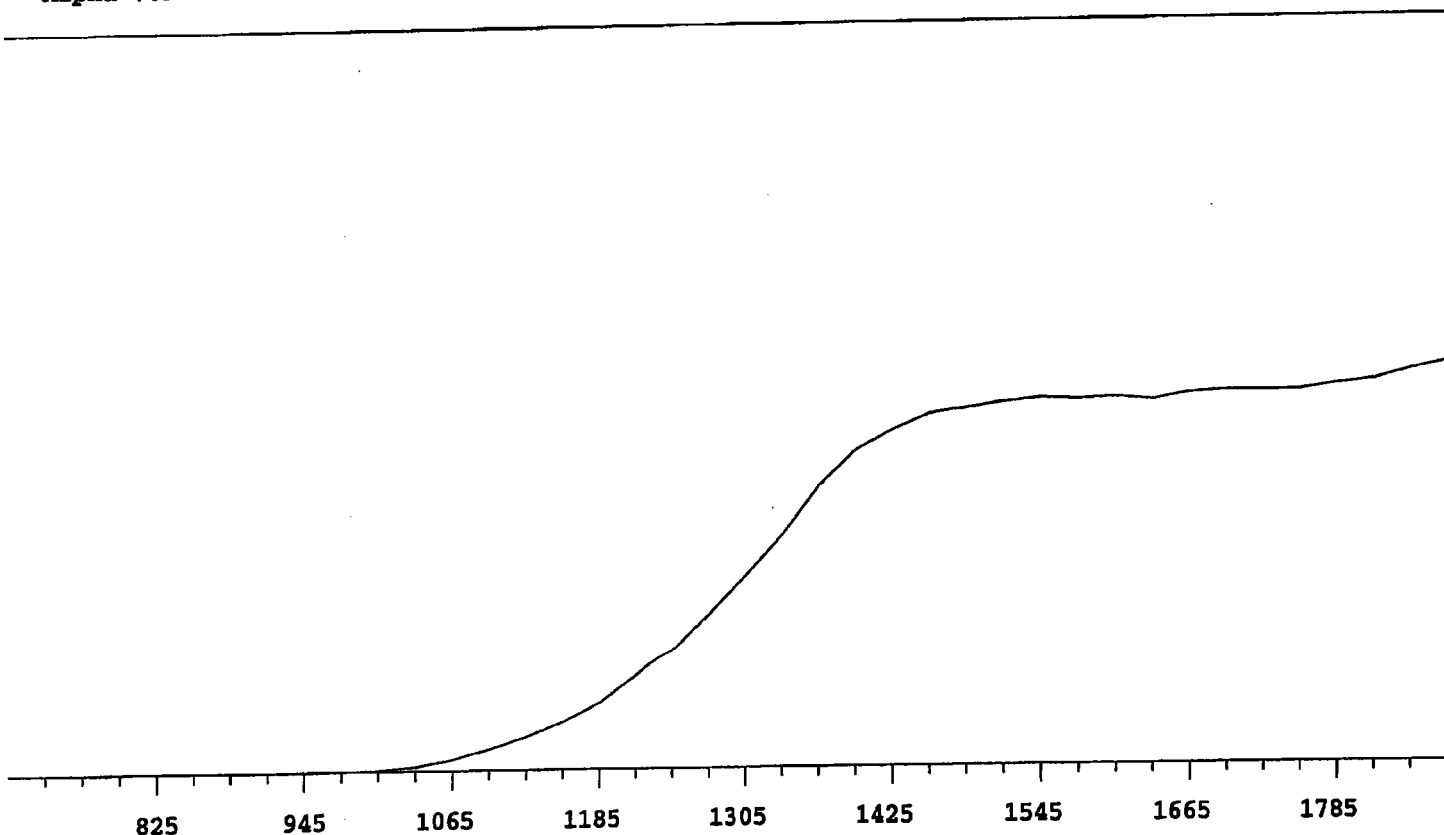
Plateau 07/04

Instrument 4 MPC 9604 Detector C

7/19/2004

Alpha Volts: 705

Beta Volts: 1575

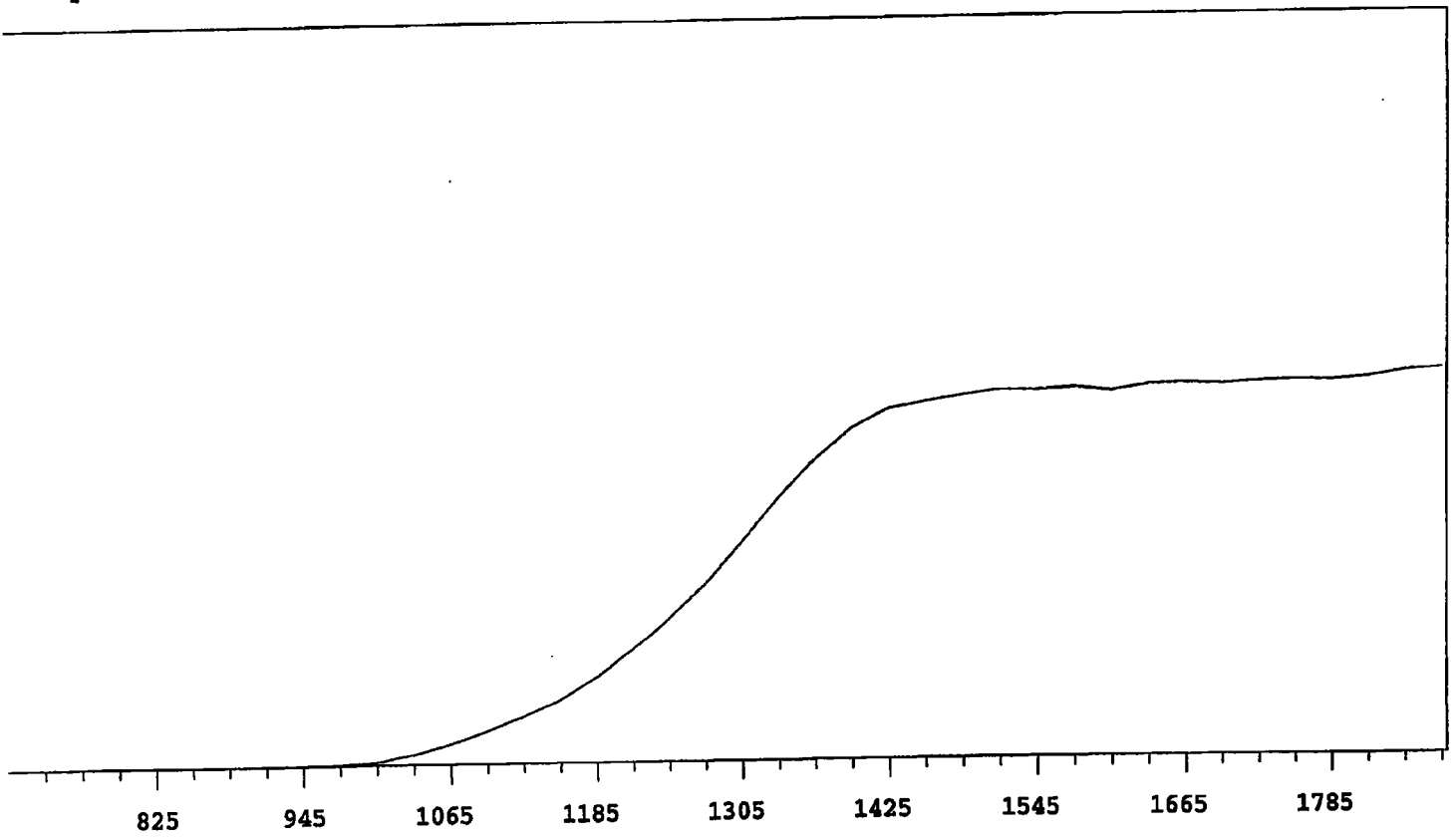


| VOLTS | COUNTS | %/100 Volts | VOLTS | COUNTS | %/100 Volts |
|-------|--------|-------------|-------|--------|-------------|
| 705 | 0 | | 1305 | 18839 | +67.96 |
| 735 | 0 | | 1335 | 22872 | +57.68 |
| 765 | 0 | | 1365 | 27407 | +44.46 |
| 795 | 1 | +0.00 | 1395 | 30682 | +31.38 |
| 825 | 0 | >100 | 1425 | 32591 | +18.94 |
| 855 | 0 | >100 | 1455 | 34190 | +11.24 |
| 885 | 0 | >100 | 1485 | 34722 | +6.93 |
| 915 | 0 | >100 | 1515 | 35262 | +3.37 |
| 945 | 1 | >100 | 1545 | 35641 | +2.03 |
| 975 | 11 | >100 | 1575 | 35504 | +0.26 |
| 1005 | 103 | >100 | 1605 | 35679 | +0.69 |
| 1035 | 441 | >100 | 1635 | 35382 | +1.78 |
| 1065 | 1179 | >100 | 1665 | 36072 | +1.78 |
| 1095 | 2167 | >100 | 1695 | 36265 | +1.74 |
| 1125 | 3422 | >100 | 1725 | 36194 | +1.34 |
| 1155 | 4853 | >100 | 1755 | 36262 | +2.25 |
| 1185 | 6672 | +97.47 | 1785 | 36803 | +4.27 |
| 1215 | 9215 | +89.47 | 1815 | 37192 | +5.77 |
| 1245 | 11739 | +81.79 | 1845 | 38095 | |
| 1275 | 15086 | +73.77 | 1875 | 38856 | |

per 7/19/04

Plateau 07/04
 Alpha Volts: 705

Instrument 4 MPC 9604 Detector D 7/19/2004
 Beta Volts: 1575



| VOLTS | COUNTS | %/100 Volts | VOLTS | COUNTS | %/100 Volts |
|-------|--------|-------------|-------|--------|-------------|
| 705 | 0 | | 1305 | 23556 | +58.78 |
| 735 | 0 | | 1335 | 28144 | +48.66 |
| 765 | 0 | | 1365 | 32003 | +36.52 |
| 795 | 0 | >100 | 1395 | 35174 | +24.06 |
| 825 | 0 | >100 | 1425 | 37136 | +14.44 |
| 855 | 0 | >100 | 1455 | 37870 | +8.04 |
| 885 | 0 | >100 | 1485 | 38481 | +4.14 |
| 915 | 0 | >100 | 1515 | 39029 | +2.66 |
| 945 | 9 | >100 | 1545 | 38936 | +0.63 |
| 975 | 84 | >100 | 1575 | 39184 | +0.49 |
| 1005 | 395 | >100 | 1605 | 38768 | +1.21 |
| 1035 | 1117 | >100 | 1635 | 39399 | +0.95 |
| 1065 | 2179 | >100 | 1665 | 39540 | +1.39 |
| 1095 | 3536 | >100 | 1695 | 39360 | +0.69 |
| 1125 | 5088 | >100 | 1725 | 39609 | +0.58 |
| 1155 | 6883 | +96.73 | 1755 | 39771 | +1.08 |
| 1185 | 9282 | +89.24 | 1785 | 39681 | +1.80 |
| 1215 | 12161 | +81.81 | 1815 | 39966 | +2.60 |
| 1245 | 15561 | +74.40 | 1845 | 40592 | |
| 1275 | 19236 | +67.51 | 1875 | 40881 | |

7/19/04

VER4_05
RADIUM-228 WATER

Analyst : JMJ
Batch : verification
Date : 4/22/2005

Procedure Code : GFC28RAL

Parname : Radium-228

MDA : 1 pCi/L

Batch Counted on : PIC

Bkg Count Time: 1000 min

| Sample I.D. | Sample Vol. L | Beta cpm | Ac 228 eff | Ba yield % | Ac-228 | | Ra-228 | | BKG cpm | Alpha cts | Beta cts |
|-------------|---------------|----------|------------|------------|--------|------|--------|------|---------|-----------|----------|
| | | | | | Decay | Con | Decay | Con | | | |
| 1A | 1.000 | 7289.93 | 0.5132 | 100 | 0.58 | 1.00 | 1.000 | 0.49 | 505 | 36457 | |
| 1B | 1.000 | 7542.79 | 0.5082 | 100 | 0.58 | 1.00 | 1.000 | 0.35 | 430 | 37720 | |
| 1C | 1.000 | 7409.93 | 0.5231 | 100 | 0.58 | 1.00 | 1.000 | 0.35 | 500 | 37055 | |
| 1D | 1.000 | 5865.16 | 0.5121 | 100 | 0.58 | 1.00 | 1.000 | 0.40 | 84 | 29327 | |
| 2A | 1.000 | 5744.69 | 0.5097 | 100 | 0.58 | 1.00 | 1.000 | 0.48 | 1171 | 28748 | |
| 2B | 1.000 | 7309.60 | 0.5242 | 100 | 0.58 | 1.00 | 1.000 | 0.32 | 302 | 36554 | |
| 2C | 1.000 | 7315.97 | 0.5009 | 100 | 0.58 | 1.00 | 1.000 | 0.33 | 1759 | 36608 | |
| 2D | 1.000 | 6912.80 | 0.5067 | 100 | 0.58 | 1.00 | 1.000 | 0.49 | 1600 | 34594 | |
| 3A | 1.000 | 6638.33 | 0.4603 | 100 | 0.58 | 1.00 | 1.000 | 0.58 | 4839 | 33327 | |
| 3B | 1.000 | 6177.63 | 0.4832 | 100 | 0.58 | 1.00 | 1.000 | 0.28 | 2355 | 30949 | |
| 3C | 1.000 | 6140.98 | 0.4861 | 100 | 0.58 | 1.00 | 1.000 | 0.46 | 1449 | 30744 | |
| 3D | 1.000 | 6727.78 | 0.4940 | 100 | 0.58 | 1.00 | 1.000 | 0.73 | 1195 | 33670 | |
| 4A | 1.000 | 6135.16 | 0.5121 | 100 | 0.58 | 1.00 | 1.000 | 0.34 | 849 | 30684 | |
| 4B | 1.000 | 7244.80 | 0.5268 | 100 | 0.58 | 1.00 | 1.000 | 0.37 | 154 | 36226 | |
| 4C | 1.000 | 7153.96 | 0.5052 | 100 | 0.58 | 1.00 | 1.000 | 0.36 | 1434 | 35786 | |
| 4D | 1.000 | 7365.57 | 0.5004 | 100 | 0.58 | 1.00 | 1.000 | 0.58 | 2976 | 36867 | |

Mulinos

Ac-228 0696-A 1mL NC 9369.54955

| Count time min | Sampling Time Date/Time | Ac-228 Elution Date/time | Starting count Date/Time | Ra-228 MDA pCi/L | Ra-228 result pCi/L | Ra-228 error pCi/L | Ra-228 % RECOVERY |
|----------------------|-------------------------------|--------------------------------|--------------------------------|------------------------|---------------------------|--------------------------|-------------------------|
| 5 | 4/22/2005 0:00 | 4/22/2005 7:35 | 4/22/2005 12:26 | 3.050 | 11112.583 | 114.092 | 118.60% |
| 5 | 4/22/2005 0:00 | 4/22/2005 7:35 | 4/22/2005 12:26 | 2.734 | 11617.226 | 117.254 | 123.99% |
| 5 | 4/22/2005 0:00 | 4/22/2005 7:35 | 4/22/2005 12:26 | 2.657 | 11089.935 | 112.931 | 118.36% |
| 5 | 4/22/2005 0:00 | 4/22/2005 7:35 | 4/22/2005 12:26 | 2.844 | 8968.322 | 102.653 | 95.72% |
| 5 | 4/22/2005 0:00 | 4/22/2005 7:35 | 4/22/2005 12:26 | 3.052 | 8827.546 | 102.097 | 94.22% |
| 5 | 4/22/2005 0:00 | 4/22/2005 7:35 | 4/22/2005 12:26 | 2.572 | 10924.735 | 112.009 | 116.60% |
| 5 | 4/22/2005 0:00 | 4/22/2005 7:35 | 4/22/2005 12:27 | 2.721 | 11445.723 | 117.300 | 122.16% |
| 5 | 4/22/2005 0:00 | 4/22/2005 7:35 | 4/22/2005 12:27 | 3.095 | 10693.248 | 112.742 | 114.13% |
| 5 | 4/22/2005 0:00 | 4/22/2005 7:35 | 4/22/2005 12:27 | 3.627 | 11306.800 | 121.652 | 120.68% |
| 5 | 4/22/2005 0:00 | 4/22/2005 7:35 | 4/22/2005 12:27 | 2.670 | 10027.006 | 111.828 | 107.02% |
| 5 | 4/22/2005 0:00 | 4/22/2005 7:35 | 4/22/2005 12:27 | 3.156 | 9909.619 | 110.852 | 105.76% |
| 5 | 4/22/2005 0:00 | 4/22/2005 7:35 | 4/22/2005 12:27 | 3.689 | 10685.237 | 114.200 | 114.04% |
| 5 | 4/22/2005 0:00 | 4/22/2005 7:35 | 4/22/2005 12:27 | 2.693 | 9401.891 | 105.220 | 100.35% |
| 5 | 4/22/2005 0:00 | 4/22/2005 7:35 | 4/22/2005 12:27 | 2.697 | 10794.986 | 111.174 | 115.21% |
| 5 | 4/22/2005 0:00 | 4/22/2005 7:35 | 4/22/2005 12:27 | 2.786 | 11117.128 | 115.216 | 118.65% |
| 5 | 4/22/2005 0:00 | 4/22/2005 7:35 | 4/22/2005 12:28 | 3.341 | 11558.337 | 118.059 | 123.36% |

yan u/2005

VERRAW

| INSTR_ID | SAMPLE_ID | CNT_TIME | A | B | TIME | USER2 | BATCH_ID |
|------------------|-----------|----------|------|-------|-----------------|-------|------------|
| Instrument 1 - A | 1 | 5 | 505 | 36457 | 4/22/2005 12:26 | 1575 | Ra2280422v |
| Instrument 1 - B | 2 | 5 | 430 | 37720 | 4/22/2005 12:26 | 1575 | Ra2280422v |
| Instrument 1 - C | 3 | 5 | 500 | 37055 | 4/22/2005 12:26 | 1575 | Ra2280422v |
| Instrument 1 - D | 4 | 5 | 84 | 29327 | 4/22/2005 12:26 | 1575 | Ra2280422v |
| Instrument 2 - A | 5 | 5 | 1171 | 28748 | 4/22/2005 12:26 | 1575 | Ra2280422v |
| Instrument 2 - B | 6 | 5 | 302 | 36554 | 4/22/2005 12:26 | 1575 | Ra2280422v |
| Instrument 2 - C | 7 | 5 | 1759 | 36608 | 4/22/2005 12:27 | 1575 | Ra2280422v |
| Instrument 2 - D | 8 | 5 | 1600 | 34594 | 4/22/2005 12:27 | 1575 | Ra2280422v |
| Instrument 3 - A | 9 | 5 | 4839 | 33327 | 4/22/2005 12:27 | 1575 | Ra2280422v |
| Instrument 3 - B | 10 | 5 | 2355 | 30949 | 4/22/2005 12:27 | 1575 | Ra2280422v |
| Instrument 3 - C | 11 | 5 | 1449 | 30744 | 4/22/2005 12:27 | 1575 | Ra2280422v |
| Instrument 3 - D | 12 | 5 | 1195 | 33670 | 4/22/2005 12:27 | 1575 | Ra2280422v |
| Instrument 4 - A | 13 | 5 | 849 | 30684 | 4/22/2005 12:27 | 1575 | Ra2280422v |
| Instrument 4 - B | 14 | 5 | 154 | 36226 | 4/22/2005 12:27 | 1575 | Ra2280422v |
| Instrument 4 - C | 15 | 5 | 1434 | 35786 | 4/22/2005 12:27 | 1575 | Ra2280422v |
| Instrument 4 - D | 16 | 5 | 2976 | 36867 | 4/22/2005 12:28 | 1575 | Ra2280422v |

ym4/22/05

General Engineering Laboratories Verification Source Preparation Sheet

Applicable SOP Number GL-RAD-A-009 Isotope Ra-228
 Date Standards Prepared 4/22/05 Cocktail Type Used NA
 Standard ID 0696-A Matrix of Vial/Planchett 0.1M POLYPROPYLENE
FILTED ATTACHED TO
SS PLANCHETTE
 Amount Used (g or ml) 1.0 Type of Scintillation Vial NA
 Standard Activity (DPM/g or ml) 22558.26 Pipette ID Used 3001383
 Reference Date 8/19/04 Balance ID Used NA
 Expiration Date 4/21/06 Quenching Agent —
 Residue/Carrier Agent —

Separation Date / Time: 4/22/05 / 0735

| | Standard Number | Quenching Vol (uL)/ Residue Volume (mL) | Initial Wt. (g) | Final Wt. (g) | Net Wt. (mg) |
|--|-----------------|--|--------------------|------------------|-----------------|
| | 1 | | | | |
| | 2 | | | | |
| | 3 | | | | |
| | 4 | | | | |
| | 5 | | | | |
| | 6 | | | | |
| | 7 | | | | |
| | 8 | | | | |
| | 9 | | | | |
| | 10 | | | | |
| | 11 | | | | |
| | 12 | | | | |
| | 13 | | | | |
| | 14 | | | | |
| | 15 | | | | |
| | 16 | | | | |

my 4/22/05

my 4/22/05

Prepared By:  Date 4/22/05
 Reviewed By:  Date 4/22/05

CERTIFICATE OF CALIBRATION

Standard Radionuclide Source

69008-278

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): | 3.882 E4 |
| HALF-LIFE: | 5.75 years |
| CALIBRATION DATE: | August 19, 2004 12:00 EST |
| RELATIVE EXPANDED UNCERTAINTY (k=2): | 3.3% |

Impurities: γ -impurities <0.1%

5.02035 grams 0.1M HCl solution with 50 μ g/g Ba carrier.

P O NUMBER 3244 RD, Item 1

SOURCE PREPARED BY:

M. Taskaeva
M. Taskaeva, Radiochemist

Q A APPROVED:

DM MJ 8-24-04

RECEIVED
8/24/04

my/zelos

Verification for Ra-228 Standard 0696-A

| Standard | Detector Eff Mass. Used (mL) | Source DPM/mL |
|----------|------------------------------|---------------|
| | 0.1078 | 20839.30285 |
| | 3.5679424 | 20927.70422 |
| | 0.1072 | 21021.83084 |
| | 3.5679424 | 20929.61264 |
| | Average = | |

| Isotope | Detector CPM | BKG CPM | NET CPM | Detector Eff Mass. Used (mL) | Source DPM/mL |
|-----------|--------------|---------|-----------|------------------------------|---------------|
| 0696-A N1 | 8043.6000 | 28.3000 | 8015.3000 | 0.1078 | 20839.30285 |
| 0696-A N2 | 8032.8000 | 28.3000 | 8004.5000 | 3.5679424 | 20927.70422 |
| 0696-A N3 | 8038.8000 | 28.3000 | 8010.5000 | 0.1072 | 21021.83084 |
| | | | | 3.5679424 | 20929.61264 |
| | | | | Average = | |

Mean Value (Counting) = 20929.61264 dpm/mL **Pass**
 Stdev = 91.27896032 dpm/mL 0.00436124 Rule 3 (Pass/Fail)

Certificate Value = 20767.0 dpm/mL
 Lower Limit = 20747.05472 dpm/mL
 Upper Limit = 21112.17056 dpm/mL
 Rule 1 Pass/Fail = **Pass**
 Two sigma = 182.5579206
 10 % of Mean = 2092.961264
 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 0696-A 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 Yellow (Wallac) using Protocol 23 for Ra-228 source standard verification. The Ra-228 efficiency calibration which was used for verification calculations was performed on 4/27/04 using Analytic's source 0503-A (Ra-228). Calibration data is recorded in this logbook under Ra-228 0503. Each verification source calculation was performed as follows:

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

Amanda L. Fehr 4/27/05

PROTOCOL : 23 Radium Std Ver.
DATE : 2005/04/27
TIME : 04:53
ID : P23AS011

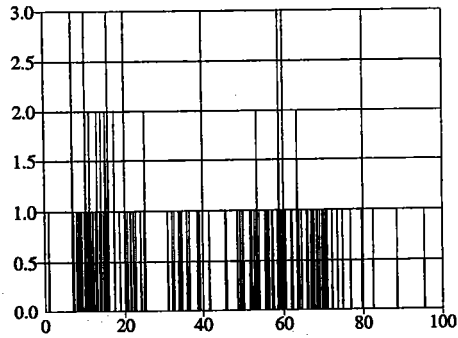
Wallac 1414 WinSpectral v1.40 S/N 4140127

Counting mode : CPM
Isotope(s) : H3
H3 = 5- 350,12.43 y
Protocol name : Radium Std Ver.
Counting time : 300
Repeats : 1
Cycles : 1
Replicates : 1
2 sigma % : 0.01
Minimum cpm : 0.00 Checking time: 10
Output to Display :
POS,CTIME,DATE,TIME,RACKPOS,CPMw1,CPM,SQPI,CPM1
Additions to Display : Spectrum,Header,Listing
Spectrum : Beta
Window 1 : 20- 80 /Beta
Window 2 : 1-1024 /Beta
Window 3 : 1-1024 /Beta
Window 4 : 1-1024 /Beta
Window 5 : 1-1024 /Beta
Window 6 : 1-1024 /Beta
FNCT1 = FNCT1 :
FNCT2 = FNCT2 :
FNCT3 = FNCT3 :
FNCT4 = FNCT4 :

Total count rate:
H3 5643.4 CPM

04/27/05

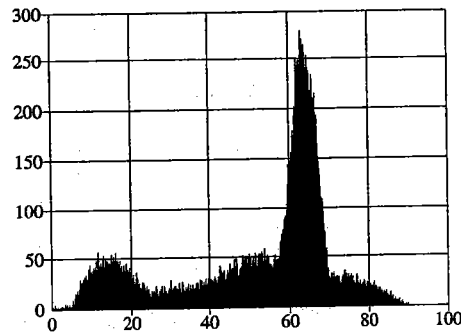
| POS | CTIME | DATE | TIME | RACKPOS | CPMW1 | CPM |
|-----|-------|-----------|---------|---------|-------|-------|
| 1 | 300 | 4/27/2005 | 4:53 AM | 1 | 1.20 | 28.30 |
| | | | | | 13.50 | |



Counts
Beta

Bkg

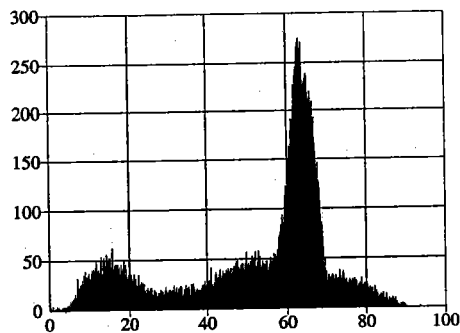
| | | | | | | |
|---|-----|-----------|---------|---|---------|---------|
| 2 | 300 | 4/27/2005 | 4:59 AM | 2 | 95.70 | 8043.60 |
| | | | | | 1590.80 | |



Counts
Beta

0696-A

| | | | | | | |
|---|-----|-----------|---------|---|---------|---------|
| 3 | 300 | 4/27/2005 | 5:04 AM | 3 | 88.40 | 8032.80 |
| | | | | | 1601.40 | |



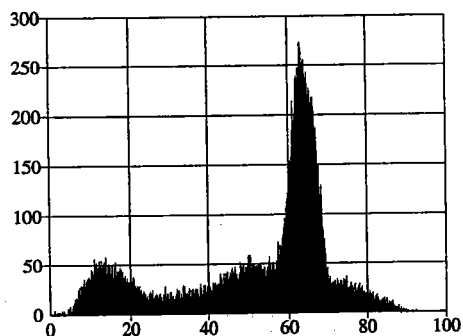
Counts
Beta

0696-A

auF4/27/05

| POS | CTIME | DATE | TIME | RACKPOS | CPMW1 | CPM |
|-----|-------|------|------|---------|-------|-----|
|-----|-------|------|------|---------|-------|-----|

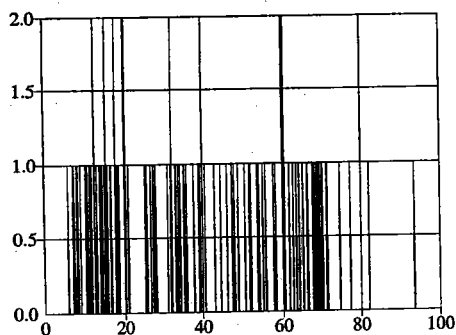
| | | | | | | |
|---|-----|-----------|---------|---|---------|---------|
| 4 | 300 | 4/27/2005 | 5:10 AM | 4 | 90.10 | 8038.80 |
| | | | | | 1615.60 | |



Counts
Beta

0696-A

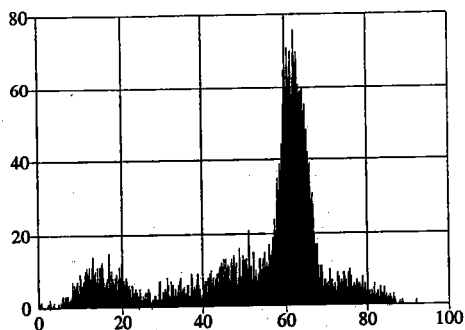
| | | | | | | |
|---|-----|-----------|---------|---|-------|-------|
| 5 | 300 | 4/27/2005 | 5:15 AM | 5 | 0.60 | 22.90 |
| | | | | | 11.90 | |



Counts
Beta

Bkg

| | | | | | | |
|---|-----|-----------|---------|---|--------|---------|
| 6 | 300 | 4/27/2005 | 5:21 AM | 6 | 10.40 | 1711.00 |
| | | | | | 266.60 | |

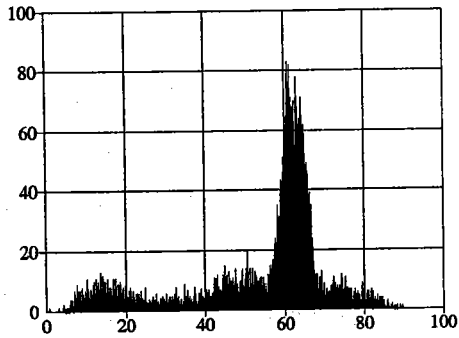


Counts
Beta

0553-B

OLF 4/27/05

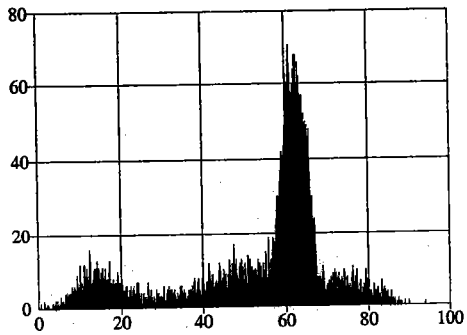
| POS | CTIME | DATE | TIME | RACKPOS | CPMW1 | CPM |
|-----|-------|-----------|---------|---------|--------|---------|
| 7 | 300 | 4/27/2005 | 5:26 AM | 7 | 18.10 | 1764.00 |
| | | | | | 275.10 | |



■ Counts
Beta

0553-B

| | | | | | | |
|---|-----|-----------|---------|---|--------|---------|
| 8 | 300 | 4/27/2005 | 5:32 AM | 8 | 15.40 | 1715.80 |
| | | | | | 268.60 | |



■ Counts
Beta

0553-B

QWF 4/27/05

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
 ① Fair 3.5/10

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. ~~Since~~ 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.

Robert J. ... 021203

Attachment II

| Mixed alpha Reference date = 2/7/2003 | | Stock Dpm/g | Reference date | Half-life (years) | amount used for mixed | Dpm/g mixed | Decay corr dpm/g |
|---------------------------------------|-------------------------|-------------|----------------|-------------------|-----------------------|-------------|------------------|
| Isotope | Source | | | | | | |
| 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 (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 ⁻¹ at 22.8 °C [b]* | | |
| Solution mass | Approximately 5.15 g | | |
| Chemical Properties: | | | |
| Solution composition | Chemical Formula | Concentration (mol·L ⁻¹) | Mass Fraction (g·g ⁻¹) |
| | H ₂ O | 54 | 0.94 |
| | HNO ₃ | 1.0 | 0.06 |
| | HCl | <0.001 | <4 × 10 ⁻⁵ |
| | ²⁴⁴ Cm +3 | 5 × 10 ⁻¹¹ | 1 × 10 ⁻¹¹ |
| Radiological Properties: | | | |
| Radionuclide | Curium-244 | | |
| Reference time | 1230 EST, 1 February 1996 [c] | | |
| Massic activity of the solution [d] | 37.06 Bq·g ⁻¹ 24.12 Bq·g ⁻¹ | | |
| Relative expanded uncertainty (k=2) | 0.68% [e] [f] | | |
| Alpha-particle-emitting daughters | Plutonium-240: (0.22 ± 0.11) Bq·g ⁻¹ [b] [c] | | |
| Alpha-particle-emitting impurities | Curium-243: (0.005 ± 0.004) Bq·g ⁻¹ [b] [g] | | |
| Photon-emitting impurities | None detected [h] | | |
| Half lives used in the decay corrections | Curium-244: (18.10 ± 0.02) a [i] Plutonium-240: (6563 ± 7) a [i] | | |
| Calibration method | Two 4π liquid-scintillation counting systems | | |

- [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 λ (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:

100. [Signature] 9-6-02

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7

0493



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 ⁽¹⁾ * |
| Solution mass | Approximately 5 grams |
| Solution composition | Neptunium-237 in 2 mol·L ⁻¹ nitric acid |
| Reference time | March 1992 |
| Radioactivity concentration | 97.0 Bq·g ⁻¹ |
| Overall uncertainty | 1.28 percent ⁽²⁾ |
| Photon-emitting impurities | None detected ⁽³⁾ |
| Alpha-particle-emitting impurities | None detected ⁽⁴⁾ |
| Half life | (2.14 ± 0.11) × 10 ⁶ years ⁽⁵⁾ |
| 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

PC 5 075 000

NOTES

- (1) Approximately five milliliters of solution. Ampoule specifications:
- | | |
|----------------------|------------------------|
| body diameter | 16.5 ± 0.5 mm |
| wall thickness | 0.60 ± 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 : 33088
 Calibration Date/Time : 3-APR-2006 16:30:52
 Calibration Source Id : AESS-001

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148 | 6445-278 | 2/28/06 | 3183.000 | 3182.589 |
| NP-237 | 4341 | 2/28/06 | 4768.800 | 4768.498 |
| CM-244 | 4320A | 2/28/06 | 5795.020 | 5794.859 |

Energy/Channel Equation : see above
 Energy Calibration Zero : 2394.447
 Energy Calibration Slope : 4.976289
 Energy Calibration Quadratic : 2.7050270E-04
 Energy Calibration Range : 7774.000

Instrument : CHAMBER 003
 Detector : 20659
 Calibration Date/Time : 3-APR-2006 16:32:34
 Calibration Source Id : AESS-003

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148 | 6445-278 | 2/28/06 | 3183.000 | 3182.813 |
| NP-237 | 4341 | 2/28/06 | 4768.800 | 4768.688 |
| CM-244 | 4320A | 2/28/06 | 5795.020 | 5795.021 |

Energy/Channel Equation : see above
 Energy Calibration Zero : 2371.253
 Energy Calibration Slope : 5.028544
 Energy Calibration Quadratic : 2.5955989E-04
 Energy Calibration Range : 7793.000

Instrument : CHAMBER 004
 Detector : 33077
 Calibration Date/Time : 3-APR-2006 16:32:51
 Calibration Source Id : AESS-004

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148 | 6445-278 | 2/28/06 | 3183.000 | 3181.835 |
| NP-237 | 4341 | 2/28/06 | 4768.800 | 4768.419 |
| CM-244 | 4320A | 2/28/06 | 5795.020 | 5794.571 |

Energy/Channel Equation : see above
 Energy Calibration Zero : 2409.653
 Energy Calibration Slope : 4.949907
 Energy Calibration Quadratic : 2.7518670E-04
 Energy Calibration Range : 7767.000

Instrument : CHAMBER 005
 Detector : 28642
 Calibration Date/Time : 3-APR-2006 16:33:05
 Calibration Source Id : AESS-005

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148 | 6445-278 | 2/28/06 | 3183.000 | 3183.000 |
| NP-237 | 4341 | 2/28/06 | 4768.800 | 4768.800 |
| CM-244 | 4320A | 2/28/06 | 5795.020 | 5794.893 |

Energy/Channel Equation : see above
 Energy Calibration Zero : 2356.725
 Energy Calibration Slope : 4.952652
 Energy Calibration Quadratic : 3.0983411E-04
 Energy Calibration Range : 7753.000

Instrument : CHAMBER 007
 Detector : 30416
 Calibration Date/Time : 3-APR-2006 16:35:21
 Calibration Source Id : AESS-007

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148 | 6445-278 | 2/28/06 | 3183.000 | 3183.000 |
| NP-237 | 4341 | 2/28/06 | 4768.800 | 4768.624 |
| CM-244 | 4320A | 2/28/06 | 5795.020 | 5795.021 |

Energy/Channel Equation : see above
 Energy Calibration Zero : 2382.813
 Energy Calibration Slope : 4.944474
 Energy Calibration Quadratic : 3.1966669E-04
 Energy Calibration Range : 7781.000

Instrument : CHAMBER 009
 Detector : 13285
 Calibration Date/Time : 3-APR-2006 16:39:51
 Calibration Source Id : AESS-009

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148 | 6445-278 | 2/28/06 | 3183.000 | 3182.700 |
| NP-237 | 4341 | 2/28/06 | 4768.800 | 4768.800 |
| CM-244 | 4320A | 2/28/06 | 5795.020 | 5794.917 |

Energy/Channel Equation : see above
 Energy Calibration Zero : 2406.029
 Energy Calibration Slope : 4.889740
 Energy Calibration Quadratic : 3.3907106E-04
 Energy Calibration Range : 7769.000

Instrument : CHAMBER 010
 Detector : 33083
 Calibration Date/Time : 3-APR-2006 16:40:04
 Calibration Source Id : AESS-010
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy
 GD-148 6445-278 2/28/06 3183.000 3182.328
 NP-237 4341 2/28/06 4768.800 4768.118
 CM-244 4320A 2/28/06 5795.020 5795.011

Energy/Channel Equation : see above
 Energy Calibration Zero : 2382.230
 Energy Calibration Slope : 4.964393
 Energy Calibration Quadratic : 2.9206229E-04
 Energy Calibration Range : 7772.000

Instrument : CHAMBER 011
 Detector : 9537
 Calibration Date/Time : 3-APR-2006 16:40:58
 Calibration Source Id : AESS-011
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy
 GD-148 6445-278 2/28/06 3183.000 3182.722
 NP-237 4341 2/28/06 4768.800 4768.758
 CM-244 4320A 2/28/06 5795.020 5794.941

Energy/Channel Equation : see above
 Energy Calibration Zero : 2401.574
 Energy Calibration Slope : 4.894418
 Energy Calibration Quadratic : 3.3610439E-04
 Energy Calibration Range : 7766.000

Instrument : CHAMBER 012
 Detector : 33085
 Calibration Date/Time : 3-APR-2006 16:41:13
 Calibration Source Id : AESS-012
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy
 GD-148 6445-278 2/28/06 3183.000 3183.000
 NP-237 4341 2/28/06 4768.800 4768.403
 CM-244 4320A 2/28/06 5795.020 5794.958

Energy/Channel Equation : see above
 Energy Calibration Zero : 2403.072
 Energy Calibration Slope : 4.959775
 Energy Calibration Quadratic : 2.8419620E-04
 Energy Calibration Range : 7780.000

Instrument : CHAMBER 013
 Detector : 21084
 Calibration Date/Time : 3-APR-2006 16:41:26
 Calibration Source Id : AESS-013

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148 | 6445-278 | 2/28/06 | 3183.000 | 3183.603 |
| NP-237 | 4341 | 2/28/06 | 4768.800 | 4769.678 |
| CM-244 | 4320A | 2/28/06 | 5795.020 | 5795.297 |

Energy/Channel Equation : see above
 Energy Calibration Zero : 2372.215
 Energy Calibration Slope : 4.879492
 Energy Calibration Quadratic : 3.3235765E-04
 Energy Calibration Range : 7717.000

Instrument : CHAMBER 016
 Detector : 21086
 Calibration Date/Time : 3-APR-2006 16:45:33
 Calibration Source Id : AESS-016

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148 | 6445-278 | 2/28/06 | 3183.000 | 3182.993 |
| NP-237 | 4341 | 2/28/06 | 4768.800 | 4768.792 |
| CM-244 | 4320A | 2/28/06 | 5795.020 | 5794.887 |

Energy/Channel Equation : see above
 Energy Calibration Zero : 2373.788
 Energy Calibration Slope : 4.866085
 Energy Calibration Quadratic : 3.4461656E-04
 Energy Calibration Range : 7718.000

Instrument : CHAMBER 017
 Detector : 33203
 Calibration Date/Time : 3-APR-2006 16:45:52
 Calibration Source Id : AESS-017

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148 | 6445-278 | 2/28/06 | 3183.000 | 3182.753 |
| NP-237 | 4341 | 2/28/06 | 4768.800 | 4768.686 |
| CM-244 | 4320A | 2/28/06 | 5795.020 | 5795.002 |

Energy/Channel Equation : see above
 Energy Calibration Zero : 2381.283
 Energy Calibration Slope : 4.983909
 Energy Calibration Quadratic : 2.9758285E-04
 Energy Calibration Range : 7797.000

Instrument : CHAMBER 018
 Detector : 21063
 Calibration Date/Time : 3-APR-2006 16:46:43
 Calibration Source Id : AESS-018
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy
 GD-148 6445-278 2/28/06 3183.000 3182.678
 NP-237 4341 2/28/06 4768.800 4768.731
 CM-244 4320A 2/28/06 5795.020 5795.019
 Energy/Channel Equation : see above
 Energy Calibration Zero : 2340.789
 Energy Calibration Slope : 4.900531
 Energy Calibration Quadratic : 3.0987556E-04
 Energy Calibration Range : 7684.000

Instrument : CHAMBER 019
 Detector : 23882
 Calibration Date/Time : 3-APR-2006 16:46:59
 Calibration Source Id : AESS-019
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy
 GD-148 6445-278 2/28/06 3183.000 3183.344
 NP-237 4341 2/28/06 4768.800 4769.286
 CM-244 4320A 2/28/06 5795.020 5795.346
 Energy/Channel Equation : see above
 Energy Calibration Zero : 2328.678
 Energy Calibration Slope : 5.011906
 Energy Calibration Quadratic : 2.4903595E-04
 Energy Calibration Range : 7722.000

Instrument : CHAMBER 020
 Detector : 33093
 Calibration Date/Time : 3-APR-2006 16:47:46
 Calibration Source Id : AESS-020
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy
 GD-148 6445-278 2/28/06 3183.000 3183.000
 NP-237 4341 2/28/06 4768.800 4768.523
 CM-244 4320A 2/28/06 5795.020 5795.020
 Energy/Channel Equation : see above
 Energy Calibration Zero : 2351.189
 Energy Calibration Slope : 4.985672
 Energy Calibration Quadratic : 2.7204608E-04
 Energy Calibration Range : 7742.000

Instrument : CHAMBER 021
 Detector : 33893
 Calibration Date/Time : 3-APR-2006 16:48:06
 Calibration Source Id : AESS-021

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148 | 6445-278 | 2/28/06 | 3183.000 | 3182.276 |
| NP-237 | 4341 | 2/28/06 | 4768.800 | 4768.355 |
| CM-244 | 4320A | 2/28/06 | 5795.020 | 5794.907 |

Energy/Channel Equation : see above
 Energy Calibration Zero : 2374.427
 Energy Calibration Slope : 4.951159
 Energy Calibration Quadratic : 3.0070700E-04
 Energy Calibration Range : 7760.000

Instrument : CHAMBER 023
 Detector : 22873
 Calibration Date/Time : 3-APR-2006 16:49:38
 Calibration Source Id : AESS-023

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148 | 6445-278 | 2/28/06 | 3183.000 | 3180.453 |
| NP-237 | 4341 | 2/28/06 | 4768.800 | 4764.511 |
| CM-244 | 4320A | 2/28/06 | 5795.020 | 5793.157 |

Energy/Channel Equation : see above
 Energy Calibration Zero : 2403.611
 Energy Calibration Slope : 4.972397
 Energy Calibration Quadratic : 2.1793865E-04
 Energy Calibration Range : 7724.000

Instrument : CHAMBER 026
 Detector : 34427
 Calibration Date/Time : 4-APR-2006 12:02:00
 Calibration Source Id : AESS-002

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148 | 6445-278 | 2/28/06 | 3183.000 | 3182.743 |
| NP-237 | 4341 | 2/28/06 | 4768.800 | 4768.458 |
| CM-244 | 4320A | 2/28/06 | 5795.020 | 5794.860 |

Energy/Channel Equation : see above
 Energy Calibration Zero : 2367.357
 Energy Calibration Slope : 4.926605
 Energy Calibration Quadratic : 3.3364003E-04
 Energy Calibration Range : 7762.000

Instrument : CHAMBER 027
 Detector : 31436
 Calibration Date/Time : 4-APR-2006 12:02:17
 Calibration Source Id : AESS-003

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148 | 6445-278 | 2/28/06 | 3183.000 | 3183.368 |
| NP-237 | 4341 | 2/28/06 | 4768.800 | 4769.435 |
| CM-244 | 4320A | 2/28/06 | 5795.020 | 5795.142 |

Energy/Channel Equation : see above
 Energy Calibration Zero : 2385.802
 Energy Calibration Slope : 4.966618
 Energy Calibration Quadratic : 2.6491811E-04
 Energy Calibration Range : 7749.000

Instrument : CHAMBER 028
 Detector : 21056
 Calibration Date/Time : 4-APR-2006 12:02:41
 Calibration Source Id : AESS-004

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148 | 6445-278 | 2/28/06 | 3183.000 | 3183.000 |
| NP-237 | 4341 | 2/28/06 | 4768.800 | 4768.801 |
| CM-244 | 4320A | 2/28/06 | 5795.020 | 5795.020 |

Energy/Channel Equation : see above
 Energy Calibration Zero : 2320.544
 Energy Calibration Slope : 4.935237
 Energy Calibration Quadratic : 2.7769944E-04
 Energy Calibration Range : 7665.000

Instrument : CHAMBER 029
 Detector : 30419
 Calibration Date/Time : 4-APR-2006 12:02:56
 Calibration Source Id : AESS-005

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148 | 6445-278 | 2/28/06 | 3183.000 | 3183.690 |
| NP-237 | 4341 | 2/28/06 | 4768.800 | 4770.051 |
| CM-244 | 4320A | 2/28/06 | 5795.020 | 5795.380 |

Energy/Channel Equation : see above
 Energy Calibration Zero : 2360.631
 Energy Calibration Slope : 4.932264
 Energy Calibration Quadratic : 2.8612607E-04
 Energy Calibration Range : 7711.000

Instrument : CHAMBER 030
 Detector : 30420
 Calibration Date/Time : 4-APR-2006 12:03:11
 Calibration Source Id : AESS-006

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148 | 6445-278 | 2/28/06 | 3183.000 | 3183.000 |
| NP-237 | 4341 | 2/28/06 | 4768.800 | 4768.638 |
| CM-244 | 4320A | 2/28/06 | 5795.020 | 5794.905 |

Energy/Channel Equation : see above
 Energy Calibration Zero : 2379.492
 Energy Calibration Slope : 4.942307
 Energy Calibration Quadratic : 3.2948688E-04
 Energy Calibration Range : 7786.000

Instrument : CHAMBER 032
 Detector : 33207
 Calibration Date/Time : 4-APR-2006 12:04:09
 Calibration Source Id : AESS-008

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148 | 6445-278 | 2/28/06 | 3183.000 | 3183.162 |
| NP-237 | 4341 | 2/28/06 | 4768.800 | 4769.075 |
| CM-244 | 4320A | 2/28/06 | 5795.020 | 5795.066 |

Energy/Channel Equation : see above
 Energy Calibration Zero : 2332.264
 Energy Calibration Slope : 4.962142
 Energy Calibration Quadratic : 2.9673061E-04
 Energy Calibration Range : 7725.000

Instrument : CHAMBER 033
 Detector : 28647
 Calibration Date/Time : 4-APR-2006 12:04:20
 Calibration Source Id : AESS-009

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148 | 6445-278 | 2/28/06 | 3183.000 | 3183.000 |
| NP-237 | 4341 | 2/28/06 | 4768.800 | 4768.737 |
| CM-244 | 4320A | 2/28/06 | 5795.020 | 5794.927 |

Energy/Channel Equation : see above
 Energy Calibration Zero : 2371.926
 Energy Calibration Slope : 4.915609
 Energy Calibration Quadratic : 3.0408576E-04
 Energy Calibration Range : 7724.000

Instrument : CHAMBER 034
 Detector : 32697
 Calibration Date/Time : 4-APR-2006 12:04:32
 Calibration Source Id : AESS-010

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148 | 6445-278 | 2/28/06 | 3183.000 | 3182.670 |
| NP-237 | 4341 | 2/28/06 | 4768.800 | 4768.840 |
| CM-244 | 4320A | 2/28/06 | 5795.020 | 5795.021 |

Energy/Channel Equation : see above
 Energy Calibration Zero : 2340.410
 Energy Calibration Slope : 4.974835
 Energy Calibration Quadratic : 3.3510773E-04
 Energy Calibration Range : 7786.000

Instrument : CHAMBER 035
 Detector : 29271
 Calibration Date/Time : 4-APR-2006 12:04:44
 Calibration Source Id : AESS-011

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148 | 6445-278 | 2/28/06 | 3183.000 | 3183.000 |
| NP-237 | 4341 | 2/28/06 | 4768.800 | 4768.800 |
| CM-244 | 4320A | 2/28/06 | 5795.020 | 5795.020 |

Energy/Channel Equation : see above
 Energy Calibration Zero : 2347.646
 Energy Calibration Slope : 4.986292
 Energy Calibration Quadratic : 2.8726328E-04
 Energy Calibration Range : 7755.000

Instrument : CHAMBER 036
 Detector : 29275
 Calibration Date/Time : 4-APR-2006 12:04:58
 Calibration Source Id : AESS-012

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148 | 6445-278 | 2/28/06 | 3183.000 | 3181.797 |
| NP-237 | 4341 | 2/28/06 | 4768.800 | 4767.041 |
| CM-244 | 4320A | 2/28/06 | 5795.020 | 5793.387 |

Energy/Channel Equation : see above
 Energy Calibration Zero : 2388.490
 Energy Calibration Slope : 5.017391
 Energy Calibration Quadratic : 3.2070087E-04
 Energy Calibration Range : 7863.000

Instrument : CHAMBER 037
 Detector : 32690
 Calibration Date/Time : 4-APR-2006 12:05:37
 Calibration Source Id : AESS-013

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148 | 6445-278 | 2/28/06 | 3183.000 | 3183.000 |
| NP-237 | 4341 | 2/28/06 | 4768.800 | 4768.312 |
| CM-244 | 4320A | 2/28/06 | 5795.020 | 5794.990 |

Energy/Channel Equation : see above
 Energy Calibration Zero : 2422.263
 Energy Calibration Slope : 4.994318
 Energy Calibration Quadratic : 2.9049869E-04
 Energy Calibration Range : 7841.000

Instrument : CHAMBER 038
 Detector : 19323
 Calibration Date/Time : 4-APR-2006 12:05:48
 Calibration Source Id : AESS-014

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148 | 6445-278 | 2/28/06 | 3183.000 | 3183.338 |
| NP-237 | 4341 | 2/28/06 | 4768.800 | 4769.033 |
| CM-244 | 4320A | 2/28/06 | 5795.020 | 5795.267 |

Energy/Channel Equation : see above
 Energy Calibration Zero : 2386.917
 Energy Calibration Slope : 4.961154
 Energy Calibration Quadratic : 3.4057652E-04
 Energy Calibration Range : 7824.000

Instrument : CHAMBER 040
 Detector : 30446
 Calibration Date/Time : 4-APR-2006 12:06:33
 Calibration Source Id : AESS-016

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148 | 6445-278 | 2/28/06 | 3183.000 | 3182.744 |
| NP-237 | 4341 | 2/28/06 | 4768.800 | 4768.729 |
| CM-244 | 4320A | 2/28/06 | 5795.020 | 5794.990 |

Energy/Channel Equation : see above
 Energy Calibration Zero : 2361.522
 Energy Calibration Slope : 4.912026
 Energy Calibration Quadratic : 3.2777814E-04
 Energy Calibration Range : 7735.000

Instrument : CHAMBER 041
 Detector : 22834
 Calibration Date/Time : 4-APR-2006 12:06:46
 Calibration Source Id : AESS-017
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy
 GD-148 6445-278 2/28/06 3183.000 3183.000
 NP-237 4341 2/28/06 4768.800 4769.004
 CM-244 4320A 2/28/06 5795.020 5795.141
 Energy/Channel Equation : see above
 Energy Calibration Zero : 2357.184
 Energy Calibration Slope : 4.881192
 Energy Calibration Quadratic : 3.4815943E-04
 Energy Calibration Range : 7721.000

Instrument : CHAMBER 042
 Detector : 32695
 Calibration Date/Time : 4-APR-2006 12:07:02
 Calibration Source Id : AESS-018
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy
 GD-148 6445-278 2/28/06 3183.000 3183.000
 NP-237 4341 2/28/06 4768.800 4769.104
 CM-244 4320A 2/28/06 5795.020 5795.107
 Energy/Channel Equation : see above
 Energy Calibration Zero : 2418.706
 Energy Calibration Slope : 4.890110
 Energy Calibration Quadratic : 3.4867792E-04
 Energy Calibration Range : 7792.000

Instrument : CHAMBER 043
 Detector : 42470
 Calibration Date/Time : 4-APR-2006 12:07:20
 Calibration Source Id : AESS-019
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy
 GD-148 6445-278 2/28/06 3183.000 3183.000
 NP-237 4341 2/28/06 4768.800 4769.388
 CM-244 4320A 2/28/06 5795.020 5795.759
 Energy/Channel Equation : see above
 Energy Calibration Zero : 2363.161
 Energy Calibration Slope : 5.010756
 Energy Calibration Quadratic : 2.3886505E-04
 Energy Calibration Range : 7745.000

Instrument : CHAMBER 044
 Detector : 34433
 Calibration Date/Time : 4-APR-2006 12:07:31
 Calibration Source Id : AESS-020

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148 | 6445-278 | 2/28/06 | 3183.000 | 3183.000 |
| NP-237 | 4341 | 2/28/06 | 4768.800 | 4768.800 |
| CM-244 | 4320A | 2/28/06 | 5795.020 | 5795.020 |

Energy/Channel Equation : see above
 Energy Calibration Zero : 2381.287
 Energy Calibration Slope : 4.986757
 Energy Calibration Quadratic : 2.9497029E-04
 Energy Calibration Range : 7797.000

Instrument : CHAMBER 045
 Detector : 34430
 Calibration Date/Time : 4-APR-2006 12:07:49
 Calibration Source Id : AESS-021

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148 | 6445-278 | 2/28/06 | 3183.000 | 3183.000 |
| NP-237 | 4341 | 2/28/06 | 4768.800 | 4768.799 |
| CM-244 | 4320A | 2/28/06 | 5795.020 | 5795.021 |

Energy/Channel Equation : see above
 Energy Calibration Zero : 2396.370
 Energy Calibration Slope : 4.975925
 Energy Calibration Quadratic : 2.7766536E-04
 Energy Calibration Range : 7783.000

Instrument : CHAMBER 046
 Detector : 42471
 Calibration Date/Time : 4-APR-2006 12:08:03
 Calibration Source Id : AESS-022

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148 | 6445-278 | 2/28/06 | 3183.000 | 3181.981 |
| NP-237 | 4341 | 2/28/06 | 4768.800 | 4768.475 |
| CM-244 | 4320A | 2/28/06 | 5795.020 | 5794.831 |

Energy/Channel Equation : see above
 Energy Calibration Zero : 2370.690
 Energy Calibration Slope : 4.938850
 Energy Calibration Quadratic : 3.0132200E-04
 Energy Calibration Range : 7744.000

Instrument : CHAMBER 047
 Detector : 30449
 Calibration Date/Time : 4-APR-2006 12:08:14
 Calibration Source Id : AESS-023

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148 | 6445-278 | 2/28/06 | 3183.000 | 3183.000 |
| NP-237 | 4341 | 2/28/06 | 4768.800 | 4768.801 |
| CM-244 | 4320A | 2/28/06 | 5795.020 | 5795.020 |

Energy/Channel Equation : see above
 Energy Calibration Zero : 2367.885
 Energy Calibration Slope : 4.977801
 Energy Calibration Quadratic : 2.7243813E-04
 Energy Calibration Range : 7751.000

Instrument : CHAMBER 048
 Detector : 42483
 Calibration Date/Time : 4-APR-2006 12:08:24
 Calibration Source Id : AESS-024

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148 | 6445-278 | 2/28/06 | 3183.000 | 3183.000 |
| NP-237 | 4341 | 2/28/06 | 4768.800 | 4768.800 |
| CM-244 | 4320A | 2/28/06 | 5795.020 | 5795.020 |

Energy/Channel Equation : see above
 Energy Calibration Zero : 2379.919
 Energy Calibration Slope : 5.011742
 Energy Calibration Quadratic : 2.4467456E-04
 Energy Calibration Range : 7769.000

Instrument : CHAMBER 065
 Detector : 21087
 Calibration Date/Time : 3-APR-2006 12:05:24
 Calibration Source Id : AESS-001

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148 | 6445-278 | 2/28/06 | 3183.000 | 3182.701 |
| NP-237 | 4341 | 2/28/06 | 4768.800 | 4768.799 |
| CM-244 | 4320A | 2/28/06 | 5795.020 | 5795.020 |

Energy/Channel Equation : see above
 Energy Calibration Zero : 2381.709
 Energy Calibration Slope : 4.966328
 Energy Calibration Quadratic : 3.2913609E-04
 Energy Calibration Range : 7812.000

Instrument : CHAMBER 066
 Detector : 38159
 Calibration Date/Time : 3-APR-2006 12:05:41
 Calibration Source Id : AESS-002

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148 | 6445-278 | 2/28/06 | 3183.000 | 3183.194 |
| NP-237 | 4341 | 2/28/06 | 4768.800 | 4769.460 |
| CM-244 | 4320A | 2/28/06 | 5795.020 | 5795.202 |

Energy/Channel Equation : see above
 Energy Calibration Zero : 2361.937
 Energy Calibration Slope : 4.956664
 Energy Calibration Quadratic : 3.0704346E-04
 Energy Calibration Range : 7760.000

Instrument : CHAMBER 068
 Detector : 33204
 Calibration Date/Time : 3-APR-2006 12:06:11
 Calibration Source Id : AESS-004

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148 | 6445-278 | 2/28/06 | 3183.000 | 3182.734 |
| NP-237 | 4341 | 2/28/06 | 4768.800 | 4768.288 |
| CM-244 | 4320A | 2/28/06 | 5795.020 | 5794.885 |

Energy/Channel Equation : see above
 Energy Calibration Zero : 2340.602
 Energy Calibration Slope : 4.952214
 Energy Calibration Quadratic : 2.9989655E-04
 Energy Calibration Range : 7726.000

Instrument : CHAMBER 069
 Detector : 39172
 Calibration Date/Time : 3-APR-2006 12:06:22
 Calibration Source Id : AESS-005

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148 | 6445-278 | 2/28/06 | 3183.000 | 3182.678 |
| NP-237 | 4341 | 2/28/06 | 4768.800 | 4768.439 |
| CM-244 | 4320A | 2/28/06 | 5795.020 | 5794.953 |

Energy/Channel Equation : see above
 Energy Calibration Zero : 2383.433
 Energy Calibration Slope : 4.992626
 Energy Calibration Quadratic : 3.0025930E-04
 Energy Calibration Range : 7811.000

Instrument : CHAMBER 070
 Detector : 33207
 Calibration Date/Time : 3-APR-2006 12:06:32
 Calibration Source Id : AESS-006
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy
 GD-148 6445-278 2/28/06 3183.000 3182.583
 NP-237 4341 2/28/06 4768.800 4768.687
 CM-244 4320A 2/28/06 5795.020 5794.788
 Energy/Channel Equation : see above
 Energy Calibration Zero : 2397.668
 Energy Calibration Slope : 4.915377
 Energy Calibration Quadratic : 3.6479929E-04
 Energy Calibration Range : 7814.000

Instrument : CHAMBER 072
 Detector : 33210
 Calibration Date/Time : 3-APR-2006 12:07:20
 Calibration Source Id : AESS-008
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy
 GD-148 6445-278 2/28/06 3183.000 3185.797
 NP-237 4341 2/28/06 4768.800 4771.520
 CM-244 4320A 2/28/06 5795.020 5795.709
 Energy/Channel Equation : see above
 Energy Calibration Zero : 2429.633
 Energy Calibration Slope : 4.970463
 Energy Calibration Quadratic : 2.6446831E-04
 Energy Calibration Range : 7797.000

Instrument : CHAMBER 073
 Detector : 33211
 Calibration Date/Time : 3-APR-2006 12:07:31
 Calibration Source Id : AESS-009
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy
 GD-148 6445-278 2/28/06 3183.000 3182.651
 NP-237 4341 2/28/06 4768.800 4768.479
 CM-244 4320A 2/28/06 5795.020 5794.623
 Energy/Channel Equation : see above
 Energy Calibration Zero : 2374.705
 Energy Calibration Slope : 4.961344
 Energy Calibration Quadratic : 3.4754534E-04
 Energy Calibration Range : 7820.000

Instrument : CHAMBER 075
 Detector : 29976
 Calibration Date/Time : 3-APR-2006 12:07:53
 Calibration Source Id : AESS-011

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148 | 6445-278 | 2/28/06 | 3183.000 | 3182.693 |
| NP-237 | 4341 | 2/28/06 | 4768.800 | 4768.668 |
| CM-244 | 4320A | 2/28/06 | 5795.020 | 5794.923 |

Energy/Channel Equation : see above
 Energy Calibration Zero : 2362.553
 Energy Calibration Slope : 4.960943
 Energy Calibration Quadratic : 3.2853242E-04
 Energy Calibration Range : 7787.000

Instrument : CHAMBER 076
 Detector : 33213
 Calibration Date/Time : 3-APR-2006 12:08:02
 Calibration Source Id : AESS-012

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148 | 6445-278 | 2/28/06 | 3183.000 | 3182.644 |
| NP-237 | 4341 | 2/28/06 | 4768.800 | 4768.760 |
| CM-244 | 4320A | 2/28/06 | 5795.020 | 5794.972 |

Energy/Channel Equation : see above
 Energy Calibration Zero : 2372.898
 Energy Calibration Slope : 4.983890
 Energy Calibration Quadratic : 3.3487112E-04
 Energy Calibration Range : 7828.000

Instrument : CHAMBER 077
 Detector : 28239
 Calibration Date/Time : 3-APR-2006 12:08:16
 Calibration Source Id : AESS-013

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148 | 6445-278 | 2/28/06 | 3183.000 | 3183.346 |
| NP-237 | 4341 | 2/28/06 | 4768.800 | 4769.262 |
| CM-244 | 4320A | 2/28/06 | 5795.020 | 5795.317 |

Energy/Channel Equation : see above
 Energy Calibration Zero : 2368.874
 Energy Calibration Slope : 4.931313
 Energy Calibration Quadratic : 3.2203639E-04
 Energy Calibration Range : 7756.000

Instrument : CHAMBER 078
 Detector : 34425
 Calibration Date/Time : 3-APR-2006 12:08:26
 Calibration Source Id : AESS-014
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy
 GD-148 6445-278 2/28/06 3183.000 3182.993
 NP-237 4341 2/28/06 4768.800 4768.645
 CM-244 4320A 2/28/06 5795.020 5794.911
 Energy/Channel Equation : see above
 Energy Calibration Zero : 2393.754
 Energy Calibration Slope : 4.904502
 Energy Calibration Quadratic : 3.5731806E-04
 Energy Calibration Range : 7791.000

Instrument : CHAMBER 079
 Detector : 28408
 Calibration Date/Time : 3-APR-2006 12:08:37
 Calibration Source Id : AESS-015
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy
 GD-148 6445-278 2/28/06 3183.000 3182.266
 NP-237 4341 2/28/06 4768.800 4768.567
 CM-244 4320A 2/28/06 5795.020 5794.887
 Energy/Channel Equation : see above
 Energy Calibration Zero : 2383.558
 Energy Calibration Slope : 4.929332
 Energy Calibration Quadratic : 3.0991141E-04
 Energy Calibration Range : 7756.000

Instrument : CHAMBER 080
 Detector : 29269
 Calibration Date/Time : 3-APR-2006 12:08:46
 Calibration Source Id : AESS-016
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy
 GD-148 6445-278 2/28/06 3183.000 3182.363
 NP-237 4341 2/28/06 4768.800 4768.345
 CM-244 4320A 2/28/06 5795.020 5794.711
 Energy/Channel Equation : see above
 Energy Calibration Zero : 2360.141
 Energy Calibration Slope : 5.008783
 Energy Calibration Quadratic : 2.6339359E-04
 Energy Calibration Range : 7765.000

Instrument : CHAMBER 081
 Detector : 28243
 Calibration Date/Time : 5-APR-2006 14:20:00
 Calibration Source Id : AESS-017
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy
 GD-148 6445-278 2/28/06 3183.000 3183.000
 NP-237 4341 2/28/06 4768.800 4769.124
 CM-244 4320A 2/28/06 5795.020 5795.316
 Energy/Channel Equation : see above
 Energy Calibration Zero : 2423.205
 Energy Calibration Slope : 4.974538
 Energy Calibration Quadratic : 2.3569762E-04
 Energy Calibration Range : 7764.000

Instrument : CHAMBER 083
 Detector : 34436
 Calibration Date/Time : 3-APR-2006 12:09:35
 Calibration Source Id : AESS-019
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy
 GD-148 6445-278 2/28/06 3183.000 3183.000
 NP-237 4341 2/28/06 4768.800 4768.144
 CM-244 4320A 2/28/06 5795.020 5794.581
 Energy/Channel Equation : see above
 Energy Calibration Zero : 2370.701
 Energy Calibration Slope : 5.018431
 Energy Calibration Quadratic : 2.5893620E-04
 Energy Calibration Range : 7781.000

Instrument : CHAMBER 084
 Detector : 29953
 Calibration Date/Time : 3-APR-2006 12:09:48
 Calibration Source Id : AESS-020
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy
 GD-148 6445-278 2/28/06 3183.000 3182.067
 NP-237 4341 2/28/06 4768.800 4768.425
 CM-244 4320A 2/28/06 5795.020 5794.511
 Energy/Channel Equation : see above
 Energy Calibration Zero : 2368.562
 Energy Calibration Slope : 5.005028
 Energy Calibration Quadratic : 3.0593007E-04
 Energy Calibration Range : 7815.000

Instrument : CHAMBER 085
 Detector : 30451
 Calibration Date/Time : 3-APR-2006 12:10:02
 Calibration Source Id : AESS-021
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy
 GD-148 6445-278 2/28/06 3183.000 3182.503
 NP-237 4341 2/28/06 4768.800 4768.802
 CM-244 4320A 2/28/06 5795.020 5795.019
 Energy/Channel Equation : see above
 Energy Calibration Zero : 2385.228
 Energy Calibration Slope : 4.990182
 Energy Calibration Quadratic : 3.0125739E-04
 Energy Calibration Range : 7811.000

Instrument : CHAMBER 086
 Detector : 29278
 Calibration Date/Time : 3-APR-2006 12:10:24
 Calibration Source Id : AESS-022
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy
 GD-148 6445-278 2/28/06 3183.000 3183.000
 NP-237 4341 2/28/06 4768.800 4768.313
 CM-244 4320A 2/28/06 5795.020 5794.889
 Energy/Channel Equation : see above
 Energy Calibration Zero : 2367.011
 Energy Calibration Slope : 5.001186
 Energy Calibration Quadratic : 2.4593988E-04
 Energy Calibration Range : 7746.000

Instrument : CHAMBER 087
 Detector : 34430
 Calibration Date/Time : 3-APR-2006 12:10:36
 Calibration Source Id : AESS-023
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy
 GD-148 6445-278 2/28/06 3183.000 3182.326
 NP-237 4341 2/28/06 4768.800 4768.556
 CM-244 4320A 2/28/06 5795.020 5794.574
 Energy/Channel Equation : see above
 Energy Calibration Zero : 2363.815
 Energy Calibration Slope : 5.009631
 Energy Calibration Quadratic : 2.4977388E-04
 Energy Calibration Range : 7756.000

Instrument : CHAMBER 088
 Detector : 30434
 Calibration Date/Time : 3-APR-2006 12:10:54
 Calibration Source Id : AESS-024

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148 | 6445-278 | 2/28/06 | 3183.000 | 3182.313 |
| NP-237 | 4341 | 2/28/06 | 4768.800 | 4767.746 |
| CM-244 | 4320A | 2/28/06 | 5795.020 | 5794.659 |

Energy/Channel Equation : see above
 Energy Calibration Zero : 2334.709
 Energy Calibration Slope : 4.874549
 Energy Calibration Quadratic : 2.1355411E-04
 Energy Calibration Range : 7550.000

Instrument : CHAMBER 089
 Detector : 21087
 Calibration Date/Time : 3-APR-2006 23:05:32
 Calibration Source Id : AESS-001

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148 | 6445-278 | 2/28/06 | 3183.000 | 3182.451 |
| NP-237 | 4341 | 2/28/06 | 4768.800 | 4768.626 |
| CM-244 | 4320A | 2/28/06 | 5795.020 | 5794.917 |

Energy/Channel Equation : see above
 Energy Calibration Zero : 2349.260
 Energy Calibration Slope : 4.948930
 Energy Calibration Quadratic : 3.2322409E-04
 Energy Calibration Range : 7756.000

Instrument : CHAMBER 090
 Detector : 38159
 Calibration Date/Time : 3-APR-2006 23:06:16
 Calibration Source Id : AESS-002

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148 | 6445-278 | 2/28/06 | 3183.000 | 3183.000 |
| NP-237 | 4341 | 2/28/06 | 4768.800 | 4768.800 |
| CM-244 | 4320A | 2/28/06 | 5795.020 | 5794.866 |

Energy/Channel Equation : see above
 Energy Calibration Zero : 2386.311
 Energy Calibration Slope : 4.986774
 Energy Calibration Quadratic : 3.3244080E-04
 Energy Calibration Range : 7841.000

Instrument : CHAMBER 091
 Detector : 33205
 Calibration Date/Time : 4-APR-2006 21:06:36
 Calibration Source Id : AESS-003

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148 | 6445-278 | 2/28/06 | 3183.000 | 3183.391 |
| NP-237 | 4341 | 2/28/06 | 4768.800 | 4769.357 |
| CM-244 | 4320A | 2/28/06 | 5795.020 | 5795.305 |

Energy/Channel Equation : see above
 Energy Calibration Zero : 2363.386
 Energy Calibration Slope : 4.961743
 Energy Calibration Quadratic : 3.2066394E-04
 Energy Calibration Range : 7780.000

Instrument : CHAMBER 092
 Detector : 33204
 Calibration Date/Time : 3-APR-2006 23:08:02
 Calibration Source Id : AESS-004

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148 | 6445-278 | 2/28/06 | 3183.000 | 3183.000 |
| NP-237 | 4341 | 2/28/06 | 4768.800 | 4768.867 |
| CM-244 | 4320A | 2/28/06 | 5795.020 | 5795.175 |

Energy/Channel Equation : see above
 Energy Calibration Zero : 2358.222
 Energy Calibration Slope : 4.950097
 Energy Calibration Quadratic : 3.0710385E-04
 Energy Calibration Range : 7749.000

Instrument : CHAMBER 093
 Detector : 33206
 Calibration Date/Time : 3-APR-2006 23:08:14
 Calibration Source Id : AESS-005

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148 | 6445-278 | 2/28/06 | 3183.000 | 3183.000 |
| NP-237 | 4341 | 2/28/06 | 4768.800 | 4769.063 |
| CM-244 | 4320A | 2/28/06 | 5795.020 | 5795.298 |

Energy/Channel Equation : see above
 Energy Calibration Zero : 2375.739
 Energy Calibration Slope : 4.926612
 Energy Calibration Quadratic : 3.1170124E-04
 Energy Calibration Range : 7747.000

Instrument : CHAMBER 094
 Detector : 33207
 Calibration Date/Time : 3-APR-2006 23:08:34
 Calibration Source Id : AESS-006

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148 | 6445-278 | 2/28/06 | 3183.000 | 3182.993 |
| NP-237 | 4341 | 2/28/06 | 4768.800 | 4768.799 |
| CM-244 | 4320A | 2/28/06 | 5795.020 | 5795.021 |

Energy/Channel Equation : see above
 Energy Calibration Zero : 2369.583
 Energy Calibration Slope : 4.936423
 Energy Calibration Quadratic : 3.2235958E-04
 Energy Calibration Range : 7762.000

Instrument : CHAMBER 096
 Detector : 30429
 Calibration Date/Time : 3-APR-2006 23:09:48
 Calibration Source Id : AESS-008

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148 | 6445-278 | 2/28/06 | 3183.000 | 3182.677 |
| NP-237 | 4341 | 2/28/06 | 4768.800 | 4768.561 |
| CM-244 | 4320A | 2/28/06 | 5795.020 | 5794.869 |

Energy/Channel Equation : see above
 Energy Calibration Zero : 2346.092
 Energy Calibration Slope : 4.863141
 Energy Calibration Quadratic : 3.1486651E-04
 Energy Calibration Range : 7656.000

Instrument : CHAMBER 098
 Detector : 30431
 Calibration Date/Time : 3-APR-2006 23:10:26
 Calibration Source Id : AESS-010

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148 | 6445-278 | 2/28/06 | 3183.000 | 3182.647 |
| NP-237 | 4341 | 2/28/06 | 4768.800 | 4768.514 |
| CM-244 | 4320A | 2/28/06 | 5795.020 | 5794.903 |

Energy/Channel Equation : see above
 Energy Calibration Zero : 2380.759
 Energy Calibration Slope : 4.922705
 Energy Calibration Quadratic : 3.2662629E-04
 Energy Calibration Range : 7764.000

Instrument : CHAMBER 099
 Detector : 30432
 Calibration Date/Time : 4-APR-2006 21:07:16
 Calibration Source Id : AESS-011
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy
 GD-148 6445-278 2/28/06 3183.000 3183.000
 NP-237 4341 2/28/06 4768.800 4769.171
 CM-244 4320A 2/28/06 5795.020 5795.241
 Energy/Channel Equation : see above
 Energy Calibration Zero : 2411.170
 Energy Calibration Slope : 4.859684
 Energy Calibration Quadratic : 3.3678240E-04
 Energy Calibration Range : 7741.000

Instrument : CHAMBER 101
 Detector : 31696
 Calibration Date/Time : 3-APR-2006 23:11:17
 Calibration Source Id : AESS-013
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy
 GD-148 6445-278 2/28/06 3183.000 3181.759
 NP-237 4341 2/28/06 4768.800 4767.478
 CM-244 4320A 2/28/06 5795.020 5793.923
 Energy/Channel Equation : see above
 Energy Calibration Zero : 2397.165
 Energy Calibration Slope : 4.939373
 Energy Calibration Quadratic : 2.7448736E-04
 Energy Calibration Range : 7743.000

Instrument : CHAMBER 102
 Detector : 30438
 Calibration Date/Time : 3-APR-2006 23:11:38
 Calibration Source Id : AESS-014
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy
 GD-148 6445-278 2/28/06 3183.000 3183.000
 NP-237 4341 2/28/06 4768.800 4768.799
 CM-244 4320A 2/28/06 5795.020 5795.021
 Energy/Channel Equation : see above
 Energy Calibration Zero : 2390.065
 Energy Calibration Slope : 4.967123
 Energy Calibration Quadratic : 3.3759646E-04
 Energy Calibration Range : 7830.000

Instrument : CHAMBER 103
 Detector : 30437
 Calibration Date/Time : 3-APR-2006 23:11:50
 Calibration Source Id : AESS-015

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148 | 6445-278 | 2/28/06 | 3183.000 | 3182.632 |
| NP-237 | 4341 | 2/28/06 | 4768.800 | 4768.780 |
| CM-244 | 4320A | 2/28/06 | 5795.020 | 5795.021 |

Energy/Channel Equation : see above
 Energy Calibration Zero : 2378.634
 Energy Calibration Slope : 4.949142
 Energy Calibration Quadratic : 3.4029011E-04
 Energy Calibration Range : 7803.000

Instrument : CHAMBER 104
 Detector : 30436
 Calibration Date/Time : 3-APR-2006 23:12:05
 Calibration Source Id : AESS-016

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148 | 6445-278 | 2/28/06 | 3183.000 | 3182.656 |
| NP-237 | 4341 | 2/28/06 | 4768.800 | 4768.710 |
| CM-244 | 4320A | 2/28/06 | 5795.020 | 5794.893 |

Energy/Channel Equation : see above
 Energy Calibration Zero : 2402.033
 Energy Calibration Slope : 4.941638
 Energy Calibration Quadratic : 3.3733863E-04
 Energy Calibration Range : 7816.000

Instrument : CHAMBER 106
 Detector : 45382
 Calibration Date/Time : 3-APR-2006 23:13:35
 Calibration Source Id : AESS-018

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148 | 6445-278 | 2/28/06 | 3183.000 | 3183.390 |
| NP-237 | 4341 | 2/28/06 | 4768.800 | 4768.938 |
| CM-244 | 4320A | 2/28/06 | 5795.020 | 5795.081 |

Energy/Channel Equation : see above
 Energy Calibration Zero : 2377.948
 Energy Calibration Slope : 4.942991
 Energy Calibration Quadratic : 3.4093895E-04
 Energy Calibration Range : 7797.000

Instrument : CHAMBER 107
 Detector : 31697
 Calibration Date/Time : 3-APR-2006 23:13:46
 Calibration Source Id : AESS-019

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148 | 6445-278 | 2/28/06 | 3183.000 | 3183.000 |
| NP-237 | 4341 | 2/28/06 | 4768.800 | 4768.800 |
| CM-244 | 4320A | 2/28/06 | 5795.020 | 5795.020 |

Energy/Channel Equation : see above
 Energy Calibration Zero : 2398.373
 Energy Calibration Slope : 4.985534
 Energy Calibration Quadratic : 2.7872290E-04
 Energy Calibration Range : 7796.000

Instrument : CHAMBER 109
 Detector : 31693
 Calibration Date/Time : 3-APR-2006 23:14:12
 Calibration Source Id : AESS-021

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148 | 6445-278 | 2/28/06 | 3183.000 | 3183.000 |
| NP-237 | 4341 | 2/28/06 | 4768.800 | 4769.000 |
| CM-244 | 4320A | 2/28/06 | 5795.020 | 5795.208 |

Energy/Channel Equation : see above
 Energy Calibration Zero : 2387.754
 Energy Calibration Slope : 4.924148
 Energy Calibration Quadratic : 3.0788378E-04
 Energy Calibration Range : 7753.000

Instrument : CHAMBER 110
 Detector : 30447
 Calibration Date/Time : 4-APR-2006 21:08:36
 Calibration Source Id : AESS-022

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148 | 6445-278 | 2/28/06 | 3183.000 | 3183.635 |
| NP-237 | 4341 | 2/28/06 | 4768.800 | 4768.800 |
| CM-244 | 4320A | 2/28/06 | 5795.020 | 5795.020 |

Energy/Channel Equation : see above
 Energy Calibration Zero : 2419.221
 Energy Calibration Slope : 4.999035
 Energy Calibration Quadratic : 2.2320703E-04
 Energy Calibration Range : 7772.000

Instrument : CHAMBER 111
 Detector : 30448
 Calibration Date/Time : 3-APR-2006 23:15:36
 Calibration Source Id : AESS-023

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148 | 6445-278 | 2/28/06 | 3183.000 | 3182.627 |
| NP-237 | 4341 | 2/28/06 | 4768.800 | 4768.799 |
| CM-244 | 4320A | 2/28/06 | 5795.020 | 5795.021 |

Energy/Channel Equation : see above
 Energy Calibration Zero : 2388.052
 Energy Calibration Slope : 4.962283
 Energy Calibration Quadratic : 2.9634466E-04
 Energy Calibration Range : 7780.000

Instrument : CHAMBER 112
 Detector : 30449
 Calibration Date/Time : 3-APR-2006 23:15:47
 Calibration Source Id : AESS-024

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148 | 6445-278 | 2/28/06 | 3183.000 | 3183.000 |
| NP-237 | 4341 | 2/28/06 | 4768.800 | 4768.664 |
| CM-244 | 4320A | 2/28/06 | 5795.020 | 5795.019 |

Energy/Channel Equation : see above
 Energy Calibration Zero : 2375.519
 Energy Calibration Slope : 4.935473
 Energy Calibration Quadratic : 2.8306872E-04
 Energy Calibration Range : 7726.000

Instrument : CHAMBER 113
 Detector : 45-111B4
 Calibration Date/Time : 4-APR-2006 17:02:58
 Calibration Source Id : AESS-001

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148 | 6445-278 | 2/28/06 | 3183.000 | 3182.303 |
| NP-237 | 4341 | 2/28/06 | 4768.800 | 4767.615 |
| CM-244 | 4320A | 2/28/06 | 5795.020 | 5794.404 |

Energy/Channel Equation : see above
 Energy Calibration Zero : 2393.614
 Energy Calibration Slope : 4.990646
 Energy Calibration Quadratic : 3.0610454E-04
 Energy Calibration Range : 7825.000

Instrument : CHAMBER 114
 Detector : 45-111B5
 Calibration Date/Time : 4-APR-2006 17:03:22
 Calibration Source Id : AESS-007

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148 | 6445-278 | 2/28/06 | 3183.000 | 3181.771 |
| NP-237 | 4341 | 2/28/06 | 4768.800 | 4767.996 |
| CM-244 | 4320A | 2/28/06 | 5795.020 | 5794.695 |

Energy/Channel Equation : see above
 Energy Calibration Zero : 2391.292
 Energy Calibration Slope : 4.957956
 Energy Calibration Quadratic : 3.2139214E-04
 Energy Calibration Range : 7805.000

Instrument : CHAMBER 115
 Detector : 45-132EE5
 Calibration Date/Time : 4-APR-2006 17:03:37
 Calibration Source Id : AESS-002

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148 | 6445-278 | 2/28/06 | 3183.000 | 3183.000 |
| NP-237 | 4341 | 2/28/06 | 4768.800 | 4768.468 |
| CM-244 | 4320A | 2/28/06 | 5795.020 | 5794.664 |

Energy/Channel Equation : see above
 Energy Calibration Zero : 2372.417
 Energy Calibration Slope : 4.988519
 Energy Calibration Quadratic : 2.9488039E-04
 Energy Calibration Range : 7790.000

Instrument : CHAMBER 116
 Detector : 45-132FF2
 Calibration Date/Time : 4-APR-2006 17:03:51
 Calibration Source Id : AESS-008

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148 | 6445-278 | 2/28/06 | 3183.000 | 3181.985 |
| NP-237 | 4341 | 2/28/06 | 4768.800 | 4767.986 |
| CM-244 | 4320A | 2/28/06 | 5795.020 | 5794.612 |

Energy/Channel Equation : see above
 Energy Calibration Zero : 2377.594
 Energy Calibration Slope : 4.965635
 Energy Calibration Quadratic : 3.1974592E-04
 Energy Calibration Range : 7798.000

Instrument : CHAMBER 117
 Detector : 45-132FF3
 Calibration Date/Time : 4-APR-2006 17:04:04
 Calibration Source Id : AESS-003

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148 | 6445-278 | 2/28/06 | 3183.000 | 3181.825 |
| NP-237 | 4341 | 2/28/06 | 4768.800 | 4767.294 |
| CM-244 | 4320A | 2/28/06 | 5795.020 | 5794.289 |

Energy/Channel Equation : see above
 Energy Calibration Zero : 2399.138
 Energy Calibration Slope : 4.995797
 Energy Calibration Quadratic : 2.8692893E-04
 Energy Calibration Range : 7816.000

Instrument : CHAMBER 118
 Detector : 45-132FF4
 Calibration Date/Time : 4-APR-2006 17:04:21
 Calibration Source Id : AESS-009

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148 | 6445-278 | 2/28/06 | 3183.000 | 3181.738 |
| NP-237 | 4341 | 2/28/06 | 4768.800 | 4767.705 |
| CM-244 | 4320A | 2/28/06 | 5795.020 | 5794.733 |

Energy/Channel Equation : see above
 Energy Calibration Zero : 2382.726
 Energy Calibration Slope : 4.977871
 Energy Calibration Quadratic : 3.1087140E-04
 Energy Calibration Range : 7806.000

Instrument : CHAMBER 119
 Detector : 45-132FF5
 Calibration Date/Time : 4-APR-2006 17:04:33
 Calibration Source Id : AESS-004

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148 | 6445-278 | 2/28/06 | 3183.000 | 3181.725 |
| NP-237 | 4341 | 2/28/06 | 4768.800 | 4768.406 |
| CM-244 | 4320A | 2/28/06 | 5795.020 | 5794.422 |

Energy/Channel Equation : see above
 Energy Calibration Zero : 2394.460
 Energy Calibration Slope : 4.945233
 Energy Calibration Quadratic : 3.2115451E-04
 Energy Calibration Range : 7795.000

Instrument : CHAMBER 120
 Detector : 45-142F1
 Calibration Date/Time : 4-APR-2006 17:05:08
 Calibration Source Id : AESS-010

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148 | 6445-278 | 2/28/06 | 3183.000 | 3181.702 |
| NP-237 | 4341 | 2/28/06 | 4768.800 | 4767.716 |
| CM-244 | 4320A | 2/28/06 | 5795.020 | 5794.385 |

Energy/Channel Equation : see above
 Energy Calibration Zero : 2370.954
 Energy Calibration Slope : 4.969444
 Energy Calibration Quadratic : 2.9560321E-04
 Energy Calibration Range : 7770.000

Instrument : CHAMBER 121
 Detector : 45-142J4
 Calibration Date/Time : 4-APR-2006 17:05:19
 Calibration Source Id : AESS-005

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148 | 6445-278 | 2/28/06 | 3183.000 | 3181.854 |
| NP-237 | 4341 | 2/28/06 | 4768.800 | 4767.926 |
| CM-244 | 4320A | 2/28/06 | 5795.020 | 5794.359 |

Energy/Channel Equation : see above
 Energy Calibration Zero : 2388.517
 Energy Calibration Slope : 4.957601
 Energy Calibration Quadratic : 3.2604721E-04
 Energy Calibration Range : 7807.000

Instrument : CHAMBER 122
 Detector : 45-142J5
 Calibration Date/Time : 4-APR-2006 17:05:33
 Calibration Source Id : AESS-011

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148 | 6445-278 | 2/28/06 | 3183.000 | 3181.708 |
| NP-237 | 4341 | 2/28/06 | 4768.800 | 4767.643 |
| CM-244 | 4320A | 2/28/06 | 5795.020 | 5794.644 |

Energy/Channel Equation : see above
 Energy Calibration Zero : 2379.562
 Energy Calibration Slope : 4.966173
 Energy Calibration Quadratic : 3.1077259E-04
 Energy Calibration Range : 7791.000

Instrument : CHAMBER 123
 Detector : 45-142V1
 Calibration Date/Time : 4-APR-2006 17:05:57
 Calibration Source Id : AESS-006

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148 | 6445-278 | 2/28/06 | 3183.000 | 3180.927 |
| NP-237 | 4341 | 2/28/06 | 4768.800 | 4767.132 |
| CM-244 | 4320A | 2/28/06 | 5795.020 | 5794.117 |

Energy/Channel Equation : see above
 Energy Calibration Zero : 2393.486
 Energy Calibration Slope : 4.981727
 Energy Calibration Quadratic : 2.8783656E-04
 Energy Calibration Range : 7797.000

Instrument : CHAMBER 124
 Detector : 45-142V2
 Calibration Date/Time : 4-APR-2006 17:06:12
 Calibration Source Id : AESS-012

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148 | 6445-278 | 2/28/06 | 3183.000 | 3181.329 |
| NP-237 | 4341 | 2/28/06 | 4768.800 | 4767.124 |
| CM-244 | 4320A | 2/28/06 | 5795.020 | 5794.622 |

Energy/Channel Equation : see above
 Energy Calibration Zero : 2394.312
 Energy Calibration Slope : 4.963425
 Energy Calibration Quadratic : 3.1662040E-04
 Energy Calibration Range : 7809.000

Instrument : CHAMBER 125
 Detector : 45-142V3
 Calibration Date/Time : 4-APR-2006 17:06:28
 Calibration Source Id : AESS-013

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148 | 6445-278 | 2/28/06 | 3183.000 | 3181.749 |
| NP-237 | 4341 | 2/28/06 | 4768.800 | 4766.709 |
| CM-244 | 4320A | 2/28/06 | 5795.020 | 5794.138 |

Energy/Channel Equation : see above
 Energy Calibration Zero : 2389.743
 Energy Calibration Slope : 4.991052
 Energy Calibration Quadratic : 2.6156937E-04
 Energy Calibration Range : 7775.000

Instrument : CHAMBER 126
 Detector : 45-142V5
 Calibration Date/Time : 4-APR-2006 17:06:44
 Calibration Source Id : AESS-019

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148 | 6445-278 | 2/28/06 | 3183.000 | 3181.536 |
| NP-237 | 4341 | 2/28/06 | 4768.800 | 4766.676 |
| CM-244 | 4320A | 2/28/06 | 5795.020 | 5794.299 |

Energy/Channel Equation : see above
 Energy Calibration Zero : 2392.589
 Energy Calibration Slope : 5.019009
 Energy Calibration Quadratic : 2.5404955E-04
 Energy Calibration Range : 7798.000

Instrument : CHAMBER 127
 Detector : 45-142W1
 Calibration Date/Time : 4-APR-2006 17:07:12
 Calibration Source Id : AESS-014

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148 | 6445-278 | 2/28/06 | 3183.000 | 3181.047 |
| NP-237 | 4341 | 2/28/06 | 4768.800 | 4767.379 |
| CM-244 | 4320A | 2/28/06 | 5795.020 | 5794.462 |

Energy/Channel Equation : see above
 Energy Calibration Zero : 2390.982
 Energy Calibration Slope : 4.949072
 Energy Calibration Quadratic : 3.2237647E-04
 Energy Calibration Range : 7797.000

Instrument : CHAMBER 128
 Detector : 45-142W2
 Calibration Date/Time : 4-APR-2006 17:07:27
 Calibration Source Id : AESS-020

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148 | 6445-278 | 2/28/06 | 3183.000 | 3181.794 |
| NP-237 | 4341 | 2/28/06 | 4768.800 | 4767.351 |
| CM-244 | 4320A | 2/28/06 | 5795.020 | 5794.426 |

Energy/Channel Equation : see above
 Energy Calibration Zero : 2376.436
 Energy Calibration Slope : 4.990520
 Energy Calibration Quadratic : 2.8923506E-04
 Energy Calibration Range : 7790.000

Instrument : CHAMBER 129
 Detector : 45-142W3
 Calibration Date/Time : 4-APR-2006 17:07:43
 Calibration Source Id : AESS-015
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy
 GD-148 6445-278 2/28/06 3183.000 3181.920
 NP-237 4341 2/28/06 4768.800 4767.431
 CM-244 4320A 2/28/06 5795.020 5794.286

Energy/Channel Equation : see above
 Energy Calibration Zero : 2397.947
 Energy Calibration Slope : 4.950837
 Energy Calibration Quadratic : 3.2286491E-04
 Energy Calibration Range : 7806.000

Instrument : CHAMBER 130
 Detector : 45-142W5
 Calibration Date/Time : 4-APR-2006 17:07:58
 Calibration Source Id : AESS-021
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy
 GD-148 6445-278 2/28/06 3183.000 3181.779
 NP-237 4341 2/28/06 4768.800 4767.779
 CM-244 4320A 2/28/06 5795.020 5794.289

Energy/Channel Equation : see above
 Energy Calibration Zero : 2390.948
 Energy Calibration Slope : 5.005381
 Energy Calibration Quadratic : 2.9957382E-04
 Energy Calibration Range : 7831.000

Instrument : CHAMBER 131
 Detector : 45-145K1
 Calibration Date/Time : 4-APR-2006 17:08:16
 Calibration Source Id : AESS-016
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy
 GD-148 6445-278 2/28/06 3183.000 3181.832
 NP-237 4341 2/28/06 4768.800 4767.927
 CM-244 4320A 2/28/06 5795.020 5794.474

Energy/Channel Equation : see above
 Energy Calibration Zero : 2383.200
 Energy Calibration Slope : 4.971618
 Energy Calibration Quadratic : 3.1435001E-04
 Energy Calibration Range : 7804.000

Instrument : CHAMBER 132
 Detector : 45-145K2
 Calibration Date/Time : 4-APR-2006 17:08:32
 Calibration Source Id : AESS-022

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148 | 6445-278 | 2/28/06 | 3183.000 | 3181.897 |
| NP-237 | 4341 | 2/28/06 | 4768.800 | 4767.248 |
| CM-244 | 4320A | 2/28/06 | 5795.020 | 5794.594 |

Energy/Channel Equation : see above
 Energy Calibration Zero : 2374.090
 Energy Calibration Slope : 5.015432
 Energy Calibration Quadratic : 2.7181130E-04
 Energy Calibration Range : 7795.000

Instrument : CHAMBER 133
 Detector : 45-145K3
 Calibration Date/Time : 4-APR-2006 17:09:47
 Calibration Source Id : AESS-017

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148 | 6445-278 | 2/28/06 | 3183.000 | 3181.967 |
| NP-237 | 4341 | 2/28/06 | 4768.800 | 4767.767 |
| CM-244 | 4320A | 2/28/06 | 5795.020 | 5794.419 |

Energy/Channel Equation : see above
 Energy Calibration Zero : 2364.883
 Energy Calibration Slope : 4.958282
 Energy Calibration Quadratic : 2.8459914E-04
 Energy Calibration Range : 7741.000

Instrument : CHAMBER 134
 Detector : 45-145K4
 Calibration Date/Time : 4-APR-2006 17:11:02
 Calibration Source Id : AESS-023

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148 | 6445-278 | 2/28/06 | 3183.000 | 3181.715 |
| NP-237 | 4341 | 2/28/06 | 4768.800 | 4767.525 |
| CM-244 | 4320A | 2/28/06 | 5795.020 | 5794.621 |

Energy/Channel Equation : see above
 Energy Calibration Zero : 2384.888
 Energy Calibration Slope : 4.989409
 Energy Calibration Quadratic : 2.7175582E-04
 Energy Calibration Range : 7779.000

Instrument : CHAMBER 135
 Detector : 45-145K5
 Calibration Date/Time : 4-APR-2006 17:11:53
 Calibration Source Id : AESS-018

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148 | 6445-278 | 2/28/06 | 3183.000 | 3181.833 |
| NP-237 | 4341 | 2/28/06 | 4768.800 | 4768.171 |
| CM-244 | 4320A | 2/28/06 | 5795.020 | 5794.435 |

Energy/Channel Equation : see above
 Energy Calibration Zero : 2394.605
 Energy Calibration Slope : 4.968740
 Energy Calibration Quadratic : 2.9795556E-04
 Energy Calibration Range : 7795.000

Instrument : CHAMBER 136
 Detector : 45-145L1
 Calibration Date/Time : 4-APR-2006 17:12:12
 Calibration Source Id : AESS-024

| Cal. Isotopes | Source Id | Expiration Date | Standard Energy | Actual Energy |
|---------------|-----------|-----------------|-----------------|---------------|
| GD-148 | 6445-278 | 2/28/06 | 3183.000 | 3181.493 |
| NP-237 | 4341 | 2/28/06 | 4768.800 | 4767.151 |
| CM-244 | 4320A | 2/28/06 | 5795.020 | 5794.044 |

Energy/Channel Equation : see above
 Energy Calibration Zero : 2384.309
 Energy Calibration Slope : 5.003936
 Energy Calibration Quadratic : 2.5798104E-04
 Energy Calibration Range : 7779.000

Subsection 2: Background Calibration

Instrument : CHAMBER 001
 Detector : 33088
 Background Analysis Date/Time : 2-APR-2006 11:38:32
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts in 1000 min | Counts during Cal | % Error | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148 | 2990.456 | 3298.943 | 2.000000 | 0.4799997 | 70.71068 | 95.00000 |
| NP-237 | 4433.436 | 4903.018 | 13.00000 | 3.119998 | 27.73501 | 95.00000 |
| CM-244 | 5530.638 | 5887.374 | 28.00000 | 6.719995 | 18.89822 | 95.00000 |

Instrument : CHAMBER 003
 Detector : 20659
 Background Analysis Date/Time : 2-APR-2006 11:38:32
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts in 1000 min | Counts during Cal | % Error | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148 | 2988.599 | 3300.169 | 5.000000 | 1.199999 | 44.72136 | 95.00000 |
| NP-237 | 4434.674 | 4902.844 | 22.00000 | 5.279996 | 21.32007 | 95.00000 |
| CM-244 | 5535.248 | 5883.783 | 33.00000 | 7.919994 | 17.40777 | 95.00000 |

Instrument : CHAMBER 004
 Detector : 33077
 Background Analysis Date/Time : 2-APR-2006 11:38:32
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts in 1000 min | Counts during Cal | % Error | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|--------------|------------|
| GD-148 | 2987.545 | 3299.456 | 0.000000E+00 | 0.000000E+00 | 0.000000E+00 | 95.00000 |
| NP-237 | 4433.646 | 4906.400 | 4.000000 | 0.9599993 | 50.00000 | 95.00000 |
| CM-244 | 5531.494 | 5886.867 | 18.00000 | 4.319997 | 23.57022 | 95.00000 |

Instrument : CHAMBER 005
 Detector : 28642
 Background Analysis Date/Time : 2-APR-2006 11:38:32
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts in 1000 min | Counts during Cal | % Error | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148 | 2990.709 | 3298.775 | 3.000000 | 0.7199995 | 57.73503 | 95.00000 |
| NP-237 | 4434.190 | 4905.248 | 19.00000 | 4.559997 | 22.94157 | 95.00000 |
| CM-244 | 5530.463 | 5883.921 | 31.00000 | 7.439995 | 17.96053 | 95.00000 |

Instrument : CHAMBER 007
 Detector : 30416
 Background Analysis Date/Time : 2-APR-2006 11:38:33
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts in 1000 min | Counts during Cal | % Error | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148 | 2990.797 | 3298.358 | 1.000000 | 0.2399998 | 100.0000 | 95.00000 |
| NP-237 | 4432.556 | 4903.394 | 25.00000 | 5.999996 | 20.00000 | 95.00000 |
| CM-244 | 5533.897 | 5887.491 | 49.00000 | 11.75999 | 14.28572 | 95.00000 |

Instrument : CHAMBER 009
 Detector : 13285
 Background Analysis Date/Time : 2-APR-2006 11:38:33
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts in 1000 min | Counts during Cal | % Error | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148 | 2987.740 | 3302.180 | 3.000000 | 0.7199995 | 57.73503 | 95.00000 |
| NP-237 | 4436.826 | 4904.306 | 10.00000 | 2.399998 | 31.62278 | 95.00000 |
| CM-244 | 5530.853 | 5882.488 | 30.00000 | 7.199995 | 18.25742 | 95.00000 |

Instrument : CHAMBER 010
 Detector : 33083
 Background Analysis Date/Time : 2-APR-2006 11:38:33
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts in 1000 min | Counts during Cal | % Error | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148 | 2992.233 | 3300.495 | 1.000000 | 0.2399998 | 100.0000 | 95.00000 |
| NP-237 | 4435.514 | 4905.914 | 11.00000 | 2.639998 | 30.15113 | 95.00000 |
| CM-244 | 5535.151 | 5882.345 | 27.00000 | 6.479995 | 19.24501 | 95.00000 |

Instrument : CHAMBER 011
 Detector : 9537
 Background Analysis Date/Time : 2-APR-2006 11:38:33
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts in 1000 min | Counts during Cal | % Error | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148 | 2988.769 | 3298.475 | 1.000000 | 0.2399998 | 100.0000 | 95.00000 |
| NP-237 | 4433.776 | 4901.438 | 2.000000 | 0.4799997 | 70.71068 | 95.00000 |
| CM-244 | 5533.457 | 5885.193 | 35.00000 | 8.399994 | 16.90309 | 95.00000 |

Instrument : CHAMBER 012
 Detector : 33085
 Background Analysis Date/Time : 2-APR-2006 11:38:33
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts in 1000 min | Counts during Cal | % Error | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148 | 2992.283 | 3299.978 | 1.000000 | 0.2399998 | 100.0000 | 95.00000 |
| NP-237 | 4432.454 | 4901.598 | 3.000000 | 0.7199995 | 57.73503 | 95.00000 |
| CM-244 | 5534.285 | 5885.751 | 13.00000 | 3.119998 | 27.73501 | 95.00000 |

Instrument : CHAMBER 013
 Detector : 21084
 Background Analysis Date/Time : 2-APR-2006 11:38:34
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts in 1000 min | Counts during Cal | % Error | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148 | 2992.308 | 3301.307 | 1.000000 | 0.2399998 | 100.0000 | 95.00000 |
| NP-237 | 4433.829 | 4905.476 | 4.000000 | 0.9599993 | 50.00000 | 95.00000 |
| CM-244 | 5530.551 | 5886.625 | 27.00000 | 6.479995 | 19.24501 | 95.00000 |

Instrument : CHAMBER 016
 Detector : 21086
 Background Analysis Date/Time : 2-APR-2006 11:38:34
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts in 1000 min | Counts during Cal | % Error | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148 | 2992.386 | 3300.792 | 3.000000 | 0.7199995 | 57.73503 | 95.00000 |
| NP-237 | 4437.111 | 4903.407 | 9.000000 | 2.159998 | 33.33334 | 95.00000 |
| CM-244 | 5533.819 | 5884.776 | 38.00000 | 9.119993 | 16.22214 | 95.00000 |

Instrument : CHAMBER 017
 Detector : 33203
 Background Analysis Date/Time : 2-APR-2006 11:38:34
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts in 1000 min | Counts during Cal | % Error | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148 | 2988.693 | 3298.212 | 1.000000 | 0.2399998 | 100.0000 | 95.00000 |
| NP-237 | 4432.905 | 4905.400 | 9.000000 | 2.159998 | 33.33334 | 95.00000 |
| CM-244 | 5532.198 | 5886.394 | 44.00000 | 10.55999 | 15.07557 | 95.00000 |

Instrument : CHAMBER 018
 Detector : 21063
 Background Analysis Date/Time : 2-APR-2006 11:38:34
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts in 1000 min | Counts during Cal | % Error | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148 | 2988.076 | 3298.134 | 1.000000 | 0.2399998 | 100.0000 | 95.00000 |
| NP-237 | 4433.036 | 4905.011 | 4.000000 | 0.9599993 | 50.00000 | 95.00000 |
| CM-244 | 5535.243 | 5885.674 | 34.00000 | 8.159994 | 17.14986 | 95.00000 |

Instrument : CHAMBER 019
 Detector : 23882
 Background Analysis Date/Time : 2-APR-2006 11:38:35
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts in 1000 min | Counts during Cal | % Error | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|-----------|------------|
| GD-148 | 2989.511 | 3300.144 | 16916.00 | 4059.841 | 0.7688669 | 95.00000 |
| NP-237 | 4435.855 | 4902.151 | 5184.000 | 1244.160 | 1.388889 | 95.00000 |
| CM-244 | 5531.789 | 5884.041 | 1897.000 | 455.2801 | 2.295970 | 95.00000 |

Instrument : CHAMBER 020
 Detector : 33093
 Background Analysis Date/Time : 2-APR-2006 11:38:35
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts in 1000 min | Counts during Cal | % Error | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148 | 2988.758 | 3298.111 | 2.000000 | 0.4800001 | 70.71068 | 95.00000 |
| NP-237 | 4435.838 | 4901.523 | 7.000000 | 1.680000 | 37.79645 | 95.00000 |
| CM-244 | 5530.915 | 5883.311 | 45.00000 | 10.80000 | 14.90712 | 95.00000 |

Instrument : CHAMBER 021
 Detector : 33893
 Background Analysis Date/Time : 2-APR-2006 11:38:35
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts in 1000 min | Counts during Cal | % Error | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148 | 2987.969 | 3300.683 | 1.000000 | 0.2400001 | 100.0000 | 95.00000 |
| NP-237 | 4434.165 | 4904.181 | 5.000000 | 1.200000 | 44.72136 | 95.00000 |
| CM-244 | 5533.125 | 5885.623 | 21.00000 | 5.040001 | 21.82179 | 95.00000 |

Instrument : CHAMBER 023
 Detector : 22873
 Background Analysis Date/Time : 2-APR-2006 11:38:35
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts in 1000 min | Counts during Cal | % Error | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148 | 2988.365 | 3300.653 | 2.000000 | 0.4800001 | 70.71068 | 95.00000 |
| NP-237 | 4432.587 | 4902.786 | 9.000000 | 2.160001 | 33.33334 | 95.00000 |
| CM-244 | 5533.585 | 5885.616 | 41.00000 | 9.840002 | 15.61738 | 95.00000 |

Instrument : CHAMBER 026
 Detector : 34427
 Background Analysis Date/Time : 2-APR-2006 11:38:36
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts in 1000 min | Counts during Cal | % Error | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148 | 2988.396 | 3300.299 | 1.000000 | 0.2400001 | 100.0000 | 95.00000 |
| NP-237 | 4432.951 | 4903.551 | 14.00000 | 3.360001 | 26.72612 | 95.00000 |
| CM-244 | 5534.085 | 5882.486 | 27.00000 | 6.480001 | 19.24501 | 95.00000 |

Instrument : CHAMBER 027
 Detector : 31436
 Background Analysis Date/Time : 2-APR-2006 11:38:36
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts in 1000 min | Counts during Cal | % Error | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|---------------|------------|
| GD-148 | 2990.641 | 3298.501 | 0.0000000E+00 | 0.0000000E+00 | 0.0000000E+00 | 95.00000 |
| NP-237 | 4435.554 | 4903.960 | 9.000000 | 2.160001 | 33.33334 | 95.00000 |
| CM-244 | 5535.178 | 5885.600 | 13.00000 | 3.120001 | 27.73501 | 95.00000 |

Instrument : CHAMBER 028
 Detector : 21056
 Background Analysis Date/Time : 2-APR-2006 11:38:36
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts in 1000 min | Counts during Cal | % Error | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148 | 2991.862 | 3298.519 | 1.000000 | 0.2400001 | 100.0000 | 95.00000 |
| NP-237 | 4437.162 | 4904.527 | 5.000000 | 1.200000 | 44.72136 | 95.00000 |
| CM-244 | 5534.678 | 5884.670 | 3.000000 | 0.7200001 | 57.73503 | 95.00000 |

Instrument : CHAMBER 029
 Detector : 30419
 Background Analysis Date/Time : 2-APR-2006 11:38:36
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts in 1000 min | Counts during Cal | % Error | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148 | 2991.643 | 3298.009 | 4.000000 | 0.9600002 | 50.00000 | 95.00000 |
| NP-237 | 4436.124 | 4903.513 | 4.000000 | 0.9600002 | 50.00000 | 95.00000 |
| CM-244 | 5533.909 | 5884.139 | 20.00000 | 4.800001 | 22.36068 | 95.00000 |

Instrument : CHAMBER 030
 Detector : 30420
 Background Analysis Date/Time : 2-APR-2006 11:38:36
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts in 1000 min | Counts during Cal | % Error | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148 | 2992.381 | 3300.032 | 2.000000 | 0.4800001 | 70.71068 | 95.00000 |
| NP-237 | 4435.171 | 4901.399 | 1.000000 | 0.2400001 | 100.0000 | 95.00000 |
| CM-244 | 5532.938 | 5887.226 | 28.00000 | 6.720002 | 18.89822 | 95.00000 |

Instrument : CHAMBER 032
 Detector : 33207
 Background Analysis Date/Time : 2-APR-2006 11:38:36
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts in 1000 min | Counts during Cal | % Error | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148 | 2992.438 | 3301.011 | 4.000000 | 0.9599994 | 50.00000 | 95.00000 |
| NP-237 | 4437.450 | 4903.298 | 8.000000 | 1.919999 | 35.35534 | 95.00000 |
| CM-244 | 5533.518 | 5886.674 | 40.00000 | 9.599994 | 15.81139 | 95.00000 |

Instrument : CHAMBER 033
 Detector : 28647
 Background Analysis Date/Time : 2-APR-2006 11:38:36
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts in 1000 min | Counts during Cal | % Error | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148 | 2991.128 | 3301.778 | 10.00000 | 2.399998 | 31.62278 | 95.00000 |
| NP-237 | 4433.277 | 4905.752 | 9.000000 | 2.159999 | 33.33334 | 95.00000 |
| CM-244 | 5531.202 | 5887.135 | 39.00000 | 9.359994 | 16.01282 | 95.00000 |

Instrument : CHAMBER 034
 Detector : 32697
 Background Analysis Date/Time : 2-APR-2006 11:38:36
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts in 1000 min | Counts during Cal | % Error | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148 | 2987.740 | 3297.727 | 18.00000 | 4.319997 | 23.57022 | 95.00000 |
| NP-237 | 4436.424 | 4906.295 | 31.00000 | 7.439995 | 17.96053 | 95.00000 |
| CM-244 | 5532.067 | 5883.683 | 33.00000 | 7.919995 | 17.40777 | 95.00000 |

Instrument : CHAMBER 035
 Detector : 29271
 Background Analysis Date/Time : 2-APR-2006 11:38:36
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts in 1000 min | Counts during Cal | % Error | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148 | 2990.597 | 3300.316 | 1.000000 | 0.2399998 | 100.0000 | 95.00000 |
| NP-237 | 4435.093 | 4902.062 | 25.00000 | 5.999996 | 20.00000 | 95.00000 |
| CM-244 | 5533.546 | 5887.289 | 24.00000 | 5.759996 | 20.41241 | 95.00000 |

Instrument : CHAMBER 036
 Detector : 29275
 Background Analysis Date/Time : 2-APR-2006 11:38:36
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts in 1000 min | Counts during Cal | % Error | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|---------------|------------|
| GD-148 | 2990.101 | 3302.011 | 0.0000000E+00 | 0.0000000E+00 | 0.0000000E+00 | 95.00000 |
| NP-237 | 4436.212 | 4902.690 | 21.00000 | 5.039997 | 21.82179 | 95.00000 |
| CM-244 | 5530.586 | 5883.211 | 28.00000 | 6.719995 | 18.89822 | 95.00000 |

Instrument : CHAMBER 037
 Detector : 32690
 Background Analysis Date/Time : 2-APR-2006 11:38:37
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts in 1000 min | Counts during Cal | % Error | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148 | 2990.331 | 3300.070 | 3.000000 | 0.7200001 | 57.73503 | 95.00000 |
| NP-237 | 4435.120 | 4902.289 | 15.00000 | 3.600001 | 25.81989 | 95.00000 |
| CM-244 | 5534.121 | 5882.713 | 34.00000 | 8.160002 | 17.14986 | 95.00000 |

Instrument : CHAMBER 038
 Detector : 19323
 Background Analysis Date/Time : 2-APR-2006 11:38:37
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts in 1000 min | Counts during Cal | % Error | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148 | 2992.203 | 3301.129 | 4.000000 | 0.9600002 | 50.00000 | 95.00000 |
| NP-237 | 4436.340 | 4904.950 | 11.00000 | 2.640001 | 30.15113 | 95.00000 |
| CM-244 | 5534.574 | 5885.451 | 22.00000 | 5.280001 | 21.32007 | 95.00000 |

Instrument : CHAMBER 040
 Detector : 30446
 Background Analysis Date/Time : 2-APR-2006 11:38:37
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts in 1000 min | Counts during Cal | % Error | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148 | 2990.636 | 3301.603 | 3.000000 | 0.7200001 | 57.73503 | 95.00000 |
| NP-237 | 4435.733 | 4904.719 | 11.00000 | 2.640001 | 30.15113 | 95.00000 |
| CM-244 | 5532.976 | 5885.423 | 19.00000 | 4.560001 | 22.94157 | 95.00000 |

Instrument : CHAMBER 041
 Detector : 22834
 Background Analysis Date/Time : 2-APR-2006 11:38:37
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts in 1000 min | Counts during Cal | % Error | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148 | 2987.681 | 3302.193 | 2.000000 | 0.4800001 | 70.71068 | 95.00000 |
| NP-237 | 4432.502 | 4905.743 | 8.000000 | 1.920000 | 35.35534 | 95.00000 |
| CM-244 | 5533.298 | 5885.604 | 23.00000 | 5.520001 | 20.85144 | 95.00000 |

Instrument : CHAMBER 042
 Detector : 32695
 Background Analysis Date/Time : 2-APR-2006 11:38:37
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts in 1000 min | Counts during Cal | % Error | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148 | 2990.651 | 3300.194 | 4.000000 | 0.9600002 | 50.00000 | 95.00000 |
| NP-237 | 4435.708 | 4903.810 | 19.00000 | 4.560001 | 22.94157 | 95.00000 |
| CM-244 | 5531.417 | 5883.758 | 26.00000 | 6.240001 | 19.61161 | 95.00000 |

Instrument : CHAMBER 043
 Detector : 42470
 Background Analysis Date/Time : 2-APR-2006 11:38:38
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts in 1000 min | Counts during Cal | % Error | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148 | 2988.168 | 3298.326 | 1.000000 | 0.2399998 | 100.0000 | 95.00000 |
| NP-237 | 4436.901 | 4902.013 | 2.000000 | 0.4799997 | 70.71068 | 95.00000 |
| CM-244 | 5535.121 | 5886.262 | 19.00000 | 4.559997 | 22.94157 | 95.00000 |

Instrument : CHAMBER 044
 Detector : 34433
 Background Analysis Date/Time : 2-APR-2006 11:38:38
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts in 1000 min | Counts during Cal | % Error | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148 | 2989.004 | 3298.648 | 28.00000 | 6.719995 | 18.89822 | 95.00000 |
| NP-237 | 4433.632 | 4906.174 | 35.00000 | 8.399995 | 16.90309 | 95.00000 |
| CM-244 | 5532.967 | 5887.129 | 38.00000 | 9.119994 | 16.22214 | 95.00000 |

Instrument : CHAMBER 045
 Detector : 34430
 Background Analysis Date/Time : 2-APR-2006 11:38:38
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts in 1000 min | Counts during Cal | % Error | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148 | 2992.438 | 3301.033 | 4.000000 | 0.9599994 | 50.00000 | 95.00000 |
| NP-237 | 4436.365 | 4906.490 | 17.00000 | 4.079998 | 24.25356 | 95.00000 |
| CM-244 | 5535.004 | 5886.982 | 17.00000 | 4.079998 | 24.25356 | 95.00000 |

Instrument : CHAMBER 046
 Detector : 42471
 Background Analysis Date/Time : 2-APR-2006 11:38:38
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts in 1000 min | Counts during Cal | % Error | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148 | 2987.741 | 3299.741 | 14.00000 | 3.359998 | 26.72612 | 95.00000 |
| NP-237 | 4435.900 | 4904.967 | 49.00000 | 11.75999 | 14.28572 | 95.00000 |
| CM-244 | 5532.671 | 5884.488 | 25.00000 | 5.999996 | 20.00000 | 95.00000 |

Instrument : CHAMBER 047
 Detector : 30449
 Background Analysis Date/Time : 2-APR-2006 11:38:38
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts in 1000 min | Counts during Cal | % Error | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|--------------|------------|
| GD-148 | 2989.322 | 3298.103 | 0.000000E+00 | 0.000000E+00 | 0.000000E+00 | 95.00000 |
| NP-237 | 4433.780 | 4903.899 | 14.00000 | 3.359998 | 26.72612 | 95.00000 |
| CM-244 | 5532.276 | 5884.114 | 29.00000 | 6.959996 | 18.56953 | 95.00000 |

Instrument : CHAMBER 048
 Detector : 42483
 Background Analysis Date/Time : 2-APR-2006 11:38:38
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts in 1000 min | Counts during Cal | % Error | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148 | 2989.922 | 3300.161 | 1.000000 | 0.2399998 | 100.0000 | 95.00000 |
| NP-237 | 4434.180 | 4904.923 | 20.00000 | 4.799997 | 22.36068 | 95.00000 |
| CM-244 | 5533.436 | 5885.010 | 24.00000 | 5.759996 | 20.41241 | 95.00000 |

Instrument : CHAMBER 065
 Detector : 21087
 Background Analysis Date/Time : 2-APR-2006 11:38:39
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts in 1000 min | Counts during Cal | % Error | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148 | 2992.500 | 3301.569 | 5.000000 | 1.199999 | 44.72136 | 95.00000 |
| NP-237 | 4436.593 | 4904.814 | 10.00000 | 2.399998 | 31.62278 | 95.00000 |
| CM-244 | 5533.641 | 5883.942 | 18.00000 | 4.319997 | 23.57022 | 95.00000 |

Instrument : CHAMBER 066
 Detector : 38159
 Background Analysis Date/Time : 2-APR-2006 11:38:39
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts in 1000 min | Counts during Cal | % Error | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148 | 2991.351 | 3299.570 | 1.000000 | 0.2399998 | 100.0000 | 95.00000 |
| NP-237 | 4435.367 | 4906.503 | 12.00000 | 2.879998 | 28.86751 | 95.00000 |
| CM-244 | 5531.751 | 5885.195 | 19.00000 | 4.559997 | 22.94157 | 95.00000 |

Instrument : CHAMBER 068
 Detector : 33204
 Background Analysis Date/Time : 2-APR-2006 11:38:39
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts in 1000 min | Counts during Cal | % Error | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148 | 2989.458 | 3302.482 | 2.000000 | 0.4799997 | 70.71068 | 95.00000 |
| NP-237 | 4437.019 | 4902.188 | 5.000000 | 1.199999 | 44.72136 | 95.00000 |
| CM-244 | 5531.579 | 5884.315 | 15.00000 | 3.599998 | 25.81989 | 95.00000 |

Instrument : CHAMBER 069
 Detector : 39172
 Background Analysis Date/Time : 2-APR-2006 11:38:39
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts in 1000 min | Counts during Cal | % Error | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148 | 2991.937 | 3302.037 | 1.000000 | 0.2399998 | 100.0000 | 95.00000 |
| NP-237 | 4433.758 | 4901.912 | 5.000000 | 1.199999 | 44.72136 | 95.00000 |
| CM-244 | 5535.302 | 5884.863 | 13.00000 | 3.119998 | 27.73501 | 95.00000 |

Instrument : CHAMBER 070
 Detector : 33207
 Background Analysis Date/Time : 2-APR-2006 11:38:39
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts in 1000 min | Counts during Cal | % Error | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148 | 2987.764 | 3299.302 | 3.000000 | 0.7199996 | 57.73503 | 95.00000 |
| NP-237 | 4432.603 | 4904.338 | 13.00000 | 3.119998 | 27.73501 | 95.00000 |
| CM-244 | 5531.790 | 5887.167 | 12.00000 | 2.879998 | 28.86751 | 95.00000 |

Instrument : CHAMBER 072
 Detector : 33210
 Background Analysis Date/Time : 2-APR-2006 11:38:40
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts in 1000 min | Counts during Cal | % Error | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148 | 2989.642 | 3302.500 | 4.000000 | 0.9599994 | 50.00000 | 95.00000 |
| NP-237 | 4434.229 | 4902.517 | 7.000000 | 1.679999 | 37.79645 | 95.00000 |
| CM-244 | 5533.565 | 5883.889 | 14.00000 | 3.359998 | 26.72612 | 95.00000 |

Instrument : CHAMBER 073
 Detector : 33211
 Background Analysis Date/Time : 2-APR-2006 11:38:40
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts in 1000 min | Counts during Cal | % Error | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148 | 2990.209 | 3299.359 | 1.000000 | 0.2399998 | 100.0000 | 95.00000 |
| NP-237 | 4435.813 | 4905.119 | 6.000000 | 1.439999 | 40.82483 | 95.00000 |
| CM-244 | 5530.447 | 5887.394 | 15.00000 | 3.599998 | 25.81989 | 95.00000 |

Instrument : CHAMBER 075
 Detector : 29976
 Background Analysis Date/Time : 2-APR-2006 11:38:40
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts in 1000 min | Counts during Cal | % Error | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148 | 2987.804 | 3301.738 | 1.000000 | 0.2399998 | 100.0000 | 95.00000 |
| NP-237 | 4436.078 | 4904.005 | 18.00000 | 4.319997 | 23.57022 | 95.00000 |
| CM-244 | 5532.428 | 5882.500 | 16.00000 | 3.839998 | 25.00000 | 95.00000 |

Instrument : CHAMBER 076
 Detector : 33213
 Background Analysis Date/Time : 2-APR-2006 11:38:40
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts in 1000 min | Counts during Cal | % Error | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148 | 2990.982 | 3301.271 | 1.000000 | 0.2399998 | 100.0000 | 95.00000 |
| NP-237 | 4435.792 | 4906.032 | 9.000000 | 2.159999 | 33.33334 | 95.00000 |
| CM-244 | 5532.284 | 5884.164 | 16.00000 | 3.839998 | 25.00000 | 95.00000 |

Instrument : CHAMBER 077
 Detector : 28239
 Background Analysis Date/Time : 2-APR-2006 11:38:41
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts in 1000 min | Counts during Cal | % Error | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148 | 2990.320 | 3302.291 | 3.000000 | 0.7200001 | 57.73503 | 95.00000 |
| NP-237 | 4434.458 | 4904.534 | 18.00000 | 4.320001 | 23.57022 | 95.00000 |
| CM-244 | 5534.090 | 5887.188 | 14.00000 | 3.360001 | 26.72612 | 95.00000 |

Instrument : CHAMBER 078
 Detector : 34425
 Background Analysis Date/Time : 2-APR-2006 11:38:41
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts in 1000 min | Counts during Cal | % Error | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148 | 2992.430 | 3298.209 | 2.000000 | 0.4800001 | 70.71068 | 95.00000 |
| NP-237 | 4433.493 | 4903.776 | 8.000000 | 1.920000 | 35.35534 | 95.00000 |
| CM-244 | 5534.483 | 5883.260 | 14.00000 | 3.360001 | 26.72612 | 95.00000 |

Instrument : CHAMBER 079
 Detector : 28408
 Background Analysis Date/Time : 2-APR-2006 11:38:41
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts in 1000 min | Counts during Cal | % Error | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148 | 2989.549 | 3301.048 | 4.000000 | 0.9600002 | 50.00000 | 95.00000 |
| NP-237 | 4435.951 | 4904.750 | 7.000000 | 1.680000 | 37.79645 | 95.00000 |
| CM-244 | 5532.313 | 5884.158 | 23.00000 | 5.520001 | 20.85144 | 95.00000 |

Instrument : CHAMBER 080
 Detector : 29269
 Background Analysis Date/Time : 2-APR-2006 11:38:41
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts in 1000 min | Counts during Cal | % Error | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|---------------|------------|
| GD-148 | 2990.355 | 3300.887 | 0.0000000E+00 | 0.0000000E+00 | 0.0000000E+00 | 95.00000 |
| NP-237 | 4437.124 | 4904.027 | 11.00000 | 2.640001 | 30.15113 | 95.00000 |
| CM-244 | 5534.833 | 5882.541 | 24.00000 | 5.760001 | 20.41241 | 95.00000 |

Instrument : CHAMBER 081
 Detector : 28243
 Background Analysis Date/Time : 2-APR-2006 11:38:41
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts in 1000 min | Counts during Cal | % Error | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|---------------|------------|
| GD-148 | 2988.337 | 3300.967 | 0.0000000E+00 | 0.0000000E+00 | 0.0000000E+00 | 95.00000 |
| NP-237 | 4435.244 | 4901.705 | 5.000000 | 1.199999 | 44.72136 | 95.00000 |
| CM-244 | 5534.853 | 5883.115 | 9.000000 | 2.159999 | 33.33334 | 95.00000 |

Instrument : CHAMBER 083
 Detector : 34436
 Background Analysis Date/Time : 2-APR-2006 11:38:42
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts in 1000 min | Counts during Cal | % Error | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148 | 2991.885 | 3297.745 | 2.000000 | 0.4799997 | 70.71068 | 95.00000 |
| NP-237 | 4435.182 | 4902.448 | 13.00000 | 3.119998 | 27.73501 | 95.00000 |
| CM-244 | 5533.629 | 5886.856 | 19.00000 | 4.559997 | 22.94157 | 95.00000 |

Instrument : CHAMBER 084
 Detector : 29953
 Background Analysis Date/Time : 2-APR-2006 11:38:42
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts in 1000 min | Counts during Cal | % Error | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148 | 2988.809 | 3299.845 | 2.000000 | 0.4799997 | 70.71068 | 95.00000 |
| NP-237 | 4435.274 | 4905.090 | 36.00000 | 8.639995 | 16.66667 | 95.00000 |
| CM-244 | 5535.465 | 5886.345 | 11.00000 | 2.639998 | 30.15113 | 95.00000 |

Instrument : CHAMBER 085
 Detector : 30451
 Background Analysis Date/Time : 2-APR-2006 11:38:42
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts in 1000 min | Counts during Cal | % Error | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|--------------|------------|
| GD-148 | 2988.388 | 3298.321 | 0.000000E+00 | 0.000000E+00 | 0.000000E+00 | 95.00000 |
| NP-237 | 4434.734 | 4902.750 | 2.000000 | 0.4799997 | 70.71068 | 95.00000 |
| CM-244 | 5530.623 | 5885.465 | 16.00000 | 3.839998 | 25.00000 | 95.00000 |

Instrument : CHAMBER 086
 Detector : 29278
 Background Analysis Date/Time : 2-APR-2006 11:38:42
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts in 1000 min | Counts during Cal | % Error | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|--------------|------------|
| GD-148 | 2990.939 | 3300.647 | 0.000000E+00 | 0.000000E+00 | 0.000000E+00 | 95.00000 |
| NP-237 | 4432.832 | 4902.859 | 8.000000 | 1.919999 | 35.35534 | 95.00000 |
| CM-244 | 5530.458 | 5886.876 | 7.000000 | 1.679999 | 37.79645 | 95.00000 |

Instrument : CHAMBER 087
 Detector : 34430
 Background Analysis Date/Time : 2-APR-2006 11:38:42
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts in 1000 min | Counts during Cal | % Error | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148 | 2988.850 | 3299.145 | 8.000000 | 1.919999 | 35.35534 | 95.00000 |
| NP-237 | 4433.685 | 4904.783 | 101.0000 | 24.23998 | 9.950372 | 95.00000 |
| CM-244 | 5533.892 | 5885.860 | 3.000000 | 0.7199996 | 57.73503 | 95.00000 |

Instrument : CHAMBER 088
 Detector : 30434
 Background Analysis Date/Time : 2-APR-2006 11:38:42
 Background Count Time : 59999.99

| Cal. Isotopes | Start Energy | End Energy | Counts in 1000 min | Counts during Cal | % Error | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148 | 2991.733 | 3298.324 | 1.000000 | 0.2399998 | 100.0000 | 95.00000 |
| NP-237 | 4434.854 | 4901.741 | 3.000000 | 0.7199996 | 57.73503 | 95.00000 |
| CM-244 | 5531.597 | 5882.583 | 6.000000 | 1.439999 | 40.82483 | 95.00000 |

Instrument : CHAMBER 089
 Detector : 21087
 Background Analysis Date/Time : 2-APR-2006 11:38:43
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts in 1000 min | Counts during Cal | % Error | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|--------------|------------|
| GD-148 | 2988.018 | 3301.225 | 0.000000E+00 | 0.000000E+00 | 0.000000E+00 | 95.00000 |
| NP-237 | 4432.655 | 4904.531 | 3.000000 | 0.7199995 | 57.73503 | 95.00000 |
| CM-244 | 5531.146 | 5885.550 | 1.000000 | 0.2399998 | 100.0000 | 95.00000 |

Instrument : CHAMBER 090
 Detector : 38159
 Background Analysis Date/Time : 2-APR-2006 11:38:43
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts in 1000 min | Counts during Cal | % Error | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|--------------|------------|
| GD-148 | 2989.511 | 3299.809 | 0.000000E+00 | 0.000000E+00 | 0.000000E+00 | 95.00000 |
| NP-237 | 4434.211 | 4904.337 | 4.000000 | 0.9599993 | 50.00000 | 95.00000 |
| CM-244 | 5530.381 | 5887.548 | 0.000000E+00 | 0.000000E+00 | 0.000000E+00 | 95.00000 |

Instrument : CHAMBER 091
 Detector : 33205
 Background Analysis Date/Time : 2-APR-2006 11:38:43
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts in 1000 min | Counts during Cal | % Error | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|---------------|------------|
| GD-148 | 2988.614 | 3302.446 | 1.000000 | 0.2399998 | 100.0000 | 95.00000 |
| NP-237 | 4435.933 | 4903.299 | 6.000000 | 1.439999 | 40.82483 | 95.00000 |
| CM-244 | 5530.786 | 5885.646 | 0.0000000E+00 | 0.0000000E+00 | 0.0000000E+00 | 95.00000 |

Instrument : CHAMBER 092
 Detector : 33204
 Background Analysis Date/Time : 2-APR-2006 11:38:43
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts in 1000 min | Counts during Cal | % Error | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|---------------|------------|
| GD-148 | 2991.837 | 3299.694 | 0.0000000E+00 | 0.0000000E+00 | 0.0000000E+00 | 95.00000 |
| NP-237 | 4434.184 | 4904.789 | 3.000000 | 0.7199995 | 57.73503 | 95.00000 |
| CM-244 | 5534.672 | 5882.398 | 1.000000 | 0.2399998 | 100.0000 | 95.00000 |

Instrument : CHAMBER 093
 Detector : 33206
 Background Analysis Date/Time : 2-APR-2006 11:38:43
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts in 1000 min | Counts during Cal | % Error | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|---------------|------------|
| GD-148 | 2991.432 | 3297.831 | 1.000000 | 0.2399998 | 100.0000 | 95.00000 |
| NP-237 | 4432.503 | 4906.496 | 4.000000 | 0.9599993 | 50.00000 | 95.00000 |
| CM-244 | 5534.120 | 5886.021 | 0.0000000E+00 | 0.0000000E+00 | 0.0000000E+00 | 95.00000 |

Instrument : CHAMBER 094
 Detector : 33207
 Background Analysis Date/Time : 2-APR-2006 11:38:43
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts in 1000 min | Counts during Cal | % Error | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148 | 2991.673 | 3298.910 | 1.000000 | 0.2399998 | 100.0000 | 95.00000 |
| NP-237 | 4437.305 | 4902.611 | 3.000000 | 0.7199995 | 57.73503 | 95.00000 |
| CM-244 | 5532.741 | 5886.161 | 1.000000 | 0.2399998 | 100.0000 | 95.00000 |

Instrument : CHAMBER 096
 Detector : 30429
 Background Analysis Date/Time : 2-APR-2006 11:38:44
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts in 1000 min | Counts during Cal | % Error | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148 | 2988.567 | 3301.392 | 2.000000 | 0.4800001 | 70.71068 | 95.00000 |
| NP-237 | 4433.899 | 4903.007 | 4.000000 | 0.9600002 | 50.00000 | 95.00000 |
| CM-244 | 5534.841 | 5883.364 | 8.000000 | 1.920000 | 35.35534 | 95.00000 |

Instrument : CHAMBER 098
 Detector : 30431
 Background Analysis Date/Time : 2-APR-2006 11:38:44
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts in 1000 min | Counts during Cal | % Error | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148 | 2991.193 | 3297.595 | 2.000000 | 0.4800001 | 70.71068 | 95.00000 |
| NP-237 | 4433.217 | 4902.776 | 10.00000 | 2.400000 | 31.62278 | 95.00000 |
| CM-244 | 5531.761 | 5884.598 | 1.000000 | 0.2400000 | 100.0000 | 95.00000 |

Instrument : CHAMBER 099
 Detector : 30432
 Background Analysis Date/Time : 2-APR-2006 11:38:44
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts in 1000 min | Counts during Cal | % Error | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|---------------|------------|
| GD-148 | 2989.302 | 3301.806 | 0.0000000E+00 | 0.0000000E+00 | 0.0000000E+00 | 95.00000 |
| NP-237 | 4434.583 | 4904.427 | 0.0000000E+00 | 0.0000000E+00 | 0.0000000E+00 | 95.00000 |
| CM-244 | 5532.529 | 5887.439 | 1.000000 | 0.2399998 | 100.0000 | 95.00000 |

Instrument : CHAMBER 101
 Detector : 31696
 Background Analysis Date/Time : 2-APR-2006 11:38:45
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts in 1000 min | Counts during Cal | % Error | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148 | 2988.838 | 3300.184 | 2.000000 | 0.4800001 | 70.71068 | 95.00000 |
| NP-237 | 4437.473 | 4904.200 | 4.000000 | 0.9600002 | 50.00000 | 95.00000 |
| CM-244 | 5533.420 | 5882.862 | 1.000000 | 0.2400000 | 100.0000 | 95.00000 |

Instrument : CHAMBER 102
 Detector : 30438
 Background Analysis Date/Time : 2-APR-2006 11:38:45
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts in 1000 min | Counts during Cal | % Error | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|--------------|------------|
| GD-148 | 2990.981 | 3300.175 | 0.000000E+00 | 0.000000E+00 | 0.000000E+00 | 95.00000 |
| NP-237 | 4436.167 | 4905.013 | 14.00000 | 3.360001 | 26.72612 | 95.00000 |
| CM-244 | 5534.874 | 5885.847 | 0.000000E+00 | 0.000000E+00 | 0.000000E+00 | 95.00000 |

Instrument : CHAMBER 103
 Detector : 30437
 Background Analysis Date/Time : 2-APR-2006 11:38:45
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts in 1000 min | Counts during Cal | % Error | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148 | 2987.494 | 3300.797 | 2.000000 | 0.4800001 | 70.71068 | 95.00000 |
| NP-237 | 4433.628 | 4906.553 | 4.000000 | 0.9600002 | 50.00000 | 95.00000 |
| CM-244 | 5534.963 | 5885.168 | 3.000000 | 0.7200001 | 57.73503 | 95.00000 |

Instrument : CHAMBER 104
 Detector : 30436
 Background Analysis Date/Time : 2-APR-2006 11:38:45
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts in 1000 min | Counts during Cal | % Error | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148 | 2989.844 | 3302.458 | 1.000000 | 0.2400000 | 100.0000 | 95.00000 |
| NP-237 | 4432.663 | 4904.432 | 2.000000 | 0.4800001 | 70.71068 | 95.00000 |
| CM-244 | 5531.252 | 5885.942 | 1.000000 | 0.2400000 | 100.0000 | 95.00000 |

Instrument : CHAMBER 106
 Detector : 45382
 Background Analysis Date/Time : 2-APR-2006 11:38:45
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts in 1000 min | Counts during Cal | % Error | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|--------------|------------|
| GD-148 | 2991.094 | 3299.001 | 2.000000 | 0.4800001 | 70.71068 | 95.00000 |
| NP-237 | 4435.781 | 4902.986 | 7.000000 | 1.680000 | 37.79645 | 95.00000 |
| CM-244 | 5530.755 | 5886.020 | 0.000000E+00 | 0.000000E+00 | 0.000000E+00 | 95.00000 |

Instrument : CHAMBER 107
 Detector : 31697
 Background Analysis Date/Time : 2-APR-2006 11:38:46
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts in 1000 min | Counts during Cal | % Error | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148 | 2990.547 | 3299.714 | 1.000000 | 0.2400000 | 100.0000 | 95.00000 |
| NP-237 | 4437.183 | 4902.948 | 1.000000 | 0.2400000 | 100.0000 | 95.00000 |
| CM-244 | 5532.612 | 5885.240 | 6.000000 | 1.440000 | 40.82483 | 95.00000 |

Instrument : CHAMBER 109
 Detector : 31693
 Background Analysis Date/Time : 2-APR-2006 11:38:46
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts in 1000 min | Counts during Cal | % Error | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148 | 2988.084 | 3299.184 | 3.000000 | 0.7200001 | 57.73503 | 95.00000 |
| NP-237 | 4432.535 | 4905.875 | 1.000000 | 0.2400000 | 100.0000 | 95.00000 |
| CM-244 | 5532.554 | 5883.883 | 2.000000 | 0.4800001 | 70.71068 | 95.00000 |

Instrument : CHAMBER 110
 Detector : 30447
 Background Analysis Date/Time : 2-APR-2006 11:38:46
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts in 1000 min | Counts during Cal | % Error | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148 | 2992.012 | 3300.888 | 1.000000 | 0.2400000 | 100.0000 | 95.00000 |
| NP-237 | 4433.842 | 4901.474 | 1.000000 | 0.2400000 | 100.0000 | 95.00000 |
| CM-244 | 5530.607 | 5884.669 | 1.000000 | 0.2400000 | 100.0000 | 95.00000 |

Instrument : CHAMBER 111
 Detector : 30448
 Background Analysis Date/Time : 2-APR-2006 11:38:46
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts in 1000 min | Counts during Cal | % Error | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148 | 2987.793 | 3301.004 | 3.000000 | 0.7200001 | 57.73503 | 95.00000 |
| NP-237 | 4435.981 | 4906.484 | 6.000000 | 1.440000 | 40.82483 | 95.00000 |
| CM-244 | 5530.639 | 5883.341 | 2.000000 | 0.4800001 | 70.71068 | 95.00000 |

Instrument : CHAMBER 112
 Detector : 30449
 Background Analysis Date/Time : 2-APR-2006 11:38:46
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts in 1000 min | Counts during Cal | % Error | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|---------------|------------|
| GD-148 | 2991.870 | 3298.269 | 1.000000 | 0.2400000 | 100.0000 | 95.00000 |
| NP-237 | 4436.313 | 4903.586 | 3.000000 | 0.7200001 | 57.73503 | 95.00000 |
| CM-244 | 5533.752 | 5883.818 | 0.0000000E+00 | 0.0000000E+00 | 0.0000000E+00 | 95.00000 |

Instrument : CHAMBER 113
 Detector : 45-111B4
 Background Analysis Date/Time : 2-APR-2006 10:57:16
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts in 1000 min | Counts during Cal | % Error | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148 | 2991.835 | 3301.848 | 1.000000 | 0.2400000 | 100.0000 | 95.00000 |
| NP-237 | 4433.613 | 4901.946 | 2.000000 | 0.4800001 | 70.71068 | 95.00000 |
| CM-244 | 5530.358 | 5885.560 | 2.000000 | 0.4800001 | 70.71068 | 95.00000 |

Instrument : CHAMBER 114
 Detector : 45-111B5
 Background Analysis Date/Time : 2-APR-2006 10:57:20
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts in 1000 min | Counts during Cal | % Error | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|---------------|------------|
| GD-148 | 2990.875 | 3299.211 | 0.0000000E+00 | 0.0000000E+00 | 0.0000000E+00 | 95.00000 |
| NP-237 | 4436.329 | 4903.130 | 1.000000 | 0.2400000 | 100.0000 | 95.00000 |
| CM-244 | 5535.235 | 5884.346 | 0.0000000E+00 | 0.0000000E+00 | 0.0000000E+00 | 95.00000 |

Instrument : CHAMBER 115
 Detector : 45-132EE5
 Background Analysis Date/Time : 2-APR-2006 10:57:23
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts in 1000 min | Counts during Cal | % Error | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|---------------|------------|
| GD-148 | 2990.466 | 3300.287 | 0.0000000E+00 | 0.0000000E+00 | 0.0000000E+00 | 95.00000 |
| NP-237 | 4435.908 | 4903.427 | 1.000000 | 0.2400000 | 100.0000 | 95.00000 |
| CM-244 | 5530.487 | 5884.796 | 0.0000000E+00 | 0.0000000E+00 | 0.0000000E+00 | 95.00000 |

Instrument : CHAMBER 116
 Detector : 45-132FF2
 Background Analysis Date/Time : 2-APR-2006 10:57:26
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts in 1000 min | Counts during Cal | % Error | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|---------------|------------|
| GD-148 | 2988.161 | 3302.097 | 1.000000 | 0.2400000 | 100.0000 | 95.00000 |
| NP-237 | 4435.898 | 4903.366 | 0.0000000E+00 | 0.0000000E+00 | 0.0000000E+00 | 95.00000 |
| CM-244 | 5530.965 | 5885.878 | 1.000000 | 0.2400000 | 100.0000 | 95.00000 |

Instrument : CHAMBER 117
 Detector : 45-132FF3
 Background Analysis Date/Time : 2-APR-2006 10:57:29
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts in 1000 min | Counts during Cal | % Error | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148 | 2987.574 | 3297.481 | 2.000000 | 0.4800001 | 70.71068 | 95.00000 |
| NP-237 | 4432.916 | 4905.417 | 3.000000 | 0.7200001 | 57.73503 | 95.00000 |
| CM-244 | 5531.962 | 5885.886 | 2.000000 | 0.4800001 | 70.71068 | 95.00000 |

Instrument : CHAMBER 118
 Detector : 45-132FF4
 Background Analysis Date/Time : 2-APR-2006 10:57:33
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts in 1000 min | Counts during Cal | % Error | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|---------------|------------|
| GD-148 | 2989.600 | 3298.996 | 1.000000 | 0.2400000 | 100.0000 | 95.00000 |
| NP-237 | 4434.069 | 4901.807 | 2.000000 | 0.4800001 | 70.71068 | 95.00000 |
| CM-244 | 5534.903 | 5884.430 | 0.0000000E+00 | 0.0000000E+00 | 0.0000000E+00 | 95.00000 |

Instrument : CHAMBER 119
 Detector : 45-132FF5
 Background Analysis Date/Time : 2-APR-2006 10:57:36
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts in 1000 min | Counts during Cal | % Error | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|---------------|------------|
| GD-148 | 2987.490 | 3300.068 | 0.0000000E+00 | 0.0000000E+00 | 0.0000000E+00 | 95.00000 |
| NP-237 | 4434.344 | 4905.254 | 0.0000000E+00 | 0.0000000E+00 | 0.0000000E+00 | 95.00000 |
| CM-244 | 5530.554 | 5884.197 | 0.0000000E+00 | 0.0000000E+00 | 0.0000000E+00 | 95.00000 |

Instrument : CHAMBER 120
 Detector : 45-142F1
 Background Analysis Date/Time : 2-APR-2006 10:57:39
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts in 1000 min | Counts during Cal | % Error | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|--------------|------------|
| GD-148 | 2991.710 | 3300.418 | 0.000000E+00 | 0.000000E+00 | 0.000000E+00 | 95.00000 |
| NP-237 | 4437.274 | 4903.259 | 1.000000 | 0.2400000 | 100.0000 | 95.00000 |
| CM-244 | 5533.634 | 5886.862 | 1.000000 | 0.2400000 | 100.0000 | 95.00000 |

Instrument : CHAMBER 121
 Detector : 45-142J4
 Background Analysis Date/Time : 2-APR-2006 10:57:42
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts in 1000 min | Counts during Cal | % Error | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148 | 2988.124 | 3301.600 | 1.000000 | 0.2400000 | 100.0000 | 95.00000 |
| NP-237 | 4434.163 | 4906.581 | 1.000000 | 0.2400000 | 100.0000 | 95.00000 |
| CM-244 | 5533.976 | 5883.453 | 2.000000 | 0.4800001 | 70.71068 | 95.00000 |

Instrument : CHAMBER 122
 Detector : 45-142J5
 Background Analysis Date/Time : 2-APR-2006 10:57:46
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts in 1000 min | Counts during Cal | % Error | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148 | 2990.061 | 3298.780 | 1.000000 | 0.2400000 | 100.0000 | 95.00000 |
| NP-237 | 4436.620 | 4903.419 | 1.000000 | 0.2400000 | 100.0000 | 95.00000 |
| CM-244 | 5535.258 | 5884.098 | 1.000000 | 0.2400000 | 100.0000 | 95.00000 |

Instrument : CHAMBER 123
 Detector : 45-142V1
 Background Analysis Date/Time : 2-APR-2006 10:57:49
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts in 1000 min | Counts during Cal | % Error | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148 | 2990.387 | 3299.522 | 2.000000 | 0.4800001 | 70.71068 | 95.00000 |
| NP-237 | 4437.442 | 4903.641 | 1.000000 | 0.2400000 | 100.0000 | 95.00000 |
| CM-244 | 5534.110 | 5887.297 | 1.000000 | 0.2400000 | 100.0000 | 95.00000 |

Instrument : CHAMBER 124
 Detector : 45-142V2
 Background Analysis Date/Time : 2-APR-2006 10:57:52
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts in 1000 min | Counts during Cal | % Error | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148 | 2989.443 | 3297.987 | 2.000000 | 0.4800001 | 70.71068 | 95.00000 |
| NP-237 | 4435.559 | 4902.411 | 2.000000 | 0.4800001 | 70.71068 | 95.00000 |
| CM-244 | 5534.467 | 5883.494 | 1.000000 | 0.2400000 | 100.0000 | 95.00000 |

Instrument : CHAMBER 125
 Detector : 45-142V3
 Background Analysis Date/Time : 2-APR-2006 10:57:55
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts in 1000 min | Counts during Cal | % Error | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|----------|------------|
| GD-148 | 2992.436 | 3301.693 | 1.000000 | 0.2400000 | 100.0000 | 95.00000 |
| NP-237 | 4433.216 | 4903.410 | 2.000000 | 0.4800001 | 70.71068 | 95.00000 |
| CM-244 | 5531.615 | 5883.226 | 2.000000 | 0.4800001 | 70.71068 | 95.00000 |

Instrument : CHAMBER 126
 Detector : 45-142V5
 Background Analysis Date/Time : 2-APR-2006 10:57:59
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts in 1000 min | Counts during Cal | % Error | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|---------------|------------|
| GD-148 | 2988.369 | 3299.131 | 0.0000000E+00 | 0.0000000E+00 | 0.0000000E+00 | 95.00000 |
| NP-237 | 4435.618 | 4902.366 | 1.000000 | 0.2400000 | 100.0000 | 95.00000 |
| CM-244 | 5532.732 | 5885.449 | 3.000000 | 0.7200001 | 57.73503 | 95.00000 |

Instrument : CHAMBER 127
 Detector : 45-142W1
 Background Analysis Date/Time : 2-APR-2006 10:58:02
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts in 1000 min | Counts during Cal | % Error | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|---------------|------------|
| GD-148 | 2989.513 | 3302.392 | 0.0000000E+00 | 0.0000000E+00 | 0.0000000E+00 | 95.00000 |
| NP-237 | 4432.606 | 4903.961 | 1.000000 | 0.2400000 | 100.0000 | 95.00000 |
| CM-244 | 5535.216 | 5883.874 | 1.000000 | 0.2400000 | 100.0000 | 95.00000 |

Instrument : CHAMBER 128
 Detector : 45-142W2
 Background Analysis Date/Time : 2-APR-2006 10:58:05
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts in 1000 min | Counts during Cal | % Error | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|--------------|------------|
| GD-148 | 2989.584 | 3299.388 | 0.000000E+00 | 0.000000E+00 | 0.000000E+00 | 95.00000 |
| NP-237 | 4434.590 | 4901.786 | 0.000000E+00 | 0.000000E+00 | 0.000000E+00 | 95.00000 |
| CM-244 | 5533.622 | 5887.583 | 2.000000 | 0.4800001 | 70.71068 | 95.00000 |

Instrument : CHAMBER 129
 Detector : 45-142W3
 Background Analysis Date/Time : 2-APR-2006 10:58:09
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts in 1000 min | Counts during Cal | % Error | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|--------------|------------|
| GD-148 | 2991.668 | 3299.558 | 0.000000E+00 | 0.000000E+00 | 0.000000E+00 | 95.00000 |
| NP-237 | 4435.149 | 4901.376 | 2.000000 | 0.4800001 | 70.71068 | 95.00000 |
| CM-244 | 5532.751 | 5886.867 | 2.000000 | 0.4800001 | 70.71068 | 95.00000 |

Instrument : CHAMBER 130
 Detector : 45-142W5
 Background Analysis Date/Time : 2-APR-2006 10:58:13
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts in 1000 min | Counts during Cal | % Error | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|--------------|------------|
| GD-148 | 2990.831 | 3301.623 | 0.000000E+00 | 0.000000E+00 | 0.000000E+00 | 95.00000 |
| NP-237 | 4435.787 | 4904.916 | 0.000000E+00 | 0.000000E+00 | 0.000000E+00 | 95.00000 |
| CM-244 | 5534.223 | 5884.439 | 1.000000 | 0.2400000 | 100.0000 | 95.00000 |

Instrument : CHAMBER 131
 Detector : 45-145K1
 Background Analysis Date/Time : 2-APR-2006 10:58:17
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts in 1000 min | Counts during Cal | % Error | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|--------------|------------|
| GD-148 | 2989.369 | 3298.448 | 1.000000 | 0.2400000 | 100.0000 | 95.00000 |
| NP-237 | 4432.591 | 4905.330 | 0.000000E+00 | 0.000000E+00 | 0.000000E+00 | 95.00000 |
| CM-244 | 5532.857 | 5887.665 | 1.000000 | 0.2400000 | 100.0000 | 95.00000 |

Instrument : CHAMBER 132
 Detector : 45-145K2
 Background Analysis Date/Time : 2-APR-2006 10:58:20
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts in 1000 min | Counts during Cal | % Error | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|--------------|------------|
| GD-148 | 2990.018 | 3301.016 | 0.000000E+00 | 0.000000E+00 | 0.000000E+00 | 95.00000 |
| NP-237 | 4434.219 | 4902.195 | 2.000000 | 0.4800001 | 70.71068 | 95.00000 |
| CM-244 | 5534.644 | 5883.351 | 4.000000 | 0.9600002 | 50.00000 | 95.00000 |

Instrument : CHAMBER 133
 Detector : 45-145K3
 Background Analysis Date/Time : 2-APR-2006 10:58:23
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts in 1000 min | Counts during Cal | % Error | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|--------------|------------|
| GD-148 | 2989.115 | 3302.033 | 0.000000E+00 | 0.000000E+00 | 0.000000E+00 | 95.00000 |
| NP-237 | 4435.237 | 4904.688 | 0.000000E+00 | 0.000000E+00 | 0.000000E+00 | 95.00000 |
| CM-244 | 5532.486 | 5884.151 | 1.000000 | 0.2400000 | 100.0000 | 95.00000 |

Instrument : CHAMBER 134
 Detector : 45-145K4
 Background Analysis Date/Time : 2-APR-2006 10:58:26
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts in 1000 min | Counts during Cal | % Error | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|--------------|------------|
| GD-148 | 2987.530 | 3301.962 | 1.000000 | 0.2400000 | 100.0000 | 95.00000 |
| NP-237 | 4434.547 | 4905.459 | 0.000000E+00 | 0.000000E+00 | 0.000000E+00 | 95.00000 |
| CM-244 | 5534.869 | 5887.271 | 0.000000E+00 | 0.000000E+00 | 0.000000E+00 | 95.00000 |

Instrument : CHAMBER 135
 Detector : 45-145K5
 Background Analysis Date/Time : 2-APR-2006 10:58:30
 Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts in 1000 min | Counts during Cal | % Error | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|--------------|------------|
| GD-148 | 2990.104 | 3298.632 | 1.000000 | 0.2400000 | 100.0000 | 95.00000 |
| NP-237 | 4434.981 | 4906.088 | 0.000000E+00 | 0.000000E+00 | 0.000000E+00 | 95.00000 |
| CM-244 | 5531.074 | 5884.261 | 0.000000E+00 | 0.000000E+00 | 0.000000E+00 | 95.00000 |

Instrument : CHAMBER 136
Detector : 45-145L1
Background Analysis Date/Time : 2-APR-2006 10:58:33
Background Count Time : 60000.00

| Cal. Isotopes | Start Energy | End Energy | Counts in 1000 min | Counts during Cal | % Error | Confidence |
|---------------|--------------|------------|-----------------------|----------------------|--------------|------------|
| GD-148 | 2988.496 | 3298.473 | 0.000000E+00 | 0.000000E+00 | 0.000000E+00 | 95.00000 |
| NP-237 | 4437.582 | 4903.436 | 1.000000 | 0.240000 | 100.0000 | 95.00000 |
| CM-244 | 5532.704 | 5884.860 | 0.000000E+00 | 0.000000E+00 | 0.000000E+00 | 95.00000 |

Subsection 3: Efficiency Calibration

Instrument : CHAMBER 001
 Detector : 33088
 Standard ID : AESS-001
 Standard Reference Date : 7-FEB-2003 00:00:00
 Calibration Analysis Date/Time : 3-APR-2006 12:02:15
 Calibration Count Time : 239.9998
 Efficiency Calibration Date/Time : 3-APR-2006 16:30:52
 Average Efficiency : 0.2781914
 Average Efficiency Error : 7.6626688E-03
 Confidence : 95.00000

| Cal. Istps | DPM | Exp. Date | Start Engy | End Engy | Counts | EFF. | EFF Err | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148 | 219.8400 | 28-FEB-2006 | 2990.456 | 3298.943 | 14076.00 | 0.2746735 | 1.1824497E-02 | 65.35928 |
| NP-237 | 211.8600 | 28-FEB-2006 | 4433.436 | 4903.018 | 14340.00 | 0.2819934 | 1.4295015E-02 | 71.99430 |
| CM-244 | 248.8200 | 28-FEB-2006 | 5530.638 | 5887.374 | 14794.00 | 0.2795064 | 1.4163047E-02 | 64.69388 |

Instrument : CHAMBER 003
 Detector : 20659
 Standard ID : AESS-003
 Standard Reference Date : 7-FEB-2003 00:00:00
 Calibration Analysis Date/Time : 3-APR-2006 12:02:15
 Calibration Count Time : 239.9998
 Efficiency Calibration Date/Time : 3-APR-2006 16:32:34
 Average Efficiency : 0.2880620
 Average Efficiency Error : 7.9304650E-03
 Confidence : 95.00000

| Cal. Istps | DPM | Exp. Date | Start Engy | End Engy | Counts | EFF. | EFF Err | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148 | 219.3600 | 28-FEB-2006 | 2988.599 | 3300.169 | 14554.00 | 0.2846224 | 1.2245077E-02 | 49.78555 |
| NP-237 | 211.3800 | 28-FEB-2006 | 4434.674 | 4902.844 | 14694.00 | 0.2895928 | 1.4675476E-02 | 61.61686 |
| CM-244 | 248.2800 | 28-FEB-2006 | 5535.248 | 5883.783 | 15396.00 | 0.2915129 | 1.4763834E-02 | 53.23063 |

Instrument : CHAMBER 004
 Detector : 33077
 Standard ID : AESS-004
 Standard Reference Date : 7-FEB-2003 00:00:00
 Calibration Analysis Date/Time : 3-APR-2006 12:02:15
 Calibration Count Time : 239.9998
 Efficiency Calibration Date/Time : 3-APR-2006 16:32:51
 Average Efficiency : 0.3098668
 Average Efficiency Error : 8.5239913E-03
 Confidence : 95.00000

| Cal. Istps | DPM | Exp. Date | Start Engy | End Engy | Counts | EFF. | EFF Err | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148 | 219.1800 | 28-FEB-2006 | 2987.545 | 3299.456 | 15401.00 | 0.3014340 | 1.2955099E-02 | 59.94693 |
| NP-237 | 211.2000 | 28-FEB-2006 | 4433.646 | 4906.400 | 15919.00 | 0.3140544 | 1.5898786E-02 | 66.99142 |
| CM-244 | 248.1000 | 28-FEB-2006 | 5531.494 | 5886.867 | 16816.00 | 0.3186174 | 1.6119311E-02 | 64.44215 |

Instrument : CHAMBER 005
 Detector : 28642
 Standard ID : AESS-005
 Standard Reference Date : 7-FEB-2003 00:00:00
 Calibration Analysis Date/Time : 3-APR-2006 12:02:15
 Calibration Count Time : 239.9998
 Efficiency Calibration Date/Time : 3-APR-2006 16:33:05
 Average Efficiency : 0.3158097
 Average Efficiency Error : 8.6822659E-03
 Confidence : 95.00000

| Cal. Istps | DPM | Exp. Date | Start Engy | End Engy | Counts | EFF. | EFF Err | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148 | 219.6600 | 28-FEB-2006 | 2990.709 | 3298.775 | 16078.00 | 0.3139968 | 1.3485039E-02 | 54.11107 |
| NP-237 | 211.6800 | 28-FEB-2006 | 4434.190 | 4905.248 | 16264.00 | 0.3200765 | 1.6199514E-02 | 58.77632 |
| CM-244 | 248.6400 | 28-FEB-2006 | 5530.463 | 5883.921 | 16620.00 | 0.3142197 | 1.5898999E-02 | 55.82949 |

Instrument : CHAMBER 007
 Detector : 30416
 Standard ID : AESS-007
 Standard Reference Date : 7-FEB-2003 00:00:00
 Calibration Analysis Date/Time : 3-APR-2006 12:02:16
 Calibration Count Time : 239.9998
 Efficiency Calibration Date/Time : 3-APR-2006 16:35:21
 Average Efficiency : 0.3047189
 Average Efficiency Error : 8.3812820E-03
 Confidence : 95.00000

| Cal. Istps | DPM | Exp. Date | Start Engy | End Engy | Counts | EFF. | EFF Err | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148 | 219.5400 | 28-FEB-2006 | 2990.797 | 3298.358 | 15695.00 | 0.3066845 | 1.3176420E-02 | 50.85197 |
| NP-237 | 211.5600 | 28-FEB-2006 | 4432.556 | 4903.394 | 15403.00 | 0.3033007 | 1.5360770E-02 | 59.57014 |
| CM-244 | 248.5200 | 28-FEB-2006 | 5533.897 | 5887.491 | 16043.00 | 0.3034657 | 1.5361345E-02 | 53.08852 |

Instrument : CHAMBER 009
 Detector : 13285
 Standard ID : AESS-009
 Standard Reference Date : 7-FEB-2003 00:00:00
 Calibration Analysis Date/Time : 3-APR-2006 12:02:16
 Calibration Count Time : 239.9998
 Efficiency Calibration Date/Time : 3-APR-2006 16:39:51
 Average Efficiency : 0.3341929
 Average Efficiency Error : 9.1806399E-03
 Confidence : 95.00000

| Cal. Istps | DPM | Exp. Date | Start Engy | End Engy | Counts | EFF. | EFF Err | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148 | 219.6000 | 28-FEB-2006 | 2987.740 | 3302.180 | 16955.00 | 0.3312147 | 1.4212075E-02 | 53.77267 |
| NP-237 | 211.6200 | 28-FEB-2006 | 4436.826 | 4904.306 | 17080.00 | 0.3362575 | 1.7008657E-02 | 68.28894 |
| CM-244 | 248.5800 | 28-FEB-2006 | 5530.853 | 5882.488 | 17788.00 | 0.3363935 | 1.7007809E-02 | 56.00669 |

Instrument : CHAMBER 010
 Detector : 33083
 Standard ID : AESS-010
 Standard Reference Date : 7-FEB-2003 00:00:00
 Calibration Analysis Date/Time : 3-APR-2006 12:02:16
 Calibration Count Time : 239.9998
 Efficiency Calibration Date/Time : 3-APR-2006 16:40:04
 Average Efficiency : 0.3340436
 Average Efficiency Error : 9.1786785E-03
 Confidence : 95.00000

| Cal. Isteps | DPM | Exp. Date | Start Engy | End Engy | Counts | EFF. | EFF Err | Resolution |
|-------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148 | 219.4800 | 28-FEB-2006 | 2992.233 | 3300.495 | 16676.00 | 0.3259426 | 1.3989601E-02 | 68.92194 |
| NP-237 | 211.5000 | 28-FEB-2006 | 4435.514 | 4905.914 | 17301.00 | 0.3408116 | 1.7236479E-02 | 78.65460 |
| CM-244 | 248.4600 | 28-FEB-2006 | 5535.151 | 5882.345 | 17946.00 | 0.3395274 | 1.7164614E-02 | 63.81354 |

Instrument : CHAMBER 011
 Detector : 9537
 Standard ID : AESS-011
 Standard Reference Date : 7-FEB-2003 00:00:00
 Calibration Analysis Date/Time : 3-APR-2006 12:02:16
 Calibration Count Time : 239.9998
 Efficiency Calibration Date/Time : 3-APR-2006 16:40:58
 Average Efficiency : 0.3105724
 Average Efficiency Error : 8.5400529E-03
 Confidence : 95.00000

| Cal. Isteps | DPM | Exp. Date | Start Engy | End Engy | Counts | EFF. | EFF Err | Resolution |
|-------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148 | 219.6600 | 28-FEB-2006 | 2988.769 | 3298.475 | 15819.00 | 0.3089387 | 1.3271471E-02 | 48.37308 |
| NP-237 | 211.6800 | 28-FEB-2006 | 4433.776 | 4901.438 | 15834.00 | 0.3116739 | 1.5779305E-02 | 60.99158 |
| CM-244 | 248.6400 | 28-FEB-2006 | 5533.457 | 5885.193 | 16490.00 | 0.3117799 | 1.5776988E-02 | 49.82006 |

Instrument : CHAMBER 012
 Detector : 33085
 Standard ID : AESS-012
 Standard Reference Date : 7-FEB-2003 00:00:00
 Calibration Analysis Date/Time : 3-APR-2006 12:02:16
 Calibration Count Time : 239.9998
 Efficiency Calibration Date/Time : 3-APR-2006 16:41:13
 Average Efficiency : 0.2681623
 Average Efficiency Error : 7.3903115E-03
 Confidence : 95.00000

| Cal. Isteps | DPM | Exp. Date | Start Engy | End Engy | Counts | EFF. | EFF Err | Resolution |
|-------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148 | 219.9600 | 28-FEB-2006 | 2992.283 | 3299.978 | 13668.00 | 0.2665664 | 1.1482058E-02 | 61.90531 |
| NP-237 | 211.9200 | 28-FEB-2006 | 4432.454 | 4901.598 | 13787.00 | 0.2710549 | 1.3747970E-02 | 71.13239 |
| CM-244 | 248.9400 | 28-FEB-2006 | 5534.285 | 5885.751 | 14169.00 | 0.2675734 | 1.3566247E-02 | 62.43946 |

Instrument : CHAMBER 013
 Detector : 21084
 Standard ID : AESS-013
 Standard Reference Date : 7-FEB-2003 00:00:00
 Calibration Analysis Date/Time : 3-APR-2006 12:02:17
 Calibration Count Time : 239.9998
 Efficiency Calibration Date/Time : 3-APR-2006 16:41:26
 Average Efficiency : 0.3412675
 Average Efficiency Error : 9.3716113E-03
 Confidence : 95.00000

| Cal. Istps | DPM | Exp. Date | Start Engy | End Engy | Counts | EFF. | EFF Err | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148 | 220.5600 | 28-FEB-2006 | 2992.308 | 3301.307 | 17507.00 | 0.3405094 | 1.4603521E-02 | 45.62738 |
| NP-237 | 212.5200 | 28-FEB-2006 | 4433.829 | 4905.476 | 17346.00 | 0.3400816 | 1.7199026E-02 | 62.98444 |
| CM-244 | 249.6600 | 28-FEB-2006 | 5530.551 | 5886.625 | 18245.00 | 0.3435482 | 1.7364752E-02 | 51.62660 |

Instrument : CHAMBER 016
 Detector : 21086
 Standard ID : AESS-016
 Standard Reference Date : 7-FEB-2003 00:00:00
 Calibration Analysis Date/Time : 3-APR-2006 12:02:17
 Calibration Count Time : 239.9998
 Efficiency Calibration Date/Time : 3-APR-2006 16:45:33
 Average Efficiency : 0.3303408
 Average Efficiency Error : 9.0769110E-03
 Confidence : 95.00000

| Cal. Istps | DPM | Exp. Date | Start Engy | End Engy | Counts | EFF. | EFF Err | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148 | 219.6600 | 28-FEB-2006 | 2992.386 | 3300.792 | 16669.00 | 0.3255388 | 1.3972365E-02 | 50.42868 |
| NP-237 | 211.6800 | 28-FEB-2006 | 4437.111 | 4903.407 | 16820.00 | 0.3310585 | 1.6748626E-02 | 58.68690 |
| CM-244 | 248.6400 | 28-FEB-2006 | 5533.819 | 5884.776 | 17810.00 | 0.3367283 | 1.7024504E-02 | 54.94007 |

Instrument : CHAMBER 017
 Detector : 33203
 Standard ID : AESS-017
 Standard Reference Date : 7-FEB-2003 00:00:00
 Calibration Analysis Date/Time : 3-APR-2006 12:02:17
 Calibration Count Time : 239.9998
 Efficiency Calibration Date/Time : 3-APR-2006 16:45:52
 Average Efficiency : 0.2902693
 Average Efficiency Error : 7.9895537E-03
 Confidence : 95.00000

| Cal. Istps | DPM | Exp. Date | Start Engy | End Engy | Counts | EFF. | EFF Err | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148 | 219.7200 | 28-FEB-2006 | 2988.693 | 3298.212 | 15015.00 | 0.2931568 | 1.2605052E-02 | 49.49680 |
| NP-237 | 211.7400 | 28-FEB-2006 | 4432.905 | 4905.400 | 14650.00 | 0.2882629 | 1.4608623E-02 | 61.60561 |
| CM-244 | 248.7000 | 28-FEB-2006 | 5532.198 | 5886.394 | 15257.00 | 0.2883977 | 1.4607739E-02 | 50.89099 |

Instrument : CHAMBER 018
 Detector : 21063
 Standard ID : AESS-018
 Standard Reference Date : 7-FEB-2003 00:00:00
 Calibration Analysis Date/Time : 3-APR-2006 12:02:17
 Calibration Count Time : 239.9998
 Efficiency Calibration Date/Time : 3-APR-2006 16:46:43
 Average Efficiency : 0.2559204
 Average Efficiency Error : 7.0582652E-03
 Confidence : 95.00000

| Cal. Istps | DPM | Exp. Date | Start Engy | End Engy | Counts | EFF. | EFF Err | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148 | 219.7800 | 28-FEB-2006 | 2988.076 | 3298.134 | 13144.00 | 0.2565568 | 1.1059588E-02 | 50.10976 |
| NP-237 | 211.8000 | 28-FEB-2006 | 4433.036 | 4905.011 | 12933.00 | 0.2544221 | 1.2916340E-02 | 58.60687 |
| CM-244 | 248.7600 | 28-FEB-2006 | 5535.243 | 5885.674 | 13576.00 | 0.2565605 | 1.3015677E-02 | 54.43167 |

Instrument : CHAMBER 019
 Detector : 23882
 Standard ID : AESS-019
 Standard Reference Date : 7-FEB-2003 00:00:00
 Calibration Analysis Date/Time : 3-APR-2006 12:02:18
 Calibration Count Time : 240.0000
 Efficiency Calibration Date/Time : 3-APR-2006 16:46:59
 Average Efficiency : 0.2848921
 Average Efficiency Error : 7.8617986E-03
 Confidence : 95.00000

| Cal. Istps | DPM | Exp. Date | Start Engy | End Engy | Counts | EFF. | EFF Err | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148 | 219.5400 | 28-FEB-2006 | 2989.511 | 3300.144 | 15017.00 | 0.2934360 | 1.2617028E-02 | 46.50811 |
| NP-237 | 211.5600 | 28-FEB-2006 | 4435.855 | 4902.151 | 15150.00 | 0.2626681 | 1.3361575E-02 | 61.07557 |
| CM-244 | 248.5200 | 28-FEB-2006 | 5531.789 | 5884.041 | 15932.00 | 0.3013749 | 1.5256786E-02 | 50.77583 |

Instrument : CHAMBER 020
 Detector : 33093
 Standard ID : AESS-020
 Standard Reference Date : 7-FEB-2003 00:00:00
 Calibration Analysis Date/Time : 3-APR-2006 12:02:18
 Calibration Count Time : 240.0000
 Efficiency Calibration Date/Time : 3-APR-2006 16:47:46
 Average Efficiency : 0.3374673
 Average Efficiency Error : 9.2702135E-03
 Confidence : 95.00000

| Cal. Istps | DPM | Exp. Date | Start Engy | End Engy | Counts | EFF. | EFF Err | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148 | 219.8400 | 28-FEB-2006 | 2988.758 | 3298.111 | 16991.00 | 0.3315554 | 1.4226208E-02 | 58.22562 |
| NP-237 | 211.8000 | 28-FEB-2006 | 4435.838 | 4901.523 | 17420.00 | 0.3426790 | 1.7329575E-02 | 71.40521 |
| CM-244 | 248.8200 | 28-FEB-2006 | 5530.915 | 5883.311 | 18048.00 | 0.3409902 | 1.7237470E-02 | 64.18688 |

Instrument : CHAMBER 021
 Detector : 33893
 Standard ID : AESS-021
 Standard Reference Date : 7-FEB-2003 00:00:00
 Calibration Analysis Date/Time : 3-APR-2006 12:02:18
 Calibration Count Time : 240.0000
 Efficiency Calibration Date/Time : 3-APR-2006 16:48:06
 Average Efficiency : 0.3097920
 Average Efficiency Error : 8.5189342E-03
 Confidence : 95.00000

| Cal. Istps | DPM | Exp. Date | Start Engy | End Engy | Counts | EFF. | EFF Err | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148 | 219.5400 | 28-FEB-2006 | 2987.969 | 3300.683 | 16019.00 | 0.3130153 | 1.3443721E-02 | 48.52213 |
| NP-237 | 211.5600 | 28-FEB-2006 | 4434.165 | 4904.181 | 15665.00 | 0.3085031 | 1.5620876E-02 | 57.03367 |
| CM-244 | 248.5200 | 28-FEB-2006 | 5533.125 | 5885.623 | 16217.00 | 0.3067660 | 1.5526365E-02 | 49.52942 |

Instrument : CHAMBER 023
 Detector : 22873
 Standard ID : AESS-023
 Standard Reference Date : 7-FEB-2003 00:00:00
 Calibration Analysis Date/Time : 3-APR-2006 12:02:18
 Calibration Count Time : 240.0000
 Efficiency Calibration Date/Time : 3-APR-2006 16:49:38
 Average Efficiency : 0.2765626
 Average Efficiency Error : 7.6345578E-03
 Confidence : 95.00000

| Cal. Istps | DPM | Exp. Date | Start Engy | End Engy | Counts | EFF. | EFF Err | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148 | 219.6600 | 28-FEB-2006 | 2988.365 | 3300.653 | 13199.00 | 0.2577709 | 1.1110976E-02 | 64.03100 |
| NP-237 | 211.6800 | 28-FEB-2006 | 4432.587 | 4902.786 | 15014.00 | 0.2955187 | 1.4971492E-02 | 68.68533 |
| CM-244 | 248.6400 | 28-FEB-2006 | 5533.585 | 5885.616 | 15406.00 | 0.2912842 | 1.4752124E-02 | 67.86546 |

Instrument : CHAMBER 026
 Detector : 34427
 Standard ID : AESS-002
 Standard Reference Date : 7-FEB-2003 00:00:00
 Calibration Analysis Date/Time : 4-APR-2006 07:45:51
 Calibration Count Time : 240.0000
 Efficiency Calibration Date/Time : 4-APR-2006 12:02:00
 Average Efficiency : 0.3111628
 Average Efficiency Error : 5.9400578E-03
 Confidence : 95.00000

| Cal. Istps | DPM | Exp. Date | Start Engy | End Engy | Counts | EFF. | EFF Err | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148 | 219.4800 | 28-FEB-2006 | 2988.396 | 3300.299 | 15946.00 | 0.3116805 | 7.0337788E-03 | 55.54451 |
| NP-237 | 211.5000 | 28-FEB-2006 | 4432.951 | 4903.551 | 15774.00 | 0.3107190 | 1.5731754E-02 | 60.78556 |
| CM-244 | 248.4000 | 28-FEB-2006 | 5534.085 | 5882.486 | 16328.00 | 0.3090416 | 1.5640259E-02 | 54.94981 |

Instrument : CHAMBER 027
 Detector : 31436
 Standard ID : AESS-003
 Standard Reference Date : 7-FEB-2003 00:00:00
 Calibration Analysis Date/Time : 4-APR-2006 07:45:51
 Calibration Count Time : 240.0000
 Efficiency Calibration Date/Time : 4-APR-2006 12:02:17
 Average Efficiency : 0.2851310
 Average Efficiency Error : 5.4681562E-03
 Confidence : 95.00000

| Cal. Istps | DPM | Exp. Date | Start Engy | End Engy | Counts | EFF. | EFF Err | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148 | 219.3600 | 28-FEB-2006 | 2990.641 | 3298.501 | 14516.00 | 0.2838850 | 6.4452491E-03 | 62.80336 |
| NP-237 | 211.3800 | 28-FEB-2006 | 4435.554 | 4903.960 | 14590.00 | 0.2875520 | 1.4573419E-02 | 61.53238 |
| CM-244 | 248.2800 | 28-FEB-2006 | 5535.178 | 5885.600 | 15268.00 | 0.2891185 | 1.4644115E-02 | 66.27240 |

Instrument : CHAMBER 028
 Detector : 21056
 Standard ID : AESS-004
 Standard Reference Date : 7-FEB-2003 00:00:00
 Calibration Analysis Date/Time : 4-APR-2006 07:45:51
 Calibration Count Time : 240.0000
 Efficiency Calibration Date/Time : 4-APR-2006 12:02:41
 Average Efficiency : 0.2688177
 Average Efficiency Error : 5.1718531E-03
 Confidence : 95.00000

| Cal. Istps | DPM | Exp. Date | Start Engy | End Engy | Counts | EFF. | EFF Err | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148 | 219.1800 | 28-FEB-2006 | 2991.862 | 3298.519 | 13660.00 | 0.2673638 | 6.0955230E-03 | 60.48663 |
| NP-237 | 211.2000 | 28-FEB-2006 | 4437.162 | 4904.527 | 13850.00 | 0.2732216 | 1.3856977E-02 | 78.59827 |
| CM-244 | 248.1000 | 28-FEB-2006 | 5534.678 | 5884.670 | 14348.00 | 0.2718943 | 1.3782959E-02 | 69.00627 |

Instrument : CHAMBER 029
 Detector : 30419
 Standard ID : AESS-005
 Standard Reference Date : 7-FEB-2003 00:00:00
 Calibration Analysis Date/Time : 4-APR-2006 07:45:51
 Calibration Count Time : 240.0000
 Efficiency Calibration Date/Time : 4-APR-2006 12:02:56
 Average Efficiency : 0.2803768
 Average Efficiency Error : 5.3804033E-03
 Confidence : 95.00000

| Cal. Istps | DPM | Exp. Date | Start Engy | End Engy | Counts | EFF. | EFF Err | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148 | 219.6600 | 28-FEB-2006 | 2991.643 | 3298.009 | 14347.00 | 0.2801967 | 6.3665169E-03 | 50.13651 |
| NP-237 | 211.6800 | 28-FEB-2006 | 4436.124 | 4903.513 | 14180.00 | 0.2791024 | 1.4150602E-02 | 62.17907 |
| CM-244 | 248.6400 | 28-FEB-2006 | 5533.909 | 5884.139 | 14945.00 | 0.2825924 | 1.4317507E-02 | 55.61591 |

Instrument : CHAMBER 030
 Detector : 30420
 Standard ID : AESS-006
 Standard Reference Date : 7-FEB-2003 00:00:00
 Calibration Analysis Date/Time : 4-APR-2006 07:45:51
 Calibration Count Time : 240.0000
 Efficiency Calibration Date/Time : 4-APR-2006 12:03:11
 Average Efficiency : 0.3032622
 Average Efficiency Error : 5.7966388E-03
 Confidence : 95.00000

| Cal. Istps | DPM | Exp. Date | Start Engy | End Engy | Counts | EFF. | EFF Err | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148 | 219.1800 | 28-FEB-2006 | 2992.381 | 3300.032 | 15532.00 | 0.3040040 | 6.8717906E-03 | 53.70943 |
| NP-237 | 211.2000 | 28-FEB-2006 | 4435.171 | 4901.399 | 15235.00 | 0.3005646 | 1.5224237E-02 | 63.92149 |
| CM-244 | 248.1000 | 28-FEB-2006 | 5532.938 | 5887.226 | 15953.00 | 0.3023090 | 1.5303830E-02 | 56.83110 |

Instrument : CHAMBER 032
 Detector : 33207
 Standard ID : AESS-008
 Standard Reference Date : 7-FEB-2003 00:00:00
 Calibration Analysis Date/Time : 4-APR-2006 07:45:53
 Calibration Count Time : 239.9998
 Efficiency Calibration Date/Time : 4-APR-2006 12:04:09
 Average Efficiency : 0.3210600
 Average Efficiency Error : 9.3805837E-03
 Confidence : 95.00000

| Cal. Istps | DPM | Exp. Date | Start Engy | End Engy | Counts | EFF. | EFF Err | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148 | 219.8400 | 28-FEB-2006 | 2992.438 | 3301.011 | 16394.00 | 0.3199127 | 1.6193897E-02 | 48.92264 |
| NP-237 | 211.8600 | 28-FEB-2006 | 4437.450 | 4903.298 | 16174.00 | 0.3180676 | 1.6098870E-02 | 62.34297 |
| CM-244 | 248.8800 | 28-FEB-2006 | 5533.518 | 5886.674 | 17224.00 | 0.3253718 | 1.6456470E-02 | 58.56594 |

Instrument : CHAMBER 033
 Detector : 28647
 Standard ID : AESS-009
 Standard Reference Date : 7-FEB-2003 00:00:00
 Calibration Analysis Date/Time : 4-APR-2006 07:45:53
 Calibration Count Time : 239.9998
 Efficiency Calibration Date/Time : 4-APR-2006 12:04:20
 Average Efficiency : 0.3189350
 Average Efficiency Error : 9.3192765E-03
 Confidence : 95.00000

| Cal. Istps | DPM | Exp. Date | Start Engy | End Engy | Counts | EFF. | EFF Err | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148 | 219.6000 | 28-FEB-2006 | 2991.128 | 3301.778 | 16210.00 | 0.3166678 | 1.6031807E-02 | 50.20483 |
| NP-237 | 211.6200 | 28-FEB-2006 | 4433.277 | 4905.752 | 16119.00 | 0.3173501 | 1.6063211E-02 | 65.81153 |
| CM-244 | 248.5800 | 28-FEB-2006 | 5531.202 | 5887.135 | 17074.00 | 0.3229274 | 1.6334468E-02 | 56.14278 |

Instrument : CHAMBER 034
 Detector : 32697
 Standard ID : AESS-010
 Standard Reference Date : 7-FEB-2003 00:00:00
 Calibration Analysis Date/Time : 4-APR-2006 07:45:53
 Calibration Count Time : 239.9998
 Efficiency Calibration Date/Time : 4-APR-2006 12:04:32
 Average Efficiency : 0.3285644
 Average Efficiency Error : 9.5973080E-03
 Confidence : 95.00000

| Cal. Istps | DPM | Exp. Date | Start Engy | End Engy | Counts | EFF. | EFF Err | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148 | 219.4800 | 28-FEB-2006 | 2987.740 | 3297.727 | 16717.00 | 0.3267508 | 1.6536236E-02 | 46.19645 |
| NP-237 | 211.5000 | 28-FEB-2006 | 4436.424 | 4906.295 | 16590.00 | 0.3267619 | 1.6533978E-02 | 65.57603 |
| CM-244 | 248.4600 | 28-FEB-2006 | 5532.067 | 5883.683 | 17561.00 | 0.3322987 | 1.6803153E-02 | 52.60378 |

Instrument : CHAMBER 035
 Detector : 29271
 Standard ID : AESS-011
 Standard Reference Date : 7-FEB-2003 00:00:00
 Calibration Analysis Date/Time : 4-APR-2006 07:45:53
 Calibration Count Time : 239.9998
 Efficiency Calibration Date/Time : 4-APR-2006 12:04:44
 Average Efficiency : 0.3070081
 Average Efficiency Error : 8.9746779E-03
 Confidence : 95.00000

| Cal. Istps | DPM | Exp. Date | Start Engy | End Engy | Counts | EFF. | EFF Err | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148 | 219.6600 | 28-FEB-2006 | 2990.597 | 3300.316 | 15823.00 | 0.3090232 | 1.5649391E-02 | 58.07399 |
| NP-237 | 211.6800 | 28-FEB-2006 | 4435.093 | 4902.062 | 15491.00 | 0.3048278 | 1.5437050E-02 | 77.73704 |
| CM-244 | 248.6400 | 28-FEB-2006 | 5533.546 | 5887.289 | 16248.00 | 0.3072308 | 1.5549533E-02 | 61.23973 |

Instrument : CHAMBER 036
 Detector : 29275
 Standard ID : AESS-012
 Standard Reference Date : 7-FEB-2003 00:00:00
 Calibration Analysis Date/Time : 4-APR-2006 07:45:53
 Calibration Count Time : 239.9998
 Efficiency Calibration Date/Time : 4-APR-2006 12:04:58
 Average Efficiency : 0.3204660
 Average Efficiency Error : 9.3638916E-03
 Confidence : 95.00000

| Cal. Istps | DPM | Exp. Date | Start Engy | End Engy | Counts | EFF. | EFF Err | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148 | 219.9600 | 28-FEB-2006 | 2990.101 | 3302.011 | 16111.00 | 0.3142187 | 1.5908994E-02 | 70.87608 |
| NP-237 | 211.9200 | 28-FEB-2006 | 4436.212 | 4902.690 | 16497.00 | 0.3243046 | 1.6410707E-02 | 86.38094 |
| CM-244 | 248.9400 | 28-FEB-2006 | 5530.586 | 5883.211 | 17117.00 | 0.3232544 | 1.6350558E-02 | 83.27386 |

Instrument : CHAMBER 037
 Detector : 32690
 Standard ID : AESS-013
 Standard Reference Date : 7-FEB-2003 00:00:00
 Calibration Analysis Date/Time : 4-APR-2006 07:45:55
 Calibration Count Time : 240.0000
 Efficiency Calibration Date/Time : 4-APR-2006 12:05:37
 Average Efficiency : 0.3298278
 Average Efficiency Error : 6.2852711E-03
 Confidence : 95.00000

| Cal. Istps | DPM | Exp. Date | Start Engy | End Engy | Counts | EFF. | EFF Err | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148 | 220.5600 | 28-FEB-2006 | 2990.331 | 3300.070 | 16648.00 | 0.3238085 | 7.2884769E-03 | 65.32179 |
| NP-237 | 212.5200 | 28-FEB-2006 | 4435.120 | 4902.289 | 17586.00 | 0.3447773 | 1.7433835E-02 | 73.49030 |
| CM-244 | 249.6600 | 28-FEB-2006 | 5534.121 | 5882.713 | 18584.00 | 0.3498755 | 1.7681209E-02 | 65.58303 |

Instrument : CHAMBER 038
 Detector : 19323
 Standard ID : AESS-014
 Standard Reference Date : 7-FEB-2003 00:00:00
 Calibration Analysis Date/Time : 4-APR-2006 07:45:55
 Calibration Count Time : 240.0000
 Efficiency Calibration Date/Time : 4-APR-2006 12:05:48
 Average Efficiency : 0.3550652
 Average Efficiency Error : 6.7386958E-03
 Confidence : 95.00000

| Cal. Istps | DPM | Exp. Date | Start Engy | End Engy | Counts | EFF. | EFF Err | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148 | 219.9600 | 28-FEB-2006 | 2992.203 | 3301.129 | 18140.00 | 0.3537907 | 7.9244133E-03 | 44.64486 |
| NP-237 | 211.9800 | 28-FEB-2006 | 4436.340 | 4904.950 | 18294.00 | 0.3595673 | 1.8173877E-02 | 68.25054 |
| CM-244 | 249.0000 | 28-FEB-2006 | 5534.574 | 5885.451 | 18924.00 | 0.3572362 | 1.8049749E-02 | 49.98671 |

Instrument : CHAMBER 040
 Detector : 30446
 Standard ID : AESS-016
 Standard Reference Date : 7-FEB-2003 00:00:00
 Calibration Analysis Date/Time : 4-APR-2006 07:45:55
 Calibration Count Time : 240.0000
 Efficiency Calibration Date/Time : 4-APR-2006 12:06:33
 Average Efficiency : 0.3232525
 Average Efficiency Error : 6.1597549E-03
 Confidence : 95.00000

| Cal. Istps | DPM | Exp. Date | Start Engy | End Engy | Counts | EFF. | EFF Err | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148 | 219.6600 | 28-FEB-2006 | 2990.636 | 3301.603 | 16579.00 | 0.3237876 | 7.2898054E-03 | 47.52289 |
| NP-237 | 211.6800 | 28-FEB-2006 | 4435.733 | 4904.719 | 16163.00 | 0.3181213 | 1.6101720E-02 | 60.46703 |
| CM-244 | 248.6400 | 28-FEB-2006 | 5532.976 | 5885.423 | 17235.00 | 0.3258936 | 1.6482741E-02 | 51.53939 |

Instrument : CHAMBER 041
 Detector : 22834
 Standard ID : AESS-017
 Standard Reference Date : 7-FEB-2003 00:00:00
 Calibration Analysis Date/Time : 4-APR-2006 07:45:55
 Calibration Count Time : 240.0000
 Efficiency Calibration Date/Time : 4-APR-2006 12:06:46
 Average Efficiency : 0.3322699
 Average Efficiency Error : 6.3254358E-03
 Confidence : 95.00000

| Cal. Istps | DPM | Exp. Date | Start Engy | End Engy | Counts | EFF. | EFF Err | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148 | 219.7200 | 28-FEB-2006 | 2987.681 | 3302.193 | 16913.00 | 0.3302204 | 7.4258945E-03 | 49.34238 |
| NP-237 | 211.7400 | 28-FEB-2006 | 4432.502 | 4905.743 | 17206.00 | 0.3385508 | 1.7123217E-02 | 64.06297 |
| CM-244 | 248.7000 | 28-FEB-2006 | 5533.298 | 5885.604 | 17818.00 | 0.3368361 | 1.7029859E-02 | 51.09551 |

Instrument : CHAMBER 042
 Detector : 32695
 Standard ID : AESS-018
 Standard Reference Date : 7-FEB-2003 00:00:00
 Calibration Analysis Date/Time : 4-APR-2006 07:45:55
 Calibration Count Time : 240.0000
 Efficiency Calibration Date/Time : 4-APR-2006 12:07:02
 Average Efficiency : 0.3361240
 Average Efficiency Error : 6.3955071E-03
 Confidence : 95.00000

| Cal. Istps | DPM | Exp. Date | Start Engy | End Engy | Counts | EFF. | EFF Err | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148 | 219.7800 | 28-FEB-2006 | 2990.651 | 3300.194 | 17115.00 | 0.3340732 | 7.5073489E-03 | 62.01425 |
| NP-237 | 211.8000 | 28-FEB-2006 | 4435.708 | 4903.810 | 17181.00 | 0.3379442 | 1.7092843E-02 | 71.83335 |
| CM-244 | 248.7600 | 28-FEB-2006 | 5531.417 | 5883.758 | 18276.00 | 0.3453112 | 1.7453661E-02 | 58.83952 |

Instrument : CHAMBER 043
 Detector : 42470
 Standard ID : AESS-019
 Standard Reference Date : 7-FEB-2003 00:00:00
 Calibration Analysis Date/Time : 4-APR-2006 07:45:57
 Calibration Count Time : 239.9998
 Efficiency Calibration Date/Time : 4-APR-2006 12:07:20
 Average Efficiency : 0.3229622
 Average Efficiency Error : 6.1558355E-03
 Confidence : 95.00000

| Cal. Istps | DPM | Exp. Date | Start Engy | End Engy | Counts | EFF. | EFF Err | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148 | 219.5400 | 28-FEB-2006 | 2988.168 | 3298.326 | 16460.00 | 0.3216395 | 7.2445576E-03 | 53.07267 |
| NP-237 | 211.5600 | 28-FEB-2006 | 4436.901 | 4902.013 | 16611.00 | 0.3271490 | 1.6553231E-02 | 63.02407 |
| CM-244 | 248.5200 | 28-FEB-2006 | 5535.121 | 5886.262 | 17214.00 | 0.3256539 | 1.6470846E-02 | 50.82504 |

Instrument : CHAMBER 044
 Detector : 34433
 Standard ID : AESS-020
 Standard Reference Date : 7-FEB-2003 00:00:00
 Calibration Analysis Date/Time : 4-APR-2006 07:45:57
 Calibration Count Time : 239.9998
 Efficiency Calibration Date/Time : 4-APR-2006 12:07:31
 Average Efficiency : 0.3240791
 Average Efficiency Error : 6.1765807E-03
 Confidence : 95.00000

| Cal. Istps | DPM | Exp. Date | Start Engy | End Engy | Counts | EFF. | EFF Err | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148 | 219.8400 | 28-FEB-2006 | 2989.004 | 3298.648 | 16495.00 | 0.3218836 | 7.2491337E-03 | 50.22718 |
| NP-237 | 211.8000 | 28-FEB-2006 | 4433.632 | 4906.174 | 16705.00 | 0.3285425 | 1.6622754E-02 | 66.23325 |
| CM-244 | 248.8200 | 28-FEB-2006 | 5532.967 | 5887.129 | 17532.00 | 0.3312699 | 1.6751442E-02 | 56.69666 |

Instrument : CHAMBER 045
 Detector : 34430
 Standard ID : AESS-021
 Standard Reference Date : 7-FEB-2003 00:00:00
 Calibration Analysis Date/Time : 4-APR-2006 07:45:57
 Calibration Count Time : 239.9998
 Efficiency Calibration Date/Time : 4-APR-2006 12:07:49
 Average Efficiency : 0.2941546
 Average Efficiency Error : 5.6320531E-03
 Confidence : 95.00000

| Cal. Istps | DPM | Exp. Date | Start Engy | End Engy | Counts | EFF. | EFF Err | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148 | 219.5400 | 28-FEB-2006 | 2992.438 | 3301.033 | 14988.00 | 0.2928756 | 6.6353632E-03 | 49.71279 |
| NP-237 | 211.5600 | 28-FEB-2006 | 4436.365 | 4906.490 | 15086.00 | 0.2970952 | 1.5050440E-02 | 64.58119 |
| CM-244 | 248.5200 | 28-FEB-2006 | 5535.004 | 5886.982 | 15743.00 | 0.2978074 | 1.5078431E-02 | 59.00225 |

Instrument : CHAMBER 046
 Detector : 42471
 Standard ID : AESS-022
 Standard Reference Date : 7-FEB-2003 00:00:00
 Calibration Analysis Date/Time : 4-APR-2006 07:45:57
 Calibration Count Time : 239.9998
 Efficiency Calibration Date/Time : 4-APR-2006 12:08:03
 Average Efficiency : 0.3344716
 Average Efficiency Error : 6.3659614E-03
 Confidence : 95.00000

| Cal. Istps | DPM | Exp. Date | Start Engy | End Engy | Counts | EFF. | EFF Err | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148 | 219.6600 | 28-FEB-2006 | 2987.741 | 3299.741 | 16999.00 | 0.3319905 | 7.4634906E-03 | 48.96851 |
| NP-237 | 211.6800 | 28-FEB-2006 | 4435.900 | 4904.967 | 17273.00 | 0.3399139 | 1.7191468E-02 | 65.78371 |
| CM-244 | 248.6400 | 28-FEB-2006 | 5532.671 | 5884.488 | 18104.00 | 0.3422939 | 1.7302830E-02 | 53.33138 |

Instrument : CHAMBER 047
 Detector : 30449
 Standard ID : AESS-023
 Standard Reference Date : 7-FEB-2003 00:00:00
 Calibration Analysis Date/Time : 4-APR-2006 07:45:57
 Calibration Count Time : 239.9998
 Efficiency Calibration Date/Time : 4-APR-2006 12:08:14
 Average Efficiency : 0.2966904
 Average Efficiency Error : 5.6765815E-03
 Confidence : 95.00000

| Cal. Istps | DPM | Exp. Date | Start Engy | End Engy | Counts | EFF. | EFF Err | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148 | 219.6600 | 28-FEB-2006 | 2989.322 | 3298.103 | 15222.00 | 0.2972857 | 6.7285444E-03 | 49.84683 |
| NP-237 | 211.6800 | 28-FEB-2006 | 4433.780 | 4903.899 | 15016.00 | 0.2955441 | 1.4972775E-02 | 59.65280 |
| CM-244 | 248.6400 | 28-FEB-2006 | 5532.276 | 5884.114 | 15597.00 | 0.2948985 | 1.4932883E-02 | 51.68388 |

Instrument : CHAMBER 048
 Detector : 42483
 Standard ID : AESS-024
 Standard Reference Date : 7-FEB-2003 00:00:00
 Calibration Analysis Date/Time : 4-APR-2006 07:45:57
 Calibration Count Time : 239.9998
 Efficiency Calibration Date/Time : 4-APR-2006 12:08:24
 Average Efficiency : 0.3119769
 Average Efficiency Error : 5.9553082E-03
 Confidence : 95.00000

| Cal. Istps | DPM | Exp. Date | Start Engy | End Engy | Counts | EFF. | EFF Err | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148 | 219.4200 | 28-FEB-2006 | 2989.922 | 3300.161 | 15954.00 | 0.3119224 | 7.0390208E-03 | 55.83012 |
| NP-237 | 211.4400 | 28-FEB-2006 | 4434.180 | 4904.923 | 15787.00 | 0.3110589 | 1.5748808E-02 | 72.44879 |
| CM-244 | 248.4000 | 28-FEB-2006 | 5533.436 | 5885.010 | 16547.00 | 0.3131823 | 1.5847316E-02 | 61.06746 |

Instrument : CHAMBER 065
 Detector : 21087
 Standard ID : AESS-001
 Standard Reference Date : 7-FEB-2003 00:00:00
 Calibration Analysis Date/Time : 3-APR-2006 06:54:10
 Calibration Count Time : 239.9998
 Efficiency Calibration Date/Time : 3-APR-2006 12:05:24
 Average Efficiency : 0.3027465
 Average Efficiency Error : 5.7869283E-03
 Confidence : 95.00000

| Cal. Istps | DPM | Exp. Date | Start Engy | End Engy | Counts | EFF. | EFF Err | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148 | 219.8400 | 28-FEB-2006 | 2992.500 | 3301.569 | 15511.00 | 0.3026739 | 6.8422910E-03 | 49.27271 |
| NP-237 | 211.8600 | 28-FEB-2006 | 4436.593 | 4904.814 | 15341.00 | 0.3016613 | 1.5278513E-02 | 63.47648 |
| CM-244 | 248.8200 | 28-FEB-2006 | 5533.641 | 5883.942 | 16102.00 | 0.3042169 | 1.5398668E-02 | 52.45229 |

Instrument : CHAMBER 066
 Detector : 38159
 Standard ID : AESS-002
 Standard Reference Date : 7-FEB-2003 00:00:00
 Calibration Analysis Date/Time : 3-APR-2006 06:54:10
 Calibration Count Time : 239.9998
 Efficiency Calibration Date/Time : 3-APR-2006 12:05:41
 Average Efficiency : 0.2898386
 Average Efficiency Error : 5.5523221E-03
 Confidence : 95.00000

| Cal. Istps | DPM | Exp. Date | Start Engy | End Engy | Counts | EFF. | EFF Err | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148 | 219.4800 | 28-FEB-2006 | 2991.351 | 3299.570 | 14848.00 | 0.2902116 | 6.5790205E-03 | 54.22055 |
| NP-237 | 211.5000 | 28-FEB-2006 | 4435.367 | 4906.503 | 14731.00 | 0.2901337 | 1.4702437E-02 | 64.20898 |
| CM-244 | 248.4000 | 28-FEB-2006 | 5531.751 | 5885.195 | 15203.00 | 0.2877176 | 1.4573953E-02 | 57.41096 |

Instrument : CHAMBER 068
 Detector : 33204
 Standard ID : AESS-004
 Standard Reference Date : 7-FEB-2003 00:00:00
 Calibration Analysis Date/Time : 3-APR-2006 06:54:10
 Calibration Count Time : 239.9998
 Efficiency Calibration Date/Time : 3-APR-2006 12:06:11
 Average Efficiency : 0.2982503
 Average Efficiency Error : 5.7051168E-03
 Confidence : 95.00000

| Cal. Istps | DPM | Exp. Date | Start Engy | End Engy | Counts | EFF. | EFF Err | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148 | 219.1800 | 28-FEB-2006 | 2989.458 | 3302.482 | 15312.00 | 0.2996904 | 6.7803976E-03 | 66.72219 |
| NP-237 | 211.2000 | 28-FEB-2006 | 4437.019 | 4902.188 | 15036.00 | 0.2966104 | 1.5026535E-02 | 82.73407 |
| CM-244 | 248.1000 | 28-FEB-2006 | 5531.579 | 5884.315 | 15461.00 | 0.2929541 | 1.4836024E-02 | 72.39137 |

Instrument : CHAMBER 069
 Detector : 39172
 Standard ID : AESS-005
 Standard Reference Date : 7-FEB-2003 00:00:00
 Calibration Analysis Date/Time : 3-APR-2006 06:54:10
 Calibration Count Time : 239.9998
 Efficiency Calibration Date/Time : 3-APR-2006 12:06:22
 Average Efficiency : 0.2872442
 Average Efficiency Error : 5.5063334E-03
 Confidence : 95.00000

| Cal. Istps | DPM | Exp. Date | Start Engy | End Engy | Counts | EFF. | EFF Err | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148 | 219.6600 | 28-FEB-2006 | 2991.937 | 3302.037 | 14638.00 | 0.2858726 | 6.4867456E-03 | 52.69576 |
| NP-237 | 211.6800 | 28-FEB-2006 | 4433.758 | 4901.912 | 14877.00 | 0.2928176 | 1.4836427E-02 | 60.78927 |
| CM-244 | 248.6400 | 28-FEB-2006 | 5535.302 | 5884.863 | 15275.00 | 0.2888012 | 1.4627955E-02 | 53.21272 |

Instrument : CHAMBER 070
 Detector : 33207
 Standard ID : AESS-006
 Standard Reference Date : 7-FEB-2003 00:00:00
 Calibration Analysis Date/Time : 3-APR-2006 06:54:10
 Calibration Count Time : 239.9998
 Efficiency Calibration Date/Time : 3-APR-2006 12:06:32
 Average Efficiency : 0.3410026
 Average Efficiency Error : 6.4845588E-03
 Confidence : 95.00000

| Cal. Istps | DPM | Exp. Date | Start Engy | End Engy | Counts | EFF. | EFF Err | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148 | 219.1800 | 28-FEB-2006 | 2987.764 | 3299.302 | 17333.00 | 0.3392459 | 7.6180245E-03 | 53.32024 |
| NP-237 | 211.2000 | 28-FEB-2006 | 4432.603 | 4904.338 | 17596.00 | 0.3470635 | 1.7549409E-02 | 63.32718 |
| CM-244 | 248.1000 | 28-FEB-2006 | 5531.790 | 5887.167 | 18166.00 | 0.3442082 | 1.7398918E-02 | 55.68260 |

Instrument : CHAMBER 072
 Detector : 33210
 Standard ID : AESS-008
 Standard Reference Date : 7-FEB-2003 00:00:00
 Calibration Analysis Date/Time : 3-APR-2006 06:54:11
 Calibration Count Time : 239.9998
 Efficiency Calibration Date/Time : 3-APR-2006 12:07:20
 Average Efficiency : 0.2718624
 Average Efficiency Error : 5.2260533E-03
 Confidence : 95.00000

| Cal. Istps | DPM | Exp. Date | Start Engy | End Engy | Counts | EFF. | EFF Err | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148 | 219.8400 | 28-FEB-2006 | 2989.642 | 3302.500 | 13882.00 | 0.2708864 | 6.1688591E-03 | 78.20691 |
| NP-237 | 211.8600 | 28-FEB-2006 | 4434.229 | 4902.517 | 13764.00 | 0.2706604 | 1.3728318E-02 | 68.85778 |
| CM-244 | 248.8800 | 28-FEB-2006 | 5533.565 | 5883.889 | 14730.00 | 0.2782284 | 1.4099089E-02 | 58.98390 |

Instrument : CHAMBER 073
 Detector : 33211
 Standard ID : AESS-009
 Standard Reference Date : 7-FEB-2003 00:00:00
 Calibration Analysis Date/Time : 3-APR-2006 06:54:11
 Calibration Count Time : 239.9998
 Efficiency Calibration Date/Time : 3-APR-2006 12:07:31
 Average Efficiency : 0.3248378
 Average Efficiency Error : 6.1892127E-03
 Confidence : 95.00000

| Cal. Istps | DPM | Exp. Date | Start Engy | End Engy | Counts | EFF. | EFF Err | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148 | 219.6000 | 28-FEB-2006 | 2990.209 | 3299.359 | 16628.00 | 0.3248250 | 7.3118629E-03 | 52.98417 |
| NP-237 | 211.6200 | 28-FEB-2006 | 4435.813 | 4905.119 | 16178.00 | 0.3184740 | 1.6119437E-02 | 62.15504 |
| CM-244 | 248.5800 | 28-FEB-2006 | 5530.447 | 5887.394 | 17545.00 | 0.3317996 | 1.6778087E-02 | 56.17911 |

Instrument : CHAMBER 075
 Detector : 29976
 Standard ID : AESS-011
 Standard Reference Date : 7-FEB-2003 00:00:00
 Calibration Analysis Date/Time : 3-APR-2006 06:54:11
 Calibration Count Time : 239.9998
 Efficiency Calibration Date/Time : 3-APR-2006 12:07:53
 Average Efficiency : 0.3238373
 Average Efficiency Error : 6.1713755E-03
 Confidence : 95.00000

| Cal. Isteps | DPM | Exp. Date | Start Engy | End Engy | Counts | EFF. | EFF Err | Resolution |
|-------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148 | 219.6600 | 28-FEB-2006 | 2987.804 | 3301.738 | 16526.00 | 0.3227443 | 7.2676861E-03 | 50.99773 |
| NP-237 | 211.6800 | 28-FEB-2006 | 4436.078 | 4904.005 | 16602.00 | 0.3267108 | 1.6531264E-02 | 64.22369 |
| CM-244 | 248.6400 | 28-FEB-2006 | 5532.428 | 5882.500 | 17275.00 | 0.3266147 | 1.6518781E-02 | 59.07774 |

Instrument : CHAMBER 076
 Detector : 33213
 Standard ID : AESS-012
 Standard Reference Date : 7-FEB-2003 00:00:00
 Calibration Analysis Date/Time : 3-APR-2006 06:54:11
 Calibration Count Time : 239.9998
 Efficiency Calibration Date/Time : 3-APR-2006 12:08:02
 Average Efficiency : 0.3136021
 Average Efficiency Error : 5.9847333E-03
 Confidence : 95.00000

| Cal. Isteps | DPM | Exp. Date | Start Engy | End Engy | Counts | EFF. | EFF Err | Resolution |
|-------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148 | 219.9600 | 28-FEB-2006 | 2990.982 | 3301.271 | 16036.00 | 0.3127477 | 7.0554069E-03 | 52.31974 |
| NP-237 | 211.9200 | 28-FEB-2006 | 4435.792 | 4906.032 | 16070.00 | 0.3159233 | 1.5991600E-02 | 63.89199 |
| CM-244 | 248.9400 | 28-FEB-2006 | 5532.284 | 5884.164 | 16716.00 | 0.3156649 | 1.5971025E-02 | 56.41280 |

Instrument : CHAMBER 077
 Detector : 28239
 Standard ID : AESS-013
 Standard Reference Date : 7-FEB-2003 00:00:00
 Calibration Analysis Date/Time : 3-APR-2006 06:54:12
 Calibration Count Time : 240.0000
 Efficiency Calibration Date/Time : 3-APR-2006 12:08:16
 Average Efficiency : 0.3282876
 Average Efficiency Error : 6.2494567E-03
 Confidence : 95.00000

| Cal. Isteps | DPM | Exp. Date | Start Engy | End Engy | Counts | EFF. | EFF Err | Resolution |
|-------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148 | 220.5600 | 28-FEB-2006 | 2990.320 | 3302.291 | 16964.00 | 0.3299461 | 7.4184034E-03 | 49.98071 |
| NP-237 | 212.5200 | 28-FEB-2006 | 4434.458 | 4904.534 | 16485.00 | 0.3231252 | 1.6351206E-02 | 66.72607 |
| CM-244 | 249.6600 | 28-FEB-2006 | 5534.090 | 5887.188 | 17279.00 | 0.3253554 | 1.6455045E-02 | 48.65668 |

Instrument : CHAMBER 078
 Detector : 34425
 Standard ID : AESS-014
 Standard Reference Date : 7-FEB-2003 00:00:00
 Calibration Analysis Date/Time : 3-APR-2006 06:54:12
 Calibration Count Time : 240.0000
 Efficiency Calibration Date/Time : 3-APR-2006 12:08:26
 Average Efficiency : 0.3266231
 Average Efficiency Error : 6.2230360E-03
 Confidence : 95.00000

| Cal. Istps | DPM | Exp. Date | Start Engy | End Engy | Counts | EFF. | EFF Err | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148 | 219.9600 | 28-FEB-2006 | 2992.430 | 3298.209 | 16615.00 | 0.3240396 | 7.2945217E-03 | 49.76765 |
| NP-237 | 211.9800 | 28-FEB-2006 | 4433.493 | 4903.776 | 16900.00 | 0.3321434 | 1.6802609E-02 | 62.23470 |
| CM-244 | 249.0000 | 28-FEB-2006 | 5534.483 | 5883.260 | 17741.00 | 0.3349401 | 1.6934805E-02 | 53.02275 |

Instrument : CHAMBER 079
 Detector : 28408
 Standard ID : AESS-015
 Standard Reference Date : 7-FEB-2003 00:00:00
 Calibration Analysis Date/Time : 3-APR-2006 06:54:12
 Calibration Count Time : 240.0000
 Efficiency Calibration Date/Time : 3-APR-2006 12:08:37
 Average Efficiency : 0.3381511
 Average Efficiency Error : 6.4334050E-03
 Confidence : 95.00000

| Cal. Istps | DPM | Exp. Date | Start Engy | End Engy | Counts | EFF. | EFF Err | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148 | 219.8400 | 28-FEB-2006 | 2989.549 | 3301.048 | 17162.00 | 0.3348904 | 7.5245029E-03 | 58.89482 |
| NP-237 | 211.8600 | 28-FEB-2006 | 4435.951 | 4904.750 | 17588.00 | 0.3458672 | 1.7488951E-02 | 69.24126 |
| CM-244 | 248.8800 | 28-FEB-2006 | 5532.313 | 5884.158 | 18433.00 | 0.3481725 | 1.7596556E-02 | 62.07035 |

Instrument : CHAMBER 080
 Detector : 29269
 Standard ID : AESS-016
 Standard Reference Date : 7-FEB-2003 00:00:00
 Calibration Analysis Date/Time : 3-APR-2006 06:54:12
 Calibration Count Time : 240.0000
 Efficiency Calibration Date/Time : 3-APR-2006 12:08:46
 Average Efficiency : 0.3413618
 Average Efficiency Error : 6.4887921E-03
 Confidence : 95.00000

| Cal. Istps | DPM | Exp. Date | Start Engy | End Engy | Counts | EFF. | EFF Err | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148 | 219.6600 | 28-FEB-2006 | 2990.355 | 3300.887 | 17518.00 | 0.3421173 | 7.6778606E-03 | 54.84035 |
| NP-237 | 211.6800 | 28-FEB-2006 | 4437.124 | 4904.027 | 17076.00 | 0.3360595 | 1.6998719E-02 | 70.53491 |
| CM-244 | 248.6400 | 28-FEB-2006 | 5534.833 | 5882.541 | 18143.00 | 0.3430255 | 1.7339373E-02 | 59.19316 |

Instrument : CHAMBER 081
 Detector : 28243
 Standard ID : AESS-017
 Standard Reference Date : 7-FEB-2003 00:00:00
 Calibration Analysis Date/Time : 5-APR-2006 09:52:15
 Calibration Count Time : 239.9998
 Efficiency Calibration Date/Time : 5-APR-2006 14:20:00
 Average Efficiency : 0.2709154
 Average Efficiency Error : 5.2182535E-03
 Confidence : 95.00000

| Cal. Istps | DPM | Exp. Date | Start Engy | End Engy | Counts | EFF. | EFF Err | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148 | 219.7200 | 28-FEB-2006 | 2988.337 | 3300.967 | 13526.00 | 0.2640979 | 6.0252789E-03 | 74.73094 |
| NP-237 | 211.7400 | 28-FEB-2006 | 4435.244 | 4901.705 | 14659.00 | 0.2884400 | 1.4617478E-02 | 76.53771 |
| CM-244 | 248.7000 | 28-FEB-2006 | 5534.853 | 5883.115 | 15575.00 | 0.2944268 | 1.4909291E-02 | 67.72768 |

Instrument : CHAMBER 083
 Detector : 34436
 Standard ID : AESS-019
 Standard Reference Date : 7-FEB-2003 00:00:00
 Calibration Analysis Date/Time : 3-APR-2006 06:54:13
 Calibration Count Time : 239.9998
 Efficiency Calibration Date/Time : 3-APR-2006 12:09:35
 Average Efficiency : 0.3063384
 Average Efficiency Error : 5.8566006E-03
 Confidence : 95.00000

| Cal. Istps | DPM | Exp. Date | Start Engy | End Engy | Counts | EFF. | EFF Err | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148 | 219.5400 | 28-FEB-2006 | 2991.885 | 3297.745 | 15476.00 | 0.3024036 | 6.8371557E-03 | 53.97715 |
| NP-237 | 211.5600 | 28-FEB-2006 | 4435.182 | 4902.448 | 16168.00 | 0.3183721 | 1.6114395E-02 | 65.19810 |
| CM-244 | 248.5200 | 28-FEB-2006 | 5533.629 | 5886.856 | 16706.00 | 0.3160093 | 1.5988560E-02 | 59.26429 |

Instrument : CHAMBER 084
 Detector : 29953
 Standard ID : AESS-020
 Standard Reference Date : 7-FEB-2003 00:00:00
 Calibration Analysis Date/Time : 3-APR-2006 06:54:13
 Calibration Count Time : 239.9998
 Efficiency Calibration Date/Time : 3-APR-2006 12:09:48
 Average Efficiency : 0.3377420
 Average Efficiency Error : 6.4240936E-03
 Confidence : 95.00000

| Cal. Istps | DPM | Exp. Date | Start Engy | End Engy | Counts | EFF. | EFF Err | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148 | 219.8400 | 28-FEB-2006 | 2988.809 | 3299.845 | 17241.00 | 0.3364322 | 7.5571463E-03 | 45.28139 |
| NP-237 | 211.8000 | 28-FEB-2006 | 4435.274 | 4905.090 | 17241.00 | 0.3390163 | 1.7146526E-02 | 64.38337 |
| CM-244 | 248.8200 | 28-FEB-2006 | 5535.465 | 5886.345 | 18173.00 | 0.3433445 | 1.7355187E-02 | 52.99788 |

Instrument : CHAMBER 085
 Detector : 30451
 Standard ID : AESS-021
 Standard Reference Date : 7-FEB-2003 00:00:00
 Calibration Analysis Date/Time : 3-APR-2006 06:54:13
 Calibration Count Time : 239.9998
 Efficiency Calibration Date/Time : 3-APR-2006 12:10:02
 Average Efficiency : 0.2997026
 Average Efficiency Error : 5.7319975E-03
 Confidence : 95.00000

| Cal. Istps | DPM | Exp. Date | Start Engy | End Engy | Counts | EFF. | EFF Err | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148 | 219.5400 | 28-FEB-2006 | 2988.388 | 3298.321 | 15330.00 | 0.2995507 | 6.7767296E-03 | 51.54943 |
| NP-237 | 211.5600 | 28-FEB-2006 | 4434.734 | 4902.750 | 15266.00 | 0.3006592 | 1.5228639E-02 | 59.35664 |
| CM-244 | 248.5200 | 28-FEB-2006 | 5530.623 | 5885.465 | 15834.00 | 0.2995146 | 1.5163762E-02 | 54.82895 |

Instrument : CHAMBER 086
 Detector : 29278
 Standard ID : AESS-022
 Standard Reference Date : 7-FEB-2003 00:00:00
 Calibration Analysis Date/Time : 3-APR-2006 06:54:13
 Calibration Count Time : 239.9998
 Efficiency Calibration Date/Time : 3-APR-2006 12:10:24
 Average Efficiency : 0.2629639
 Average Efficiency Error : 5.0652758E-03
 Confidence : 95.00000

| Cal. Istps | DPM | Exp. Date | Start Engy | End Engy | Counts | EFF. | EFF Err | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148 | 219.6600 | 28-FEB-2006 | 2990.939 | 3300.647 | 13365.00 | 0.2610116 | 5.9599294E-03 | 51.29673 |
| NP-237 | 211.6800 | 28-FEB-2006 | 4432.832 | 4902.859 | 13621.00 | 0.2680805 | 1.3599468E-02 | 59.09101 |
| CM-244 | 248.6400 | 28-FEB-2006 | 5530.458 | 5886.876 | 14175.00 | 0.2680037 | 1.3587984E-02 | 51.32809 |

Instrument : CHAMBER 087
 Detector : 34430
 Standard ID : AESS-023
 Standard Reference Date : 7-FEB-2003 00:00:00
 Calibration Analysis Date/Time : 3-APR-2006 06:54:13
 Calibration Count Time : 239.9998
 Efficiency Calibration Date/Time : 3-APR-2006 12:10:36
 Average Efficiency : 0.2783446
 Average Efficiency Error : 5.3436500E-03
 Confidence : 95.00000

| Cal. Istps | DPM | Exp. Date | Start Engy | End Engy | Counts | EFF. | EFF Err | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148 | 219.6600 | 28-FEB-2006 | 2988.850 | 3299.145 | 14228.00 | 0.2778656 | 6.3170986E-03 | 45.75569 |
| NP-237 | 211.6800 | 28-FEB-2006 | 4433.685 | 4904.783 | 14271.00 | 0.2804829 | 1.4219985E-02 | 56.29552 |
| CM-244 | 248.6400 | 28-FEB-2006 | 5533.892 | 5885.860 | 14737.00 | 0.2786293 | 1.4119316E-02 | 52.11374 |

Instrument : CHAMBER 088
 Detector : 30434
 Standard ID : AESS-024
 Standard Reference Date : 7-FEB-2003 00:00:00
 Calibration Analysis Date/Time : 3-APR-2006 06:54:13
 Calibration Count Time : 239.9998
 Efficiency Calibration Date/Time : 3-APR-2006 12:10:54
 Average Efficiency : 0.2708718
 Average Efficiency Error : 5.2093272E-03
 Confidence : 95.00000

| Cal. Istps | DPM | Exp. Date | Start Engy | End Engy | Counts | EFF. | EFF Err | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148 | 219.4200 | 28-FEB-2006 | 2991.733 | 3298.324 | 13762.00 | 0.2690588 | 6.1309491E-03 | 70.44978 |
| NP-237 | 211.4400 | 28-FEB-2006 | 4434.854 | 4901.741 | 13876.00 | 0.2734241 | 1.3866881E-02 | 84.52332 |
| CM-244 | 248.4000 | 28-FEB-2006 | 5531.597 | 5882.583 | 14679.00 | 0.2778009 | 1.4078071E-02 | 70.46585 |

Instrument : CHAMBER 089
 Detector : 21087
 Standard ID : AESS-001
 Standard Reference Date : 7-FEB-2003 00:00:00
 Calibration Analysis Date/Time : 3-APR-2006 18:48:42
 Calibration Count Time : 239.9998
 Efficiency Calibration Date/Time : 3-APR-2006 23:05:32
 Average Efficiency : 0.2906057
 Average Efficiency Error : 8.5010817E-03
 Confidence : 95.00000

| Cal. Istps | DPM | Exp. Date | Start Engy | End Engy | Counts | EFF. | EFF Err | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148 | 219.8400 | 28-FEB-2006 | 2988.018 | 3301.225 | 14810.00 | 0.2889985 | 1.4647639E-02 | 48.13472 |
| NP-237 | 211.8600 | 28-FEB-2006 | 4432.655 | 4904.531 | 14711.00 | 0.2893088 | 1.4660804E-02 | 59.05686 |
| CM-244 | 248.8200 | 28-FEB-2006 | 5531.146 | 5885.550 | 15539.00 | 0.2935953 | 1.4867556E-02 | 51.89399 |

Instrument : CHAMBER 090
 Detector : 38159
 Standard ID : AESS-002
 Standard Reference Date : 7-FEB-2003 00:00:00
 Calibration Analysis Date/Time : 3-APR-2006 18:48:42
 Calibration Count Time : 239.9998
 Efficiency Calibration Date/Time : 3-APR-2006 23:06:16
 Average Efficiency : 0.3262078
 Average Efficiency Error : 9.5290253E-03
 Confidence : 95.00000

| Cal. Istps | DPM | Exp. Date | Start Engy | End Engy | Counts | EFF. | EFF Err | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148 | 219.4800 | 28-FEB-2006 | 2989.511 | 3299.809 | 16611.00 | 0.3246745 | 1.6432377E-02 | 43.47319 |
| NP-237 | 211.5000 | 28-FEB-2006 | 4434.211 | 4904.337 | 16570.00 | 0.3264199 | 1.6516838E-02 | 66.74939 |
| CM-244 | 248.4000 | 28-FEB-2006 | 5530.381 | 5887.548 | 17307.00 | 0.3275529 | 1.6565884E-02 | 47.20604 |

Instrument : CHAMBER 091
 Detector : 33205
 Standard ID : AESS-003
 Standard Reference Date : 7-FEB-2003 00:00:00
 Calibration Analysis Date/Time : 4-APR-2006 16:38:39
 Calibration Count Time : 239.9998
 Efficiency Calibration Date/Time : 4-APR-2006 21:06:36
 Average Efficiency : 0.3295136
 Average Efficiency Error : 9.6244970E-03
 Confidence : 95.00000

| Cal. Istps | DPM | Exp. Date | Start Engy | End Engy | Counts | EFF. | EFF Err | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148 | 219.3600 | 28-FEB-2006 | 2988.614 | 3302.446 | 16877.00 | 0.3300617 | 1.6701948E-02 | 49.16127 |
| NP-237 | 211.3800 | 28-FEB-2006 | 4435.933 | 4903.299 | 16753.00 | 0.3302219 | 1.6707057E-02 | 67.62949 |
| CM-244 | 248.2800 | 28-FEB-2006 | 5530.786 | 5885.646 | 17335.00 | 0.3282727 | 1.6601983E-02 | 54.15368 |

Instrument : CHAMBER 092
 Detector : 33204
 Standard ID : AESS-004
 Standard Reference Date : 7-FEB-2003 00:00:00
 Calibration Analysis Date/Time : 3-APR-2006 18:48:42
 Calibration Count Time : 239.9998
 Efficiency Calibration Date/Time : 3-APR-2006 23:08:02
 Average Efficiency : 0.3230760
 Average Efficiency Error : 9.4387615E-03
 Confidence : 95.00000

| Cal. Istps | DPM | Exp. Date | Start Engy | End Engy | Counts | EFF. | EFF Err | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148 | 219.1800 | 28-FEB-2006 | 2991.837 | 3299.694 | 16466.00 | 0.3222808 | 1.6312918E-02 | 54.19599 |
| NP-237 | 211.2000 | 28-FEB-2006 | 4434.184 | 4904.789 | 16328.00 | 0.3221140 | 1.6301801E-02 | 61.31636 |
| CM-244 | 248.1000 | 28-FEB-2006 | 5534.672 | 5882.398 | 17144.00 | 0.3248603 | 1.6431469E-02 | 53.39663 |

Instrument : CHAMBER 093
 Detector : 33206
 Standard ID : AESS-005
 Standard Reference Date : 7-FEB-2003 00:00:00
 Calibration Analysis Date/Time : 3-APR-2006 18:48:42
 Calibration Count Time : 239.9998
 Efficiency Calibration Date/Time : 3-APR-2006 23:08:14
 Average Efficiency : 0.3278230
 Average Efficiency Error : 9.5757600E-03
 Confidence : 95.00000

| Cal. Istps | DPM | Exp. Date | Start Engy | End Engy | Counts | EFF. | EFF Err | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148 | 219.6600 | 28-FEB-2006 | 2991.432 | 3297.831 | 16618.00 | 0.3245451 | 1.6425749E-02 | 53.44844 |
| NP-237 | 211.6800 | 28-FEB-2006 | 4432.503 | 4906.496 | 16789.00 | 0.3304530 | 1.6718345E-02 | 71.37048 |
| CM-244 | 248.6400 | 28-FEB-2006 | 5534.120 | 5886.021 | 17378.00 | 0.3285792 | 1.6617021E-02 | 55.20338 |

Instrument : CHAMBER 094
 Detector : 33207
 Standard ID : AESS-006
 Standard Reference Date : 7-FEB-2003 00:00:00
 Calibration Analysis Date/Time : 3-APR-2006 18:48:42
 Calibration Count Time : 239.9998
 Efficiency Calibration Date/Time : 3-APR-2006 23:08:34
 Average Efficiency : 0.3064194
 Average Efficiency Error : 8.9583928E-03
 Confidence : 95.00000

| Cal. Istps | DPM | Exp. Date | Start Engy | End Engy | Counts | EFF. | EFF Err | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148 | 219.1800 | 28-FEB-2006 | 2991.673 | 3298.910 | 15769.00 | 0.3086388 | 1.5630580E-02 | 47.47134 |
| NP-237 | 211.2000 | 28-FEB-2006 | 4437.305 | 4902.611 | 15693.00 | 0.3095863 | 1.5675372E-02 | 59.32807 |
| CM-244 | 248.1000 | 28-FEB-2006 | 5532.741 | 5886.161 | 15901.00 | 0.3013068 | 1.5253706E-02 | 48.40099 |

Instrument : CHAMBER 096
 Detector : 30429
 Standard ID : AESS-008
 Standard Reference Date : 7-FEB-2003 00:00:00
 Calibration Analysis Date/Time : 3-APR-2006 18:48:43
 Calibration Count Time : 240.0000
 Efficiency Calibration Date/Time : 3-APR-2006 23:09:48
 Average Efficiency : 0.3211957
 Average Efficiency Error : 9.3840715E-03
 Confidence : 95.00000

| Cal. Istps | DPM | Exp. Date | Start Engy | End Engy | Counts | EFF. | EFF Err | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148 | 219.8400 | 28-FEB-2006 | 2988.567 | 3301.392 | 16420.00 | 0.3204154 | 1.6219035E-02 | 48.33763 |
| NP-237 | 211.8600 | 28-FEB-2006 | 4433.899 | 4903.007 | 16366.00 | 0.3218482 | 1.6287910E-02 | 62.84891 |
| CM-244 | 248.8800 | 28-FEB-2006 | 5534.841 | 5883.364 | 17011.00 | 0.3213297 | 1.6254338E-02 | 53.34020 |

Instrument : CHAMBER 098
 Detector : 30431
 Standard ID : AESS-010
 Standard Reference Date : 7-FEB-2003 00:00:00
 Calibration Analysis Date/Time : 3-APR-2006 18:48:43
 Calibration Count Time : 240.0000
 Efficiency Calibration Date/Time : 3-APR-2006 23:10:26
 Average Efficiency : 0.3423861
 Average Efficiency Error : 9.9960957E-03
 Confidence : 95.00000

| Cal. Istps | DPM | Exp. Date | Start Engy | End Engy | Counts | EFF. | EFF Err | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148 | 219.4800 | 28-FEB-2006 | 2991.193 | 3297.595 | 17461.00 | 0.3412881 | 1.7263338E-02 | 48.27054 |
| NP-237 | 211.5000 | 28-FEB-2006 | 4433.217 | 4902.776 | 17377.00 | 0.3422896 | 1.7310398E-02 | 71.89059 |
| CM-244 | 248.4600 | 28-FEB-2006 | 5531.761 | 5884.598 | 18159.00 | 0.3435947 | 1.7367978E-02 | 56.75472 |

Instrument : CHAMBER 099
 Detector : 30432
 Standard ID : AESS-011
 Standard Reference Date : 7-FEB-2003 00:00:00
 Calibration Analysis Date/Time : 4-APR-2006 16:38:43
 Calibration Count Time : 239.9998
 Efficiency Calibration Date/Time : 4-APR-2006 21:07:16
 Average Efficiency : 0.3424250
 Average Efficiency Error : 9.9976454E-03
 Confidence : 95.00000

| Cal. Istps | DPM | Exp. Date | Start Engy | End Engy | Counts | EFF. | EFF Err | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148 | 219.6600 | 28-FEB-2006 | 2989.302 | 3301.806 | 17277.00 | 0.3374230 | 1.7069872E-02 | 61.73035 |
| NP-237 | 211.6800 | 28-FEB-2006 | 4434.583 | 4904.427 | 17554.00 | 0.3455301 | 1.7472234E-02 | 70.83485 |
| CM-244 | 248.6400 | 28-FEB-2006 | 5532.529 | 5887.439 | 18221.00 | 0.3445468 | 1.7415471E-02 | 58.75341 |

Instrument : CHAMBER 101
 Detector : 31696
 Standard ID : AESS-013
 Standard Reference Date : 7-FEB-2003 00:00:00
 Calibration Analysis Date/Time : 3-APR-2006 18:48:44
 Calibration Count Time : 240.0000
 Efficiency Calibration Date/Time : 3-APR-2006 23:11:17
 Average Efficiency : 0.3289411
 Average Efficiency Error : 6.2637404E-03
 Confidence : 95.00000

| Cal. Istps | DPM | Exp. Date | Start Engy | End Engy | Counts | EFF. | EFF Err | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148 | 220.5600 | 28-FEB-2006 | 2988.838 | 3300.184 | 16815.00 | 0.3270522 | 7.3571443E-03 | 74.97670 |
| NP-237 | 212.5200 | 28-FEB-2006 | 4437.473 | 4904.200 | 16905.00 | 0.3314256 | 1.6766205E-02 | 82.64299 |
| CM-244 | 249.6600 | 28-FEB-2006 | 5533.420 | 5882.862 | 17869.00 | 0.3364823 | 1.7011438E-02 | 82.36337 |

Instrument : CHAMBER 102
 Detector : 30438
 Standard ID : AESS-014
 Standard Reference Date : 7-FEB-2003 00:00:00
 Calibration Analysis Date/Time : 3-APR-2006 18:48:44
 Calibration Count Time : 240.0000
 Efficiency Calibration Date/Time : 3-APR-2006 23:11:38
 Average Efficiency : 0.3398052
 Average Efficiency Error : 6.4618774E-03
 Confidence : 95.00000

| Cal. Istps | DPM | Exp. Date | Start Engy | End Engy | Counts | EFF. | EFF Err | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148 | 219.9600 | 28-FEB-2006 | 2990.981 | 3300.175 | 17329.00 | 0.3379689 | 7.5894571E-03 | 50.78636 |
| NP-237 | 211.9800 | 28-FEB-2006 | 4436.167 | 4905.013 | 17442.00 | 0.3427780 | 1.7334390E-02 | 60.55743 |
| CM-244 | 249.0000 | 28-FEB-2006 | 5534.874 | 5885.847 | 18355.00 | 0.3465500 | 1.7515350E-02 | 55.09371 |

Instrument : CHAMBER 103
 Detector : 30437
 Standard ID : AESS-015
 Standard Reference Date : 7-FEB-2003 00:00:00
 Calibration Analysis Date/Time : 3-APR-2006 18:48:44
 Calibration Count Time : 240.0000
 Efficiency Calibration Date/Time : 3-APR-2006 23:11:50
 Average Efficiency : 0.3428698
 Average Efficiency Error : 6.5169050E-03
 Confidence : 95.00000

| Cal. Istps | DPM | Exp. Date | Start Engy | End Engy | Counts | EFF. | EFF Err | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148 | 219.8400 | 28-FEB-2006 | 2987.494 | 3300.797 | 17526.00 | 0.3419976 | 7.6749846E-03 | 52.55986 |
| NP-237 | 211.8600 | 28-FEB-2006 | 4433.628 | 4906.553 | 17575.00 | 0.3456304 | 1.7477097E-02 | 70.84139 |
| CM-244 | 248.8800 | 28-FEB-2006 | 5534.963 | 5885.168 | 18244.00 | 0.3446204 | 1.7418953E-02 | 56.82663 |

Instrument : CHAMBER 104
 Detector : 30436
 Standard ID : AESS-016
 Standard Reference Date : 7-FEB-2003 00:00:00
 Calibration Analysis Date/Time : 3-APR-2006 18:48:44
 Calibration Count Time : 240.0000
 Efficiency Calibration Date/Time : 3-APR-2006 23:12:05
 Average Efficiency : 0.3178734
 Average Efficiency Error : 6.0614208E-03
 Confidence : 95.00000

| Cal. Istps | DPM | Exp. Date | Start Engy | End Engy | Counts | EFF. | EFF Err | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148 | 219.6600 | 28-FEB-2006 | 2989.844 | 3302.458 | 16342.00 | 0.3191546 | 7.1916869E-03 | 48.79966 |
| NP-237 | 211.6800 | 28-FEB-2006 | 4432.663 | 4904.432 | 16000.00 | 0.3149317 | 1.5942214E-02 | 61.83171 |
| CM-244 | 248.6400 | 28-FEB-2006 | 5531.252 | 5885.942 | 16635.00 | 0.3145305 | 1.5914533E-02 | 54.39241 |

Instrument : CHAMBER 106
 Detector : 45382
 Standard ID : AESS-018
 Standard Reference Date : 7-FEB-2003 00:00:00
 Calibration Analysis Date/Time : 3-APR-2006 18:48:44
 Calibration Count Time : 240.0000
 Efficiency Calibration Date/Time : 3-APR-2006 23:13:35
 Average Efficiency : 0.3366815
 Average Efficiency Error : 6.4043794E-03
 Confidence : 95.00000

| Cal. Istps | DPM | Exp. Date | Start Engy | End Engy | Counts | EFF. | EFF Err | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148 | 219.7800 | 28-FEB-2006 | 2991.094 | 3299.001 | 17214.00 | 0.3360010 | 7.5481492E-03 | 67.49383 |
| NP-237 | 211.8000 | 28-FEB-2006 | 4435.781 | 4902.986 | 17151.00 | 0.3373776 | 1.7064495E-02 | 78.07959 |
| CM-244 | 248.7600 | 28-FEB-2006 | 5530.755 | 5886.020 | 17964.00 | 0.3394951 | 1.7162759E-02 | 66.37016 |

Instrument : CHAMBER 107
 Detector : 31697
 Standard ID : AESS-019
 Standard Reference Date : 7-FEB-2003 00:00:00
 Calibration Analysis Date/Time : 3-APR-2006 18:48:45
 Calibration Count Time : 240.0000
 Efficiency Calibration Date/Time : 3-APR-2006 23:13:46
 Average Efficiency : 0.3279476
 Average Efficiency Error : 6.2480466E-03
 Confidence : 95.00000

| Cal. Istps | DPM | Exp. Date | Start Engy | End Engy | Counts | EFF. | EFF Err | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148 | 219.5400 | 28-FEB-2006 | 2990.547 | 3299.714 | 16632.00 | 0.3249958 | 7.3156110E-03 | 56.35443 |
| NP-237 | 211.5600 | 28-FEB-2006 | 4437.183 | 4902.948 | 17025.00 | 0.3353024 | 1.6960930E-02 | 65.36469 |
| CM-244 | 248.5200 | 28-FEB-2006 | 5532.612 | 5885.240 | 17789.00 | 0.3365124 | 1.7013798E-02 | 57.27279 |

Instrument : CHAMBER 109
 Detector : 31693
 Standard ID : AESS-021
 Standard Reference Date : 7-FEB-2003 00:00:00
 Calibration Analysis Date/Time : 3-APR-2006 18:48:45
 Calibration Count Time : 240.0000
 Efficiency Calibration Date/Time : 3-APR-2006 23:14:12
 Average Efficiency : 0.3172656
 Average Efficiency Error : 6.0536368E-03
 Confidence : 95.00000

| Cal. Istps | DPM | Exp. Date | Start Engy | End Engy | Counts | EFF. | EFF Err | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148 | 219.5400 | 28-FEB-2006 | 2988.084 | 3299.184 | 16099.00 | 0.3145808 | 7.0950659E-03 | 55.32108 |
| NP-237 | 211.5600 | 28-FEB-2006 | 4432.535 | 4905.875 | 16551.00 | 0.3259623 | 1.6493894E-02 | 66.04156 |
| CM-244 | 248.5200 | 28-FEB-2006 | 5532.554 | 5883.883 | 17073.00 | 0.3229679 | 1.6336529E-02 | 53.16661 |

Instrument : CHAMBER 110
 Detector : 30447
 Standard ID : AESS-022
 Standard Reference Date : 7-FEB-2003 00:00:00
 Calibration Analysis Date/Time : 4-APR-2006 16:38:46
 Calibration Count Time : 240.0000
 Efficiency Calibration Date/Time : 4-APR-2006 21:08:36
 Average Efficiency : 0.2903691
 Average Efficiency Error : 5.5707125E-03
 Confidence : 95.00000

| Cal. Istps | DPM | Exp. Date | Start Engy | End Engy | Counts | EFF. | EFF Err | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148 | 219.6600 | 28-FEB-2006 | 2992.012 | 3300.888 | 14540.00 | 0.2839686 | 6.4464426E-03 | 65.21424 |
| NP-237 | 211.6800 | 28-FEB-2006 | 4433.842 | 4901.474 | 15514.00 | 0.3053748 | 1.5464325E-02 | 67.45113 |
| CM-244 | 248.6400 | 28-FEB-2006 | 5530.607 | 5884.669 | 16569.00 | 0.3133079 | 1.5853422E-02 | 61.19852 |

Instrument : CHAMBER 111
 Detector : 30448
 Standard ID : AESS-023
 Standard Reference Date : 7-FEB-2003 00:00:00
 Calibration Analysis Date/Time : 3-APR-2006 18:48:45
 Calibration Count Time : 240.0000
 Efficiency Calibration Date/Time : 3-APR-2006 23:15:36
 Average Efficiency : 0.3388006
 Average Efficiency Error : 6.4431382E-03
 Confidence : 95.00000

| Cal. Istps | DPM | Exp. Date | Start Engy | End Engy | Counts | EFF. | EFF Err | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148 | 219.6600 | 28-FEB-2006 | 2987.793 | 3301.004 | 17314.00 | 0.3381375 | 7.5936201E-03 | 56.34806 |
| NP-237 | 211.6800 | 28-FEB-2006 | 4435.981 | 4906.484 | 17500.00 | 0.3444386 | 1.7417673E-02 | 71.36749 |
| CM-244 | 248.6400 | 28-FEB-2006 | 5530.639 | 5883.341 | 17810.00 | 0.3367471 | 1.7025441E-02 | 55.06728 |

Instrument : CHAMBER 112
 Detector : 30449
 Standard ID : AESS-024
 Standard Reference Date : 7-FEB-2003 00:00:00
 Calibration Analysis Date/Time : 3-APR-2006 18:48:45
 Calibration Count Time : 240.0000
 Efficiency Calibration Date/Time : 3-APR-2006 23:15:47
 Average Efficiency : 0.3139323
 Average Efficiency Error : 5.9938701E-03
 Confidence : 95.00000

| Cal. Istps | DPM | Exp. Date | Start Engy | End Engy | Counts | EFF. | EFF Err | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148 | 219.4200 | 28-FEB-2006 | 2991.870 | 3298.269 | 15891.00 | 0.3106862 | 7.0128250E-03 | 50.73674 |
| NP-237 | 211.4400 | 28-FEB-2006 | 4436.313 | 4903.586 | 16308.00 | 0.3213587 | 1.6263809E-02 | 62.04948 |
| CM-244 | 248.4000 | 28-FEB-2006 | 5533.752 | 5883.818 | 17126.00 | 0.3241271 | 1.6394578E-02 | 52.78824 |

Instrument : CHAMBER 113
 Detector : 45-111B4
 Standard ID : AESS-001
 Standard Reference Date : 7-FEB-2003 00:00:00
 Calibration Analysis Date/Time : 4-APR-2006 12:00:36
 Calibration Count Time : 240.0000
 Efficiency Calibration Date/Time : 4-APR-2006 17:02:58
 Average Efficiency : 0.3703099
 Average Efficiency Error : 1.0161426E-02
 Confidence : 95.00000

| Cal. Istps | DPM | Exp. Date | Start Engy | End Engy | Counts | EFF. | EFF Err | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148 | 219.8400 | 28-FEB-2006 | 2991.835 | 3301.848 | 18597.00 | 0.3629034 | 1.5549773E-02 | 64.50990 |
| NP-237 | 211.8600 | 28-FEB-2006 | 4433.613 | 4901.946 | 18886.00 | 0.3714283 | 1.8767057E-02 | 90.91785 |
| CM-244 | 248.8200 | 28-FEB-2006 | 5530.358 | 5885.560 | 20134.00 | 0.3804419 | 1.9210188E-02 | 71.11305 |

Instrument : CHAMBER 114
 Detector : 45-111B5
 Standard ID : AESS-007
 Standard Reference Date : 7-FEB-2003 00:00:00
 Calibration Analysis Date/Time : 4-APR-2006 12:00:40
 Calibration Count Time : 240.0000
 Efficiency Calibration Date/Time : 4-APR-2006 17:03:22
 Average Efficiency : 0.3901447
 Average Efficiency Error : 1.0698882E-02
 Confidence : 95.00000

| Cal. Istps | DPM | Exp. Date | Start Engy | End Engy | Counts | EFF. | EFF Err | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148 | 219.5400 | 28-FEB-2006 | 2990.875 | 3299.211 | 19570.00 | 0.3824124 | 1.6373768E-02 | 64.95810 |
| NP-237 | 211.5600 | 28-FEB-2006 | 4436.329 | 4903.130 | 20139.00 | 0.3966328 | 2.0027624E-02 | 80.48977 |
| CM-244 | 248.5200 | 28-FEB-2006 | 5535.235 | 5884.346 | 20889.00 | 0.3951845 | 1.9947579E-02 | 69.68978 |

Instrument : CHAMBER 115
 Detector : 45-132EE5
 Standard ID : AESS-002
 Standard Reference Date : 7-FEB-2003 00:00:00
 Calibration Analysis Date/Time : 4-APR-2006 12:00:44
 Calibration Count Time : 240.0000
 Efficiency Calibration Date/Time : 4-APR-2006 17:03:37
 Average Efficiency : 0.3799683
 Average Efficiency Error : 1.0422695E-02
 Confidence : 95.00000

| Cal. Istps | DPM | Exp. Date | Start Engy | End Engy | Counts | EFF. | EFF Err | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148 | 219.4800 | 28-FEB-2006 | 2990.466 | 3300.287 | 19152.00 | 0.3743467 | 1.6033292E-02 | 67.16986 |
| NP-237 | 211.5000 | 28-FEB-2006 | 4435.908 | 4903.427 | 19268.00 | 0.3795908 | 1.9175535E-02 | 85.64700 |
| CM-244 | 248.4000 | 28-FEB-2006 | 5530.487 | 5884.796 | 20541.00 | 0.3887886 | 1.9627862E-02 | 69.09605 |

Instrument : CHAMBER 116
 Detector : 45-132FF2
 Standard ID : AESS-008
 Standard Reference Date : 7-FEB-2003 00:00:00
 Calibration Analysis Date/Time : 4-APR-2006 12:00:47
 Calibration Count Time : 240.0000
 Efficiency Calibration Date/Time : 4-APR-2006 17:03:51
 Average Efficiency : 0.3906634
 Average Efficiency Error : 1.0711731E-02
 Confidence : 95.00000

| Cal. Istps | DPM | Exp. Date | Start Engy | End Engy | Counts | EFF. | EFF Err | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148 | 219.8400 | 28-FEB-2006 | 2988.161 | 3302.097 | 19763.00 | 0.3856568 | 1.6510434E-02 | 61.93254 |
| NP-237 | 211.8600 | 28-FEB-2006 | 4435.898 | 4903.366 | 20060.00 | 0.3945222 | 1.9921809E-02 | 83.61416 |
| CM-244 | 248.8800 | 28-FEB-2006 | 5530.965 | 5885.878 | 20861.00 | 0.3940839 | 1.9892277E-02 | 67.87167 |

Instrument : CHAMBER 117
 Detector : 45-132FF3
 Standard ID : AESS-003
 Standard Reference Date : 7-FEB-2003 00:00:00
 Calibration Analysis Date/Time : 4-APR-2006 12:00:52
 Calibration Count Time : 240.0000
 Efficiency Calibration Date/Time : 4-APR-2006 17:04:04
 Average Efficiency : 0.3838457
 Average Efficiency Error : 1.0529065E-02
 Confidence : 95.00000

| Cal. Istps | DPM | Exp. Date | Start Engy | End Engy | Counts | EFF. | EFF Err | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148 | 219.3600 | 28-FEB-2006 | 2987.574 | 3297.481 | 19157.00 | 0.3746493 | 1.6046192E-02 | 69.46350 |
| NP-237 | 211.3800 | 28-FEB-2006 | 4432.916 | 4905.417 | 19746.00 | 0.3892191 | 1.9657088E-02 | 87.03203 |
| CM-244 | 248.2800 | 28-FEB-2006 | 5531.962 | 5885.886 | 20722.00 | 0.3924041 | 1.9808734E-02 | 73.89016 |

Instrument : CHAMBER 118
 Detector : 45-132FF4
 Standard ID : AESS-009
 Standard Reference Date : 7-FEB-2003 00:00:00
 Calibration Analysis Date/Time : 4-APR-2006 12:00:56
 Calibration Count Time : 240.0000
 Efficiency Calibration Date/Time : 4-APR-2006 17:04:21
 Average Efficiency : 0.3946549
 Average Efficiency Error : 1.0820382E-02
 Confidence : 95.00000

| Cal. Istps | DPM | Exp. Date | Start Engy | End Engy | Counts | EFF. | EFF Err | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148 | 219.6000 | 28-FEB-2006 | 2989.600 | 3298.996 | 19935.00 | 0.3894384 | 1.6670343E-02 | 63.05709 |
| NP-237 | 211.6200 | 28-FEB-2006 | 4434.069 | 4901.807 | 20060.00 | 0.3949601 | 1.9943934E-02 | 82.03598 |
| CM-244 | 248.5800 | 28-FEB-2006 | 5534.903 | 5884.430 | 21258.00 | 0.4020683 | 2.0291740E-02 | 65.29355 |

Instrument : CHAMBER 119
 Detector : 45-132FF5
 Standard ID : AESS-004
 Standard Reference Date : 7-FEB-2003 00:00:00
 Calibration Analysis Date/Time : 4-APR-2006 12:00:59
 Calibration Count Time : 240.0000
 Efficiency Calibration Date/Time : 4-APR-2006 17:04:33
 Average Efficiency : 0.3958072
 Average Efficiency Error : 1.0851006E-02
 Confidence : 95.00000

| Cal. Istps | DPM | Exp. Date | Start Engy | End Engy | Counts | EFF. | EFF Err | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148 | 219.1800 | 28-FEB-2006 | 2987.490 | 3300.068 | 20085.00 | 0.3931205 | 1.6826242E-02 | 64.97130 |
| NP-237 | 211.2000 | 28-FEB-2006 | 4434.344 | 4905.254 | 20104.00 | 0.3966229 | 2.0027457E-02 | 79.50690 |
| CM-244 | 248.1000 | 28-FEB-2006 | 5530.554 | 5884.197 | 21046.00 | 0.3988287 | 2.0130115E-02 | 68.84389 |

Instrument : CHAMBER 120
 Detector : 45-142F1
 Standard ID : AESS-010
 Standard Reference Date : 7-FEB-2003 00:00:00
 Calibration Analysis Date/Time : 4-APR-2006 12:01:03
 Calibration Count Time : 240.0000
 Efficiency Calibration Date/Time : 4-APR-2006 17:05:08
 Average Efficiency : 0.3892356
 Average Efficiency Error : 1.0674394E-02
 Confidence : 95.00000

| Cal. Istdps | DPM | Exp. Date | Start Engy | End Engy | Counts | EFF. | EFF Err | Resolution |
|-------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148 | 219.4800 | 28-FEB-2006 | 2991.710 | 3300.418 | 19511.00 | 0.3813637 | 1.6329555E-02 | 65.80540 |
| NP-237 | 211.5000 | 28-FEB-2006 | 4437.274 | 4903.259 | 19969.00 | 0.3933960 | 1.9865829E-02 | 87.35593 |
| CM-244 | 248.4600 | 28-FEB-2006 | 5533.634 | 5886.862 | 20972.00 | 0.3968505 | 2.0030931E-02 | 68.58372 |

Instrument : CHAMBER 121
 Detector : 45-142J4
 Standard ID : AESS-005
 Standard Reference Date : 7-FEB-2003 00:00:00
 Calibration Analysis Date/Time : 4-APR-2006 12:01:07
 Calibration Count Time : 240.0000
 Efficiency Calibration Date/Time : 4-APR-2006 17:05:19
 Average Efficiency : 0.3879517
 Average Efficiency Error : 1.0639026E-02
 Confidence : 95.00000

| Cal. Istdps | DPM | Exp. Date | Start Engy | End Engy | Counts | EFF. | EFF Err | Resolution |
|-------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148 | 219.6600 | 28-FEB-2006 | 2988.124 | 3301.600 | 19515.00 | 0.3811294 | 1.6319472E-02 | 66.81467 |
| NP-237 | 211.6800 | 28-FEB-2006 | 4434.163 | 4906.581 | 19891.00 | 0.3915263 | 1.9772179E-02 | 83.76527 |
| CM-244 | 248.6400 | 28-FEB-2006 | 5533.976 | 5883.453 | 20862.00 | 0.3944832 | 1.9912424E-02 | 67.69315 |

Instrument : CHAMBER 122
 Detector : 45-142J5
 Standard ID : AESS-011
 Standard Reference Date : 7-FEB-2003 00:00:00
 Calibration Analysis Date/Time : 4-APR-2006 12:01:10
 Calibration Count Time : 240.0000
 Efficiency Calibration Date/Time : 4-APR-2006 17:05:33
 Average Efficiency : 0.3964319
 Average Efficiency Error : 1.0868002E-02
 Confidence : 95.00000

| Cal. Istdps | DPM | Exp. Date | Start Engy | End Engy | Counts | EFF. | EFF Err | Resolution |
|-------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148 | 219.6600 | 28-FEB-2006 | 2990.061 | 3298.780 | 20106.00 | 0.3926716 | 1.6806791E-02 | 65.77823 |
| NP-237 | 211.6800 | 28-FEB-2006 | 4436.620 | 4903.419 | 20147.00 | 0.3965701 | 2.0024376E-02 | 83.48605 |
| CM-244 | 248.6400 | 28-FEB-2006 | 5535.258 | 5884.098 | 21247.00 | 0.4017632 | 2.0276442E-02 | 70.88770 |

Instrument : CHAMBER 123
 Detector : 45-142V1
 Standard ID : AESS-006
 Standard Reference Date : 7-FEB-2003 00:00:00
 Calibration Analysis Date/Time : 4-APR-2006 12:01:15
 Calibration Count Time : 240.0000
 Efficiency Calibration Date/Time : 4-APR-2006 17:05:57
 Average Efficiency : 0.3805304
 Average Efficiency Error : 1.0439763E-02
 Confidence : 95.00000

| Cal. Isteps | DPM | Exp. Date | Start Engy | End Engy | Counts | EFF. | EFF Err | Resolution |
|-------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148 | 219.1800 | 28-FEB-2006 | 2990.387 | 3299.522 | 18959.00 | 0.3710815 | 1.5895747E-02 | 68.66263 |
| NP-237 | 211.2000 | 28-FEB-2006 | 4437.442 | 4903.641 | 19446.00 | 0.3836367 | 1.9378122E-02 | 86.99185 |
| CM-244 | 248.1000 | 28-FEB-2006 | 5534.110 | 5887.297 | 20682.00 | 0.3919307 | 1.9785201E-02 | 66.84405 |

Instrument : CHAMBER 124
 Detector : 45-142V2
 Standard ID : AESS-012
 Standard Reference Date : 7-FEB-2003 00:00:00
 Calibration Analysis Date/Time : 4-APR-2006 12:01:18
 Calibration Count Time : 240.0000
 Efficiency Calibration Date/Time : 4-APR-2006 17:06:12
 Average Efficiency : 0.3873872
 Average Efficiency Error : 1.0623961E-02
 Confidence : 95.00000

| Cal. Isteps | DPM | Exp. Date | Start Engy | End Engy | Counts | EFF. | EFF Err | Resolution |
|-------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148 | 219.9600 | 28-FEB-2006 | 2989.443 | 3297.987 | 19472.00 | 0.3797709 | 1.6261807E-02 | 64.41782 |
| NP-237 | 211.9200 | 28-FEB-2006 | 4435.559 | 4902.411 | 19887.00 | 0.3909993 | 1.9745609E-02 | 86.15575 |
| CM-244 | 248.9400 | 28-FEB-2006 | 5534.467 | 5883.494 | 20923.00 | 0.3951599 | 1.9946033E-02 | 70.30408 |

Instrument : CHAMBER 125
 Detector : 45-142V3
 Standard ID : AESS-013
 Standard Reference Date : 7-FEB-2003 00:00:00
 Calibration Analysis Date/Time : 4-APR-2006 12:01:21
 Calibration Count Time : 240.0000
 Efficiency Calibration Date/Time : 4-APR-2006 17:06:28
 Average Efficiency : 0.3867655
 Average Efficiency Error : 1.0609177E-02
 Confidence : 95.00000

| Cal. Isteps | DPM | Exp. Date | Start Engy | End Engy | Counts | EFF. | EFF Err | Resolution |
|-------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148 | 220.5600 | 28-FEB-2006 | 2992.436 | 3301.693 | 19282.00 | 0.3750422 | 1.6061539E-02 | 55.83823 |
| NP-237 | 212.5200 | 28-FEB-2006 | 4433.216 | 4903.410 | 20074.00 | 0.3935665 | 1.9873424E-02 | 88.64875 |
| CM-244 | 249.6600 | 28-FEB-2006 | 5531.615 | 5883.226 | 21143.00 | 0.3981633 | 2.0095672E-02 | 68.92764 |

Instrument : CHAMBER 126
 Detector : 45-142V5
 Standard ID : AESS-019
 Standard Reference Date : 7-FEB-2003 00:00:00
 Calibration Analysis Date/Time : 4-APR-2006 12:01:25
 Calibration Count Time : 240.0000
 Efficiency Calibration Date/Time : 4-APR-2006 17:06:44
 Average Efficiency : 0.3776715
 Average Efficiency Error : 1.0360188E-02
 Confidence : 95.00000

| Cal. Istps | DPM | Exp. Date | Start Engy | End Engy | Counts | EFF. | EFF Err | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148 | 219.5400 | 28-FEB-2006 | 2988.369 | 3299.131 | 19021.00 | 0.3716846 | 1.5920833E-02 | 61.61137 |
| NP-237 | 211.5600 | 28-FEB-2006 | 4435.618 | 4902.366 | 19293.00 | 0.3799706 | 1.9194474E-02 | 87.82700 |
| CM-244 | 248.5200 | 28-FEB-2006 | 5532.732 | 5885.449 | 20309.00 | 0.3842119 | 1.9398922E-02 | 63.11655 |

Instrument : CHAMBER 127
 Detector : 45-142W1
 Standard ID : AESS-014
 Standard Reference Date : 7-FEB-2003 00:00:00
 Calibration Analysis Date/Time : 4-APR-2006 12:01:29
 Calibration Count Time : 240.0000
 Efficiency Calibration Date/Time : 4-APR-2006 17:07:12
 Average Efficiency : 0.3934290
 Average Efficiency Error : 1.0787830E-02
 Confidence : 95.00000

| Cal. Istps | DPM | Exp. Date | Start Engy | End Engy | Counts | EFF. | EFF Err | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148 | 219.9600 | 28-FEB-2006 | 2989.513 | 3302.392 | 19757.00 | 0.3853294 | 1.6496489E-02 | 64.47871 |
| NP-237 | 211.9800 | 28-FEB-2006 | 4432.606 | 4903.961 | 20292.00 | 0.3988588 | 2.0138543E-02 | 84.68309 |
| CM-244 | 249.0000 | 28-FEB-2006 | 5535.216 | 5883.874 | 21190.00 | 0.4001061 | 2.0193312E-02 | 70.60645 |

Instrument : CHAMBER 128
 Detector : 45-142W2
 Standard ID : AESS-020
 Standard Reference Date : 7-FEB-2003 00:00:00
 Calibration Analysis Date/Time : 4-APR-2006 12:01:34
 Calibration Count Time : 240.0000
 Efficiency Calibration Date/Time : 4-APR-2006 17:07:27
 Average Efficiency : 0.3859246
 Average Efficiency Error : 1.0586893E-02
 Confidence : 95.00000

| Cal. Istps | DPM | Exp. Date | Start Engy | End Engy | Counts | EFF. | EFF Err | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148 | 219.8400 | 28-FEB-2006 | 2989.584 | 3299.388 | 19162.00 | 0.3739288 | 1.6015276E-02 | 59.93734 |
| NP-237 | 211.8000 | 28-FEB-2006 | 4434.590 | 4901.786 | 20058.00 | 0.3945944 | 1.9925477E-02 | 79.19832 |
| CM-244 | 248.8200 | 28-FEB-2006 | 5533.622 | 5887.583 | 20951.00 | 0.3958796 | 1.9982109E-02 | 66.89229 |

Instrument : CHAMBER 129
 Detector : 45-142W3
 Standard ID : AESS-015
 Standard Reference Date : 7-FEB-2003 00:00:00
 Calibration Analysis Date/Time : 4-APR-2006 12:01:38
 Calibration Count Time : 240.0000
 Efficiency Calibration Date/Time : 4-APR-2006 17:07:43
 Average Efficiency : 0.3895081
 Average Efficiency Error : 1.0681822E-02
 Confidence : 95.00000

| Cal. Istps | DPM | Exp. Date | Start Engy | End Engy | Counts | EFF. | EFF Err | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148 | 219.8400 | 28-FEB-2006 | 2991.668 | 3299.558 | 19525.00 | 0.3810124 | 1.6314350E-02 | 61.82140 |
| NP-237 | 211.8600 | 28-FEB-2006 | 4435.149 | 4901.376 | 20156.00 | 0.3964100 | 2.0016206E-02 | 81.45658 |
| CM-244 | 248.8800 | 28-FEB-2006 | 5532.751 | 5886.867 | 20929.00 | 0.3953595 | 1.9956063E-02 | 71.15770 |

Instrument : CHAMBER 130
 Detector : 45-142W5
 Standard ID : AESS-021
 Standard Reference Date : 7-FEB-2003 00:00:00
 Calibration Analysis Date/Time : 4-APR-2006 12:01:42
 Calibration Count Time : 240.0000
 Efficiency Calibration Date/Time : 4-APR-2006 17:07:58
 Average Efficiency : 0.3877107
 Average Efficiency Error : 1.0633443E-02
 Confidence : 95.00000

| Cal. Istps | DPM | Exp. Date | Start Engy | End Engy | Counts | EFF. | EFF Err | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148 | 219.5400 | 28-FEB-2006 | 2990.831 | 3301.623 | 19394.00 | 0.3789733 | 1.6228566E-02 | 61.42154 |
| NP-237 | 211.5600 | 28-FEB-2006 | 4435.787 | 4904.916 | 20099.00 | 0.3958496 | 1.9988457E-02 | 82.39708 |
| CM-244 | 248.5200 | 28-FEB-2006 | 5534.223 | 5884.439 | 20760.00 | 0.3927440 | 1.9825550E-02 | 67.39270 |

Instrument : CHAMBER 131
 Detector : 45-145K1
 Standard ID : AESS-016
 Standard Reference Date : 7-FEB-2003 00:00:00
 Calibration Analysis Date/Time : 4-APR-2006 12:01:46
 Calibration Count Time : 240.0000
 Efficiency Calibration Date/Time : 4-APR-2006 17:08:16
 Average Efficiency : 0.3897060
 Average Efficiency Error : 1.0686211E-02
 Confidence : 95.00000

| Cal. Istps | DPM | Exp. Date | Start Engy | End Engy | Counts | EFF. | EFF Err | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148 | 219.6600 | 28-FEB-2006 | 2989.369 | 3298.448 | 19647.00 | 0.3837073 | 1.6428316E-02 | 64.42750 |
| NP-237 | 211.6800 | 28-FEB-2006 | 4432.591 | 4905.330 | 20018.00 | 0.3940307 | 1.9897401E-02 | 82.42314 |
| CM-244 | 248.6400 | 28-FEB-2006 | 5532.857 | 5887.665 | 20846.00 | 0.3941807 | 1.9897297E-02 | 71.83934 |

Instrument : CHAMBER 132
 Detector : 45-145K2
 Standard ID : AESS-022
 Standard Reference Date : 7-FEB-2003 00:00:00
 Calibration Analysis Date/Time : 4-APR-2006 12:01:49
 Calibration Count Time : 240.0000
 Efficiency Calibration Date/Time : 4-APR-2006 17:08:32
 Average Efficiency : 0.3905833
 Average Efficiency Error : 1.0710652E-02
 Confidence : 95.00000

| Cal. Isteps | DPM | Exp. Date | Start Engy | End Engy | Counts | EFF. | EFF Err | Resolution |
|-------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148 | 219.6600 | 28-FEB-2006 | 2990.018 | 3301.016 | 19613.00 | 0.3830433 | 1.6400279E-02 | 65.20789 |
| NP-237 | 211.6800 | 28-FEB-2006 | 4434.219 | 4902.195 | 20056.00 | 0.3947787 | 1.9934803E-02 | 89.44299 |
| CM-244 | 248.6400 | 28-FEB-2006 | 5534.644 | 5883.351 | 21028.00 | 0.3976221 | 2.0069377E-02 | 68.53607 |

Instrument : CHAMBER 133
 Detector : 45-145K3
 Standard ID : AESS-017
 Standard Reference Date : 7-FEB-2003 00:00:00
 Calibration Analysis Date/Time : 4-APR-2006 12:01:52
 Calibration Count Time : 240.0000
 Efficiency Calibration Date/Time : 4-APR-2006 17:09:47
 Average Efficiency : 0.3868218
 Average Efficiency Error : 1.0608377E-02
 Confidence : 95.00000

| Cal. Isteps | DPM | Exp. Date | Start Engy | End Engy | Counts | EFF. | EFF Err | Resolution |
|-------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148 | 219.7200 | 28-FEB-2006 | 2989.115 | 3302.033 | 19459.00 | 0.3799319 | 1.6268853E-02 | 67.58065 |
| NP-237 | 211.7400 | 28-FEB-2006 | 4435.237 | 4904.688 | 19979.00 | 0.3931513 | 1.9853372E-02 | 78.76342 |
| CM-244 | 248.7000 | 28-FEB-2006 | 5532.486 | 5884.151 | 20667.00 | 0.3907017 | 1.9723292E-02 | 68.61700 |

Instrument : CHAMBER 134
 Detector : 45-145K4
 Standard ID : AESS-023
 Standard Reference Date : 7-FEB-2003 00:00:00
 Calibration Analysis Date/Time : 4-APR-2006 12:01:56
 Calibration Count Time : 240.0000
 Efficiency Calibration Date/Time : 4-APR-2006 17:11:02
 Average Efficiency : 0.3909511
 Average Efficiency Error : 1.0721575E-02
 Confidence : 95.00000

| Cal. Isteps | DPM | Exp. Date | Start Engy | End Engy | Counts | EFF. | EFF Err | Resolution |
|-------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148 | 219.6600 | 28-FEB-2006 | 2987.530 | 3301.962 | 19533.00 | 0.3814809 | 1.6334314E-02 | 58.87649 |
| NP-237 | 211.6800 | 28-FEB-2006 | 4434.547 | 4905.459 | 20169.00 | 0.3970030 | 2.0046022E-02 | 84.02620 |
| CM-244 | 248.6400 | 28-FEB-2006 | 5534.869 | 5887.271 | 21114.00 | 0.3992483 | 2.0150691E-02 | 67.90365 |

Instrument : CHAMBER 135
 Detector : 45-145K5
 Standard ID : AESS-018
 Standard Reference Date : 7-FEB-2003 00:00:00
 Calibration Analysis Date/Time : 4-APR-2006 12:01:59
 Calibration Count Time : 240.0000
 Efficiency Calibration Date/Time : 4-APR-2006 17:11:53
 Average Efficiency : 0.3932157
 Average Efficiency Error : 1.0781703E-02
 Confidence : 95.00000

| Cal. Istps | DPM | Exp. Date | Start Engy | End Engy | Counts | EFF. | EFF Err | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148 | 219.7800 | 28-FEB-2006 | 2990.104 | 3298.632 | 19831.00 | 0.3870894 | 1.6570982E-02 | 66.57359 |
| NP-237 | 211.8000 | 28-FEB-2006 | 4434.981 | 4906.088 | 20001.00 | 0.3934731 | 1.9869408E-02 | 92.58358 |
| CM-244 | 248.7600 | 28-FEB-2006 | 5531.074 | 5884.261 | 21277.00 | 0.4021365 | 2.0295015E-02 | 73.11333 |

Instrument : CHAMBER 136
 Detector : 45-145L1
 Standard ID : AESS-024
 Standard Reference Date : 7-FEB-2003 00:00:00
 Calibration Analysis Date/Time : 4-APR-2006 12:02:04
 Calibration Count Time : 240.0000
 Efficiency Calibration Date/Time : 4-APR-2006 17:12:12
 Average Efficiency : 0.3798372
 Average Efficiency Error : 1.0422947E-02
 Confidence : 95.00000

| Cal. Istps | DPM | Exp. Date | Start Engy | End Engy | Counts | EFF. | EFF Err | Resolution |
|------------|----------|-------------|------------|----------|----------|-----------|---------------|------------|
| GD-148 | 219.4200 | 28-FEB-2006 | 2988.496 | 3298.473 | 18764.00 | 0.3668631 | 1.5717393E-02 | 63.35145 |
| NP-237 | 211.4400 | 28-FEB-2006 | 4437.582 | 4903.436 | 19751.00 | 0.3892161 | 1.9656880E-02 | 93.25786 |
| CM-244 | 248.4000 | 28-FEB-2006 | 5532.704 | 5884.860 | 20649.00 | 0.3908328 | 1.9730078E-02 | 69.15901 |

General Engineering Laboratories, LLC

2040 Savage Road, Charleston, SC 29414
 (803)556-8171

Gamma Spectrometer Geometry Calibration Package

Detector: GAMMA 6

Geometry: ZL-MB

| | YES | NO | Comments |
|--|-------------------------------------|-------------------------------------|----------|
| 1) Is all calibration standard information enclosed for: the primary standard certificate? the second standard(s) documentation? the nuclide library used? the VMS certificate file? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| | <input type="checkbox"/> | <input type="checkbox"/> | N/A |
| | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2) Is the detector efficiency curve printout included? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| 3) Is the efficiency calibration report included and reviewed? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 4) Is the raw count data included for: the calibration peak report? the calibration verification PEAK report? the calibration verification NID report? the last instrument background? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 5) Are the calibration verification calculations included? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 6) Are the instrument settings included: amp, HVPS, ADC settings? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |

Prepared By: Michael Patten

Date: 12/29/05

Reviewed By: John J. Lavett

Date: 12/29/2005

Effective Date: 12/29/05

General Engineering Laboratories, LLC

2040 Savage Road, Charleston, SC 29414
(803)556-8171

Gamma Spectrometer Front End Electronics Setup

Detector: GAMMA b

Date Performed: 12/27/05

Performed By: Mikhael Pitta

| | |
|---|--|
| <p>High Voltage Power Supply</p> <p>Model No. <u>3106D</u> High Voltage <u>3000V</u></p> | <p>Spectroscopy Amplifier</p> <p>Model No. <u>2026</u> Course Gain <u>100</u> Fine Gain <u>0.577</u> Time Constant <u>6 μsec.</u> Input polarity <u>POSITIVE</u> BSLR rate <u>N/A</u> BSLR mode <u>N/A</u> Threshold <u>N/A</u></p> |
| <p>ADC</p> <p>Model No. <u>8701</u> Gain <u>4000</u></p> | |
| <p>AIM Module</p> <p>Model No. <u>ND556</u> Address <u>NI4DC:1</u></p> | |

Gamma Spectroscopy Calibration VerificationInstrument: Gamma 6Calibration Date: 12/29/2005Geometry: 2L_MBStandard Id: 70528-278

| Isotope | | CALIBRATED ACTIVITY (PCI) | MEASURED ACTIVITY (PCI) | DIFFERENCE % |
|---------|---------|------------------------------|----------------------------|-----------------|
| Pb-210 | | 8.2015E+05 | 8.572E+05 | 4.52 |
| Am-241 | | 6.2561E+04 | 6.197E+04 | -0.94 |
| Cd-109 | | 8.2579E+05 | 7.723E+05 | -6.48 |
| Co-57 | | 1.9081E+04 | 1.907E+04 | -0.06 |
| Ce-139 | | 2.8981E+04 | 3.023E+04 | 4.31 |
| Sn-113 | | 4.8349E+04 | 4.902E+04 | 1.39 |
| Cs-137 | | 2.4325E+04 | 2.423E+04 | -0.39 |
| Y-88 | 1836.06 | 8.6210E+04 | 8.618E+04 | -0.03 |
| Co-60 | 1332.5 | 3.8845E+04 | 3.974E+04 | 2.30 |

Prepared By: *Michael Nations*Date: 12/29/05Reviewed By: *Jh Lanoie*Date: 12/29/2005

Verified:

QA filename : DKA300:[CANBERRA.GAMMA]QC_BKG_GAMMA6.QAF;2

Sample ID : BKG_GAMMA6 Sample quantity : 1.80 LITER
Sample date : 24-DEC-2005 00:00:00 Acquisition date : 24-DEC-2005 19:01:51
Elapsed live time: 0 16:40:00.00 Elapsed real time: 0 16:40:04.45

Out-of-range Test: BOUNDARY

| Parameter Description | Lower | Upper | Value | Flag |
|---------------------------|----------|----------|----------|------|
| BACKGROUND (GROSS COUNTS) | 1.07E+05 | 1.24E+05 | 1.10E+05 | |
| BACKGROUND (CPS) | 1.79 | 2.07 | 1.84 | |

Flags: "*" means the out-of-range test is parameter-dependent

Approved by: SRB Approval Date: 12 / 25 / 05

 * GENERAL ENG. LABS, LLC. *
 * 2040 Savage Road *
 * Charleston, SC 29414 *

Configuration : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]VER_GAMMA6_2LMB.CNF;1
 Sample date : 1-APR-2005 12:00:00. Acquisition date : 29-DEC-2005 05:34:59
 Sample ID : VER_GAMMA6_2LMB Sample quantity : 1.00000E+00 LITER
 Detector name : GAMMA6 Detector geometry: 2L_MB
 Elapsed live time: 0 02:00:00.00 Elapsed real time: 0 02:00:53.92 0.7%
 Energy tolerance : 2.00000 KEV Analyst Initials : MJH1
 Abundance limit : 75.00000 Sensitivity : 3.00000
 Batch ID : Detector SN# : 1922827
 Matrix Spike DPM : LCS DPM :

| Pk | It | Energy | Area | Bkgnd | FWHM | Channel | Left | Pw | Cts/Sec | %Err | Fit |
|----|----|----------|-------|-------|------|---------|------|----|----------|-------|----------|
| 1 | 0 | 46.40* | 17259 | 33023 | 1.02 | 94.07 | 89 | 9 | 2.40E+00 | 2.0 | |
| 2 | 4 | 57.32 | 1924 | 15819 | 1.37 | 115.86 | 114 | 11 | 2.67E-01 | 9.2 | 2.72E+01 |
| 3 | 4 | 59.51 | 42854 | 20590 | 0.95 | 120.23 | 114 | 11 | 5.95E+00 | 0.7 | |
| 4 | 0 | 66.73* | 615 | 25393 | 2.01 | 134.64 | 132 | 7 | 8.55E-02 | 43.0 | |
| 5 | 0 | 70.50 | 587 | 22915 | 1.80 | 142.16 | 140 | 6 | 8.15E-02 | 41.0 | |
| 6 | 0 | 88.01 | 99704 | 37187 | 0.99 | 177.10 | 172 | 11 | 1.38E+01 | 0.5 | |
| 7 | 0 | 122.04 | 51226 | 25234 | 1.01 | 245.03 | 239 | 12 | 7.11E+00 | 0.8 | |
| 8 | 0 | 136.48 | 6598 | 15797 | 1.05 | 273.83 | 270 | 9 | 9.16E-01 | 3.7 | |
| 9 | 0 | 165.87* | 36739 | 19666 | 1.11 | 332.49 | 325 | 13 | 5.10E+00 | 0.9 | |
| 10 | 0 | 255.32 | 970 | 8225 | 1.14 | 511.02 | 508 | 8 | 1.35E-01 | 16.5 | |
| 11 | 0 | 279.23 | 3904 | 7800 | 1.18 | 558.75 | 555 | 9 | 5.42E-01 | 4.4 | |
| 12 | 0 | 341.00 | 156 | 5215 | 1.37 | 682.03 | 679 | 8 | 2.16E-02 | 80.8 | |
| 13 | 0 | 366.83 | 210 | 4201 | 1.61 | 733.60 | 731 | 7 | 2.92E-02 | 51.5 | |
| 14 | 0 | 391.77 | 22191 | 6497 | 1.26 | 783.38 | 778 | 11 | 3.08E+00 | 1.0 | |
| 15 | 0 | 446.46* | 218 | 4180 | 1.84 | 892.55 | 889 | 8 | 3.03E-02 | 51.7 | |
| 16 | 0 | 465.52 | 216 | 4353 | 1.62 | 930.60 | 928 | 8 | 3.00E-02 | 53.3 | |
| 17 | 0 | 510.83* | 157 | 4145 | 1.59 | 1021.05 | 1017 | 9 | 2.19E-02 | 74.7 | |
| 18 | 0 | 603.30 | 34 | 2613 | 0.56 | 1205.65 | 1203 | 7 | 4.72E-03 | 249.9 | |
| 19 | 0 | 661.72* | 50415 | 5892 | 1.48 | 1322.28 | 1314 | 16 | 7.00E+00 | 0.6 | |
| 20 | 0 | 777.51 | 163 | 1908 | 1.25 | 1553.48 | 1551 | 7 | 2.27E-02 | 45.0 | |
| 21 | 0 | 814.25 | 382 | 2683 | 1.44 | 1626.84 | 1622 | 9 | 5.31E-02 | 25.0 | |
| 22 | 0 | 821.51 | 131 | 2062 | 1.46 | 1641.34 | 1639 | 7 | 1.82E-02 | 58.3 | |
| 23 | 0 | 898.08* | 26605 | 5337 | 1.59 | 1794.24 | 1786 | 16 | 3.70E+00 | 0.9 | |
| 24 | 0 | 1086.05 | 76 | 1740 | 1.35 | 2169.62 | 2167 | 7 | 1.06E-02 | 91.8 | |
| 25 | 0 | 1173.20 | 54911 | 2988 | 1.82 | 2343.69 | 2334 | 19 | 7.63E+00 | 0.5 | |
| 26 | 0 | 1183.47 | 61 | 693 | 1.06 | 2364.20 | 2362 | 6 | 8.46E-03 | 69.8 | |
| 27 | 0 | 1325.19* | 145 | 858 | 2.81 | 2647.28 | 2645 | 8 | 2.02E-02 | 36.6 | |
| 28 | 0 | 1332.41 | 50394 | 1355 | 1.91 | 2661.72 | 2652 | 18 | 7.00E+00 | 0.5 | |
| 29 | 0 | 1445.89 | 23 | 376 | 1.40 | 2888.40 | 2884 | 7 | 3.19E-03 | 141.6 | |
| 30 | 0 | 1594.55 | 79 | 466 | 2.05 | 3185.42 | 3182 | 7 | 1.10E-02 | 46.8 | |
| 31 | 0 | 1598.22 | 32 | 421 | 0.87 | 3192.75 | 3188 | 6 | 4.45E-03 | 102.7 | |
| 32 | 0 | 1617.97* | 45 | 204 | 1.42 | 3232.21 | 3230 | 5 | 6.30E-03 | 49.8 | |
| 33 | 0 | 1727.18* | 41 | 113 | 1.95 | 3450.44 | 3447 | 7 | 5.72E-03 | 45.6 | |
| 34 | 0 | 1836.18 | 16739 | 376 | 2.21 | 3668.26 | 3657 | 22 | 2.32E+00 | 0.8 | |
| 35 | 0 | 1877.53 | 39 | 61 | 2.42 | 3750.88 | 3747 | 10 | 5.47E-03 | 40.2 | |
| 36 | 0 | 1973.63 | 47 | 79 | 4.75 | 3942.95 | 3935 | 16 | 6.59E-03 | 44.5 | |
| 37 | 0 | 2000.75 | 22 | 21 | 1.37 | 3997.15 | 3995 | 5 | 3.05E-03 | 38.0 | |
| 38 | 1 | 2024.69 | 64 | 67 | 2.19 | 4045.00 | 4039 | 26 | 8.94E-03 | 25.1 | 4.79E+00 |

Peak Search Report (continued)
Sample ID : VER_GAMMA6_2LMB

Page : 2
Acquisition date : 29-DEC-2005 05:34:59

| Pk | It | Energy | Area | Bkgnd | FWHM | Channel | Left | Pw | Cts/Sec | %Err | Fit |
|----|----|----------|------|-------|------|---------|------|----|----------|------|-----|
| 39 | 1 | 2027.19* | 30 | 73 | 2.19 | 4050.00 | 4039 | 26 | 4.16E-03 | 63.0 | |

Flag: "*" = Peak area was modified by background subtraction

VAX/VMS Nuclide Identification Report Generated

```

*****
*                               General Eng. Labs, LLC.                               *
*                               2040 Savage Road                                       *
*                               Charleston, SC 29414                                   *
*****

```

DETECTOR DATA

```

* Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]VER GAMMA6_2
* Acquisition date   : 29-DEC-2005 05:34:59 Detector SN#    : 1922827
* Detector ID        : GAMMA6                      Sensitivity     : 3.000
* Geometry           : 2L_MB                       Energy tolerance: 2.000
* Elapsed live time  : 0 02:00:00.00              Abundance limit : 75.000
* Elapsed real time  : 0 02:00:53.92              Half life ratio  : 8.000
*****

```

SAMPLE DATA

```

* Sample date       : 1-APR-2005 12:00:00 Nuclide Library : FERMC
* Sample ID         : VER_GAMMA6_2LMB             Analyst initials: MJH1
* Batch Number      :                           Sample Quantity : 1.0000E+00 LITER
* Recovery          : 1.00000                   Carrier Weight   : 0.00000
*****

```

QC DATA

```

* Standard Weight   : 0.00000
* CALIB. DATE/TIME : 29-DEC-2005 05:08:19 MS Isotope      :
* MSD DPM           : *****                      MSD Isotope      :
* LCS DPM           : 0.000                        LCS Isotope      :
* LCSD DPM          : 0.000                        LCSD Isotope     :
*****

```

Combined Activity-MDA Report

---- Identified Nuclides ----

| Nuclide | Activity (pCi/LITER) | Act error | MDA (pCi/LITER) | |
|---------|--------------------------|-----------|---------------------|-----------|
| CO-57 | 1.907E+04 | 2.909E+02 | 1.820E+02 | 0.000E+00 |
| CO-60 | 3.974E+04 | 3.790E+02 | 1.098E+02 | 0.000E+00 |
| Y-88 | 8.618E+04 | 1.426E+03 | 3.030E+02 | 0.000E+00 |
| CD-109 | 7.723E+05 | 7.634E+03 | 4.738E+03 | 0.000E+00 |
| SN-113 | 4.902E+04 | 9.538E+02 | 6.617E+02 | 0.000E+00 |
| CS-137 | 2.423E+04 | 2.716E+02 | 1.211E+02 | 0.000E+00 |
| CE-139 | 3.023E+04 | 5.702E+02 | 3.514E+02 | 0.000E+00 |
| HG-203 | 6.460E+04 | 5.665E+03 | 5.695E+03 | 0.000E+00 |
| PB-210 | 8.572E+05 | 3.512E+04 | 2.870E+04 | 0.000E+00 |
| AM-241 | 6.197E+04 | 8.989E+02 | 8.638E+02 | 0.000E+00 |

---- Non-Identified Nuclides ----

| Nuclide | Key-Line Activity (pCi/LITER) | K.L. Act error) Ided | MDA (pCi/LITER) |
|---------|--------------------------------------|--------------------------|---------------------|
|---------|--------------------------------------|--------------------------|---------------------|


```

*****
*                                     GENERAL ENG. LABS, LLC.                               *
*                                     2040 Savage Road                                   *
*                                     Charleston, SC 29414                             *
*****
Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]VER_GAMMA6_2LMB.CNF;1
Sample date        : 1-APR-2005 12:00:00. Acquisition date : 29-DEC-2005 05:34:59
Sample ID          : VER_GAMMA6_2LMB          Sample quantity : 1.00000E+00 LITER
Detector name     : GAMMA6                   Detector geometry: 2L_MB
Elapsed live time : 0 02:00:00.00           Elapsed real time: 0 02:00:53.92  0.7%
Energy tolerance  : 2.00000 KEV             Analyst Initials  : MJH1
Abundance limit   : 75.00000                Sensitivity       : 3.00000
Batch ID          :                          Detector SN#      : 1922827
Matrix Spike DPM  :                          LCS DPM       :
*****

```

Nuclide Line Activity Report

Nuclide Type:

| Nuclide | Energy | Area | %Abn | %Eff | Uncorrected pCi/LITER | Decay Corr pCi/LITER | 2-Sigma %Error |
|---------|---------|-------|--------|-----------|-----------------------|----------------------|----------------|
| CO-57 | 122.06 | 51226 | 85.51* | 2.359E+00 | 9.534E+03 | 1.907E+04 | 1.53 |
| | 136.47 | 6598 | 10.47 | 2.355E+00 | 1.005E+04 | 2.009E+04 | 7.30 |
| CO-60 | 1173.24 | 54911 | 99.90 | 5.826E-01 | 3.541E+04 | 3.906E+04 | 0.98 |
| | 1332.50 | 50394 | 99.98* | 5.251E-01 | 3.603E+04 | 3.974E+04 | 0.95 |
| Y-88 | 898.04 | 26605 | 93.40 | 7.308E-01 | 1.463E+04 | 8.561E+04 | 1.74 |
| | 1836.06 | 16739 | 99.38* | 4.293E-01 | 1.473E+04 | 8.618E+04 | 1.65 |
| CD-109 | 88.03 | 99704 | 3.79* | 1.923E+00 | 5.134E+05 | 7.723E+05 | 0.99 |
| SN-113 | 391.70 | 22191 | 64.90* | 1.345E+00 | 9.539E+03 | 4.902E+04 | 1.95 |
| CS-137 | 661.66 | 50415 | 85.12* | 9.336E-01 | 2.381E+04 | 2.423E+04 | 1.12 |
| CE-139 | 165.85 | 36739 | 80.35* | 2.231E+00 | 7.693E+03 | 3.023E+04 | 1.89 |
| HG-203 | 70.83 | 587 | 4.75 | 1.263E+00 | 3.674E+03 | 2.093E+05 | 82.05 |
| | 72.87 | ----- | 8.00 | 1.371E+00 | ----- | Line Not Found | ----- |
| | 82.60 | ----- | 3.55 | 1.756E+00 | ----- | Line Not Found | ----- |
| | 279.20 | 3904 | 77.30* | 1.672E+00 | 1.134E+03 | 6.460E+04 | 8.77 |
| PB-210 | 46.50 | 17259 | 4.05* | 1.910E-01 | 8.376E+05 | 8.572E+05 | 4.10 |
| AM-241 | 59.54 | 42854 | 35.90* | 7.239E-01 | 6.190E+04 | 6.197E+04 | 1.45 |

Flag: "*" = Keyline

Total number of lines in spectrum 39
 Number of unidentified lines 25
 Number of lines tentatively identified by NID 14 35.90%

Nuclide Type :

| Nuclide | Hlife | Decay | Uncorrected pCi/LITER | Decay Corr pCi/LITER | Decay Corr 2-Sigma Error | 2-Sigma %Error | Flags |
|------------------|---------|-------|--------------------------|-------------------------|-----------------------------|-------------------|-------|
| CO-57 | 271.74D | 2.00 | 9.534E+03 | 1.907E+04 | 0.029E+04 | 1.53 | |
| CO-60 | 5.27Y | 1.10 | 3.603E+04 | 3.974E+04 | 0.038E+04 | 0.95 | |
| Y-88 | 106.63D | 5.85 | 1.473E+04 | 8.618E+04 | 0.143E+04 | 1.65 | |
| CD-109 | 461.40D | 1.50 | 5.134E+05 | 7.723E+05 | 0.076E+05 | 0.99 | |
| SN-113 | 115.09D | 5.14 | 9.539E+03 | 4.902E+04 | 0.095E+04 | 1.95 | |
| CS-137 | 30.00Y | 1.02 | 2.381E+04 | 2.423E+04 | 0.027E+04 | 1.12 | |
| CE-139 | 137.64D | 3.93 | 7.693E+03 | 3.023E+04 | 0.057E+04 | 1.89 | |
| HG-203 | 46.60D | 57.0 | 1.134E+03 | 6.460E+04 | 0.567E+04 | 8.77 | |
| PB-210 | 22.26Y | 1.02 | 8.376E+05 | 8.572E+05 | 0.351E+05 | 4.10 | |
| AM-241 | 432.20Y | 1.00 | 6.190E+04 | 6.197E+04 | 0.090E+04 | 1.45 | |
| Total Activity : | | | 1.515E+06 | 2.005E+06 | | | |

Grand Total Activity : 1.515E+06 2.005E+06

Flags: "K" = Keyline not found "M" = Manually accepted
 "E" = Manually edited "A" = Nuclide specific abn. limit

| It | Energy | Area | Bkgnd | FWHM | Channel | Left | Pw | Cts/Sec | %Err | %Eff | Flags |
|----|---------|------|-------|------|---------|------|----|----------|------|----------|-------|
| 4 | 57.32 | 1924 | 15819 | 1.37 | 115.86 | 114 | 11 | 2.67E-01 | 18.5 | 6.19E-01 | |
| 0 | 66.73 | 615 | 25393 | 2.01 | 134.64 | 132 | 7 | 8.55E-02 | 86.0 | 1.08E+00 | |
| 0 | 255.32 | 970 | 8225 | 1.14 | 511.02 | 508 | 8 | 1.35E-01 | 33.0 | 1.77E+00 | |
| 0 | 341.00 | 156 | 5215 | 1.37 | 682.03 | 679 | 8 | 2.16E-02 | **** | 1.47E+00 | |
| 0 | 366.83 | 210 | 4201 | 1.61 | 733.60 | 731 | 7 | 2.92E-02 | **** | 1.40E+00 | |
| 0 | 446.46 | 218 | 4180 | 1.84 | 892.55 | 889 | 8 | 3.03E-02 | **** | 1.23E+00 | |
| 0 | 465.52 | 216 | 4353 | 1.62 | 930.60 | 928 | 8 | 3.00E-02 | **** | 1.20E+00 | |
| 0 | 510.83 | 157 | 4145 | 1.59 | 1021.05 | 1017 | 9 | 2.19E-02 | **** | 1.13E+00 | |
| 0 | 603.30 | 34 | 2613 | 0.56 | 1205.65 | 1203 | 7 | 4.72E-03 | **** | 1.00E+00 | |
| 0 | 777.51 | 163 | 1908 | 1.25 | 1553.48 | 1551 | 7 | 2.27E-02 | 90.0 | 8.23E-01 | |
| 0 | 814.25 | 382 | 2683 | 1.44 | 1626.84 | 1622 | 9 | 5.31E-02 | 50.0 | 7.93E-01 | |
| 0 | 821.51 | 131 | 2062 | 1.46 | 1641.34 | 1639 | 7 | 1.82E-02 | **** | 7.87E-01 | |
| 0 | 1086.05 | 76 | 1740 | 1.35 | 2169.62 | 2167 | 7 | 1.06E-02 | **** | 6.22E-01 | |
| 0 | 1183.47 | 61 | 693 | 1.06 | 2364.20 | 2362 | 6 | 8.46E-03 | **** | 5.78E-01 | |
| 0 | 1325.19 | 145 | 858 | 2.81 | 2647.28 | 2645 | 8 | 2.02E-02 | 73.3 | 5.27E-01 | |
| 0 | 1445.89 | 23 | 376 | 1.40 | 2888.40 | 2884 | 7 | 3.19E-03 | **** | 4.93E-01 | |
| 0 | 1594.55 | 79 | 466 | 2.05 | 3185.42 | 3182 | 7 | 1.10E-02 | 93.5 | 4.62E-01 | |
| 0 | 1598.22 | 32 | 421 | 0.87 | 3192.75 | 3188 | 6 | 4.45E-03 | **** | 4.61E-01 | |
| 0 | 1617.97 | 45 | 204 | 1.42 | 3232.21 | 3230 | 5 | 6.30E-03 | 99.6 | 4.58E-01 | |
| 0 | 1727.18 | 41 | 113 | 1.95 | 3450.44 | 3447 | 7 | 5.72E-03 | 91.2 | 4.41E-01 | |
| 0 | 1877.53 | 39 | 61 | 2.42 | 3750.88 | 3747 | 10 | 5.47E-03 | 80.4 | 4.26E-01 | |
| 0 | 1973.63 | 47 | 79 | 4.75 | 3942.95 | 3935 | 16 | 6.59E-03 | 89.1 | 4.20E-01 | |
| 0 | 2000.75 | 22 | 21 | 1.37 | 3997.15 | 3995 | 5 | 3.05E-03 | 75.9 | 4.18E-01 | |
| 1 | 2024.69 | 64 | 67 | 2.19 | 4045.00 | 4039 | 26 | 8.94E-03 | 50.3 | 4.17E-01 | |
| 1 | 2027.19 | 30 | 73 | 2.19 | 4050.00 | 4039 | 26 | 4.16E-03 | **** | 4.17E-01 | |

Flags: "T" = Tentatively associated

```
*****
*                                     GENERAL ENG. LABS, LLC.                               *
*                                     2040 Savage Road                                   *
*                                     Charleston, SC 29414                             *
*****
```

DETECTOR DATA

```
* Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]VER_GAMMA6_2LMB.CNF;1*
* Acquisition date   : 29-DEC-2005 05:34:59  Detector SN#      : 1922827
* Detector ID        : GAMMA6                  Sensitivity         : 3.00000
* Geometry           : 2L_MB                   Energy tolerance    : 2.00000
* Elapsed live time  : 0 02:00:00.00           Abundance limit    : 75.00000
* Elapsed real time  : 0 02:00:53.92           Half life ratio    : 8.00000
*****
```

SAMPLE DATA

```
* Sample date       : 1-APR-2005 12:00:00.  Nuclide Library   : CAL
* Sample ID         : VER_GAMMA6_2LMB        Analyst initials  : MJH1
* Batch Number      :                        Sample Quantity  : 1.00000E+00 LITER
*****
```

QC DATA

```
* CALIB. DATE/TIME : 29-DEC-2005 05:08:19.2MS Isotope      :
* MSD DPM           :                          MSD Isotope   :
* LCS DPM           :                          LCS Isotope   :
*****
```

Combined Activity-MDA Report

---- Identified Nuclides ----

| Nuclide | Activity (pCi/LITER) | Act error | MDA (pCi/LITER) | MDA error | Act/MDA |
|---------|-------------------------|-----------|--------------------|-----------|---------|
| CO-57 | 1.907E+04 | 2.909E+02 | 1.820E+02 | 0.000E+00 | 104.758 |
| CO-60 | 3.974E+04 | 3.790E+02 | 1.098E+02 | 0.000E+00 | 361.821 |
| Y-88 | 8.618E+04 | 1.426E+03 | 3.030E+02 | 0.000E+00 | 284.472 |
| CD-109 | 7.723E+05 | 7.634E+03 | 4.738E+03 | 0.000E+00 | 163.003 |
| SN-113 | 4.902E+04 | 9.538E+02 | 6.617E+02 | 0.000E+00 | 74.080 |
| CS-137 | 2.423E+04 | 2.716E+02 | 1.211E+02 | 0.000E+00 | 200.130 |
| CE-139 | 3.023E+04 | 5.702E+02 | 3.514E+02 | 0.000E+00 | 86.044 |
| HG-203 | 6.460E+04 | 5.665E+03 | 5.695E+03 | 0.000E+00 | 11.342 |
| PB-210 | 8.572E+05 | 3.512E+04 | 2.870E+04 | 0.000E+00 | 29.864 |
| AM-241 | 6.197E+04 | 8.989E+02 | 8.638E+02 | 0.000E+00 | 71.739 |

 * GENERAL ENG. LABS, LLC. *
 * 2040 Savage Road *
 * Charleston, SC 29414 *

Configuration : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]CAL_GAMMA6_2L_MB.CNF;3
 Sample date : 1-APR-2005 12:00:00. Acquisition date : 28-DEC-2005 16:02:00
 Sample ID : CAL_GAMMA6_2L_MB Sample quantity : 1.00000E+00 LITER
 Detector name : GAMMA6 Detector geometry: 2L_MB
 Elapsed live time: 0 08:00:00.00 Elapsed real time: 0 08:03:35.88 0.7%
 Energy tolerance : 2.00000 KEV Analyst Initials : MJH1
 Abundance limit : 75.00000 Sensitivity : 3.00000
 Batch ID : Detector SN# : 1922827
 Matrix Spike DPM : LCS DPM :

| Pk | It | Energy | Area | Bkgnd | FWHM | Channel | Left | Pw | Cts/Sec | %Err | Fit |
|----|----|----------|--------|--------|------|---------|------|----|----------|-------|----------|
| 1 | 0 | 46.38* | 65073 | 152559 | 1.04 | 94.03 | 88 | 10 | 2.26E+00 | 1.2 | |
| 2 | 2 | 55.89* | 6858 | 78352 | 0.93 | 113.00 | 99 | 26 | 2.38E-01 | 6.7 | 4.54E+02 |
| 3 | 2 | 59.53 | 183650 | 73569 | 1.07 | 120.28 | 99 | 26 | 6.38E+00 | 0.3 | |
| 4 | 10 | 68.68* | 6559 | 156832 | 2.48 | 138.53 | 133 | 19 | 2.28E-01 | 11.9 | 1.51E+01 |
| 5 | 10 | 72.49 | 2085 | 147084 | 1.71 | 146.13 | 133 | 19 | 7.24E-02 | 34.4 | |
| 6 | 10 | 81.50 | 11427 | 211154 | 2.54 | 164.12 | 156 | 27 | 3.97E-01 | 8.5 | 3.30E+02 |
| 7 | 10 | 84.38* | 28152 | 161612 | 1.92 | 169.87 | 156 | 27 | 9.78E-01 | 2.9 | |
| 8 | 10 | 88.07 | 411454 | 68944 | 1.04 | 177.22 | 156 | 27 | 1.43E+01 | 0.2 | |
| 9 | 7 | 120.52* | 4535 | 74408 | 2.04 | 241.98 | 238 | 13 | 1.57E-01 | 13.0 | 2.50E+00 |
| 10 | 7 | 122.12 | 197963 | 51209 | 1.00 | 245.17 | 238 | 13 | 6.87E+00 | 0.3 | |
| 11 | 0 | 136.51 | 26079 | 63217 | 1.02 | 273.90 | 270 | 9 | 9.06E-01 | 1.8 | |
| 12 | 0 | 165.92* | 145537 | 72180 | 1.11 | 332.59 | 327 | 12 | 5.05E+00 | 0.5 | |
| 13 | 0 | 187.98* | 484 | 31182 | 1.96 | 376.62 | 374 | 6 | 1.68E-02 | 58.1 | |
| 14 | 0 | 255.15 | 4015 | 32963 | 1.16 | 510.69 | 507 | 8 | 1.39E-01 | 8.0 | |
| 15 | 0 | 279.27 | 16778 | 34760 | 1.18 | 558.81 | 554 | 10 | 5.83E-01 | 2.2 | |
| 16 | 0 | 310.76 | 444 | 17697 | 1.49 | 621.68 | 619 | 6 | 1.54E-02 | 47.6 | |
| 17 | 0 | 391.76 | 88976 | 30447 | 1.26 | 783.36 | 777 | 13 | 3.09E+00 | 0.5 | |
| 18 | 0 | 398.67* | 150 | 17944 | 1.23 | 797.16 | 794 | 8 | 5.20E-03 | 155.5 | |
| 19 | 0 | 443.59 | 299 | 17663 | 1.93 | 886.82 | 885 | 8 | 1.04E-02 | 77.1 | |
| 20 | 0 | 491.34 | 113 | 12841 | 0.83 | 982.13 | 979 | 7 | 3.92E-03 | 167.0 | |
| 21 | 0 | 510.92* | 1995 | 21126 | 1.97 | 1021.22 | 1016 | 12 | 6.93E-02 | 14.9 | |
| 22 | 5 | 657.01 | 1426 | 13443 | 2.48 | 1312.87 | 1308 | 21 | 4.95E-02 | 14.7 | 2.06E+01 |
| 23 | 5 | 661.66* | 200294 | 13106 | 1.46 | 1322.17 | 1308 | 21 | 6.95E+00 | 0.2 | |
| 24 | 0 | 743.72 | 257 | 8163 | 1.19 | 1486.02 | 1484 | 7 | 8.93E-03 | 58.6 | |
| 25 | 0 | 764.62* | 135 | 6916 | 0.90 | 1527.73 | 1525 | 6 | 4.70E-03 | 97.8 | |
| 26 | 0 | 813.98 | 1335 | 10911 | 1.36 | 1626.30 | 1622 | 9 | 4.64E-02 | 14.4 | |
| 27 | 0 | 822.79 | 308 | 9724 | 0.70 | 1643.89 | 1641 | 8 | 1.07E-02 | 56.0 | |
| 28 | 0 | 875.78 | 178 | 6299 | 0.82 | 1749.69 | 1748 | 5 | 6.20E-03 | 67.1 | |
| 29 | 0 | 897.95* | 105971 | 24434 | 1.61 | 1793.98 | 1785 | 18 | 3.68E+00 | 0.5 | |
| 30 | 0 | 1173.02 | 220671 | 11794 | 1.86 | 2343.34 | 2334 | 19 | 7.66E+00 | 0.2 | |
| 31 | 0 | 1204.15 | 82 | 3135 | 0.60 | 2405.50 | 2402 | 8 | 2.85E-03 | 118.8 | |
| 32 | 0 | 1230.90* | 60 | 2565 | 0.70 | 2458.94 | 2457 | 8 | 2.08E-03 | 147.3 | |
| 33 | 4 | 1324.88* | 2057 | 4244 | 2.78 | 2646.67 | 2639 | 31 | 7.14E-02 | 7.2 | 3.30E+01 |
| 34 | 4 | 1332.21 | 200753 | 3198 | 1.97 | 2661.31 | 2639 | 31 | 6.97E+00 | 0.2 | |
| 35 | 0 | 1391.50 | 154 | 1759 | 2.44 | 2779.76 | 2776 | 9 | 5.34E-03 | 49.7 | |
| 36 | 0 | 1608.53 | 110 | 2313 | 0.59 | 3213.36 | 3211 | 9 | 3.83E-03 | 79.4 | |
| 37 | 0 | 1645.52 | 96 | 1410 | 1.20 | 3287.26 | 3284 | 9 | 3.33E-03 | 71.3 | |
| 38 | 0 | 1650.94* | 79 | 1444 | 1.32 | 3298.09 | 3295 | 9 | 2.76E-03 | 87.1 | |

| Pk | It | Energy | Area | Bkgnd | FWHM | Channel | Left | Pw | Cts/Sec | %Err | Fit |
|----|----|---------|-------|-------|------|---------|------|----|----------|------|----------|
| 39 | 0 | 1742.50 | 51 | 430 | 0.98 | 3481.04 | 3478 | 6 | 1.78E-03 | 65.4 | |
| 40 | 2 | 1789.53 | 88 | 473 | 1.77 | 3575.03 | 3571 | 15 | 3.06E-03 | 45.6 | 1.25E+00 |
| 41 | 2 | 1792.94 | 87 | 409 | 1.70 | 3581.85 | 3571 | 15 | 3.03E-03 | 41.3 | |
| 42 | 0 | 1835.87 | 66461 | 1581 | 2.27 | 3667.64 | 3657 | 22 | 2.31E+00 | 0.4 | |
| 43 | 0 | 1921.94 | 33 | 275 | 1.72 | 3839.65 | 3835 | 9 | 1.15E-03 | 92.3 | |

Flag: "*" = Peak area was modified by background subtraction

Configuration : MCA0:[GAMMA]GAMMA6\$1
 Analyses by : CALIBRATE V1.7,PEAK V16.4
 Detector Name : GAMMA6 Energy Calib Time: 28-DEC-2005 15:47:34
 Efficiency type : Empirical Effncy Calib Time: 29-DEC-2005 05:08:19
 Detector Geometry: GAMMA6 Shelf :

Energy Calibration Report

$$\text{Energy} = -0.7387 + 0.5011 \cdot \text{Channel} + -9.9579\text{E-}08 \cdot (\text{Channel}^2)$$

| Nbr | Centroid Channel | True Energy | Computed Energy | Difference |
|-----|------------------|-------------|-----------------|------------|
| 1 | 94.29 | 46.50 | 46.51 | -0.012 |
| 2 | 120.03 | 59.54 | 59.41 | 0.126 |
| 3 | 177.11 | 88.03 | 88.01 | 0.019 |
| 4 | 245.08 | 122.06 | 122.07 | -0.009 |
| 5 | 332.57 | 165.85 | 165.91 | -0.056 |
| 6 | 783.42 | 391.70 | 391.79 | -0.089 |
| 7 | 1322.31 | 661.66 | 661.73 | -0.070 |
| 8 | 1794.17 | 898.04 | 898.05 | -0.007 |
| 9 | 2343.66 | 1173.24 | 1173.18 | 0.056 |
| 10 | 2661.69 | 1332.50 | 1332.40 | 0.103 |
| 11 | 3668.14 | 1836.06 | 1836.12 | -0.062 |

FWHM Calibration Report

$$\text{FWHM} = 0.6805 + 3.3519\text{E-}02 \cdot (\text{Energy}^{1/2})$$

| Nbr | Energy | True FWHM | Computed FWHM | Difference |
|-----|---------|-----------|---------------|------------|
| 1 | 46.50 | 0.93 | 0.91 | 0.023 |
| 2 | 59.54 | 1.04 | 0.94 | 0.096 |
| 3 | 88.03 | 1.00 | 0.99 | 0.008 |
| 4 | 122.06 | 1.02 | 1.05 | -0.031 |
| 5 | 165.85 | 1.12 | 1.11 | 0.006 |
| 6 | 391.70 | 1.28 | 1.34 | -0.064 |
| 7 | 661.66 | 1.44 | 1.54 | -0.104 |
| 8 | 898.04 | 1.65 | 1.68 | -0.037 |
| 9 | 1173.24 | 1.81 | 1.83 | -0.020 |
| 10 | 1332.50 | 1.94 | 1.90 | 0.035 |
| 11 | 1836.06 | 2.20 | 2.12 | 0.087 |

Efficiency Calibration Report

$$\text{Eff} = \exp(a_2 + a_3 \cdot x + a_4 \cdot x^2 + a_5 \cdot x^3 + a_6 \cdot x^4 + a_7 \cdot x^5), \quad x = \ln(a_1 / \text{energy})$$

a1 a2 a3 a4 a5 a6 a7
 941.3 -4.958 0.8460 -6.6067E-02 -0.1874 0.1945 -5.7096E-02

Average Deviation = 2.69 % Reduced Chi-Square = 2.29

| Nbr | Energy (KEV) | Measured Efficiency | Efficiency Error | Computed Efficiency | Diff/ Error | % Diff |
|-----|--------------|---------------------|------------------|---------------------|-------------|--------|
|-----|--------------|---------------------|------------------|---------------------|-------------|--------|

| | | | | | | |
|---|-------|----------|----------|----------|-------|-------|
| 1 | 46.50 | 1.88E-03 | 6.07E-05 | 1.94E-03 | -0.90 | -2.89 |
|---|-------|----------|----------|----------|-------|-------|

| Nbr | Energy (KEV) | Measured Efficiency | Efficiency Error | Computed Efficiency | Diff/ /Error | % Diff |
|-----|--------------|---------------------|------------------|---------------------|--------------|--------|
| 2 | 59.54 | 7.68E-03 | 2.32E-04 | 7.25E-03 | 1.85 | 5.60 |
| 3 | 88.03 | 1.85E-02 | 6.12E-04 | 1.92E-02 | -1.16 | -3.85 |
| 4 | 122.06 | 2.27E-02 | 6.86E-04 | 2.36E-02 | -1.23 | -3.70 |
| 5 | 165.85 | 2.30E-02 | 6.53E-04 | 2.23E-02 | 1.08 | 3.06 |
| 6 | 391.70 | 1.36E-02 | 3.62E-04 | 1.35E-02 | 0.50 | 1.32 |
| 7 | 661.66 | 9.23E-03 | 2.78E-04 | 9.34E-03 | -0.36 | -1.10 |
| 8 | 898.04 | 7.08E-03 | 1.87E-04 | 7.31E-03 | -1.23 | -3.25 |
| 9 | 1173.24 | 5.94E-03 | 1.61E-04 | 5.83E-03 | 0.72 | 1.94 |
| 10 | 1332.50 | 5.35E-03 | 1.40E-04 | 5.25E-03 | 0.70 | 1.83 |
| 11 | 1836.06 | 4.25E-03 | 1.12E-04 | 4.29E-03 | -0.38 | -1.01 |

Approved by: *michefritter*

Approval Date: 12 / 29 / 05

```

Library Title      :
Library file name  : DKA300:[CANBERRA.GAMMA]CAL.NLB;1
Date printed       : 6-DEC-2004 10:31:17.67
Number of nuclides : 10
Number of lines    : 17

```

| Nuclide Name | Half-Life | Nuclide Type | Key Line | Energy | Abundance |
|--------------|-----------|--------------|----------|-------------|-----------|
| CO-57 | 271.74D | | * | 122.06 keV | 85.51 % |
| | | | | 136.47 keV | 10.47 % |
| CO-60 | 5.27Y | | * | 1173.24 keV | 99.90 % |
| | | | | 1332.50 keV | 99.98 % |
| Y-88 | 106.63D | | * | 898.04 keV | 93.40 % |
| | | | | 1836.06 keV | 99.38 % |
| CD-109 | 461.40D | | * | 88.03 keV | 3.79 % |
| SN-113 | 115.09D | | * | 391.70 keV | 64.90 % |
| CS-137 | 30.00Y | | * | 661.66 keV | 85.12 % |
| CE-139 | 137.64D | | * | 165.85 keV | 80.35 % |
| HG-203 | 46.60D | | | 70.83 keV | 4.75 % |
| | | | | 72.87 keV | 8.00 % |
| | | | | 82.60 keV | 3.55 % |
| | | | | 279.20 keV | 77.30 % |
| PB-210 | 22.26Y | | * | 46.50 keV | 4.05 % |
| AM-241 | 432.20Y | | * | 59.54 keV | 35.90 % |

Print Time : 14-JUN-2005 17:33:53.22
 Certificate file name : DKA300:[CANBERRA.GAMMA]70528-278.CER;1
 Certificate title : 2L_MB
 Certificate date : 1-APR-2005 12:00:00.00
 Certificate quantity : 1.00000E+00

| Rcd | Nuclide | Halflife | CAL/ INIT | Energy | Rate | %Abun | Activity (uCi) |
|-----|---------|----------|--------------|---------|------------|-------|-------------------|
| 1 | AM-241 | 432.20Y | Yes | 59.54 | 8.3100E+02 | 35.90 | 6.2561E-02 |
| 2 | CD-109 | 462.60D | No | 88.03 | 1.1580E+03 | 3.79 | 8.2579E-01 |
| 3 | Co-57 | 271.79D | No | 122.06 | 6.0370E+02 | 85.51 | 1.9081E-02 |
| 4 | CE-139 | 137.60D | No | 165.85 | 8.6160E+02 | 80.35 | 2.8981E-02 |
| 5 | SN-113 | 115.10D | No | 391.70 | 1.1610E+03 | 64.90 | 4.8349E-02 |
| 6 | CS-137 | 30.07Y | Yes | 661.66 | 7.6610E+02 | 85.12 | 2.4325E-02 |
| 7 | Y-88 | 106.60D | No | 898.04 | 3.0350E+03 | 93.40 | 8.7823E-02 |
| 8 | Y-88 | 106.60D | Yes | 1836.06 | 3.1700E+03 | 99.38 | 8.6210E-02 |
| 9 | CO-60 | 5.27Y | Yes | 1173.24 | 1.4220E+03 | 99.90 | 3.8471E-02 |
| 10 | CO-60 | 5.27Y | No | 1332.50 | 1.4370E+03 | 99.98 | 3.8845E-02 |
| 11 | PB-210 | 22.30Y | No | 46.50 | 1.2290E+03 | 4.05 | 8.2015E-01 |



CERTIFICATE OF CALIBRATION
Standard Radionuclide Source

70528-278

2.0 Liter Solid in 230G GA-MA Beaker

This standard radionuclide source was prepared using aliquots measured gravimetrically from master radionuclide solution sources. The Am-241 and Pb-210 were calibrated by 4 pi alpha liquid scintillation counting. All other radionuclides were calibrated using a germanium gamma spectrometer system. Calibration and purity were checked using a germanium gamma spectrometer system. At the time of calibration no interfering gamma-ray emitting impurities were detected. The gamma ray emission rates for the most intense gamma-ray lines are given. Analytics maintains traceability to the National Institute of Standards and Technology through a Measurements Assurance Program as described in US NRC Regulatory Guide 4.15, Revision 1, February 1979.

US Patent 4,430,258; UK Patent GB2,149,194B; CA Patent 1,196,776.
Density of solid matrix 1.15 g/cc.

Calibration Date: April 1, 2005 12:00 EST

| ISOTOPE | GAMMA ENERGY | HALF-LIFE | | GAMMA-RAYS PER SECOND | TOTAL UNCERTAINTY % |
|---------|--------------|-----------|---|-----------------------|---------------------|
| Pb-210 | 46.5 | 22.3 | y | 1229 | 3.0 |
| Am-241 | 59.5 | 432.2 | y | 831.0 | 3.0 |
| Cd-109 | 88 | 462.6 | d | 1158 | 3.3 |
| Co-57 | 122 | 271.79 | d | 603.7 | 3.0 |
| Ce-139 | 166 | 137.6 | d | 861.6 | 2.8 |
| Hg-203 | 279 | 46.61 | d | 1864 | 2.7 |
| Sn-113 | 392 | 115.1 | d | 1161 | 2.6 |
| Cs-137 | 662 | 30.07 | y | 766.1 | 3.0 |
| Y-88 | 898 | 106.6 | d | 3035 | 2.6 |
| Co-60 | 1173 | 5.271 | y | 1422 | 2.7 |
| Co-60 | 1332 | 5.271 | y | 1437 | 2.6 |
| Y-88 | 1836 | 106.6 | d | 3170 | 2.6 |

P O NUMBER 2832RD, Item 1

SOURCE PREPARED BY: M. Dimitrova
M. Dimitrova, Radiochemist

Q A APPROVED: M. M. [Signature] 5-12-05

This standard will expire one year after the calibration date.

General Engineering Laboratories, LLC

2040 Savage Road, Charleston, SC 29414
(843)556-8171

Gamma Spectrometer Geometry Calibration Package

Detector: GAMMA 19

Geometry: 2L-MB

| | YES | NO | Comments |
|--|-------------------------------------|--------------------------|----------|
| 1) Is all calibration standard information enclosed for: the primary standard certificate? the second standard(s) documentation? the nuclide library used? the VMS certificate file? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2) Is the detector efficiency curve printout included? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 3) Is the efficiency calibration report included and reviewed? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 4) Is the raw count data included for: the calibration peak report? the calibration verification PEAK report? the calibration verification NID report? the last instrument background? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 5) Are the calibration verification calculations included? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 6) Are the instrument settings included: amp, HVPS, ADC settings? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |

Prepared By: [Signature]

Date: 2/21/06

Reviewed By: [Signature]

Date: 3/23/06

Effective Date: 2/20/05 06
3/23/06



CERTIFICATE OF CALIBRATION
Standard Radionuclide Source

70528-278

2.0 Liter Solid in 230G GA-MA Beaker

This standard radionuclide source was prepared using aliquots measured gravimetrically from master radionuclide solution sources. The Am-241 and Pb-210 were calibrated by 4 pi alpha liquid scintillation counting. All other radionuclides were calibrated using a germanium gamma spectrometer system. Calibration and purity were checked using a germanium gamma spectrometer system. At the time of calibration no interfering gamma-ray emitting impurities were detected. The gamma ray emission rates for the most intense gamma-ray lines are given. Analytical maintains traceability to the National Institute of Standards and Technology through a Measurements Assurance Program as described in US NRC Regulatory Guide 4.15, Revision 1, February 1979.

US Patent 4,430,258; UK Patent GB2,149,194B; CA Patent 1,196,776.
Density of solid matrix 1.15 g/cc.

Calibration Date: April 1, 2005 12:00 EST

| ISOTOPE | GAMMA ENERGY | HALF-LIFE | | GAMMA-RAYS PER SECOND | TOTAL UNCERTAINTY % |
|---------|--------------|-----------|---|-----------------------|---------------------|
| Pb-210 | 46.5 | 22.3 | y | 1229 | 3.0 |
| Am-241 | 59.5 | 432.2 | y | 831.0 | 3.0 |
| Cd-109 | 88 | 462.6 | d | 1158 | 3.3 |
| Co-57 | 122 | 271.79 | d | 603.7 | 3.0 |
| Ce-139 | 166 | 137.6 | d | 861.6 | 2.8 |
| Hg-203 | 279 | 46.61 | d | 1864 | 2.7 |
| Sn-113 | 392 | 115.1 | d | 1161 | 2.6 |
| Cs-137 | 662 | 30.07 | y | 766.1 | 3.0 |
| Y-88 | 898 | 106.6 | d | 3035 | 2.6 |
| Co-60 | 1173 | 5.271 | y | 1422 | 2.7 |
| Co-60 | 1332 | 5.271 | y | 1437 | 2.6 |
| Y-88 | 1836 | 106.6 | d | 3170 | 2.6 |

P O NUMBER 2832RD, Item 1

SOURCE PREPARED BY: M. Dimitrova
M. Dimitrova, Radiochemist

Q A APPROVED: LM. M. J. 5-12-05

This standard will expire one year after the calibration date.

Handwritten signature and date: 12/10/06

Title: Mixed Gamma + Am-241 & Pb-210

| Nuclide Name | Nuclide Type | Half Life | Key Line? | No Wtmean? | Energy (keV) | %Abn |
|--------------|--------------|-----------|-----------|------------|--------------|-------|
| CO-57 | | 271.74D | * | | 122.06 | 85.51 |
| | | | | | 136.47 | 10.47 |
| CO-60 | | 5.27Y | * | | 1173.24 | 99.90 |
| | | | | | 1332.50 | 99.98 |
| Y-88 | | 106.63D | * | | 898.04 | 93.40 |
| | | | | | 1836.06 | 99.38 |
| CD-109 | | 461.40D | * | | 88.03 | 3.79 |
| SN-113 | | 115.09D | * | | 391.70 | 64.90 |
| CS-137 | | 30.00Y | * | | 661.66 | 85.12 |
| CE-139 | | 137.64D | * | | 165.85 | 80.35 |
| HG-203 | | 46.60D | | | 70.83 | 4.75 |
| | | | | | 72.87 | 8.00 |
| | | | | | 82.60 | 3.55 |
| PB-210 | | 22.26Y | * | | 279.20 | 77.30 |
| | | | | | 46.50 | 4.05 |
| AM-241 | | 432.20Y | * | | 59.54 | 35.90 |
| | | | | | 0.00 | 0.00 |

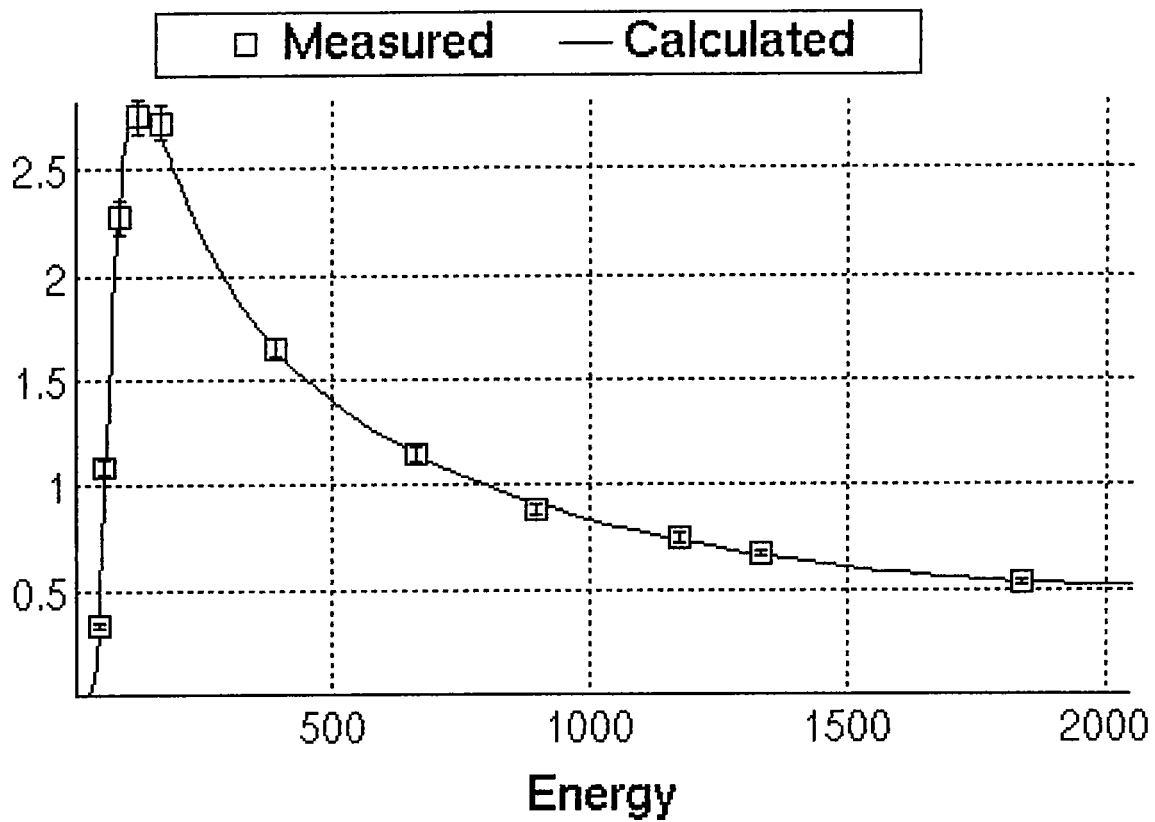
Handwritten signature

Title: 2L_MB
Quantity: 1.00

Assay date: 1-APR-2005 12:00:00.0

| Nuclide Name | Half Life | Energy (keV) | Rate | % Err | % Abn | CAL/INIT |
|-----------------|--------------|-----------------|------|-------|-------|----------|
| AM-241 | 432.20Y | 59.5 | 831 | 3.00 | 35.9 | Yes |
| CD-109 | 462.60D | 88.0 | 1158 | 3.30 | 3.8 | No |
| Co-57 | 271.79D | 122.1 | 604 | 3.00 | 85.5 | No |
| CE-139 | 137.60D | 165.9 | 862 | 2.80 | 80.3 | No |
| SN-113 | 115.10D | 391.7 | 1161 | 2.60 | 64.9 | No |
| CS-137 | 30.07Y | 661.7 | 766 | 3.00 | 85.1 | Yes |
| Y-88 | 106.60D | 898.0 | 3035 | 2.60 | 93.4 | No |
| Y-88 | 106.60D | 1836.1 | 3170 | 2.60 | 99.4 | Yes |
| CO-60 | 5.27Y | 1173.2 | 1422 | 2.70 | 99.9 | Yes |
| CO-60 | 5.27Y | 1332.5 | 1437 | 2.60 | 100.0 | No |
| PB-210 | 22.30Y | 46.5 | 1229 | 3.00 | 4.1 | No |

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Datasource: DKA0: [CANBERRA.GAMMA.SCUSR.ARCHIVE] CAL_GAM19_2LMB_36.CNF;1
 $\ln(Eff) = -4.739e+00 + 8.129e-01X + -5.933e-02X^2 + -1.512e-01X^3$
 $+ 1.529e-01X^4 + -4.565e-02X^5$
 where: $X = \ln(9.413e+02/E \text{ [keV]})$; [CHISQ = 1.288e+00]

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22/04

$$\text{Energy} = 0.1048 + 0.5006 * \text{Channel} + -9.3161\text{E-}08 * (\text{Channel} ** 2)$$

| Nbr | Centroid Channel | True Energy | Computed Energy | Difference |
|-----|------------------|-------------|-----------------|------------|
| 1 | 92.90 | 46.50 | 46.61 | -0.112 |
| 2 | 118.77 | 59.54 | 59.56 | -0.026 |
| 3 | 175.71 | 88.03 | 88.07 | -0.032 |
| 4 | 243.60 | 122.06 | 122.05 | 0.011 |
| 5 | 331.05 | 165.85 | 165.82 | 0.029 |
| 6 | 781.92 | 391.70 | 391.48 | 0.217 |
| 7 | 1321.69 | 661.66 | 661.60 | 0.065 |
| 8 | 1794.43 | 898.04 | 898.12 | -0.077 |
| 9 | 2344.55 | 1173.24 | 1173.30 | -0.063 |
| 10 | 2663.01 | 1332.50 | 1332.58 | -0.078 |
| 11 | 3669.79 | 1836.06 | 1836.00 | 0.067 |

FWHM Calibration Report

$$\text{FWHM} = 1.116 + 2.5220\text{E-}02 * (\text{Energy} ** 1/2)$$

| Nbr | Energy | True FWHM | Computed FWHM | Difference |
|-----|---------|-----------|---------------|------------|
| 1 | 46.50 | 1.30 | 1.29 | 0.007 |
| 2 | 59.54 | 1.38 | 1.31 | 0.071 |
| 3 | 88.03 | 1.38 | 1.35 | 0.027 |
| 4 | 122.06 | 1.37 | 1.40 | -0.023 |
| 5 | 165.85 | 1.43 | 1.44 | -0.008 |
| 6 | 391.70 | 1.55 | 1.62 | -0.066 |
| 7 | 661.66 | 1.70 | 1.77 | -0.066 |
| 8 | 898.04 | 1.85 | 1.87 | -0.025 |
| 9 | 1173.24 | 1.98 | 1.98 | 0.000 |
| 10 | 1332.50 | 2.09 | 2.04 | 0.048 |
| 11 | 1836.06 | 2.23 | 2.20 | 0.035 |

*mgk
2/23/06*

$$\text{Eff} = \exp(a2 + a3*x + a4*x**2 + a5*x**3 + a6*x**4 + a7*x**5), \quad x=\ln(a1/\text{energy})$$

| | | | | | | |
|-------|--------|--------|-------------|---------|--------|-------------|
| a1 | a2 | a3 | a4 | a5 | a6 | a7 |
| 941.3 | -4.739 | 0.8129 | -5.9331E-02 | -0.1512 | 0.1529 | -4.5650E-02 |

Average Deviation = 1.98 % Reduced Chi-Square = 1.29

| Nbr | Energy (keV) | Measured Efficiency | Efficiency Error | Computed Efficiency | Diff/ Error | % Diff |
|-----|--------------|---------------------|------------------|---------------------|-------------|--------|
| 1 | 46.50 | 3.37E-03 | 1.14E-04 | 3.44E-03 | -0.68 | -2.29 |
| 2 | 59.54 | 1.08E-02 | 3.37E-04 | 1.04E-02 | 1.42 | 4.40 |
| 3 | 88.03 | 2.28E-02 | 7.60E-04 | 2.36E-02 | -1.06 | -3.54 |
| 4 | 122.06 | 2.74E-02 | 8.58E-04 | 2.80E-02 | -0.63 | -1.98 |
| 5 | 165.85 | 2.71E-02 | 8.13E-04 | 2.65E-02 | 0.73 | 2.20 |
| 6 | 391.70 | 1.66E-02 | 4.72E-04 | 1.65E-02 | 0.26 | 0.74 |
| 7 | 661.66 | 1.15E-02 | 3.50E-04 | 1.15E-02 | 0.00 | -0.01 |
| 8 | 898.04 | 8.82E-03 | 2.46E-04 | 9.09E-03 | -1.10 | -3.07 |
| 9 | 1173.24 | 7.42E-03 | 2.03E-04 | 7.31E-03 | 0.55 | 1.52 |
| 10 | 1332.50 | 6.69E-03 | 1.76E-04 | 6.61E-03 | 0.49 | 1.29 |
| 11 | 1836.06 | 5.33E-03 | 1.46E-04 | 5.37E-03 | -0.28 | -0.76 |

Configuration : DKA0:[CANBERRA.GAMMA.SCUSR.ARCHIVE]CAL_GAM19_2LMB_36.CNF;1

----- Sample Information -----

Sample Title : 2L_MB Calibration
 Sample ID : 70528-278 Sample Quantity : 1.00000E+00 EACH
 Sample Type : 2L_MB Sample Geometry :
 Sample Number : -3 Spctrm Collector : GAMMA
 Sample Collector : Sample Analyst : GAMMA

----- Sample Deposition Information -----

Dep. Correction? : No Dep. Duration :
 Deposition Start : Deposition End : 1-APR-2005 12:00:00.

----- Sample Decay/Count Information -----

Sample Date : 1-APR-2005 12:00:00. Acquisition date : 17-FEB-2006 14:03:15
 Decay time : 322 02:03:15.27 % dead time : 0.8%
 Elapsed live time: 0 02:00:00.00 Elapsed real time: 0 02:00:59.10

----- Detector Parameters -----

Energy cal. time : 16-FEB-2006 08:01:15 Energy cal. oper.: GAMMA
 Detector name : GAMMA19 Counting geometry: 2LMB
 Effic. cal. time : 17-FEB-2006 16:09:06 Effic. cal. oper.: GAMMA

----- Processing Parameters -----

Start channel : 1 End channel : 4096
 Sensitivity : 3.00000 Gaussian Sens. : 10.00000
 Critical level? : No Propagate Errors?: No
 Efficiency Type : EMPIRICA Library-based eff: No
 Energy tolerance : 2.00000 Half life ratio : 8.00000
 Abundance limit : 75.00000 WTM error limit : 3.00000
 MDA Width (FWHM) : 3.00000 MDA Confid Level : 5.00000 %

| Pk | It | Energy | Area | Bkgnd | FWHM | Channel | Left | Pw | Cts/Sec | %Err | Fit |
|----|----|--------|--------|-------|------|---------|------|----|----------|------|-----|
| 1 | 0 | 8.59 | 8365 | 43193 | 2.26 | 16.95 | 14 | 8 | 1.16E+00 | 4.4 | |
| 2 | 0 | 19.92 | 555 | 25436 | 1.49 | 39.58 | 37 | 6 | 7.71E-02 | 45.7 | |
| 3 | 0 | 46.47 | 28976 | 45324 | 1.40 | 92.62 | 86 | 12 | 4.02E+00 | 1.6 | |
| 4 | 0 | 59.52 | 64794 | 47535 | 1.43 | 118.69 | 111 | 13 | 9.00E+00 | 0.8 | |
| 5 | 0 | 66.67 | 880 | 29545 | 1.66 | 132.96 | 130 | 8 | 1.22E-01 | 33.9 | |
| 6 | 0 | 88.07 | 117061 | 50871 | 1.43 | 175.71 | 168 | 15 | 1.63E+01 | 0.5 | |
| 7 | 0 | 122.05 | 52420 | 32805 | 1.43 | 243.60 | 236 | 16 | 7.28E+00 | 0.9 | |
| 8 | 0 | 136.52 | 6709 | 18787 | 1.41 | 272.50 | 268 | 11 | 9.32E-01 | 4.1 | |
| 9 | 0 | 165.85 | 33231 | 20252 | 1.47 | 331.11 | 324 | 14 | 4.62E+00 | 1.1 | |
| 10 | 0 | 245.75 | 235 | 8771 | 1.52 | 490.73 | 488 | 8 | 3.27E-02 | 69.3 | |
| 11 | 0 | 255.09 | 1071 | 10274 | 1.78 | 509.40 | 505 | 10 | 1.49E-01 | 18.0 | |
| 12 | 0 | 271.30 | 268 | 5342 | 1.81 | 541.78 | 539 | 6 | 3.72E-02 | 43.6 | |
| 13 | 0 | 279.10 | 2407 | 8726 | 1.49 | 557.36 | 553 | 10 | 3.34E-01 | 7.5 | |
| 14 | 0 | 391.50 | 19916 | 7830 | 1.61 | 781.94 | 776 | 13 | 2.77E+00 | 1.2 | |
| 15 | 0 | 458.00 | 796 | 7253 | 2.64 | 914.83 | 909 | 12 | 1.11E-01 | 21.7 | |
| 16 | 0 | 510.99 | 621 | 5391 | 2.67 | 1020.72 | 1015 | 12 | 8.63E-02 | 24.0 | |
| 17 | 0 | 587.28 | 121 | 2130 | 1.28 | 1173.16 | 1171 | 6 | 1.69E-02 | 60.7 | |
| 18 | 0 | 647.71 | 110 | 2514 | 1.40 | 1293.93 | 1291 | 7 | 1.52E-02 | 76.5 | |
| 19 | 0 | 661.62 | 62216 | 6261 | 1.74 | 1321.73 | 1314 | 17 | 8.64E+00 | 0.5 | |
| 20 | 0 | 814.54 | 400 | 3365 | 1.44 | 1627.37 | 1622 | 11 | 5.56E-02 | 28.5 | |
| 21 | 0 | 888.42 | 204 | 3112 | 1.97 | 1775.05 | 1771 | 9 | 2.83E-02 | 49.9 | |

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| Pk | It | Energy | Area | Bkgnd | FWHM | Channel | Left | Pw | Cts/Sec | %Err | Fit |
|----|----|---------|-------|-------|------|---------|------|----|----------|-------|----------|
| 22 | 0 | 898.17 | 23719 | 6219 | 1.89 | 1794.52 | 1785 | 18 | 3.29E+00 | 1.0 | |
| 23 | 0 | 968.03 | 100 | 2653 | 1.68 | 1934.18 | 1932 | 8 | 1.38E-02 | 90.4 | |
| 24 | 0 | 1173.37 | 67643 | 3195 | 2.03 | 2344.68 | 2335 | 20 | 9.39E+00 | 0.4 | |
| 25 | 4 | 1325.44 | 447 | 1208 | 2.98 | 2648.73 | 2640 | 37 | 6.21E-02 | 17.6 | 5.22E+00 |
| 26 | 4 | 1332.65 | 61653 | 682 | 2.10 | 2663.15 | 2640 | 37 | 8.56E+00 | 0.4 | |
| 27 | 0 | 1390.45 | 31 | 471 | 1.53 | 2778.72 | 2771 | 11 | 4.33E-03 | 136.3 | |
| 28 | 0 | 1836.16 | 14975 | 326 | 2.28 | 3670.13 | 3660 | 22 | 2.08E+00 | 0.9 | |
| 29 | 0 | 1930.34 | 30 | 91 | 1.38 | 3858.52 | 3852 | 12 | 4.14E-03 | 67.0 | |
| 30 | 0 | 2032.34 | 41 | 82 | 4.00 | 4062.58 | 4056 | 13 | 5.73E-03 | 47.7 | |

Configuration : DKA0:[CANBERRA.GAMMA.SCUSR.ARCHIVE]SMP_70528278_GAM19_2LMB_38.CNF;1

---- Sample Information ----

Sample Title : 2L_MB Calibration Verification
 Sample ID : 70528-278 Sample Quantity : 1.00000E+00 ea
 Sample Type : 2L Marinelli Sample Geometry :
 Sample Number : 38 Spctrm Collector : GAMMA
 Sample Collector : Sample Analyst : GAMMA

---- Sample Deposition Information ----

Dep. Correction? : No Dep. Duration :
 Deposition Start : Deposition End : 1-APR-2005 12:00:00.

---- Sample Decay/Count Information ----

Sample Date : 1-APR-2005 12:00:00. Acquisition date : 20-FEB-2006 08:57:46
 Decay time : 324 20:57:46.89 % dead time : 0.8%
 Elapsed live time: 0 02:00:00.00 Elapsed real time: 0 02:00:58.65

---- Detector Parameters ----

Energy cal. time : 16-FEB-2006 08:01:15 Energy cal. oper.: GAMMA
 Detector name : GAMMA19 Counting geometry: 2LMB
 Effic. cal. time : 17-FEB-2006 16:09:06 Effic. cal. oper.: GAMMA

---- Processing Parameters ----

Start channel : 1 End channel : 4080
 Sensitivity : 3.00000 Gaussian Sens. : 10.00000
 Critical level? : No Propagate Errors?: Yes
 Efficiency Type : EMPIRICA Library-based eff: No
 Energy tolerance : 2.00000 Half life ratio : 8.00000
 Abundance limit : 75.00000 WTM error limit : 3.00000
 MDA Width (FWHM) : 3.00000 MDA Confid Level : 5.00000 %

Post-NID Peak Search Report

| It | Energy | Area | Bkgnd | FWHM | Channel | Left | Pw | %Err | Fit | Nuclides |
|----|--------|--------|-------|------|---------|------|----|--------|----------|--------------------------------------|
| 10 | 7.16 | 18866 | 11319 | 2.26 | 14.09 | 9 | 20 | 3.6 | 1.44E+01 | |
| 10 | 8.88* | 21801 | 31843 | 2.58 | 17.54 | 9 | 20 | 4.5 | | |
| 10 | 11.05* | 11969 | 48966 | 2.57 | 21.87 | 9 | 20 | 8.4 | | |
| 0 | 46.46* | 28986 | 44652 | 1.31 | 92.61 | 86 | 12 | 3.1 | | BI-210 PB-210 |
| 0 | 59.52 | 64043 | 49915 | 1.35 | 118.68 | 111 | 14 | 1.7 | | AM-241 |
| 0 | 67.03* | 658 | 26288 | 1.85 | 133.69 | 131 | 7 | 81.8 | | |
| 0 | 75.68* | 442 | 29971 | 1.24 | 150.97 | 148 | | 8136.2 | | |
| 0 | 88.09 | 116197 | 50595 | 1.34 | 175.77 | 168 | 15 | 1.0 | | NP-237 SN-126 SN-126 CD-109 |
| 0 | 122.09 | 51997 | 27386 | 1.35 | 243.68 | 236 | 13 | 1.6 | | PM-147 CO-57 |
| 0 | 136.54 | 6349 | 17159 | 1.32 | 272.55 | 268 | 10 | 8.1 | | CO-57 |
| 0 | 165.88 | 32978 | 19831 | 1.37 | 331.16 | 324 | 14 | 2.1 | | CE-139 |
| 0 | 228.55 | 206 | 7558 | 0.58 | 456.38 | 454 | | 6134.3 | | |
| 0 | 255.01 | 769 | 9311 | 1.32 | 509.23 | 505 | 9 | 45.8 | | |
| 0 | 279.07 | 2171 | 8742 | 1.41 | 557.30 | 553 | 10 | 16.7 | | HG-203 |

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| It | Energy | Area | Bkgnd | FWHM | Channel | Left | Pw | %Err | Fit | Nuclides |
|----|----------|-------|-------|------|---------|------|----|---------|----------|-------------------|
| 0 | 379.35 | 299 | 4827 | 2.15 | 757.66 | 755 | 8 | 81.3 | | |
| 0 | 391.58 | 19691 | 9597 | 1.53 | 782.10 | 773 | 16 | 2.6 | | SN-113 |
| 0 | 457.58 | 1089 | 10170 | 2.50 | 913.99 | 904 | 18 | 43.8 | | |
| 0 | 480.70 | 144 | 3896 | 1.71 | 960.18 | 958 | | 8151.4 | | |
| 0 | 511.03* | 420 | 4832 | 3.33 | 1020.79 | 1015 | 11 | 65.2 | | ANH-511 |
| 0 | 515.55 | 118 | 3360 | 1.45 | 1029.82 | 1026 | | 8171.0 | | KR-85 SR-85 |
| 0 | 577.37 | 66 | 2996 | 0.96 | 1153.37 | 1150 | | 8288.9 | | |
| 0 | 661.80 | 61954 | 5716 | 1.65 | 1322.11 | 1313 | 16 | 1.0 | | BA-137M CS-137 |
| 0 | 667.58 | 126 | 2381 | 0.75 | 1333.64 | 1331 | | 7129.6 | | |
| 0 | 814.27 | 294 | 2746 | 2.19 | 1626.84 | 1623 | 9 | 65.2 | | |
| 0 | 898.45 | 23525 | 6545 | 1.76 | 1795.09 | 1786 | 19 | 2.1 | | Y-88 |
| 0 | 1017.49 | 130 | 2288 | 0.65 | 2033.05 | 2030 | | 8128.2 | | |
| 0 | 1036.09 | 87 | 2227 | 1.18 | 2070.24 | 2068 | | 8189.6 | | |
| 0 | 1052.41 | 95 | 1899 | 2.31 | 2102.87 | 2102 | | 7153.5 | | |
| 0 | 1102.27 | 137 | 2179 | 1.22 | 2202.53 | 2200 | | 8118.8 | | |
| 0 | 1109.89 | 173 | 2424 | 3.31 | 2217.76 | 2214 | | 9104.0 | | |
| 0 | 1173.73 | 67361 | 2879 | 1.96 | 2345.40 | 2336 | 18 | 0.9 | | CO-60 |
| 4 | 1325.67 | 458 | 1131 | 2.98 | 2649.18 | 2641 | 33 | 32.2 | 4.16E+00 | |
| 4 | 1333.06 | 61340 | 713 | 2.03 | 2663.98 | 2641 | 33 | 0.8 | | CO-60 |
| 0 | 1510.27 | 16 | 751 | 3.39 | 3018.32 | 3011 | | 14736.2 | | |
| 0 | 1535.13 | 46 | 595 | 3.76 | 3068.04 | 3062 | | 12212.3 | | |
| 0 | 1614.39 | 8 | 498 | 0.90 | 3226.55 | 3220 | | 10***** | | |
| 0 | 1675.18* | 16 | 467 | 3.55 | 3348.13 | 3338 | | 14584.8 | | |
| 0 | 1742.02 | 21 | 222 | 3.85 | 3481.81 | 3476 | | 15305.1 | | |
| 0 | 1836.69 | 14792 | 232 | 2.31 | 3671.19 | 3659 | 21 | 1.7 | | Y-88 |
| 0 | 1946.10 | 66 | 124 | 4.73 | 3890.04 | 3880 | 19 | 85.0 | | |

Sample ID : 70528-278

Acquisition date : 20-FEB-2006 08:57:46

Total number of lines in spectrum 40
 Number of unidentified lines 16
 Number of lines tentatively identified by NID 24 60.00%

Nuclide Type :

| Nuclide | Hlife | Decay | Wtd Mean | Wtd Mean | Decay Corr | 2-Sigma | Flags |
|------------------|-----------|-------|-------------|------------|----------------|---------|-------|
| | | | Uncorrected | Decay Corr | 2-Sigma Error | %Error | |
| | | | pCi/ea | pCi/ea | | | |
| CO-57 | 270.90D | 2.30 | 8.162E+03 | 1.874E+04 | 0.204E+04 | 10.91 | |
| CO-60 | 5.27Y | 1.12 | 3.477E+04 | 3.909E+04 | 0.171E+04 | 4.38 | |
| KR-85 | 10.72Y | 1.06 | 7.443E+03 | 7.884E+03 | 13.49E+03 | 171.09 | |
| SR-85 | 64.84D | 32.2 | 3.254E+01 | 1.049E+03 | 1.795E+03 | 171.09 | |
| Y-88 | 106.60D | 8.27 | 1.041E+04 | 8.608E+04 | 0.416E+04 | 4.84 | |
| CD-109 | 464.00D | 1.62 | 4.882E+05 | 7.932E+05 | 0.749E+05 | 9.44 | |
| SN-113 | 115.10D | 7.08 | 6.920E+03 | 4.896E+04 | 0.339E+04 | 6.92 | |
| SN-126 | 1.00E+05Y | 1.00 | 5.001E+04 | 5.001E+04 | 0.678E+04 | 13.56 | |
| BA-137M | 30.17Y | 1.02 | 2.245E+04 | 2.292E+04 | 0.141E+04 | 6.16 | |
| CS-137 | 30.17Y | 1.02 | 2.374E+04 | 2.423E+04 | 0.150E+04 | 6.18 | |
| CE-139 | 137.66D | 5.13 | 5.804E+03 | 2.980E+04 | 0.235E+04 | 7.90 | |
| PM-147 | 2.62Y | 1.27 | 6.792E+05 | 8.595E+05 | *****338796.75 | | |
| HG-203 | 46.61D | 125. | 5.195E+02 | 6.517E+04 | 1.197E+04 | 18.37 | |
| BI-210 | 22.26Y | 1.03 | 7.838E+05 | 8.059E+05 | 0.778E+05 | 9.65 | |
| PB-210 | 22.26Y | 1.03 | 7.838E+05 | 8.059E+05 | 0.778E+05 | 9.65 | |
| NP-237 | 2.14E+06Y | 1.00 | 1.469E+05 | 1.469E+05 | 0.333E+05 | 22.69 | |
| AM-241 | 432.20Y | 1.00 | 6.467E+04 | 6.476E+04 | 0.769E+04 | 11.87 | |
| ANH-511 | 1.00E+09Y | 1.00 | 1.142E+02 | 1.142E+02 | 0.748E+02 | 65.50 | |
| Total Activity : | | | 3.117E+06 | 3.870E+06 | | | |

Grand Total Activity : 3.117E+06 3.870E+06

Flags: "K" = Keyline not found
 "E" = Manually edited

"M" = Manually accepted
 "A" = Nuclide specific abn. limit

Configuration : DKA0:[CANBERRA.GAMMA.SCUSR.ARCHIVE]BKG_BKG_GAM19__37.CNF;1

---- Sample Information ----

Sample Title : Weekly Background
 Sample ID : Bkg Sample Quantity : 1.00000E+00 ea
 Sample Type : bkg Sample Geometry :
 Sample Number : 37 Spctrm Collector : GAMMA
 Sample Collector : Sample Analyst : GAMMA

---- Sample Deposition Information ----

Dep. Correction? : No Dep. Duration :
 Deposition Start : Deposition End : 17-FEB-2006 00:00:00

---- Sample Decay/Count Information ----

Sample Date : 17-FEB-2006 00:00:00 Acquisition date : 17-FEB-2006 16:13:26
 Decay time : 0 16:13:26.29 % dead time : 0.0%
 Elapsed live time: 0 16:40:00.00 Elapsed real time: 0 16:40:05.25

---- Detector Parameters ----

Energy cal. time : 16-FEB-2006 08:01:15 Energy cal. oper.: GAMMA
 Detector name : GAMMA19 Counting geometry:
 Effic. cal. time : 17-FEB-2006 16:09:06 Effic. cal. oper.: GAMMA

---- Processing Parameters ----

Start channel : 1 End channel : 4096
 Sensitivity : 3.00000 Gaussian Sens. : 10.00000
 Critical level? : No Propagate Errors?: No
 Efficiency Type : SPLINE Library-based eff: No
 Energy tolerance : 2.00000 Half life ratio : 8.00000
 Abundance limit : 75.00000 WTM error limit : 3.00000
 MDA Width (FWHM) : 3.00000 MDA Confid Level : 5.00000 %

| Pk | It | Energy | Area | Bkgnd | FWHM | Channel | Left | Pw | Cts/Sec | %Err | Fit |
|----|----|--------|-------|-------|------|---------|------|----|----------|-------|----------|
| 1 | 0 | 4.87 | 22944 | 5059 | 1.20 | 9.52 | 6 | 10 | 3.82E-01 | 0.9 | |
| 2 | 0 | 10.77 | 503 | 3192 | 1.83 | 21.31 | 19 | 7 | 8.38E-03 | 19.5 | |
| 3 | 0 | 46.07 | 162 | 828 | 0.70 | 91.82 | 88 | 11 | 2.70E-03 | 35.3 | |
| 4 | 3 | 63.47 | 279 | 609 | 1.34 | 126.58 | 121 | 16 | 4.66E-03 | 16.4 | 4.64E-01 |
| 5 | 3 | 66.08 | 96 | 630 | 1.44 | 131.78 | 121 | 16 | 1.61E-03 | 50.8 | |
| 6 | 0 | 77.22 | 78 | 489 | 1.08 | 154.05 | 152 | 6 | 1.29E-03 | 46.6 | |
| 7 | 0 | 92.66 | 684 | 846 | 1.38 | 184.88 | 179 | 12 | 1.14E-02 | 9.3 | |
| 8 | 0 | 109.37 | 110 | 541 | 1.85 | 218.26 | 214 | 9 | 1.84E-03 | 39.2 | |
| 9 | 0 | 124.25 | 98 | 415 | 2.48 | 248.00 | 245 | 8 | 1.63E-03 | 37.5 | |
| 10 | 0 | 140.18 | 31 | 504 | 0.89 | 279.82 | 277 | 7 | 5.19E-04 | 121.0 | |
| 11 | 0 | 143.61 | 56 | 491 | 1.14 | 286.68 | 284 | 7 | 9.25E-04 | 67.6 | |
| 12 | 0 | 185.75 | 432 | 670 | 1.60 | 370.85 | 365 | 11 | 7.21E-03 | 12.6 | |
| 13 | 0 | 197.66 | 116 | 582 | 2.08 | 394.66 | 390 | 10 | 1.94E-03 | 39.8 | |
| 14 | 0 | 203.91 | 94 | 497 | 1.62 | 407.14 | 404 | 9 | 1.56E-03 | 44.0 | |
| 15 | 0 | 238.82 | 292 | 600 | 1.73 | 476.88 | 472 | 11 | 4.87E-03 | 17.3 | |
| 16 | 0 | 343.60 | 45 | 261 | 1.07 | 686.23 | 683 | 7 | 7.56E-04 | 61.4 | |
| 17 | 0 | 351.92 | 103 | 307 | 1.89 | 702.86 | 699 | 9 | 1.71E-03 | 32.3 | |
| 18 | 0 | 361.10 | 91 | 271 | 2.46 | 721.20 | 717 | 9 | 1.52E-03 | 34.1 | |
| 19 | 0 | 511.03 | 1376 | 426 | 2.54 | 1020.79 | 1012 | 19 | 2.29E-02 | 4.5 | |
| 20 | 0 | 567.19 | 56 | 191 | 1.18 | 1133.01 | 1129 | 8 | 9.41E-04 | 44.6 | |
| 21 | 0 | 583.57 | 99 | 224 | 1.51 | 1165.76 | 1161 | 10 | 1.65E-03 | 30.2 | |
| 22 | 0 | 608.13 | 63 | 323 | 3.71 | 1214.84 | 1209 | 13 | 1.05E-03 | 59.9 | |
| 23 | 0 | 626.63 | 45 | 174 | 2.11 | 1251.81 | 1248 | 10 | 7.58E-04 | 56.4 | |

W. W. W. W. W.

| | | | | | | | | | | |
|----|---|---------|----|-----|------|---------|------|----|----------|-------|
| 24 | 0 | 698.96 | 55 | 131 | 1.54 | 1396.36 | 1393 | 7 | 9.16E-04 | 37.2 |
| 25 | 0 | 771.13 | 26 | 73 | 1.38 | 1540.60 | 1539 | 6 | 4.31E-04 | 55.3 |
| 26 | 0 | 803.34 | 33 | 132 | 1.19 | 1604.98 | 1602 | 8 | 5.45E-04 | 63.6 |
| 27 | 0 | 822.83 | 25 | 156 | 3.42 | 1643.93 | 1638 | 13 | 4.10E-04 | 106.7 |
| 28 | 0 | 948.27 | 18 | 102 | 1.73 | 1894.68 | 1891 | 9 | 2.92E-04 | 106.4 |
| 29 | 0 | 970.17 | 36 | 139 | 3.54 | 1938.46 | 1930 | 14 | 6.02E-04 | 71.4 |
| 30 | 0 | 1001.96 | 48 | 98 | 1.56 | 2002.00 | 1997 | 10 | 7.96E-04 | 42.0 |
| 31 | 0 | 1042.67 | 40 | 112 | 1.68 | 2083.39 | 2074 | 14 | 6.70E-04 | 58.7 |
| 32 | 0 | 1048.72 | 76 | 125 | 6.87 | 2095.48 | 2087 | 19 | 1.27E-03 | 36.8 |
| 33 | 0 | 1176.74 | 22 | 68 | 3.74 | 2351.42 | 2345 | 10 | 3.63E-04 | 75.6 |
| 34 | 0 | 1193.55 | 26 | 60 | 1.92 | 2385.03 | 2379 | 9 | 4.36E-04 | 57.1 |
| 35 | 0 | 1258.51 | 26 | 68 | 0.64 | 2514.91 | 2507 | 12 | 4.29E-04 | 67.5 |
| 36 | 0 | 1376.00 | 38 | 65 | 2.57 | 2749.83 | 2745 | 13 | 6.41E-04 | 45.3 |
| 37 | 0 | 1387.60 | 85 | 50 | 7.25 | 2773.02 | 2763 | 22 | 1.42E-03 | 23.8 |
| 38 | 0 | 1661.33 | 25 | 54 | 0.63 | 3320.44 | 3310 | 18 | 4.17E-04 | 71.8 |
| 39 | 0 | 1673.84 | 34 | 61 | 2.90 | 3345.45 | 3335 | 17 | 5.70E-04 | 56.0 |
| 40 | 0 | 1757.47 | 12 | 39 | 1.37 | 3512.72 | 3506 | 11 | 1.99E-04 | 105.1 |
| 41 | 0 | 1765.51 | 35 | 52 | 2.17 | 3528.81 | 3523 | 14 | 5.83E-04 | 47.0 |
| 42 | 0 | 1810.02 | 14 | 50 | 0.98 | 3617.83 | 3610 | 11 | 2.25E-04 | 106.5 |
| 43 | 0 | 1915.09 | 24 | 33 | 3.17 | 3828.01 | 3823 | 13 | 3.93E-04 | 54.1 |
| 44 | 0 | 1956.19 | 20 | 24 | 0.83 | 3910.24 | 3903 | 11 | 3.36E-04 | 46.8 |
| 45 | 0 | 1966.94 | 7 | 23 | 1.26 | 3931.74 | 3927 | 9 | 1.18E-04 | 122.7 |

Gamma Spectroscopy Calibration VerificationInstrument: Gamma 19Calibration Date: 2/20/2005Geometry: 2L_MBStandard Id: 70528-278

| Isotope | | CALIBRATED ACTIVITY (PCI) | MEASURED ACTIVITY (PCI) | DIFFERENCE % |
|---------|---------|------------------------------|----------------------------|-----------------|
| Pb-210 | | 8.2015E+05 | 8.059E+05 | -1.74 |
| Am-241 | | 6.2561E+04 | 6.476E+04 | 3.51 |
| Cd-109 | | 8.2579E+05 | 7.932E+05 | -3.95 |
| Co-57 | | 1.9081E+04 | 1.874E+04 | -1.79 |
| Ce-139 | | 2.8981E+04 | 2.980E+04 | 2.83 |
| Sn-113 | | 4.8349E+04 | 4.896E+04 | 1.26 |
| Cs-137 | | 2.4325E+04 | 2.423E+04 | -0.39 |
| Y-88 | 1836.06 | 8.6210E+04 | 8.608E+04 | -0.15 |
| Co-60 | 1332.5 | 3.8845E+04 | 3.909E+04 | 0.63 |

Prepared By: Date: 2/20/06Reviewed By: Date: 3/23/06

Preset Time and Totals Parameters

Preset Times

Live: 0 00:05:00.00
Real:
Maximum Live Time:

Preset Totals

Total: 0
Start Channel: 1
End Channel: 4096

Front-End Setup Summary

HVPS Address: NI82E1:1 HVPS ID: 0
HVPS Voltage: 3000.000

Amp Address: Amp Id: 0
Amp Gain: 4.05204

ADC Address: ADC Id: 0
ADC Conv. Gain: 8192 ADC Range: 8192

DSP Address: NI82E1:1 DSP ID: 0

Sample Changer Addr:
Negative Sample Changer polarity No

ICB Nim Error: No Bad Calibration: No

High Voltage Power Supply Module

Address: NI82E1:1 Type: DSA-2000 ID: 0

Limit: 4000.000 Overload latch enable No
Voltage: 3000.000 Inhibit latch enable No
Status: On Negative Output polarity No
5V/12V inhibit: 5V Rely on module for ramp No

DSA-2000 HVPS Range: 5000.0

ADC Module

Address: Type: DSA-2000 ID: 0

Conv. Gain: 8192 Acq. Mode: PHA
Range: 8192 Coinc. Mode: Early
Offset: 0 Peak Detect: Auto
LLD: 0.10 Anti-coincidence No
ULD: 100.00 Non-overlap transfer No
Zero: 0.00

Amplifier Module

Address: Type: DSA-2000 ID: 0

Coarse gain: 5.0 BLR Mode: Auto
Fine gain: 0.80 LTC Mode: On
S-fine gain: 0.01 Input Mode: Normal
Shape Mode: Input Polarity: Positive
Pole Zero: 3255 Inh. Polarity: Positive
Time Const: 0.0 usec Pileup Reject: Off

DSP Module

Address: NI82E1:1 Type: DSA-2000 ID: 0

Coarse gain: 5.0 Gain Centroid: 7680
Fine gain: 0.7967 Gain Window: 8
S-fine gain: 0.013729 Gain Spacing: 64
Pole Zero: 3255 Gain Ratio: 1.000
Coinc. mode: Anti. Zero Centroid: 512
Offset: 0 Zero Window: 8
LLD: 0.10 Zero Spacing: 64
Zero: 0.000 Zero Ratio: 1.000
Conv. Gain: 8192 Gain Rate div: 1
ADC Range: 8192 Zero Rate div: 1
FDisc Mode: Auto Gain Corr. rng: Ge
Fast Disc.: 1.000 Zero Corr. rng: Ge
Inp. Polarity: Positive Zero Mode: Off
Inh. Polarity: Positive Gain Mode: Off
Rise Time: 18.400 Preamp Type: RC
Flat Top: 1.200 PUR Mode: On
BLR Mode: Auto PUR Guard: 1.1
Live Time Trim: 250 TRP Inhibit: Reset

General Engineering Laboratories, LLC

2040 Savage Road, Charleston, SC 29414
(803)556-8171

Gamma Spectrometer Geometry Calibration Package

Detector: WELL

Geometry: ZL_MB

| | YES | NO | Comments |
|---|-------------------------------------|-------------------------------------|----------|
| 1) Is all calibration standard information enclosed for: the primary standard certificate? the secondard standard(s) documentation? the nuclide library used? the VMS certificate file? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| | <input type="checkbox"/> | <input type="checkbox"/> | N/A |
| | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2) Is the detector efficiency curve printout included? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| 3) Is the efficiency calibration report included and reviewed? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 4) Is the raw count data included for: the calibration peak report? the calibration verification PEAK report? the calibration verification NID report? the last instrument background? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 5) Are the calibration verification calculations included? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 6) Are the instrument settings included: amp, HVPS, ADC settings? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |

Prepared By: Michael J. [Signature]

Date: 12/14/05

Reviewed By: [Signature]

Date: 12/14/05

Effective Date: 12/13/05

General Engineering Laboratories, LLC

2040 Savage Road, Charleston, SC 29414
(803)556-8171

Gamma Spectrometer Front End Electronics Setup

Detector: Well

Date Performed: 12/12/05

Performed By: Muhafitton

| | |
|---|---|
| <p>High Voltage Power Supply</p> <p>Model No. <u>3106D</u> High Voltage <u>2.5KV</u></p> | <p>Spectroscopy Amplifier</p> <p>Model No. <u>2026</u> Course Gain <u>20</u> Fine Gain <u>0.542</u> Time Constant <u>4 μ sec.</u> Input polarity <u>POSITIVE</u> BSLR rate <u>N/A</u> BSLR mode <u>N/A</u> Threshold <u>N/A</u></p> |
| <p>ADC</p> <p>Model No. <u>8701</u> Gain <u>4000</u></p> | |
| <p>AIM Module</p> <p>Model No. <u>556A</u> Address <u>NIE04:2</u></p> | |

Gamma Spectroscopy Calibration VerificationInstrument: WellCalibration Date: 12/13/2005Geometry: 2L_MBStandard Id: 70528-278

| Isotope | | CALIBRATED ACTIVITY (PCI) | MEASURED ACTIVITY (PCI) | DIFFERENCE % |
|---------|---------|------------------------------|----------------------------|-----------------|
| Pb-210 | | 8.2015E+05 | 7.874E+05 | -3.99 |
| Am-241 | | 6.2561E+04 | 6.587E+04 | 5.29 |
| Cd-109 | | 8.2579E+05 | 8.252E+05 | -0.07 |
| Co-57 | | 1.9081E+04 | 1.870E+04 | -2.00 |
| Ce-139 | | 2.8981E+04 | 2.896E+04 | -0.07 |
| Sn-113 | | 4.8349E+04 | 4.870E+04 | 0.73 |
| Cs-137 | | 2.4325E+04 | 2.518E+04 | 3.51 |
| Y-88 | 1836.06 | 8.6210E+04 | 8.641E+04 | 0.23 |
| Co-60 | 1332.5 | 3.8845E+04 | 3.874E+04 | -0.27 |

Prepared By: M. [Signature]Date: 12/13/05Reviewed By: [Signature]Date: 12/14/05

Verified:

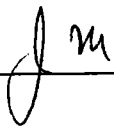
QA filename : DKA300:[CANBERRA.GAMMA]QC_BKG_WELL.QAF;2

Sample ID : BKG_WELL Sample quantity : 1.80 LITER
Sample date : 10-DEC-2005 00:00:00 Acquisition date : 10-DEC-2005 19:27:01
Elapsed live time: 0 16:40:00.00 Elapsed real time: 0 16:40:12.72

Out-of-range Test: BOUNDARY

| Parameter Description | Lower | Upper | Value | Flag |
|---------------------------|----------|----------|----------|------|
| BACKGROUND (GROSS COUNTS) | 8.07E+04 | 1.24E+05 | 1.01E+05 | |
| BACKGROUND (CPS) | 1.34 | 2.06 | 1.68 | |

Flags: "*" means the out-of-range test is parameter-dependent

Approved by:  Approval Date: 12 / 11 / 05

```

*****
*                               GENERAL ENG. LABS, LLC.                               *
*                               2040 Savage Road                                       *
*                               Charleston, SC 29414                                 *
*****
Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]VER_WELL_2LMB.CNF;2
Sample date        : 1-APR-2005 12:00:00. Acquisition date : 13-DEC-2005 11:29:45
Sample ID          : VER_WELL_2LMB           Sample quantity  : 1.00000E+00 LITER
Detector name     : WELL                    Detector geometry: 2L_MB
Elapsed live time : 0 02:30:00.00           Elapsed real time: 0 02:31:43.86  1.1%
Energy tolerance  : 2.00000 KEV             Analyst Initials  : MJH1
Abundance limit   : 75.00000                Sensitivity       : 3.00000
Batch ID          :                          Detector SN#      : 3941466
Matrix Spike DPM  :                          LCS DPM       :
*****

```

| Pk | It | Energy | Area | Bkgnd | FWHM | Channel | Left | Pw | Cts/Sec | %Err | Fit |
|----|----|----------|--------|--------|------|---------|------|----|----------|-------|----------|
| 1 | 0 | 33.09 | 1432 | 52446 | 1.30 | 65.14 | 63 | 7 | 1.59E-01 | 26.6 | |
| 2 | 1 | 38.18* | 1164 | 31197 | 1.37 | 75.25 | 73 | 24 | 1.29E-01 | 21.4 | 2.24E+02 |
| 3 | 1 | 40.69* | 4583 | 61276 | 1.37 | 80.25 | 73 | 24 | 5.09E-01 | 9.5 | |
| 4 | 1 | 46.50* | 52806 | 57740 | 1.39 | 91.79 | 73 | 24 | 5.87E+00 | 0.9 | |
| 5 | 0 | 50.00 | 934 | 50839 | 1.88 | 98.74 | 97 | 7 | 1.04E-01 | 40.1 | |
| 6 | 0 | 59.39 | 81406 | 92583 | 1.34 | 117.40 | 110 | 15 | 9.05E+00 | 0.9 | |
| 7 | 10 | 67.14 | 2659 | 27609 | 2.19 | 132.80 | 130 | 18 | 2.95E-01 | 9.6 | 3.07E+00 |
| 8 | 10 | 70.36 | 3216 | 100881 | 3.40 | 139.18 | 130 | 18 | 3.57E-01 | 23.3 | |
| 9 | 0 | 88.03* | 137668 | 71721 | 1.33 | 174.29 | 167 | 15 | 1.53E+01 | 0.5 | |
| 10 | 0 | 122.11 | 63509 | 37512 | 1.37 | 242.00 | 236 | 13 | 7.06E+00 | 0.7 | |
| 11 | 0 | 136.53 | 7730 | 21196 | 1.33 | 270.65 | 266 | 9 | 8.59E-01 | 3.6 | |
| 12 | 0 | 165.91* | 46765 | 29021 | 1.40 | 329.03 | 321 | 15 | 5.20E+00 | 0.9 | |
| 13 | 0 | 222.40 | 203 | 12987 | 1.28 | 441.27 | 438 | 8 | 2.25E-02 | 97.8 | |
| 14 | 0 | 254.88 | 1317 | 12753 | 1.71 | 505.82 | 502 | 10 | 1.46E-01 | 16.3 | |
| 15 | 0 | 279.30* | 5604 | 11863 | 1.49 | 554.34 | 549 | 11 | 6.23E-01 | 4.0 | |
| 16 | 0 | 297.77* | 75 | 6443 | 1.41 | 591.04 | 590 | 7 | 8.28E-03 | 179.3 | |
| 17 | 0 | 343.13* | 75 | 5547 | 0.98 | 681.17 | 679 | 7 | 8.35E-03 | 165.1 | |
| 18 | 0 | 348.63 | 205 | 3815 | 1.43 | 692.11 | 690 | 5 | 2.27E-02 | 45.9 | |
| 19 | 0 | 391.73* | 26457 | 9321 | 1.57 | 777.76 | 772 | 13 | 2.94E+00 | 1.0 | |
| 20 | 0 | 415.30 | 148 | 3973 | 1.43 | 824.61 | 823 | 6 | 1.65E-02 | 67.6 | |
| 21 | 0 | 432.51 | 223 | 5208 | 0.71 | 858.80 | 856 | 8 | 2.47E-02 | 56.5 | |
| 22 | 0 | 466.83* | 289 | 5167 | 1.56 | 927.02 | 924 | 8 | 3.21E-02 | 43.5 | |
| 23 | 0 | 487.16 | 341 | 4927 | 1.64 | 967.42 | 964 | 9 | 3.79E-02 | 37.5 | |
| 24 | 0 | 510.88* | 598 | 5898 | 2.43 | 1014.56 | 1009 | 11 | 6.65E-02 | 25.3 | |
| 25 | 0 | 661.65* | 52330 | 7856 | 1.75 | 1314.25 | 1306 | 17 | 5.81E+00 | 0.6 | |
| 26 | 0 | 707.69 | 257 | 3271 | 1.59 | 1405.77 | 1402 | 9 | 2.86E-02 | 40.5 | |
| 27 | 0 | 770.29* | 112 | 2701 | 0.85 | 1530.22 | 1527 | 8 | 1.24E-02 | 81.0 | |
| 28 | 0 | 774.63 | 183 | 2373 | 1.51 | 1538.86 | 1536 | 7 | 2.03E-02 | 44.8 | |
| 29 | 0 | 799.95* | 68 | 2408 | 1.38 | 1589.19 | 1588 | 7 | 7.60E-03 | 119.7 | |
| 30 | 0 | 813.73* | 624 | 3838 | 1.30 | 1616.58 | 1611 | 11 | 6.93E-02 | 19.7 | |
| 31 | 0 | 819.82* | 79 | 2143 | 1.39 | 1628.69 | 1627 | 6 | 8.78E-03 | 93.2 | |
| 32 | 0 | 897.98* | 29940 | 7548 | 1.92 | 1784.10 | 1774 | 19 | 3.33E+00 | 0.9 | |
| 33 | 0 | 924.35 | 149 | 2774 | 1.91 | 1836.53 | 1834 | 7 | 1.66E-02 | 59.0 | |
| 34 | 0 | 959.15 | 92 | 3358 | 0.67 | 1905.73 | 1904 | 8 | 1.02E-02 | 109.5 | |
| 35 | 0 | 1070.18 | 153 | 2302 | 1.40 | 2126.51 | 2123 | 8 | 1.70E-02 | 54.8 | |
| 36 | 0 | 1144.88* | 21 | 1819 | 0.53 | 2275.07 | 2274 | 9 | 2.28E-03 | 375.5 | |
| 37 | 0 | 1173.19* | 56593 | 3919 | 2.12 | 2331.38 | 2320 | 23 | 6.29E+00 | 0.5 | |
| 38 | 4 | 1325.83 | 897 | 1524 | 3.22 | 2634.98 | 2623 | 36 | 9.97E-02 | 11.5 | 2.33E+01 |

| Pk | It | Energy | Area | Bkgnd | FWHM | Channel | Left | Pw | Cts/Sec | %Err | Fit |
|----|----|----------|-------|-------|------|---------|------|----|----------|-------|-----|
| 39 | 4 | 1332.46* | 50796 | 1062 | 2.32 | 2648.17 | 2623 | 36 | 5.64E+00 | 0.5 | |
| 40 | 0 | 1686.14 | 76 | 324 | 2.38 | 3351.82 | 3349 | 9 | 8.41E-03 | 44.5 | |
| 41 | 0 | 1690.00 | 42 | 158 | 1.23 | 3359.49 | 3357 | 5 | 4.65E-03 | 47.7 | |
| 42 | 0 | 1744.42 | 28 | 148 | 1.19 | 3467.77 | 3464 | 9 | 3.16E-03 | 79.7 | |
| 43 | 0 | 1813.79 | 15 | 257 | 3.86 | 3605.82 | 3601 | 13 | 1.61E-03 | 229.0 | |
| 44 | 0 | 1836.05* | 18059 | 625 | 2.51 | 3650.13 | 3638 | 24 | 2.01E+00 | 0.8 | |
| 45 | 0 | 1954.67 | 16 | 37 | 1.33 | 3886.21 | 3884 | 5 | 1.78E-03 | 62.5 | |

Flag: "*" = Peak area was modified by background subtraction

VAX/VMS Nuclide Identification Report Generated

 * General Eng. Labs, LLC. *
 * 2040 Savage Road *
 * Charleston, SC 29414 *

DETECTOR DATA

* Configuration : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]VER_WELL_2LM *
 * Acquisition date : 13-DEC-2005 11:29:45 Detector SN# : 3941466 *
 * Detector ID : WELL Sensitivity : 3.000 *
 * Geometry : 2L_MB Energy tolerance: 2.000 *
 * Elapsed live time: 0 02:30:00.00 Abundance limit : 75.000 *
 * Elapsed real time: 0 02:31:43.86 Half life ratio : 8.000 *

SAMPLE DATA

* Sample date : 1-APR-2005 12:00:00 Nuclide Library : FERMC *
 * Sample ID : VER_WELL_2LMB Analyst initials: MJH1 *
 * Batch Number : Sample Quantity : 1.0000E+00 LITER *
 * Recovery : 1.00000 Carrier Weight : 0.00000 *

QC DATA

* Standard Weight : 0.00000 *
 * CALIB. DATE/TIME : 13-DEC-2005 09:34:01 MS Isotope : *
 * MSD DPM : ***** MSD Isotope : *
 * LCS DPM : 0.000 LCS Isotope : *
 * LCSD DPM : 0.000 LCSD Isotope : *

Combined Activity-MDA Report

---- Identified Nuclides ----

| Nuclide | Activity (pCi/LITER) | Act error | MDA (pCi/LITER) | |
|---------|-----------------------|-----------|------------------|-----------|
| CO-57 | 1.870E+04 | 2.791E+02 | 1.953E+02 | 0.000E+00 |
| CO-60 | 3.874E+04 | 3.608E+02 | 1.054E+02 | 0.000E+00 |
| Y-88 | 8.641E+04 | 1.434E+03 | 3.479E+02 | 0.000E+00 |
| CD-109 | 8.252E+05 | 8.358E+03 | 5.046E+03 | 0.000E+00 |
| SN-113 | 4.870E+04 | 9.472E+02 | 6.806E+02 | 0.000E+00 |
| CS-137 | 2.518E+04 | 2.947E+02 | 1.497E+02 | 0.000E+00 |
| CE-139 | 2.896E+04 | 5.322E+02 | 3.423E+02 | 0.000E+00 |
| HG-203 | 6.242E+04 | 4.989E+03 | 4.823E+03 | 0.000E+00 |
| PB-210 | 7.874E+05 | 1.451E+04 | 1.518E+04 | 0.000E+00 |
| AM-241 | 6.587E+04 | 1.177E+03 | 7.545E+02 | 0.000E+00 |

---- Non-Identified Nuclides ----

| Nuclide | Key-Line Activity (pCi/LITER) | K.L. Act error () | Ided | MDA (pCi/LITER) | |
|---------|--------------------------------|--------------------|------|------------------|--|
|---------|--------------------------------|--------------------|------|------------------|--|

```

*****
*                               GENERAL ENG. LABS, LLC.                               *
*                               2040 Savage Road                                   *
*                               Charleston, SC 29414                               *
*****
Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]VER_WELL_2LMB.CNF;2
Sample date        : 1-APR-2005 12:00:00. Acquisition date : 13-DEC-2005 11:29:45
Sample ID          : VER_WELL_2LMB          Sample quantity  : 1.00000E+00 LITER
Detector name     : WELL                   Detector geometry: 2L_MB
Elapsed live time : 0 02:30:00.00          Elapsed real time: 0 02:31:43.86  1.1%
Energy tolerance  : 2.00000 KEV           Analyst Initials  : MJH1
Abundance limit   : 75.00000              Sensitivity       : 3.00000
Batch ID          :                       Detector SN#      : 3941466
Matrix Spike DPM  :                       LCS DPM         :
*****

```

Nuclide Line Activity Report

Nuclide Type:

| Nuclide | Energy | Area | %Abn | %Eff | Uncorrected pCi/LITER | Decay Corr pCi/LITER | 2-Sigma %Error |
|---------|---------|--------|--------|-----------|-----------------------|----------------------|----------------|
| CO-57 | 122.06 | 63509 | 85.51* | 2.292E+00 | 9.731E+03 | 1.870E+04 | 1.49 |
| | 136.47 | 7730 | 10.47 | 2.297E+00 | 9.654E+03 | 1.855E+04 | 7.17 |
| CO-60 | 1173.24 | 56593 | 99.90 | 4.757E-01 | 3.576E+04 | 3.922E+04 | 1.02 |
| | 1332.50 | 50796 | 99.98* | 4.318E-01 | 3.533E+04 | 3.874E+04 | 0.93 |
| Y-88 | 898.04 | 29940 | 93.40 | 5.833E-01 | 1.650E+04 | 8.717E+04 | 1.81 |
| | 1836.06 | 18059 | 99.38* | 3.336E-01 | 1.636E+04 | 8.641E+04 | 1.66 |
| CD-109 | 88.03 | 137668 | 3.79* | 1.942E+00 | 5.617E+05 | 8.252E+05 | 1.01 |
| SN-113 | 391.70 | 26457 | 64.90* | 1.175E+00 | 1.042E+04 | 4.870E+04 | 1.95 |
| CS-137 | 661.66 | 52330 | 85.12* | 7.452E-01 | 2.478E+04 | 2.518E+04 | 1.17 |
| CE-139 | 165.85 | 46765 | 80.35* | 2.191E+00 | 7.976E+03 | 2.896E+04 | 1.84 |
| HG-203 | 70.83 | 3216 | 4.75 | 1.453E+00 | 1.399E+04 | 6.305E+05 | 46.57 |
| | 72.87 | ----- | 8.00 | 1.538E+00 | ----- | Line Not Found | ----- |
| | 82.60 | ----- | 3.55 | 1.818E+00 | ----- | Line Not Found | ----- |
| | 279.20 | 5604 | 77.30* | 1.572E+00 | 1.385E+03 | 6.242E+04 | 7.99 |
| PB-210 | 46.50 | 52806 | 4.05* | 5.082E-01 | 7.704E+05 | 7.874E+05 | 1.84 |
| AM-241 | 59.54 | 81406 | 35.90* | 1.035E+00 | 6.579E+04 | 6.587E+04 | 1.79 |

Flag: "*" = Keyline

Summary of Nuclide Activity

Sample ID : VER_WELL_2LMB

Acquisition date : 13-DEC-2005 11:29:45

Total number of lines in spectrum 45
 Number of unidentified lines 31
 Number of lines tentatively identified by NID 14 31.11%

Nuclide Type :

| Nuclide | Hlife | Decay | Uncorrected pCi/LITER | Decay Corr pCi/LITER | Decay Corr 2-Sigma Error | 2-Sigma %Error | Flags |
|------------------|---------|-------|--------------------------|-------------------------|-----------------------------|-------------------|-------|
| CO-57 | 271.74D | 1.92 | 9.731E+03 | 1.870E+04 | 0.028E+04 | 1.49 | |
| CO-60 | 5.27Y | 1.10 | 3.533E+04 | 3.874E+04 | 0.036E+04 | 0.93 | |
| Y-88 | 106.63D | 5.28 | 1.636E+04 | 8.641E+04 | 0.143E+04 | 1.66 | |
| CD-109 | 461.40D | 1.47 | 5.617E+05 | 8.252E+05 | 0.084E+05 | 1.01 | |
| SN-113 | 115.09D | 4.67 | 1.042E+04 | 4.870E+04 | 0.095E+04 | 1.95 | |
| CS-137 | 30.00Y | 1.02 | 2.478E+04 | 2.518E+04 | 0.029E+04 | 1.17 | |
| CE-139 | 137.64D | 3.63 | 7.976E+03 | 2.896E+04 | 0.053E+04 | 1.84 | |
| HG-203 | 46.60D | 45.1 | 1.385E+03 | 6.242E+04 | 0.499E+04 | 7.99 | |
| PB-210 | 22.26Y | 1.02 | 7.704E+05 | 7.874E+05 | 0.145E+05 | 1.84 | |
| AM-241 | 432.20Y | 1.00 | 6.579E+04 | 6.587E+04 | 0.118E+04 | 1.79 | |
| Total Activity : | | | 1.504E+06 | 1.988E+06 | | | |

Grand Total Activity : 1.504E+06 1.988E+06

Flags: "K" = Keyline not found
 "E" = Manually edited

"M" = Manually accepted
 "A" = Nuclide specific abn. limit

| It | Energy | Area | Bkgnd | FWHM | Channel | Left | Pw | Cts/Sec | %Err | %Eff | Flags |
|----|---------|------|-------|------|---------|------|----|----------|------|----------|-------|
| 0 | 33.09 | 1432 | 52446 | 1.30 | 65.14 | 63 | 7 | 1.59E-01 | 53.3 | 1.11E-01 | |
| 1 | 38.18 | 1164 | 31197 | 1.37 | 75.25 | 73 | 24 | 1.29E-01 | 42.7 | 2.29E-01 | |
| 1 | 40.69 | 4583 | 61276 | 1.37 | 80.25 | 73 | 24 | 5.09E-01 | 19.0 | 3.03E-01 | |
| 0 | 50.00 | 934 | 50839 | 1.88 | 98.74 | 97 | 7 | 1.04E-01 | 80.2 | 6.47E-01 | |
| 10 | 67.14 | 2659 | 27609 | 2.19 | 132.80 | 130 | 18 | 2.95E-01 | 19.1 | 1.34E+00 | |
| 0 | 222.40 | 203 | 12987 | 1.28 | 441.27 | 438 | 8 | 2.25E-02 | **** | 1.87E+00 | |
| 0 | 254.88 | 1317 | 12753 | 1.71 | 505.82 | 502 | 10 | 1.46E-01 | 32.6 | 1.69E+00 | |
| 0 | 297.77 | 75 | 6443 | 1.41 | 591.04 | 590 | 7 | 8.28E-03 | **** | 1.49E+00 | |
| 0 | 343.13 | 75 | 5547 | 0.98 | 681.17 | 679 | 7 | 8.35E-03 | **** | 1.32E+00 | |
| 0 | 348.63 | 205 | 3815 | 1.43 | 692.11 | 690 | 5 | 2.27E-02 | 91.8 | 1.30E+00 | |
| 0 | 415.30 | 148 | 3973 | 1.43 | 824.61 | 823 | 6 | 1.65E-02 | **** | 1.12E+00 | |
| 0 | 432.51 | 223 | 5208 | 0.71 | 858.80 | 856 | 8 | 2.47E-02 | **** | 1.08E+00 | |
| 0 | 466.83 | 289 | 5167 | 1.56 | 927.02 | 924 | 8 | 3.21E-02 | 87.1 | 1.01E+00 | |
| 0 | 487.16 | 341 | 4927 | 1.64 | 967.42 | 964 | 9 | 3.79E-02 | 75.0 | 9.69E-01 | |
| 0 | 510.88 | 598 | 5898 | 2.43 | 1014.56 | 1009 | 11 | 6.65E-02 | 50.7 | 9.29E-01 | |
| 0 | 707.69 | 257 | 3271 | 1.59 | 1405.77 | 1402 | 9 | 2.86E-02 | 81.0 | 7.05E-01 | |
| 0 | 770.29 | 112 | 2701 | 0.85 | 1530.22 | 1527 | 8 | 1.24E-02 | **** | 6.58E-01 | |
| 0 | 774.63 | 183 | 2373 | 1.51 | 1538.86 | 1536 | 7 | 2.03E-02 | 89.7 | 6.55E-01 | |
| 0 | 799.95 | 68 | 2408 | 1.38 | 1589.19 | 1588 | 7 | 7.60E-03 | **** | 6.39E-01 | |
| 0 | 813.73 | 624 | 3838 | 1.30 | 1616.58 | 1611 | 11 | 6.93E-02 | 39.3 | 6.30E-01 | |
| 0 | 819.82 | 79 | 2143 | 1.39 | 1628.69 | 1627 | 6 | 8.78E-03 | **** | 6.26E-01 | |
| 0 | 924.35 | 149 | 2774 | 1.91 | 1836.53 | 1834 | 7 | 1.66E-02 | **** | 5.70E-01 | |
| 0 | 959.15 | 92 | 3358 | 0.67 | 1905.73 | 1904 | 8 | 1.02E-02 | **** | 5.54E-01 | |
| 0 | 1070.18 | 153 | 2302 | 1.40 | 2126.51 | 2123 | 8 | 1.70E-02 | **** | 5.10E-01 | |
| 0 | 1144.88 | 21 | 1819 | 0.53 | 2275.07 | 2274 | 9 | 2.28E-03 | **** | 4.85E-01 | |
| 4 | 1325.83 | 897 | 1524 | 3.22 | 2634.98 | 2623 | 36 | 9.97E-02 | 23.0 | 4.33E-01 | |
| 0 | 1686.14 | 76 | 324 | 2.38 | 3351.82 | 3349 | 9 | 8.41E-03 | 89.0 | 3.58E-01 | |
| 0 | 1690.00 | 42 | 158 | 1.23 | 3359.49 | 3357 | 5 | 4.65E-03 | 95.3 | 3.58E-01 | |
| 0 | 1744.42 | 28 | 148 | 1.19 | 3467.77 | 3464 | 9 | 3.16E-03 | **** | 3.48E-01 | |
| 0 | 1813.79 | 15 | 257 | 3.86 | 3605.82 | 3601 | 13 | 1.61E-03 | **** | 3.37E-01 | |
| 0 | 1954.67 | 16 | 37 | 1.33 | 3886.21 | 3884 | 5 | 1.78E-03 | **** | 3.16E-01 | |

Flags: "T" = Tentatively associated

```
*****
*                               GENERAL ENG. LABS, LLC.                               *
*                               2040 Savage Road                                   *
*                               Charleston, SC 29414                             *
*****
```

```
*****
*                               DETECTOR DATA                                   *
*****
* Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]VER_WELL_2LMB.CNF;2 *
* Acquisition date   : 13-DEC-2005 11:29:45  Detector SN#      : 3941466         *
* Detector ID        : WELL                      Sensitivity      : 3.00000         *
* Geometry           : 2L_MB                     Energy tolerance: 2.00000         *
* Elapsed live time : 0 02:30:00.00             Abundance limit : 75.00000         *
* Elapsed real time : 0 02:31:43.86             Half life ratio  : 8.00000         *
*****
```

```
*****
*                               SAMPLE DATA                                   *
*****
* Sample date        : 1-APR-2005 12:00:00.  Nuclide Library : CAL             *
* Sample ID          : VER_WELL_2LMB          Analyst initials: MJH1           *
* Batch Number       :                       Sample Quantity : 1.00000E+00 LITER *
*****
```

```
*****
*                               QC DATA                                   *
*****
* CALIB. DATE/TIME  : 13-DEC-2005 09:34:01.1MS Isotope      :                 *
* MSD DPM            :                               MSD Isotope :                 *
* LCS DPM            :                               LCS Isotope :                 *
*****
```

Combined Activity-MDA Report

---- Identified Nuclides ----

| Nuclide | Activity (pCi/LITER) | Act error | MDA (pCi/LITER) | MDA error | Act/MDA |
|---------|-------------------------|-----------|--------------------|-----------|---------|
| CO-57 | 1.870E+04 | 2.791E+02 | 1.953E+02 | 0.000E+00 | 95.764 |
| CO-60 | 3.874E+04 | 3.608E+02 | 1.054E+02 | 0.000E+00 | 367.458 |
| Y-88 | 8.641E+04 | 1.434E+03 | 3.479E+02 | 0.000E+00 | 248.354 |
| CD-109 | 8.252E+05 | 8.358E+03 | 5.046E+03 | 0.000E+00 | 163.524 |
| SN-113 | 4.870E+04 | 9.472E+02 | 6.806E+02 | 0.000E+00 | 71.551 |
| CS-137 | 2.518E+04 | 2.947E+02 | 1.497E+02 | 0.000E+00 | 168.230 |
| CE-139 | 2.896E+04 | 5.322E+02 | 3.423E+02 | 0.000E+00 | 84.587 |
| HG-203 | 6.242E+04 | 4.989E+03 | 4.823E+03 | 0.000E+00 | 12.942 |
| PB-210 | 7.874E+05 | 1.451E+04 | 1.518E+04 | 0.000E+00 | 51.866 |
| AM-241 | 6.587E+04 | 1.177E+03 | 7.545E+02 | 0.000E+00 | 87.303 |


```
*****
*                               GENERAL ENG. LABS, LLC.                               *
*                               2040 Savage Road                                       *
*                               Charleston, SC 29414                                   *
*****
```

```
Configuration      : MCA0:[GAMMA]WELL$1
Sample date        : 1-APR-2005 12:00:00. Acquisition date : 12-DEC-2005 13:33:22
Sample ID          : CAL_WELL_2LMB           Sample quantity  : 1.00000E+00 LITER
Detector name      : WELL                    Detector geometry: WELL
Elapsed live time  : 0 02:00:00.00          Elapsed real time: 0 02:01:23.60  1.1%
Energy tolerance   : 2.00000 KEV           Analyst Initials  : MJH1
Abundance limit    : 75.00000              Sensitivity       : 3.00000
Batch ID           :                       Detector SN#      : 3941466
Matrix Spike DPM   :                       LCS DPM        :
*****
```

| Pk | It | Energy | Area | Bkgnd | FWHM | Channel | Left | Pw | Cts/Sec | %Err | Fit |
|----|----|---------|--------|-------|------|---------|------|----|----------|-------|----------|
| 1 | 0 | 32.59 | 1042 | 48353 | 1.44 | 64.15 | 63 | 8 | 1.45E-01 | 36.7 | |
| 2 | 1 | 39.69 | 1232 | 26337 | 1.37 | 78.25 | 76 | 21 | 1.71E-01 | 18.5 | 1.32E+02 |
| 3 | 1 | 46.49 | 42811 | 48105 | 1.39 | 91.77 | 76 | 21 | 5.95E+00 | 1.0 | |
| 4 | 0 | 59.42 | 65118 | 69944 | 1.33 | 117.44 | 110 | 14 | 9.04E+00 | 1.0 | |
| 5 | 10 | 68.76 | 3875 | 53665 | 3.39 | 136.01 | 130 | 20 | 5.38E-01 | 12.1 | 2.72E+00 |
| 6 | 10 | 72.74 | 1216 | 49822 | 1.84 | 143.92 | 130 | 20 | 1.69E-01 | 35.7 | |
| 7 | 0 | 88.04 | 108976 | 58670 | 1.33 | 174.31 | 167 | 15 | 1.51E+01 | 0.6 | |
| 8 | 0 | 122.09 | 52212 | 36478 | 1.37 | 241.97 | 234 | 16 | 7.25E+00 | 0.9 | |
| 9 | 0 | 136.53 | 6296 | 19037 | 1.33 | 270.66 | 266 | 10 | 8.74E-01 | 4.3 | |
| 10 | 0 | 165.93 | 37138 | 20508 | 1.39 | 329.06 | 322 | 13 | 5.16E+00 | 0.9 | |
| 11 | 0 | 184.11 | 120 | 10693 | 0.55 | 365.18 | 362 | 8 | 1.67E-02 | 149.3 | |
| 12 | 0 | 207.62 | 181 | 6366 | 1.28 | 411.90 | 410 | 5 | 2.51E-02 | 66.7 | |
| 13 | 0 | 255.23 | 1017 | 8126 | 1.42 | 506.51 | 503 | 8 | 1.41E-01 | 15.7 | |
| 14 | 0 | 279.22 | 4771 | 9449 | 1.41 | 554.17 | 549 | 11 | 6.63E-01 | 4.2 | |
| 15 | 0 | 310.35 | 183 | 3477 | 1.40 | 616.04 | 614 | 5 | 2.54E-02 | 48.9 | |
| 16 | 0 | 321.38 | 135 | 5518 | 0.91 | 637.96 | 636 | 8 | 1.87E-02 | 95.8 | |
| 17 | 0 | 391.76 | 21207 | 8213 | 1.53 | 777.81 | 771 | 14 | 2.95E+00 | 1.1 | |
| 18 | 0 | 419.40 | 180 | 3614 | 1.60 | 832.74 | 829 | 7 | 2.50E-02 | 55.8 | |
| 19 | 0 | 510.70 | 794 | 4500 | 1.82 | 1014.21 | 1009 | 11 | 1.10E-01 | 16.7 | |
| 20 | 0 | 532.76 | 51 | 2635 | 1.22 | 1058.06 | 1055 | 7 | 7.04E-03 | 168.5 | |
| 21 | 0 | 584.01 | 135 | 2080 | 1.29 | 1159.92 | 1157 | 6 | 1.88E-02 | 54.1 | |
| 22 | 0 | 639.97 | 247 | 2426 | 1.83 | 1271.16 | 1268 | 7 | 3.43E-02 | 33.6 | |
| 23 | 0 | 652.34 | 155 | 2536 | 0.91 | 1295.74 | 1293 | 7 | 2.15E-02 | 54.5 | |
| 24 | 0 | 661.67 | 41764 | 6504 | 1.76 | 1314.30 | 1305 | 17 | 5.80E+00 | 0.7 | |
| 25 | 0 | 813.96 | 451 | 2793 | 1.98 | 1617.04 | 1613 | 10 | 6.26E-02 | 22.5 | |
| 26 | 0 | 848.57 | 111 | 2636 | 0.92 | 1685.85 | 1683 | 9 | 1.54E-02 | 83.9 | |
| 27 | 0 | 854.51 | 160 | 2194 | 1.59 | 1697.67 | 1694 | 8 | 2.22E-02 | 51.3 | |
| 28 | 0 | 876.44 | 147 | 2353 | 1.97 | 1741.27 | 1737 | 8 | 2.04E-02 | 57.7 | |
| 29 | 0 | 898.03 | 23855 | 4660 | 1.92 | 1784.19 | 1777 | 14 | 3.31E+00 | 0.9 | |
| 30 | 0 | 981.35 | 217 | 2537 | 1.52 | 1949.86 | 1946 | 10 | 3.01E-02 | 44.0 | |
| 31 | 0 | 1082.73 | 96 | 1364 | 0.97 | 2151.46 | 2150 | 6 | 1.33E-02 | 61.9 | |
| 32 | 0 | 1128.22 | 173 | 1847 | 1.56 | 2241.95 | 2237 | 11 | 2.41E-02 | 48.6 | |
| 33 | 0 | 1173.19 | 44711 | 3264 | 2.09 | 2331.38 | 2320 | 21 | 6.21E+00 | 0.6 | |
| 34 | 0 | 1258.60 | 29 | 443 | 1.04 | 2501.25 | 2496 | 7 | 4.04E-03 | 122.0 | |
| 35 | 1 | 1325.06 | 439 | 1159 | 2.42 | 2633.44 | 2624 | 35 | 6.09E-02 | 16.2 | 1.61E+01 |
| 36 | 1 | 1332.49 | 40523 | 955 | 2.33 | 2648.23 | 2624 | 35 | 5.63E+00 | 0.5 | |
| 37 | 0 | 1489.27 | 31 | 301 | 0.53 | 2960.11 | 2958 | 6 | 4.28E-03 | 90.6 | |
| 38 | 1 | 1645.30 | 102 | 290 | 2.56 | 3270.54 | 3266 | 19 | 1.41E-02 | 31.0 | 3.60E+00 |

| Pk | It | Energy | Area | Bkgnd | FWHM | Channel | Left | Pw | Cts/Sec | %Err | Fit |
|----|----|---------|-------|-------|------|---------|------|----|----------|-------|-----|
| 39 | 1 | 1648.31 | 129 | 439 | 2.56 | 3276.54 | 3266 | 19 | 1.79E-02 | 37.8 | |
| 40 | 1 | 1651.29 | 117 | 132 | 2.57 | 3282.46 | 3266 | 19 | 1.63E-02 | 17.1 | |
| 41 | 0 | 1775.32 | 21 | 103 | 1.47 | 3529.28 | 3526 | 9 | 2.93E-03 | 90.0 | |
| 42 | 0 | 1836.09 | 14647 | 430 | 2.53 | 3650.20 | 3639 | 25 | 2.03E+00 | 0.9 | |
| 43 | 0 | 1933.32 | 17 | 91 | 1.46 | 3843.72 | 3843 | 13 | 2.35E-03 | 117.4 | |
| 44 | 0 | 1958.91 | 14 | 19 | 0.95 | 3894.64 | 3892 | 6 | 1.98E-03 | 56.3 | |
| 45 | 0 | 2008.67 | 27 | 23 | 0.68 | 3993.69 | 3990 | 8 | 3.68E-03 | 37.3 | |

Configuration : MCA0:[GAMMA]WELL\$1
 Analyses by : CALIBRATE V1.7, PEAK V16.4
 Detector Name : WELL Energy Calib Time: 13-DEC-2005 09:34:01
 Efficiency type : Empirical Effncy Calib Time: 13-DEC-2005 09:34:01
 Detector Geometry: WELL Shelf : 0

Energy Calibration Report

$$\text{Energy} = 0.2987 + 0.5034 * \text{Channel} + -1.2315E-07 * (\text{Channel} ** 2)$$

| Nbr | Centroid Channel | True Energy | Computed Energy | Difference |
|-----|------------------|-------------|-----------------|------------|
| 1 | 91.73 | 46.50 | 46.47 | 0.026 |
| 2 | 117.44 | 59.54 | 59.42 | 0.121 |
| 3 | 174.31 | 88.03 | 88.04 | -0.006 |
| 4 | 242.00 | 122.06 | 122.11 | -0.050 |
| 5 | 329.06 | 165.85 | 165.93 | -0.073 |
| 6 | 777.81 | 391.70 | 391.76 | -0.055 |
| 7 | 1314.30 | 661.66 | 661.67 | -0.014 |
| 8 | 1784.19 | 898.04 | 898.03 | 0.016 |
| 9 | 2331.37 | 1173.24 | 1173.19 | 0.051 |
| 10 | 2648.23 | 1332.50 | 1332.49 | 0.008 |
| 11 | 3650.20 | 1836.06 | 1836.09 | -0.024 |

FWHM Calibration Report

$$\text{FWHM} = 1.046 + 3.1639E-02 * (\text{Energy} ** 1/2)$$

| Nbr | Energy | True FWHM | Computed FWHM | Difference |
|-----|---------|-----------|---------------|------------|
| 1 | 46.50 | 1.48 | 1.26 | 0.215 |
| 2 | 59.54 | 1.33 | 1.29 | 0.036 |
| 3 | 88.03 | 1.33 | 1.34 | -0.010 |
| 4 | 122.06 | 1.37 | 1.40 | -0.028 |
| 5 | 165.85 | 1.39 | 1.45 | -0.064 |
| 6 | 391.70 | 1.52 | 1.67 | -0.148 |
| 7 | 661.66 | 1.76 | 1.86 | -0.102 |
| 8 | 898.04 | 1.92 | 1.99 | -0.075 |
| 9 | 1173.24 | 2.09 | 2.13 | -0.043 |
| 10 | 1332.50 | 2.30 | 2.20 | 0.094 |
| 11 | 1836.06 | 2.53 | 2.40 | 0.124 |

Efficiency Calibration Report

$$\text{Eff} = \exp(a2 + a3 * x + a4 * x ** 2 + a5 * x ** 3 + a6 * x ** 4 + a7 * x ** 5), \quad x = \ln(a1 / \text{energy})$$

a1 a2 a3 a4 a5 a6 a7
 941.3 -5.181 0.7697 6.0649E-02 7.6903E-02 -6.1801E-02 0.0000E+00

Average Deviation = 1.73 % Reduced Chi-Square = 0.889

| Nbr | Energy (KEV) | Measured Efficiency | Efficiency Error | Computed Efficiency | Diff/ Error | % Diff |
|-----|--------------|---------------------|------------------|---------------------|-------------|--------|
|-----|--------------|---------------------|------------------|---------------------|-------------|--------|

| | | | | | | |
|---|-------|----------|----------|----------|-------|-------|
| 1 | 46.50 | 4.95E-03 | 1.58E-04 | 5.08E-03 | -0.83 | -2.65 |
|---|-------|----------|----------|----------|-------|-------|

| Nbr | Energy (KEV) | Measured Efficiency | Efficiency Error | Computed Efficiency | Diff/ /Error | % Diff |
|-----|--------------|---------------------|------------------|---------------------|-----------------|--------|
| 2 | 59.54 | 1.09E-02 | 3.43E-04 | 1.04E-02 | 1.42 | 4.47 |
| 3 | 88.03 | 1.92E-02 | 6.42E-04 | 1.94E-02 | -0.41 | -1.39 |
| 4 | 122.06 | 2.28E-02 | 7.15E-04 | 2.29E-02 | -0.15 | -0.46 |
| 5 | 165.85 | 2.16E-02 | 6.40E-04 | 2.19E-02 | -0.43 | -1.27 |
| 6 | 391.70 | 1.18E-02 | 3.35E-04 | 1.18E-02 | 0.12 | 0.33 |
| 7 | 661.66 | 7.69E-03 | 2.36E-04 | 7.45E-03 | 1.03 | 3.16 |
| 8 | 898.04 | 5.73E-03 | 1.58E-04 | 5.83E-03 | -0.62 | -1.72 |
| 9 | 1173.24 | 4.79E-03 | 1.32E-04 | 4.76E-03 | 0.22 | 0.61 |
| 10 | 1332.50 | 4.24E-03 | 1.12E-04 | 4.32E-03 | -0.72 | -1.90 |
| 11 | 1836.06 | 3.37E-03 | 9.29E-05 | 3.34E-03 | 0.38 | 1.04 |

Approved by: *Michael P. ...*
Let's check

Approval Date: 12 / 14 / 05
12/14/05

Print Time : 14-JUN-2005 17:33:53.22
 Certificate file name : DKA300:[CANBERRA.GAMMA]70528-278.CER;1
 Certificate title : 2L MB
 Certificate date : 1-APR-2005 12:00:00.00
 Certificate quantity : 1.00000E+00

| Rcd | Nuclide | Halflife | CAL/ INIT | Energy | Rate | %Abun | Activity (uCi) |
|-----|---------|----------|--------------|---------|------------|-------|-------------------|
| 1 | AM-241 | 432.20Y | Yes | 59.54 | 8.3100E+02 | 35.90 | 6.2561E-02 |
| 2 | CD-109 | 462.60D | No | 88.03 | 1.1580E+03 | 3.79 | 8.2579E-01 |
| 3 | Co-57 | 271.79D | No | 122.06 | 6.0370E+02 | 85.51 | 1.9081E-02 |
| 4 | CE-139 | 137.60D | No | 165.85 | 8.6160E+02 | 80.35 | 2.8981E-02 |
| 5 | SN-113 | 115.10D | No | 391.70 | 1.1610E+03 | 64.90 | 4.8349E-02 |
| 6 | CS-137 | 30.07Y | Yes | 661.66 | 7.6610E+02 | 85.12 | 2.4325E-02 |
| 7 | Y-88 | 106.60D | No | 898.04 | 3.0350E+03 | 93.40 | 8.7823E-02 |
| 8 | Y-88 | 106.60D | Yes | 1836.06 | 3.1700E+03 | 99.38 | 8.6210E-02 |
| 9 | CO-60 | 5.27Y | Yes | 1173.24 | 1.4220E+03 | 99.90 | 3.8471E-02 |
| 10 | CO-60 | 5.27Y | No | 1332.50 | 1.4370E+03 | 99.98 | 3.8845E-02 |
| 11 | PB-210 | 22.30Y | No | 46.50 | 1.2290E+03 | 4.05 | 8.2015E-01 |

Library Title :
 Library file name : DKA300:[CANBERRA.GAMMA]CAL.NLB;1
 Date printed : 6-DEC-2004 10:31:17.67
 Number of nuclides : 10
 Number of lines : 17

| Nuclide Name | Half-Life | Nuclide Type | Key Line | Energy | Abundance |
|--------------|-----------|--------------|----------|-------------|-----------|
| CO-57 | 271.74D | | * | 122.06 keV | 85.51 % |
| | | | | 136.47 keV | 10.47 % |
| CO-60 | 5.27Y | | * | 1173.24 keV | 99.90 % |
| | | | | 1332.50 keV | 99.98 % |
| Y-88 | 106.63D | | * | 898.04 keV | 93.40 % |
| | | | | 1836.06 keV | 99.38 % |
| | | | | 88.03 keV | 3.79 % |
| CD-109 | 461.40D | | * | 391.70 keV | 64.90 % |
| SN-113 | 115.09D | | * | 661.66 keV | 85.12 % |
| CS-137 | 30.00Y | | * | 165.85 keV | 80.35 % |
| CE-139 | 137.64D | | * | 70.83 keV | 4.75 % |
| HG-203 | 46.60D | | * | 72.87 keV | 8.00 % |
| | | | | 82.60 keV | 3.55 % |
| | | | | 279.20 keV | 77.30 % |
| PB-210 | 22.26Y | | * | 46.50 keV | 4.05 % |
| AM-241 | 432.20Y | | * | 59.54 keV | 35.90 % |

CERTIFICATE OF CALIBRATION

Standard Radionuclide Source

70528-278

2.0 Liter Solid in 230G GA-MA Beaker

This standard radionuclide source was prepared using aliquots measured gravimetrically from master radionuclide solution sources. The Am-241 and Pb-210 were calibrated by 4 pi alpha liquid scintillation counting. All other radionuclides were calibrated using a germanium gamma spectrometer system. Calibration and purity were checked using a germanium gamma spectrometer system. At the time of calibration no interfering gamma-ray emitting impurities were detected. The gamma ray emission rates for the most intense gamma-ray lines are given. Analytix maintains traceability to the National Institute of Standards and Technology through a Measurements Assurance Program as described in US NRC Regulatory Guide 4.15, Revision 1, February 1979.

US Patent 4,430,258; UK Patent GB2,149,194B; CA Patent 1,196,776.
Density of solid matrix 1.15 g/cc.

Calibration Date: April 1, 2005 12:00 EST

| ISOTOPE | GAMMA ENERGY | HALF-LIFE | | GAMMA-RAYS PER SECOND | TOTAL UNCERTAINTY % |
|---------|--------------|-----------|---|-----------------------|---------------------|
| Pb-210 | 46.5 | 22.3 | y | 1229 | 3.0 |
| Am-241 | 59.5 | 432.2 | y | 831.0 | 3.0 |
| Cd-109 | 88 | 462.6 | d | 1158 | 3.3 |
| Co-57 | 122 | 271.79 | d | 603.7 | 3.0 |
| Ce-139 | 166 | 137.6 | d | 861.6 | 2.8 |
| Hg-203 | 279 | 46.61 | d | 1864 | 2.7 |
| Sn-113 | 392 | 115.1 | d | 1161 | 2.6 |
| Cs-137 | 662 | 30.07 | y | 766.1 | 3.0 |
| Y-88 | 898 | 106.6 | d | 3035 | 2.6 |
| Co-60 | 1173 | 5.271 | y | 1422 | 2.7 |
| Co-60 | 1332 | 5.271 | y | 1437 | 2.6 |
| Y-88 | 1836 | 106.6 | d | 3170 | 2.6 |

P O NUMBER 2832RD, Item 1

SOURCE PREPARED BY:

M. Dimitrova
M. Dimitrova, Radiochemist

Q A APPROVED:

W.M. May 5-12-05

This standard will expire one year after the calibration date.

General Engineering Laboratories

2040 Savage Road, Charleston, SC 29414
(843)556-8171

Lucas Cell Calibration Package

CALIBRATION 201-212

| | YES | NO | Comments |
|--|-------------------------------------|--------------------------|----------|
| 1) Is all calibration standard information enclosed for: the primary standard certificate? the secondard standard(s) documentation? standard preparation information? standard < 1 Year old or verified? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2) Is the efficiency calibration report included ? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 3) Is the raw count data included for: Cell constant determination? Plateau generation? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 4) Are the calibration verifications included? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 5) Are the instrument settings included: HVPS settings? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 6) Has the CELLEFF.xls file been updated ? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 7) Have the calibration dates been updated in ALPHALIMS ? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |

Prepared By: Ad Beal

Date: 5/6/05

Reviewed By: Cezela A. Johnson

Date: 5/9/05

Effective Date: 5/9/05

Ra-226 Cell Constants

Standard Reference date: 12/15/1999
 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 | 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 | 1.890 | Average | 1.872 | CAL 1 | 4/25/2005 14:05 | 4/25/2005 10:15 | 4/22/2005 17:15 | 0.267 | 5180 | 30 | 172.67 | 243.02 | 2.70833 | 0.15972 | 1959 | 0.9977 |
| 201 | 1.999 | Stdev | 0.137 | CAL 7 | 5/2/2005 17:10 | 5/2/2005 14:10 | 4/29/2005 15:00 | 0.233 | 5908 | 30 | 196.83 | 243.02 | 2.96528 | 0.12500 | 1966 | 0.9977 |
| 201 | 1.727 | | | CAL 1 | 4/28/2005 12:20 | 4/28/2005 9:05 | 4/25/2005 16:00 | 0.267 | 4759 | 30 | 158.63 | 243.02 | 2.71181 | 0.13542 | 1962 | 0.9977 |
| 202 | 1.855 | Average | 1.775 | CAL 8 | 5/2/2005 17:45 | 5/2/2005 14:40 | 4/29/2005 15:00 | 0.233 | 5508 | 30 | 183.60 | 243.02 | 2.98611 | 0.12847 | 1966 | 0.9977 |
| 202 | 1.706 | Stdev | 0.075 | CAL 14 | 4/26/2005 15:30 | 4/26/2005 11:40 | 4/22/2005 17:15 | 0.167 | 5960 | 30 | 198.67 | 243.02 | 3.76736 | 0.15972 | 1960 | 0.9977 |
| 202 | 1.763 | | | CAL 13 | 4/29/2005 15:20 | 4/29/2005 12:05 | 4/26/2005 15:00 | 0.267 | 5086 | 30 | 169.53 | 243.02 | 2.87847 | 0.13542 | 1963 | 0.9977 |
| 203 | 1.910 | Average | 1.823 | CAL 3 | 4/25/2005 15:40 | 4/25/2005 11:50 | 4/22/2005 17:15 | 0.267 | 5333 | 30 | 177.77 | 243.02 | 2.77431 | 0.15972 | 1959 | 0.9977 |
| 203 | 1.788 | Stdev | 0.076 | CAL 9 | 5/2/2005 20:40 | 5/2/2005 15:15 | 4/29/2005 15:00 | 0.267 | 5249 | 30 | 174.97 | 243.02 | 3.01042 | 0.22569 | 1966 | 0.9977 |
| 203 | 1.771 | | | CAL 14 | 4/29/2005 15:55 | 4/29/2005 12:45 | 4/26/2005 15:00 | 0.267 | 5149 | 30 | 171.63 | 243.02 | 2.90625 | 0.13194 | 1963 | 0.9977 |
| 204 | 1.713 | Average | 1.753 | CAL 4 | 4/25/2005 16:15 | 4/25/2005 12:40 | 4/22/2005 17:15 | 0.167 | 4836 | 30 | 161.20 | 243.02 | 2.80903 | 0.14981 | 1959 | 0.9977 |
| 204 | 1.762 | Stdev | 0.036 | CAL 16 | 4/26/2005 16:35 | 4/26/2005 12:50 | 4/22/2005 17:15 | 0.267 | 6218 | 30 | 207.27 | 243.02 | 3.81597 | 0.15625 | 1960 | 0.9977 |
| 204 | 1.783 | | | CAL 10 | 5/2/2005 22:05 | 5/2/2005 15:45 | 4/29/2005 15:00 | 0.200 | 5222 | 30 | 174.07 | 243.02 | 3.03125 | 0.26389 | 1966 | 0.9977 |
| 205 | 1.949 | Average | 1.967 | CAL 5 | 4/25/2005 16:50 | 4/25/2005 13:20 | 4/22/2005 17:15 | 0.200 | 5847 | 30 | 184.90 | 243.02 | 2.86881 | 0.14583 | 1959 | 0.9977 |
| 205 | 1.964 | Stdev | 0.020 | CAL 17 | 4/26/2005 17:50 | 4/26/2005 13:30 | 4/22/2005 17:15 | 0.267 | 6932 | 30 | 231.07 | 243.02 | 3.84375 | 0.18056 | 1960 | 0.9977 |
| 205 | 1.989 | | | CAL 16 | 4/29/2005 17:05 | 4/29/2005 14:00 | 4/26/2005 15:00 | 0.267 | 5865 | 30 | 195.50 | 243.02 | 2.95633 | 0.12847 | 1963 | 0.9977 |
| 206 | 1.840 | Average | 1.880 | CAL 6 | 4/25/2005 17:35 | 4/25/2005 13:55 | 4/22/2005 17:15 | 0.133 | 5263 | 30 | 175.43 | 243.02 | 2.86111 | 0.15278 | 1959 | 0.9977 |
| 206 | 1.943 | Stdev | 0.056 | CAL 11 | 5/3/2005 8:30 | 5/2/2005 16:20 | 4/29/2005 15:00 | 0.267 | 5319 | 30 | 177.30 | 243.02 | 3.05556 | 0.67361 | 1966 | 0.9977 |
| 206 | 1.855 | | | CAL 17 | 4/29/2005 17:35 | 4/29/2005 14:35 | 4/26/2005 15:00 | 0.200 | 5505 | 30 | 183.50 | 243.02 | 2.98264 | 0.12500 | 1963 | 0.9977 |
| 207 | 1.805 | Average | 1.725 | CAL 7 | 4/25/2005 18:05 | 4/25/2005 14:25 | 4/22/2005 17:15 | 0.200 | 5192 | 30 | 173.07 | 243.02 | 2.88194 | 0.15278 | 1959 | 0.9977 |
| 207 | 1.826 | Stdev | 0.081 | CAL 19 | 4/27/2005 15:15 | 4/27/2005 11:10 | 4/22/2005 17:15 | 0.267 | 6615 | 30 | 220.50 | 243.02 | 4.74653 | 0.17014 | 1961 | 0.9977 |
| 207 | 1.743 | | | CAL 1 | 5/2/2005 13:35 | 5/2/2005 9:20 | 4/29/2005 15:00 | 0.267 | 4838 | 30 | 161.27 | 243.02 | 2.76389 | 0.17708 | 1966 | 0.9977 |
| 208 | 1.796 | Average | 1.786 | CAL 8 | 4/25/2005 18:45 | 4/25/2005 14:55 | 4/22/2005 17:15 | 0.267 | 5192 | 30 | 173.07 | 243.02 | 2.90278 | 0.15972 | 1959 | 0.9977 |
| 208 | 1.713 | Stdev | 0.068 | CAL 2 | 5/2/2005 14:15 | 5/2/2005 10:05 | 4/29/2005 15:00 | 0.133 | 4794 | 30 | 159.80 | 243.02 | 2.79514 | 0.17361 | 1966 | 0.9977 |
| 208 | 1.848 | | | CAL 8 | 4/28/2005 17:30 | 4/28/2005 14:20 | 4/25/2005 16:00 | 0.133 | 5403 | 30 | 180.10 | 243.02 | 2.93056 | 0.13194 | 1962 | 0.9977 |
| 209 | 1.832 | Average | 1.744 | CAL 9 | 4/25/2005 21:45 | 4/25/2005 15:25 | 4/22/2005 17:15 | 0.267 | 5223 | 30 | 174.10 | 243.02 | 2.92361 | 0.26389 | 1959 | 0.9977 |
| 209 | 1.693 | Stdev | 0.076 | CAL 21 | 4/27/2005 16:25 | 4/27/2005 12:15 | 4/22/2005 17:15 | 0.233 | 6921 | 30 | 230.70 | 243.02 | 4.79167 | 0.17361 | 1961 | 0.9977 |
| 209 | 1.707 | | | CAL 6 | 5/2/2005 16:30 | 5/2/2005 13:15 | 4/29/2005 15:00 | 0.267 | 4988 | 30 | 166.27 | 243.02 | 2.92708 | 0.13542 | 1966 | 0.9977 |
| 210 | 1.702 | Average | 1.726 | CAL 10 | 4/26/2005 12:45 | 4/26/2005 8:30 | 4/22/2005 17:15 | 0.033 | 5778 | 30 | 192.60 | 243.02 | 3.63542 | 0.17708 | 1960 | 0.9977 |
| 210 | 1.679 | Stdev | 0.063 | CAL 22 | 4/27/2005 17:00 | 4/27/2005 12:45 | 4/22/2005 17:15 | 0.267 | 6879 | 30 | 229.30 | 243.02 | 4.81250 | 0.17708 | 1961 | 0.9977 |
| 210 | 1.798 | | | CAL 3 | 5/2/2005 14:50 | 5/2/2005 10:50 | 4/29/2005 15:00 | 0.200 | 5084 | 30 | 169.47 | 243.02 | 2.82639 | 0.16667 | 1966 | 0.9977 |
| 211 | 1.559 | Average | 1.703 | CAL 12 | 5/3/2005 14:35 | 5/3/2005 10:10 | 4/29/2005 15:00 | 0.267 | 5457 | 30 | 181.90 | 243.02 | 3.79861 | 0.18403 | 1967 | 0.9977 |
| 211 | 1.776 | Stdev | 0.124 | CAL 4 | 5/2/2005 15:25 | 5/2/2005 11:40 | 4/29/2005 15:00 | 0.167 | 5078 | 30 | 169.27 | 243.02 | 2.86111 | 0.15625 | 1966 | 0.9977 |
| 211 | 1.772 | | | CAL 11 | 4/29/2005 13:35 | 4/29/2005 10:25 | 4/26/2005 15:00 | 0.267 | 5021 | 30 | 167.37 | 243.02 | 2.80903 | 0.13194 | 1963 | 0.9977 |
| 212 | 1.708 | Average | 1.808 | CAL 12 | 4/26/2005 14:10 | 4/26/2005 10:00 | 4/22/2005 17:15 | 0.133 | 5875 | 30 | 195.83 | 243.02 | 3.69792 | 0.17361 | 1960 | 0.9977 |
| 212 | 1.905 | Stdev | 0.098 | CAL 5 | 5/2/2005 16:00 | 5/2/2005 12:30 | 4/29/2005 15:00 | 0.267 | 5509 | 30 | 183.63 | 243.02 | 2.89583 | 0.14583 | 1966 | 0.9977 |
| 212 | 1.809 | | | CAL 12 | 4/29/2005 14:15 | 4/29/2005 11:15 | 4/26/2005 15:00 | 0.267 | 5181 | 30 | 172.70 | 243.02 | 2.84375 | 0.12500 | 1963 | 0.9977 |

Adl Bards
5/19/05

Angela J. Johnson
5/19/05

| Sample ID | Volume (mL) | End Degas Date/Time | End De-em Date/Time | Start Count Date/Time | Cell # | Det # | Background CPM | Total Counts |
|-------------------|----------------|-------------------------|---|--|----------------|--------------|--------------------|------------------|
| CAL 1 | 500 | 4/22/05 1715 | 4/25/05 1015 | 4/25/05 1405 | 201 | 2 | 8=0.267 | 5180 |
| CAL 2 | 500 | 4/22/05 1715 | 4/25/05 1055 | 4/25/05 1410 | 202 | 2 | 7=0.233 | 47744 |
| CAL 3 | 500 | 4/22/05 1715 | 4/25/05 1150 | 4/25/05 1445 ¹⁵⁴⁰ AB1 4/25/05 | 203 | 2 | 8=0.267 | 5333 |
| CAL 4 | 500 | 4/22/05 1715 | 4/25/05 1240 | 4/25/05 1615 | 204 | 2 | 5=0.167 | 4836 |
| CAL 5 | 500 | 4/22/05 1715 | 4/25/05 1320 | 4/25/05 1650 | 205 | 2 | 6=0.200 | 5547 |
| CAL 6 | 500 | 4/22/05 1715 | 4/25/05 1355 | 4/25/05 1735 | 206 | 2 | 4=0.133 | 5263 |
| CAL 7 | 500 | 4/22/05 1715 | 4/25/05 1425 | 4/25/05 1805 | 207 | 2 | 6=0.200 | 5192 |
| CAL 8 | 500 | 4/22/05 1715 | 4/25/05 1455 | 4/25/05 1845 | 208 | 2 | 8=0.267 | 5192 |
| CAL 9 | 500 | 4/22/05 1715 | 4/25/05 1525 | 4/25/05 2145 | 209 | 2 | 8=0.267 | 8223 |
| CAL 10 | 500 | 4/22/05 1715 | 4/25/05 830 ^{4/26/05} AB1 4/26/05 | 4/25/05 1245 ^{4/26/05} AB1 4/26/05 | 210 | 2 | 1=0.033 | 5778 |
| CAL 11 | 500 | 4/22/05 1715 | 4/26/05 915 | 4/26/05 1335 | 211 | 2 | 6=0.200 | 5261 |
| CAL 12 | 500 | 4/22/05 1715 | 4/26/05 1000 | 4/26/05 1410 | 212 | 2 | 4=0.133 | 5875 |
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AB1 5/6/05

AB1 5/6/05

AB1 5/6/05

AB1 5/6/05
5/6/05
1744

| Sample ID | Volume (mL) | End Degas Date/Time | End De-em Date/Time | Start Count Date/Time | Cell # | Det # | Background CPM | Total Counts |
|-------------------|----------------|-------------------------|-------------------------|-------------------------|----------------|--------------|-----------------------------------|-----------------------------------|
| CAL 13 | 500 | 4/22/05 1715 | 4/26/05 1040 | 4/26/05 1455 | 201 | 2 | 5791 ^{5/1/05} | 5791 ^{5/1/05} |
| CAL 14 | 500 | 4/22/05 1715 | 4/26/05 1140 | 4/26/05 1530 | 202 | 2 | 5760 | 5760 |
| CAL 15 | 500 | 4/22/05 1715 | 4/26/05 1220 | 4/26/05 1600 | 203 | 2 | 8=0.267 | 5854 |
| CAL 16 | 500 | 4/22/05 1715 | 4/26/05 1250 | 4/26/05 1635 | 204 | 2 | 8=0.267 | 6218 |
| CAL 17 | 500 | 4/22/05 1715 | 4/26/05 1330 | 4/26/05 1750 | 205 | 2 | 8=0.267 | 6932 |
| CAL 18 | 500 | 4/22/05 1715 | 4/27/05 1045 | 4/27/05 1440 | 206 | 2 | 8=0.267 | 6555 |
| CAL 19 | 500 | 4/22/05 1715 | 4/27/05 1110 | 4/27/05 1515 | 207 | 2 | 8=0.267 | 6615 |
| CAL 20 | 500 | 4/22/05 1715 | 4/27/05 1145 | 4/27/05 1550 | 208 | 2 | 6=0.220 | 3323 |
| CAL 21 | 500 | 4/22/05 1715 | 4/27/05 1215 | 4/27/05 1625 | 209 | 2 | 7=0.233 | 6921 |
| CAL 22 | 500 | 4/22/05 1715 | 4/27/05 1245 | 4/27/05 1700 | 210 | 2 | 8=0.267 | 6879 |
| CAL 23 | 500 | 4/22/05 1715 | 4/27/05 1315 | 4/27/05 1735 | 211 | 2 | 41=0.133 | 5863 |
| CAL 24 | 500 | 4/22/05 1715 | 4/27/05 1350 | 4/27/05 1815 | 212 | 2 | 7=0.233 | 6942 |
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APR 5/16/05
APR 5/16/05

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 13 | 500 | 4/26/05 1500 | 4/29/05 1205 | 4/29/05 1520 | 202 | 2 | 8=0.267 | 5086 |
| CAL 14 | 500 | 4/26/05 1500 | 4/29/05 1245 | 4/29/05 1555 | 203 | 2 | 8=0.267 | 5149 |
| CAL 15 | 500 | 4/26/05 1500 | 4/29/05 1320 | 4/29/05 1630 | 204 | 2 | 8=0.267 | 4907 |
| CAL 16 | 500 | 4/26/05 1500 | 4/29/05 1400 | 4/29/05 1705 | 205 | 2 | 8=0.267 | 5865 |
| CAL 17 | 500 | 4/26/05 1500 | 4/29/05 1435 | 4/29/05 1735 | 206 | 2 | 6=0.200 | 5505 |
| | | | | 5/2/05 | | | | |
| CAL 1 | 500 | 4/29/05 1500 | 5/2/05 920 | 5/2/05 1335 | 207 | 2 | 8=0.267 | 4838 |
| CAL 2 | 500 | 4/29/05 1500 | 5/2/05 1005 | 5/2/05 1415 | 208 | 2 | 4=0.132 | 4774 |
| CAL 3 | 500 | 4/29/05 1500 | 5/2/05 1050 | 5/2/05 1450 | 210 | 2 | 6=0.200 | 5084 |
| CAL 4 | 500 | 4/29/05 1500 | 5/2/05 1140 | 5/2/05 1525 | 211 | 2 | 5=0.167 | 5078 |
| CAL 5 | 500 | 4/29/05 1500 | 5/2/05 1230 | 5/2/05 1600 | 212 | 2 | 8=0.267 | 5509 |
| CAL 6 | 500 | 4/29/05 1500 | 5/2/05 1315 | 5/2/05 1630 | 209 | 2 | 8=0.267 | 4989 |
| CAL 7 | 500 | 4/29/05 1500 | 5/2/05 1410 | 5/2/05 1710 | 201 | 2 | 7=0.233 | 5908 |
| CAL 8 | 500 | 4/29/05 1500 | 5/2/05 1440 | 5/2/05 1745 | 202 | 2 | 7=0.233 | 5508 |
| CAL 9 | 500 | 4/29/05 1500 | 5/2/05 1515 | 5/2/05 2040 | 203 | 2 | 8=0.267 | 5249 |
| CAL 10 | 500 | 4/29/05 1500 | 5/2/05 1545 | 5/2/05 2805 | 204 | 2 | 6=0.200 | 5222 |
| CAL 11 | 500 | 4/29/05 1500 | 5/2/05 1620 | 5/2/05 2815 | 206 | 2 | 8=0.267 | 5319 |
| | | | | 5/3/05 8:30 | | | | |
| CAL 12 | 500 | 4/29/05 1500 | 5/3/05 1010 | 5/3/05 1435 | 211 | 2 | 8=0.267 | 5457 |

ABI 5/6/05

ABI 5/6/05

ATG 5/6/05

ABI 5/6/05

ABI 5/6/05

General Engineering Laboratories Verification Source Preparation Sheet

Applicable SOP Number GL-RAD-A-008, Rev. 2 Isotope Ra-226
 Date Standards Prepared 8/26/03 Cocktail Type Used N/A
 Standard ID 0299-E Matrix of Vial/Planchett N/A
 Amount Used (g or ml) 0.1 N/A
 Standard Activity (DPM/g or ml) 2434.34 Type of Scintillation Vial N/A
 Reference Date 12/15/99 Pipette ID Used 1429303
 Expiration Date 8/26/05 Balance ID Used 36040216
 Residue/Carrier Agent 0.5 M HCl Quenching Agent N/A

| | Standard Number | Quenching Vol (uL)/ Residue Volume (mL) | Initial Wt. (g) | Final Wt. (g) | Net Wt. (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 | | | | |
| 13 | CAL 13 | | | | |
| 14 | CAL 14 | | | | |
| 15 | CAL 15 | | | | |

ADL
5/6/05

Prepared By: Ad Beil Date: 5/6/05
 Reviewed By: Angela A. Johnson Date: 5/9/05

Rev 1 RLM.9/10/97

General Engineering Laboratories Verification Source Preparation Sheet

Applicable SOP Number GL-RAD-A-608, Rev. 8 Isotope Ra-226
 Date Standards Prepared 8/26/03 Cocktail Type Used N/A
 Standard ID 0299-E Matrix of Vial/Planchett N/A
 Amount Used (g or ml) 0.1 N/A
 Standard Activity (DPM/g or ml) 2434.34 Type of Scintillation Vial N/A
 Reference Date 12/15/99 Pipette ID Used 1429303
 Expiration Date 8/26/05 Balance ID Used 36040216
 Residue/Carrier Agent 0.5 m HCl Quenching Agent N/A

| | Standard Number | Quenching Vol (uL)/ Residue Volume(mL) | Initial Wt. (g) | Final Wt. (g) | Net Wt. (mg) |
|----|-----------------|---|--------------------|------------------|-----------------|
| 16 | CAL 16 | | | | |
| 17 | CAL 17 | | | | |
| 18 | CAL 18 | | | | |
| 19 | CAL 19 | | | | |
| 20 | CAL 20 | | | | |
| 21 | CAL 21 | | | | |
| 22 | CAL 22 | | | | |
| 23 | CAL 23 | | | | |
| 24 | CAL 24 | ABJ 5/6/05 | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

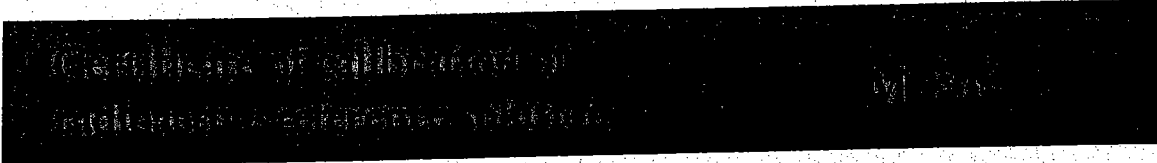
Prepared By: Ad Bail Date 5/6/05
 Reviewed By: Angela A. Johnson Date 5/9/05

Rev 1 RLM 9/10/97

8-21-00

Nycomed Amersham plc
Amersham Laboratories

029



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
ory

Page 428 of 741

Date of
issue

17th December 1999

Nycomed
Amersham

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: $\pm 1.3\%$

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.



Standard Traceability Log Rad

| Source Material Info | | A Solution Material Info | |
|----------------------|--------------|--------------------------|--------------|
| Parent Code: | 0299 | Isotope: | Radium-226 |
| Prepared By: | Angela Albee | Prepared By: | Angela Albee |
| Carrier Conc: | 0.5 M HCL | Prep Date: | 09/15/2000 |
| Reference Date: | 12/15/1999 | Verification Date: | 08/26/2004 |
| Ampoule Mass (g): | 5.0368 g | Expiration Date: | 08/26/2005 |
| 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 |

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 |
|------------|--------------|--------------|---------------|--------|----------------|-------------------|-----------------|
| 09/26/2000 | Angela Albee | 2.1096 | 100 | 0299-C | 2579.62 dpm/mL | 10/10/2002 | 10/10/2003 |
| 09/15/2000 | Angela Albee | .2004 | 100 | 0299-B | 245.05 dpm/mL | 09/15/2000 | 09/15/2001 |
| 08/23/2002 | Angela Albee | 2.0443 | 100 | 0299-D | 2499.77 dpm/mL | 08/23/2002 | 08/23/2003 |
| 08/26/2003 | Angela Albee | 1.9909 | 100 | 0299-E | 2434.34 dpm/mL | 08/26/2004 | 08/26/2005 |
| 08/26/2003 | Angela Albee | 1.9872 | 100 | 0299-F | 2429.82 dpm/mL | 08/26/2004 | 08/26/2005 |

General Engineering Laboratories, LLC
Version 1.0 9/18/2000

Verification for Ra-226 Standard 0299-E

| 8/26/2004 | Isotope | Detector CPM | BKG CPM | NET CPM | Detector Eff | Standard Mass. Used (G) | Source DPM/G |
|-----------|-----------|--------------|---------|----------|--------------|-------------------------|--------------|
| A. Fehr | 0299-F N1 | 561.0000 | 26.9000 | 534.1000 | 3.38485694 | 0.0645 | 2446.372267 |
| | 0299-F N2 | 567.3000 | 26.9000 | 540.4000 | 3.38485694 | 0.0658 | 2426.325867 |
| | 0299-F N3 | 540.4000 | 26.9000 | 513.5000 | 3.38485694 | 0.0652 | 2326.765061 |

Mean Value (Counting) = 2399.821065 % of known
 Stdev = 64.05739118 0.02669257

Certificate Value = 2429.4 dpm/mL
 Lower Limit = 2271.706283 dpm/mL
 Upper Limit = 2527.935847 dpm/mL
 Rule 1 Pass/Fail Pass
 Two sigma = 128.1147824 dpm/mL
 10 % of Mean = 239.9821065 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.

The analyst prepared three standard verification sources for Ra-226 source 0299-E 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 Yellow (Wallac) using Protocol 23 for Radium source standard verification. The Ra-226 efficiency calibration which was used for verification calculations was performed on 8/26/04 using source 0321-A (Ra-226). Calibration data is recorded in this logbook under Ra-226 0321. Each verification source calculation was performed as follows:

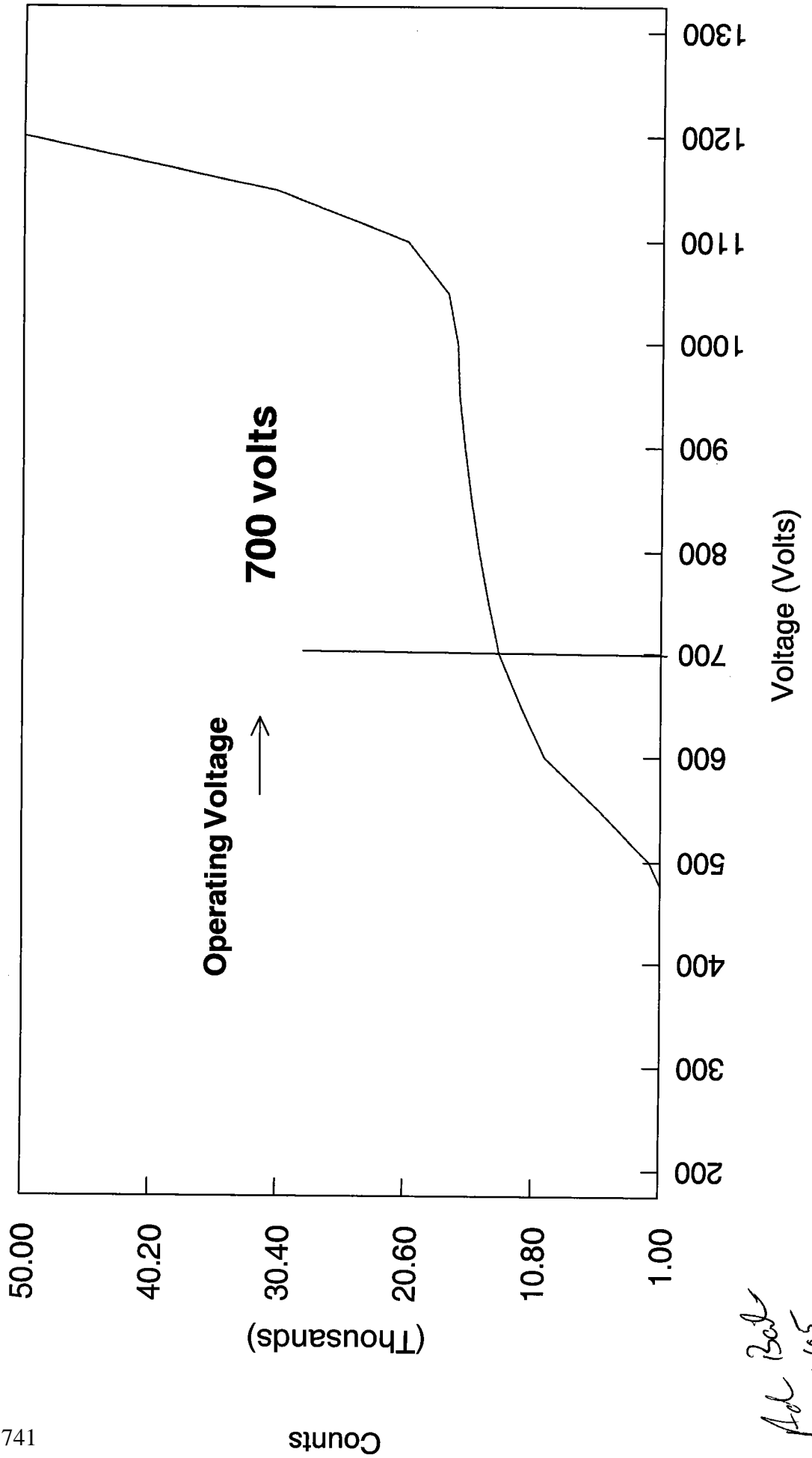
Source dpm/g = (A - B)/(C)(D)
 where:
 A = Ver. source cpm,
 B = BKG cpm,
 C = System efficiency, (cpm/dpm), and
 D = mass used for standard verification.

RAD SOP M-001

Amanda L. Fehr 8/26/04
 Heather W. W. 8/26/04

Plateau April, 2005

Ludlum # 2



Counts

Ad. Beck
5/6/05

ADD
5/9/05

Ra-226 WATER

Sample ID

Batch : LCSVER
 Date : 5/4/2005
 Analyst : AB1

Procedure Code : LUC26RAL
 Parmname : Radium-226
 MDA : 1 pCi/L

Instrument Used : LUCAS CELL DETECTOR

Bkg Count Time: 30 min

201
 202
 203
 204
 205
 206
 207
 208
 209
 210
 211
 212

| 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 | DEGASSING DATE/TIME |
|-----------|--------------|----------------|------------------|------------|-----------------|---------|------------------|---------------------|--------------------|-----------------|---------------------|
| VER 1 | 0.500 | 30 | 506 | 201 | 1.87 | 0.267 | 0.6922 | 21.6828 | 1.9348 | 5/6/2005 12:10 | 5/3/2005 18:00 |
| VER 8 | 0.500 | 30 | 780 | 202 | 1.78 | 0.167 | 0.3911 | 23.0678 | 1.6346 | 5/4/2005 13:00 | 4/29/2005 15:00 |
| VER 2 | 0.500 | 30 | 544 | 203 | 1.82 | 0.267 | 0.7034 | 23.7135 | 2.0374 | 5/6/2005 12:45 | 5/3/2005 18:00 |
| VER 10 | 0.500 | 30 | 797 | 204 | 1.75 | 0.200 | 0.4221 | 23.6367 | 1.6597 | 5/4/2005 14:35 | 4/29/2005 15:00 |
| VER 2 | 0.500 | 30 | 766 | 205 | 1.97 | 0.167 | 0.4096 | 23.7204 | 1.6964 | 5/3/2005 16:00 | 4/29/2005 15:00 |
| VER 11 | 0.500 | 30 | 860 | 206 | 1.88 | 0.167 | 0.3650 | 23.7490 | 1.6012 | 5/4/2005 15:10 | 4/29/2005 15:00 |
| VER 3 | 0.500 | 30 | 732 | 207 | 1.73 | 0.267 | 0.5609 | 25.5427 | 1.8811 | 5/3/2005 16:30 | 4/29/2005 15:00 |
| VER 3 | 0.500 | 30 | 484 | 208 | 1.79 | 0.233 | 0.6728 | 21.3535 | 1.9442 | 5/6/2005 13:20 | 5/3/2005 18:00 |
| VER 4 | 0.500 | 30 | 582 | 209 | 1.74 | 0.267 | 0.7214 | 26.0445 | 2.1602 | 5/6/2005 13:55 | 5/3/2005 18:00 |
| VER 6 | 0.500 | 30 | 663 | 210 | 1.73 | 0.267 | 0.5649 | 23.2734 | 1.8040 | 5/3/2005 22:05 | 4/29/2005 15:00 |
| VER 5 | 0.500 | 30 | 545 | 211 | 1.70 | 0.067 | 0.4293 | 25.0218 | 2.1124 | 5/6/2005 15:10 | 5/3/2005 18:00 |
| VER 6 | 0.500 | 30 | 610 | 212 | 1.81 | 0.067 | 0.4014 | 26.1947 | 2.0891 | 5/6/2005 15:40 | 5/3/2005 18:00 |

AN Bob 5/19/05

Omega A. Johnson 5/19/05

| Sample Dup | Det # | Run Date | Sample Type | Standard ID | NC | NC units | Recovery/RPD |
|-----------------------|------------------|-----------------|-------------|-------------|----------|------------|----------------------|
| | 2 | 5/6/2005 12:10 | LCS | 0321-G | 25.42 | pCi/L | 85% |
| | 2 | 5/4/2005 13:00 | LCS | 0321-G | 25.42 | pCi/L | 91% |
| | 2 | 5/6/2005 12:45 | LCS | 0321-G | 25.42 | pCi/L | 93% |
| | 2 | 5/4/2005 14:35 | LCS | 0321-G | 25.42 | pCi/L | 93% |
| | 2 | 5/3/2005 16:00 | LCS | 0321-G | 25.42 | pCi/L | 93% |
| | 2 | 5/4/2005 15:10 | LCS | 0321-G | 25.42 | pCi/L | 93% |
| | 2 | 5/3/2005 16:30 | LCS | 0321-G | 25.42 | pCi/L | 100% |
| | 2 | 5/6/2005 13:20 | LCS | 0321-G | 25.42 | pCi/L | 84% |
| | 2 | 5/6/2005 13:55 | LCS | 0321-G | 25.42 | pCi/L | 102% |
| | 2 | 5/3/2005 22:05 | LCS | 0321-G | 25.42 | pCi/L | 92% |
| | 2 | 5/6/2005 15:10 | LCS | 0321-G | 25.42 | pCi/L | 98% |
| | 2 | 5/6/2005 15:40 | LCS | 0321-G | 25.42 | pCi/L | 103% |
| DE-EMAN. DATE/TIME | DEGASS- DE-EM | dE-EM- COUNT | constant | constant | constant | Net CPM | Ingrowth constant |
| 5/6/2005 8:45 | 62.75 | 3.42 | 0.3773 | 0.9745 | 1.0019 | 16.5997 | 0.3684 |
| 5/4/2005 10:00 | 115.00 | 3.00 | 0.5803 | 0.9776 | 1.0019 | 25.8330 | 0.5684 |
| 5/6/2005 9:30 | 63.50 | 3.25 | 0.3809 | 0.9758 | 1.0019 | 17.8663 | 0.3723 |
| 5/4/2005 11:35 | 116.58 | 3.00 | 0.5853 | 0.9776 | 1.0019 | 26.3667 | 0.5733 |
| 5/3/2005 11:55 | 92.92 | 4.08 | 0.5042 | 0.9696 | 1.0019 | 25.3663 | 0.4898 |
| 5/4/2005 12:10 | 117.17 | 3.00 | 0.5871 | 0.9776 | 1.0019 | 28.4997 | 0.5751 |
| 5/3/2005 12:40 | 93.67 | 3.83 | 0.5070 | 0.9715 | 1.0019 | 24.1330 | 0.4934 |
| 5/6/2005 10:10 | 64.17 | 3.17 | 0.3840 | 0.9764 | 1.0019 | 15.9003 | 0.3756 |
| 5/6/2005 10:55 | 64.92 | 3.00 | 0.3874 | 0.9776 | 1.0019 | 19.1330 | 0.3795 |
| 5/3/2005 15:00 | 96.00 | 7.08 | 0.5156 | 0.9479 | 1.0019 | 21.8330 | 0.4897 |
| 5/6/2005 11:50 | 65.83 | 3.33 | 0.3917 | 0.9751 | 1.0019 | 18.0997 | 0.3827 |
| 5/6/2005 12:25 | 66.42 | 3.25 | 0.3943 | 0.9758 | 1.0019 | 20.2663 | 0.3855 |

5/19/05
Add Data

Angela J. Johnson 5/19/05

CALIBRATION STANDARD DETECTOR # 2

| CELL # | END DEGAS TIME | END DE-EM TIME | COUNT TIME | DET # | BKG COUNTS | TOTAL COUNTS | SAMPLE # |
|--------|----------------|----------------|--------------|-------|------------|--------------|----------|
| 201 | 4/29/05 1500 | 5/23/05 1055 | 5/30/05 1515 | 2 | 8 | 637 | VER 1 |
| 202 | 4/29/05 1500 | 5/4/05 1000 | 5/4/05 1300 | 2 | 5 | 780 | VER 8 |
| 203 | 4/29/05 1500 | 5/4/05 1045 | 5/4/05 1345 | 2 | 6 | 731 | VER 9 |
| 204 | 4/29/05 1500 | 5/4/05 1135 | 5/4/05 1435 | 2 | 6 | 797 | VER 10 |
| 205 | 4/29/05 1500 | 5/2/05 1155 | 5/2/05 1600 | 2 | 5 | 766 | VER 2 |
| 206 | 4/29/05 1500 | 5/4/05 1210 | 5/4/05 1510 | 2 | 5 | 860 | VER 11 |
| 207 | 4/29/05 1500 | 5/3/05 1240 | 5/3/05 1630 | 2 | 8 | 732 | VER 3 |
| 208 | 4/29/05 1500 | 5/3/05 1330 | 5/3/05 1745 | 2 | 8 | 844 | VER 4 |
| 209 | 4/29/05 1500 | 5/3/05 1430 | 5/3/05 1755 | 2 | 8 | 853 | VER 5 |
| 210 | 4/29/05 1500 | 5/3/05 1500 | 5/3/05 1805 | 2 | 8 | 663 | VER 6 |
| 211 | 4/29/05 1500 | 5/4/05 1240 | 5/4/05 1540 | 2 | 5 | 719 | VER 12 |
| 212 | 5/2/05 1500 | 5/2/05 1540 | 5/2/05 2055 | 2 | 6 | 903 | VER 7 |

ABI 5/6/05

ABI 5/6/05

ABI 5/6/05

ABI 5/6/05

ABI 5/6/05

ABI 5/6/05

ABI 5/6/05

ABI 5/6/05

AT 5/6/05

General Engineering Laboratories Verification Source Preparation Sheet

Applicable SOP Number GL-RAD-A-008, Rev. 8 Isotope Ra-226
 Date Standards Prepared 9/13/04 Cocktail Type Used N/A
 Standard ID 0321-G Matrix of Vial/Planchett N/A
 Amount Used (g or mL) 0.1 N/A
 Standard Activity (DPM/g or mL) 283.81 Type of Scintillation Vial N/A
 Reference Date 9/9/91 Pipette ID Used 1429303
 Expiration Date 9/13/05 Balance ID Used 36040216
 Residue/Carrier Agent 1 M HCl Quenching Agent N/A

| | Standard Number | Quenching Vol (uL)/ Residue Volume(mL) | Initial Wt. (g) | Final Wt. (g) | Net Wt. (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 | | ABI 51615 | | |
| 10 | VER 10 | | | | |
| 11 | VER 11 | | | | |
| 12 | VER 12 | | | | |
| | ABI 516105 | | | | |

Prepared By: Ade Baird Date: 5/6/05
 Reviewed By: Angela J. Johnson Date: 5/9/05

Rev 1 RLM.9/10/97

Verification for Ra-226 Standard 0321-G

A. Fehr
9/14/2004

| Isotope | Detector CPM | BKG CPM | NET CPM | Detector Eff | Mass. Used (g) | Standard | Source DPM/g |
|-----------|--------------|---------|----------|--------------|----------------|----------|--------------|
| 0321-E N1 | 1049.0000 | 68.4000 | 980.6000 | 3.416301 | 1.0000 | | 287.0355979 |
| 0321-E N2 | 1051.6000 | 68.4000 | 983.2000 | 3.416301 | 1.0000 | | 287.7966549 |
| 0321-E N3 | 1036.2000 | 68.4000 | 967.8000 | 3.416301 | 1.0000 | | 283.2888554 |
| | | | | | Average = | | 286.0403694 |

Mean Value (Counting) = 286.0403694
 Stdev = 2.413073537

Certificate Value = 282.2
 Lower Limit = 281.2142223
 Upper Limit = 290.8665165
 Rule 1 Pass/Fail Pass Pass
 Two sigma = 4.826147074
 10 % of Mean = 28.60403694
 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.

The analyst prepared three standard verification sources for Ra-226 source 0321-G 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 Green using source standard verification. The Ra-226 efficiency calibration which was used for verification calculations was performed on 1/9/04 using source 0299-A (Ra-226). Calibration data is recorded in this logbook under Ra-226 (0299-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

Amanda J. Fehr 9/14/04

Angela S. Johnson 10/20/04

General Engineering Laboratories

2040 Savage Road, Charleston, SC 29414
(843)556-8171

Lucas Cell Calibration Package

301-311

| | YES | NO | Comments |
|--|-------------------------------------|--------------------------|----------|
| 1) Is all calibration standard information enclosed for: the primary standard certificate? the secondary standard(s) documentation? standard preparation information? standard < 1 Year old or verified? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2) Is the efficiency calibration report included ? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 3) Is the raw count data included for: Cell constant determination? Plateau generation? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 4) Are the calibration verifications included? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 5) Are the instrument settings included: HVPS settings? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 6) Has the CELLEFF.xls file been updated ? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 7) Have the calibration dates been updated in ALPHALIMS ? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |

Prepared By: Angela L. Johnson

Date: 11/23/05

Reviewed By: [Signature]

Date: 11/23/05

Effective Date: 11/23/05

Ra-226 Cell Constants

Standard Reference date: 12/15/1999
 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 | 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 | 1.779 | Average | 11/15/2005 7:20 | 11/15/2005 4:20 | 11/9/2005 15:30 | 0.267 | 7998 | 30 | 266.60 | 242.81 | 5.53472 | 0.12500 | 2162 | 0.9974 |
| 301 | 1.673 | Stdev | 11/22/2005 16:50 | 11/22/2005 8:45 | 11/15/2005 12:40 | 0.267 | 8118 | 30 | 270.60 | 242.81 | 6.83681 | 0.33681 | 2170 | 0.9974 |
| 301 | 1.835 | | 11/9/2005 6:30 | 11/9/2005 5:15 | 10/30/2005 13:15 | 0.267 | 6316 | 30 | 210.53 | 242.81 | 3.66667 | 0.13542 | 2150 | 0.9975 |
| 302 | 1.770 | Average | 11/15/2005 9:20 | 11/15/2005 5:00 | 11/9/2005 15:30 | 0.267 | 7901 | 30 | 263.37 | 242.81 | 5.56250 | 0.18056 | 2162 | 0.9974 |
| 302 | 1.796 | Stdev | 11/9/2005 8:50 | 11/9/2005 5:40 | 11/4/2005 14:20 | 0.133 | 7237 | 30 | 241.23 | 242.81 | 4.63889 | 0.13194 | 2156 | 0.9974 |
| 302 | 1.891 | | 11/2/2005 11:25 | 11/2/2005 8:05 | 10/30/2005 13:15 | 0.267 | 5309 | 30 | 176.97 | 242.81 | 2.78472 | 0.13889 | 2149 | 0.9975 |
| 303 | 1.980 | Average | 11/22/2005 17:20 | 11/22/2005 9:25 | 11/15/2005 12:40 | 0.267 | 9639 | 30 | 321.30 | 242.81 | 6.86458 | 0.32986 | 2170 | 0.9974 |
| 303 | 2.103 | Stdev | 11/8/2005 7:50 | 11/8/2005 4:30 | 11/4/2005 14:20 | 0.267 | 7124 | 30 | 237.47 | 242.81 | 3.59028 | 0.13889 | 2155 | 0.9974 |
| 303 | 2.104 | | 11/2/2005 10:50 | 11/2/2005 7:30 | 10/30/2005 13:15 | 0.267 | 5867 | 30 | 195.57 | 242.81 | 2.76042 | 0.13889 | 2149 | 0.9975 |
| 304 | 1.777 | Average | 11/15/2005 10:05 | 11/15/2005 5:30 | 11/9/2005 15:30 | 0.267 | 7935 | 30 | 264.50 | 242.81 | 5.58333 | 0.19097 | 2162 | 0.9974 |
| 304 | 1.867 | Stdev | 11/8/2005 11:35 | 11/8/2005 8:35 | 11/4/2005 14:20 | 0.200 | 6549 | 30 | 218.30 | 242.81 | 3.76042 | 0.12500 | 2155 | 0.9974 |
| 304 | 1.999 | | 11/3/2005 10:40 | 11/3/2005 7:40 | 10/30/2005 13:15 | 0.267 | 7022 | 30 | 234.07 | 242.81 | 3.76736 | 0.12500 | 2150 | 0.9975 |
| 305 | 1.763 | Average | 10/31/2005 11:10 | 10/31/2005 7:30 | 10/16/2005 14:30 | 0.267 | 11585 | 30 | 386.17 | 242.81 | 14.70883 | 0.15278 | 2147 | 0.9975 |
| 305 | 1.787 | Stdev | 11/8/2005 8:25 | 11/8/2005 5:10 | 11/4/2005 14:20 | 0.133 | 6089 | 30 | 202.97 | 242.81 | 3.61806 | 0.13542 | 2155 | 0.9974 |
| 305 | 1.728 | | 11/15/2005 10:40 | 11/15/2005 6:30 | 11/9/2005 15:30 | 0.267 | 7776 | 30 | 259.20 | 242.81 | 5.62500 | 0.17361 | 2162 | 0.9974 |
| 306 | 1.845 | Average | 11/15/2005 11:10 | 11/15/2005 7:10 | 11/9/2005 15:30 | 0.267 | 8332 | 30 | 277.73 | 242.81 | 5.65278 | 0.16667 | 2162 | 0.9974 |
| 306 | 1.779 | Stdev | 11/8/2005 12:10 | 11/8/2005 9:10 | 11/4/2005 14:20 | 0.267 | 6270 | 30 | 209.00 | 242.81 | 3.78472 | 0.12500 | 2156 | 0.9974 |
| 306 | 1.854 | | 11/22/2005 17:35 | 11/22/2005 10:15 | 11/15/2005 12:40 | 0.267 | 9139 | 30 | 304.63 | 242.81 | 6.89931 | 0.30556 | 2170 | 0.9974 |
| 307 | 1.908 | Average | 11/15/2005 11:45 | 11/15/2005 7:45 | 11/9/2005 15:30 | 0.267 | 8637 | 30 | 287.90 | 242.81 | 5.67708 | 0.16667 | 2162 | 0.9974 |
| 307 | 1.850 | Stdev | 11/8/2005 9:55 | 11/8/2005 6:55 | 11/4/2005 14:20 | 0.267 | 6409 | 30 | 213.63 | 242.81 | 3.69097 | 0.12500 | 2155 | 0.9974 |
| 307 | 1.949 | | 11/3/2005 10:10 | 11/3/2005 7:10 | 10/30/2005 13:15 | 0.267 | 6822 | 30 | 227.40 | 242.81 | 3.74653 | 0.12500 | 2150 | 0.9975 |
| 308 | 1.914 | Average | 11/15/2005 15:30 | 11/15/2005 8:20 | 11/9/2005 15:30 | 0.267 | 8483 | 30 | 282.77 | 242.81 | 5.70139 | 0.29861 | 2163 | 0.9974 |
| 308 | 1.746 | Stdev | 11/8/2005 10:25 | 11/8/2005 7:25 | 11/4/2005 14:20 | 0.133 | 6089 | 30 | 202.30 | 242.81 | 3.71181 | 0.12500 | 2155 | 0.9974 |
| 308 | 2.059 | | 11/2/2005 9:30 | 11/2/2005 5:55 | 10/30/2005 13:15 | 0.267 | 5626 | 30 | 187.53 | 242.81 | 2.69444 | 0.14931 | 2149 | 0.9975 |
| 309 | 1.831 | Average | 11/15/2005 15:30 | 11/15/2005 9:00 | 11/9/2005 15:30 | 0.267 | 8177 | 30 | 272.57 | 242.81 | 5.72917 | 0.27083 | 2163 | 0.9974 |
| 309 | 1.921 | Stdev | 11/22/2005 19:30 | 11/22/2005 12:15 | 11/15/2005 12:40 | 0.267 | 9480 | 30 | 316.00 | 242.81 | 6.98264 | 0.30208 | 2170 | 0.9974 |
| 309 | 1.934 | | 11/3/2005 13:10 | 11/3/2005 9:15 | 10/30/2005 13:15 | 0.267 | 6829 | 30 | 227.63 | 242.81 | 3.83333 | 0.16319 | 2151 | 0.9975 |
| 310 | 1.834 | Average | 11/22/2005 19:30 | 11/22/2005 14:50 | 11/15/2005 12:40 | 0.200 | 9298 | 30 | 309.93 | 242.81 | 7.09028 | 0.19444 | 2170 | 0.9974 |
| 310 | 2.007 | Stdev | 11/8/2005 13:10 | 11/8/2005 9:50 | 11/4/2005 14:20 | 0.267 | 7093 | 30 | 236.43 | 242.81 | 3.81250 | 0.13889 | 2156 | 0.9974 |
| 310 | 2.125 | | 11/2/2005 7:50 | 11/2/2005 4:30 | 10/30/2005 13:15 | 0.267 | 5717 | 30 | 190.57 | 242.81 | 2.63542 | 0.13889 | 2149 | 0.9975 |
| 311 | 1.916 | Average | 11/18/2005 7:40 | 11/18/2005 7:40 | 11/15/2005 12:40 | 0.267 | 5527 | 30 | 184.23 | 242.81 | 2.79167 | 0.00000 | 2165 | 0.9974 |
| 311 | 1.783 | Stdev | 11/8/2005 14:15 | 11/8/2005 10:30 | 11/4/2005 14:20 | 0.267 | 6315 | 30 | 210.50 | 242.81 | 3.84028 | 0.15625 | 2156 | 0.9974 |
| 311 | 1.882 | | 11/2/2005 8:25 | 11/2/2005 5:15 | 10/30/2005 13:15 | 0.267 | 5118 | 30 | 170.60 | 242.81 | 2.66667 | 0.13194 | 2149 | 0.9975 |

Owens
11/23/05

CALS 3

AAQ
11/23/05

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 12 | 500 | 10/16/05 1430 | 10/31/05 450 | 10/31/05 850 | 301 | 3 | 8 | 9387 |
| CAL 13 | 500 | 10/16/05 1430 | 10/31/05 530 | 10/31/05 930 | 302 | 3 | 8 | 10818 |
| CAL 17 | 500 | 10/16/05 1430 | 10/31/05 625 | 10/31/05 1010 | 303 | 3 | 8 | 12225 |
| CAL 18 | 500 | 10/16/05 1430 | 10/31/05 700 | 10/31/05 1040 | 304 | 3 | 8 | 11119 |
| CAL 19 | 500 | 10/16/05 1430 | 10/31/05 730 | 10/31/05 1110 | 305 | 3 | 8 | 11585 |
| CAL 20 | 500 | 10/16/05 1430 | 10/31/05 800 | 10/31/05 1145 | 306 | 3 | 8 | 10159 |
| CAL 21 | 500 | 10/16/05 1430 | 10/31/05 830 | 10/31/05 1230 | 307 | 3 | 8 | 9445 |
| CAL 22 | 500 | 10/16/05 1430 | 10/31/05 930 | 10/31/05 1415 | 308 | 3 | 8 | 9343 |
| CAL 24 | 500 | 10/16/05 1430 | 11/1/05 415 | 11/1/05 725 | 309 | 3 | 8 | 10301 |
| CAL 14 | 500 | 10/16/05 1430 | 11/5/05 1030 | 11/5/05 1420 11/5/05 1110 | 310 | 3 | 6 | 7913 |
| CAL 15 | 500 | 10/16/05 1430 | 11/5/05 1110 | 11/5/05 1550 | 311 | 3 | 8 | 6007 |
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~~CALS 3~~

ADG 11/23/05 Ra-226 Verification Sheet

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ADG 11/23/05

| Sample ID | Volume (mL) | End Degas Date/Time | End De-em Date/Time | Start Count Date/Time | Cell # | Det # | Background CPM | Total Counts |
|------------------|-------------|--------------------------|-------------------------|--------------------------|----------------|--------------|----------------|-----------------|
| CAL 1 | | 10/30/05 1315 | 11/21/05 430 | 11/21/05 750 | 310 | 3 | 8 | 5717 |
| CAL 2 | | 10/30/05 1315 | 11/21/05 515 | 11/21/05 825 | 311 | 3 | 8 | 5118 |
| CAL 3 | | 10/30/05 1315 | 11/21/05 555 | 11/21/05 930 | 308 | 3 | 8 | 5626 |
| CAL 4 | | 10/30/05 1315 | 11/21/05 655 | 11/21/05 1005 | 306 | 3 | 8 | 6292 |
| CAL 5 | | 10/30/05 1315 | 11/21/05 730 | 11/21/05 1050 | 303 | 3 | 8 | 5867 |
| CAL 6 | | 10/30/05 1315 | 11/21/05 805 | 11/21/05 1125 | 302 | 3 | 8 | 5309 |
| CAL 7 | | 10/30/05 1315 | 11/21/05 515 | 11/21/05 830 | 301 | 3 | 8 | 6316 |
| CAL 8 | | 10/30/05 1315 | 11/21/05 630 | 11/21/05 930 | 305 | 3 | 8 | 7239 |
| CAL 9 | | 10/30/05 1315 | 11/21/05 710 | 11/21/05 1010 | 307 | 3 | 8 | 4822 |
| CAL 10 | | 10/30/05 1315 | 11/21/05 740 | 11/21/05 1040 | 304 | 3 | 8 | 7022 |
| CAL 11 | | 10/30/05 1315 | 11/21/05 915 | 11/21/05 1310 | 309 | 3 | 8 | 6829 |
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CAL-3 ADQ 11/23/05

Ra-226 Verification Sheet

ADQ 11/23/05

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ADQ 11/23/05

| Sample ID | Volume (mL) | End Degas Date/Time | End De-em Date/Time | Start Count Date/Time | Cell # | Det # | Background CPM | Total Counts |
|-----------|-------------|---------------------|---------------------|-----------------------|--------|-------|----------------|--------------|
| CAL 1 | | 11/4/05 1420 | 11/8/05 430 | 11/8/05 750 | 303 | 3 | 8 | 7124 |
| CAL 2 | | 11/4/05 1420 | 11/8/05 510 | 11/8/05 825 | 305 | 3 | 4 | 6089 |
| CAL 3 | | 11/4/05 1420 | 11/8/05 545 | 11/8/05 900 | 307 | 3 | 2 | 6349 |
| CAL 4 | | 11/4/05 1420 | 11/8/05 655 | 11/8/05 955 | 307 | 3 | 8 | 6409 |
| CAL 5 | | 11/4/05 1420 | 11/8/05 725 | 11/8/05 1025 | 308 | 3 | 4 | 6069 |
| CAL 6 | | 11/4/05 1420 | 11/8/05 800 | 11/8/05 1105 | 309 | 3 | 7 | 6116 |
| CAL 7 | | 11/4/05 1420 | 11/8/05 835 | 11/8/05 1135 | 304 | 3 | 6 | 6549 |
| CAL 8 | | 11/4/05 1420 | 11/8/05 910 | 11/8/05 1210 | 306 | 3 | 8 | 6270 |
| CAL 9 | | 11/4/05 1420 | 11/8/05 950 | 11/8/05 1310 | 310 | 3 | 8 | 7093 |
| CAL 10 | | 11/4/05 1420 | 11/8/05 1030 | 11/8/05 1415 | 311 | 3 | 8 | 6315 |
| CAL 11 | | 11/4/05 1420 | 11/9/05 540 | 11/9/05 850 | 302 | 3 | 4 | 7237 |
| / | | | | | | | | |

CALS 3

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 10 | | 11/9/05 1530 | 11/15/05 420 | 11/15/05 720 | 301 | 3 | 8 | 7998 |
| CAL 12 | | 11/9/05 1530 | 11/15/05 860 | 11/15/05 920 | 302 | 3 | 8 | 7901 |
| CAL 14 | | 11/9/05 1530 | 11/15/05 6530 | 11/15/05 1005 | 304 | 3 | 8 | 7935 |
| CAL 15 | | 11/9/05 1530 | 11/15/05 630 | 11/15/05 1040 | 305 | 3 | 8 | 7776 |
| CAL 16 | | 11/9/05 1530 | 11/15/05 710 | 11/15/05 1110 | 306 | 3 | 8 | 8332 |
| CAL 17 | | 11/9/05 1530 | 11/15/05 745 | 11/15/05 1145 | 307 | 3 | 8 | 8637 |
| CAL 18 | | 11/9/05 1530 | 11/15/05 820 | 11/15/05 1415 | 308 | 3 | 8 | 8483 |
| CAL 19 | | 11/9/05 1530 | 11/15/05 900 | 11/15/05 1530 | 309 | 3 | 8 | 9177 |
| CAL 20 | | 11/9/05 1530 | 11/15/05 950 | 11/15/05 1600 | 311 | 3 | 8 | 7127 |
| / | | | | | | | | |

ADD
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General Engineering Laboratories Calibration Source Preparation Sheet

Applicable SOP Number GL-RAD-A-008 Isotope Ra-226
 Date Standards Prepared 8/26/03 Cocktail Type Used NA
 Standard ID 0299-E Matrix of Vial/Planchett NA
 Amount Used (g or mL) 0.1 NA
 Standard Activity (DPM/g or mL) 2434.34 Type of Scintillation Vial NA
 Reference Date 12/15/99 Pipette ID Used 1429303
 Expiration Date 11/4/06 Balance ID Used 28488
 Residue/Carrier Agent 0.5 M HCl Quenching Agent NA

| | Standard Number | Quenching Vol (uL)/ Residue Volume(mL) | Initial Wt. (g) | Final Wt. (g) | Net Wt. (mg) |
|----|-----------------|---|--------------------|------------------|-----------------|
| 1 | CAL1 | | | | |
| 2 | CAL2 | | | | |
| 3 | CAL3 | | | | |
| 4 | CAL4 | | | | |
| 5 | CAL5 | | | | |
| 6 | CAL6 | | | | |
| 7 | CAL7 | | | | |
| 8 | CAL8 | | | | |
| 9 | CAL9 | | | | |
| 10 | CAL10 | | | | |
| 11 | CAL11 | | | | |
| 12 | CAL12 | | | | |
| 13 | CAL13 | | | | |
| 14 | CAL14 | | | | |
| 15 | CAL15 | | | | |

JLQ 11/23/05

Prepared By: Angela J. Johnson Date 11/23/05
 Reviewed By: Est. C. L. L. Date 11/2/06

Rev 1 RLM 9/10/97

General Engineering Laboratories Calibration Source Preparation Sheet

Applicable SOP Number GL-RAD-A-008 Isotope Ra-224
 Date Standards Prepared 8/26/03 Cocktail Type Used NA
 Standard ID 0299-E Matrix of Vial/Planchett NA
 Amount Used (g or ml) 0.1 NA
 Standard Activity (DPM/g or ml) 2434.34 Type of Scintillation Vial NA
 Reference Date 12/15/99 Pipette ID Used 1429303
 Expiration Date 11/4/06 Balance ID Used 28488
 Residue/Carrier Agent 0.5M HCl Quenching Agent NA

| | Standard Number | Quenching Vol (uL)/ Residue Volume (mL) | Initial Wt. (g) | Final Wt. (g) | Net Wt. (mg) |
|----|-----------------|--|--------------------|------------------|-----------------|
| 16 | CAL 16 | | | | |
| 17 | CAL 17 | | | | |
| 18 | CAL 18 | | | | |
| 19 | CAL 19 | | | | |
| 20 | CAL 20 | | | | |
| 21 | CAL 21 | | | | |
| 22 | CAL 22 | | | | |
| 23 | CAL 23 | | | | |
| 24 | CAL 24 | | | | |
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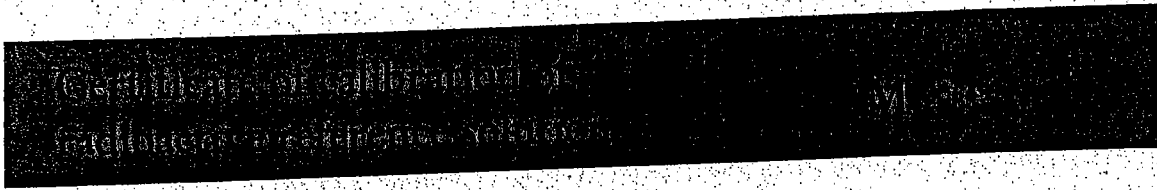
AJQ 11/23/05

AJQ 11/23/05

Prepared By: Angela A. Johnson Date 11/23/05
 Reviewed By: Let C. ... Date 11/21/05

Rev 1 RLM 9/10/97

02.7



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

Principal radionuclide: Radium-226

Product code: RAY44
Solution number: R4/131/89

Reference time: 1200 GMT on 15 December 1999

Nuclear data quoted on this certificate are taken from the Joint European File, Version 2.2.

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 |

Page 450 of 741

17th December 1999

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
position

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.

Verification for Ra-226 Standard 0299-E

11/14/2005
A.Fehr

Isotope
0299-F N1
0299-F N2
0299-F N3

Detector CPM
1340.3000
1313.2000
1298.1000

BKG CPM
0.6000
0.6000
0.6000

NET CPM
1339.7000
1312.6000
1297.5000

Detector Eff
2.72177002
2.72177002
2.72177002

Standard
mL used
0.2000
0.2000
0.2000

Source DPM/G
2461.082289
2411.298509
2383.559208
2418.646669

Mean Value (Counting) = 2418.646669
Stdev = 39.28044852

Certificate Value = 2428.1
Lower Limit = 2340.085772
Upper Limit = 2497.207566
Rule 1 Pass/Fail Pass
Two sigma = 78.56089703
10 % of Mean = 241.8646669
Rule 2 (Pass/Fail) Pass

99.6090287 % of known
0.01624067

dpm/mL
dpm/mL
dpm/mL
Pass
dpm/mL
dpm/mL

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-E 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 Yellow (Wallac) using Protocol 8 for Radium source standard verification. The Ra-226 efficiency calibration which was used for verification calculations was performed on 11/4/05 using source 0321-A (Ra-226). Calibration data is recorded in this logbook under Ra-226 0321. 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

*Amenda L. Fehr 11/14/05
Amenda L. Fehr 11/14/05*

PROTOCOL : 8 Ra-226 ver
DATE : 2005/11/04
TIME : 11:47
ID : P08AS001

Ra226

Wallac 1414 WinSpectral v1.40 S/N 4140127
Counting mode : CPM
Isotope(s) : Ra226
Ra226 = 400- 900,Alpha,1602.12 y
Protocol name : Ra-226 ver
Counting time : 300
Repeats : 1
Cycles : 1
Replicates : 1
2 sigma % : 0.01
Minimum cpm : 0.00 Checking time: 10
Advanced modes : Halflife,PSA,Chemilum
Halflife zerotime : Start of assay
PSA level : low
Output to Display :
POS,DATE,CTIME,RACK,RACKPOS,ETIME,SQPE,CPM1,CPM
Additions to Display : Spectrum,Header,Listing
Header : Ra226
Spectrum : Rnd.Cos,Alpha
Window 1 : 1-1024 /Alpha
Window 2 : 1-1024 /Beta
Window 3 : 1-1024 /Beta
Window 4 : 1-1024 /Beta
Window 5 : 1-1024 /Beta
Window 6 : 1-1024 /Beta
FNCT1 = FNCT1 :
FNCT2 = FNCT2 :
FNCT3 = FNCT3 :
FNCT4 = FNCT4 :

Total count rate:

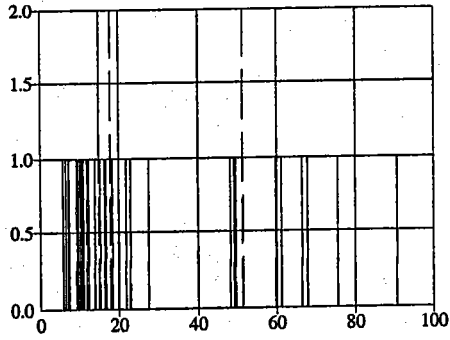
Ra226 10537.9 CPM

Amanda L. Feh
11/4/05

AQ
11/4/05

POS CTIME SQPI CPM CPM1

1 300 23.50 1.90

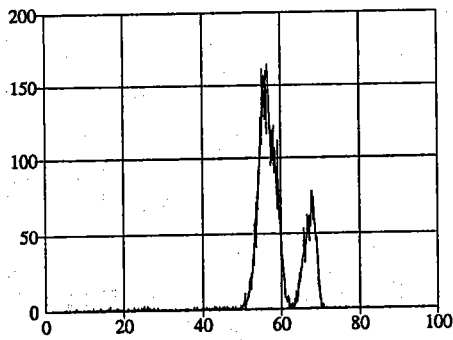


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Counts Alpha

Blg

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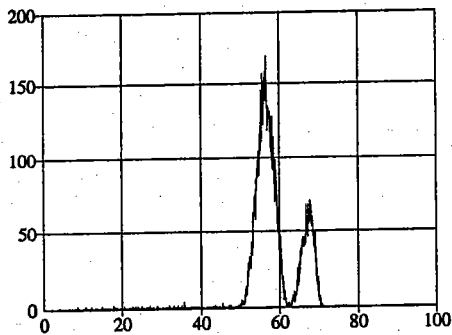


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Counts Alpha

0321-A

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Counts Chem

Counts Alpha

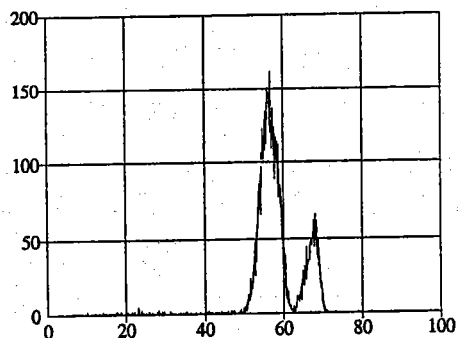
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ALF 11/4/05

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11/4/05*

POS CTIME SQPI CPM CPM1

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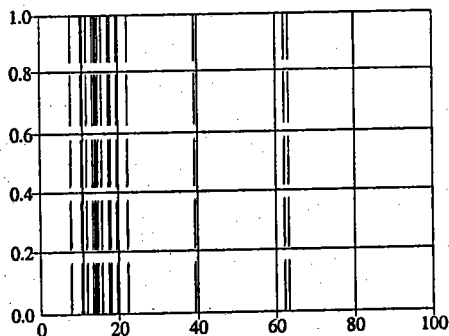


Counts Chem

Counts Alpha

0321-A

5 300 19.50 0.60

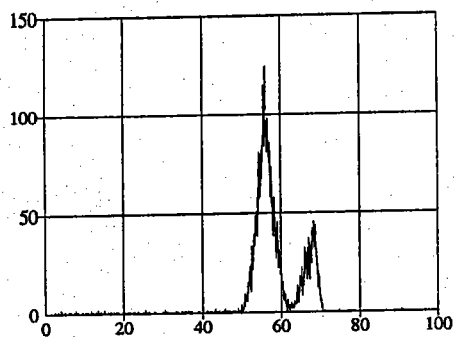


Counts Chem

Counts Alpha

Bkg

6 300 1930.20 1340.30



Counts Chem

Counts Alpha

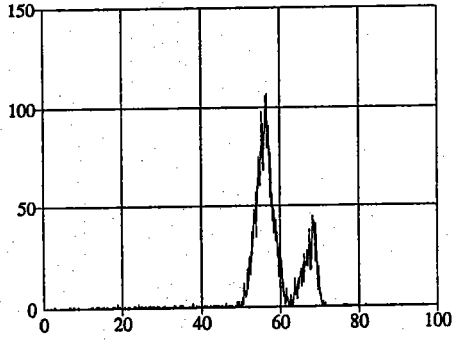
0299-E

ALF 11/4/05

AQ
11/4/05

POS CTIME SQPI CPM CPM1

7 300 1906.90 1313.20

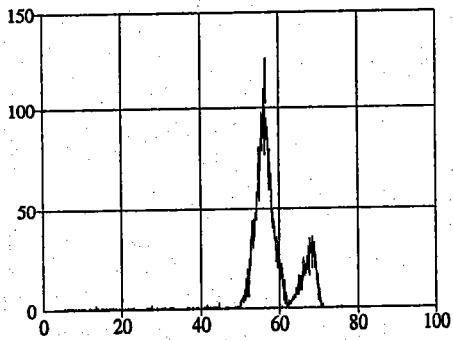


Counts Chem

Counts Alpha

0299-E

8 300 1835.40 1298.10



Counts Chem

Counts Alpha

0299-E

JKD
11/4/05

Standard Traceability Log Rad

| Source Material Info | | A Solution Material Info | |
|----------------------|--------------|--------------------------|--------------|
| Parent Code: | 0299 | Isotope: | Radium-226 |
| Prepared By: | Angela Albee | Prepared By: | Angela Albee |
| Carrier Conc: | 0.5 M HCL | Prep Date: | 09/15/2000 |
| Reference Date: | 12/15/1999 | Verification Date: | 08/26/2004 |
| Ampoule Mass (g): | 5.0368 g | Expiration Date: | 08/26/2005 |
| 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 |

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 |
|------------|--------------|--------------|---------------|--------|------------------|-------------------|-----------------|
| 09/26/2000 | Angela Albee | 2.1096 | 100 | 0299-C | 2579.62 dpm/mL | 10/10/2002 | 10/10/2003 |
| 09/15/2000 | Angela Albee | .2004 | 100 | 0299-B | 245.05 dpm/mL | 09/15/2000 | 09/15/2001 |
| 08/23/2002 | Angela Albee | 2.0443 | 100 | 0299-D | 2499.77 dpm/mL | 08/23/2002 | 08/23/2003 |
| 08/26/2003 | Angela Albee | 1.9909 | 100 | 0299-E | 2434.34 dpm/mL | 11/04/2004 | 11/04/2005 |
| 08/26/2003 | Angela Albee | 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 | 04/06/2005 | 04/06/2006 |

General Engineering Laboratories, LLC
Version 1.0 9/18/2000

AIQ
11/4/05

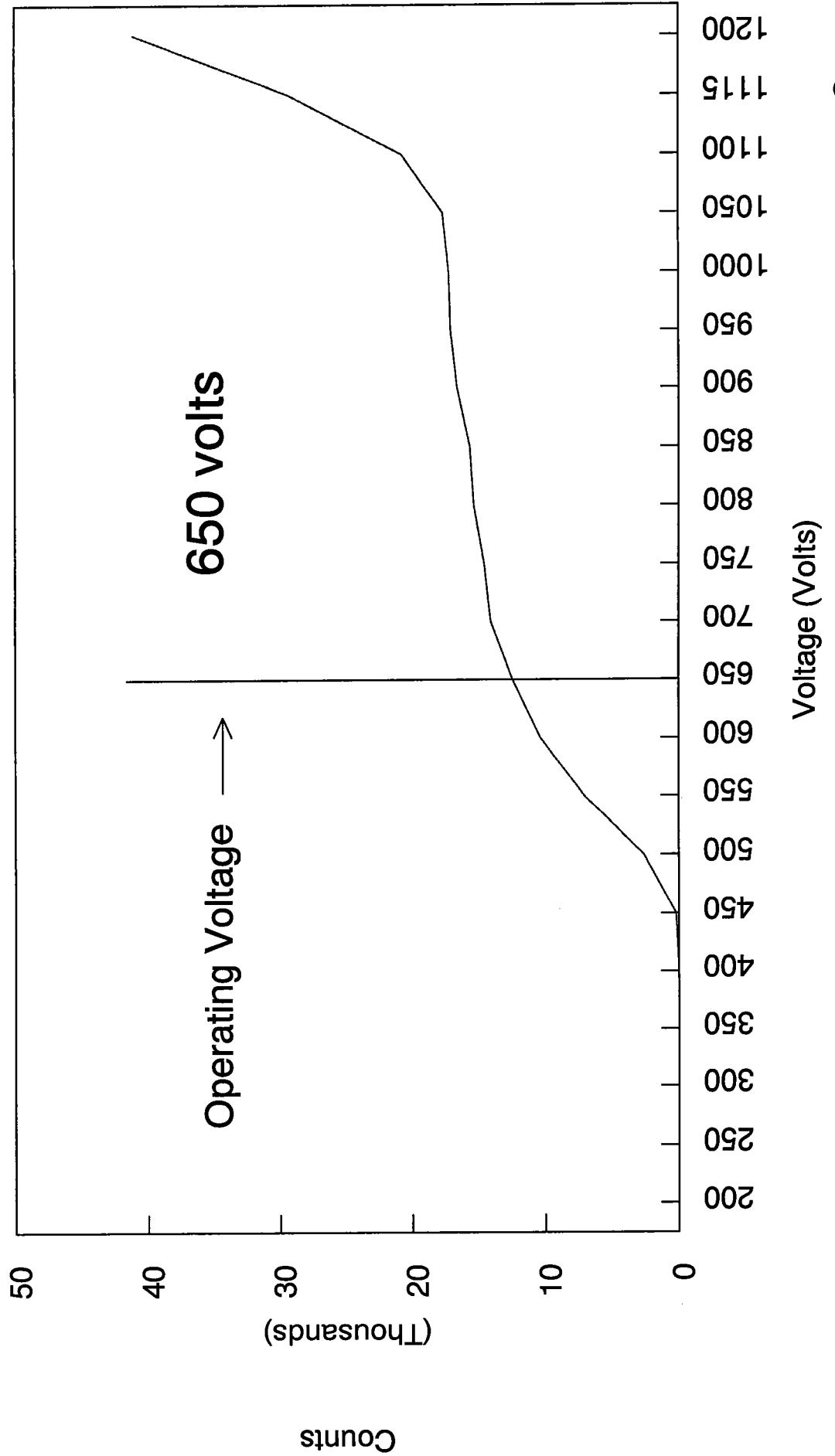
VOLTAGE CURVE DET 10-03

| Voltage Curve Ludlum # 3 | | | | |
|--------------------------|--------|------------|-------|----------|
| Volts (K.V.) | Counts | Date | Time | Detector |
| 0.20 | 0 | 11/14/2005 | 14:00 | 3 |
| 0.25 | 0 | 11/14/2005 | 14:01 | 3 |
| 0.30 | 0 | 11/14/2005 | 14:02 | 3 |
| 0.35 | 0 | 11/14/2005 | 14:03 | 3 |
| 0.40 | 0 | 11/14/2005 | 14:04 | 3 |
| 0.45 | 5 | 11/14/2005 | 14:05 | 3 |
| 0.50 | 235 | 11/14/2005 | 14:06 | 3 |
| 0.55 | 329 | 11/14/2005 | 14:07 | 3 |
| 0.60 | 412 | 11/14/2005 | 14:08 | 3 |
| 0.65 | 452 | 11/14/2005 | 14:09 | 3 |
| 0.70 | 463 | 11/14/2005 | 14:10 | 3 |
| 0.75 | 448 | 11/14/2005 | 14:11 | 3 |
| 0.80 | 483 | 11/14/2005 | 14:12 | 3 |
| 0.85 | 511 | 11/14/2005 | 14:13 | 3 |
| 0.90 | 465 | 11/14/2005 | 14:14 | 3 |
| 0.95 | 491 | 11/14/2005 | 14:15 | 3 |
| 1.00 | 495 | 11/14/2005 | 14:16 | 3 |
| 1.05 | 506 | 11/14/2005 | 14:17 | 3 |
| 1.10 | 733 | 11/14/2005 | 14:18 | 3 |
| 1.15 | 1398 | 11/14/2005 | 14:19 | 3 |
| 1.20 | 2869 | 11/14/2005 | 14:20 | 3 |

Handwritten signature
11/23/05

Plateau November, 2005

Ludlum # 3



AD
11/23/05

Ra-226 WATER

Sample ID

Batch : LCSVER
 Date : 11/1/2005
 Analyst : JMB1

Procedure Code : LUC26RAL
 Parminame : Radium-226
 MDA : 1 pCi/L

Instrument Used : LUCAS CELL DETECTOR

Bkg Count Time: 30 min

- 1
- 2
- 3
- 4
- 5
- 4
- 7
- 5
- 6
- 10
- 11

| 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 | DEGASSING DATE/TIME |
|-----------|--------------|----------------|------------------|------------|-----------------|---------|------------------|---------------------|--------------------|------------------|---------------------|
| 1 | 0.500 | 30 | 694 | 301 | 1.762 | 0.267 | 0.5476 | 23.6277 | 1.7887 | 11/5/2005 13:14 | 11/1/2005 12:15 |
| 2 | 0.500 | 30 | 594 | 302 | 1.819 | 0.267 | 0.5181 | 19.0959 | 1.5671 | 11/5/2005 13:50 | 11/1/2005 12:15 |
| 3 | 0.500 | 30 | 911 | 303 | 2.062 | 0.200 | 0.4087 | 26.1845 | 1.7173 | 11/18/2005 13:00 | 11/14/2005 12:00 |
| 4 | 0.500 | 30 | 1120 | 304 | 1.881 | 0.233 | 0.3092 | 22.8964 | 1.3536 | 11/10/2005 7:30 | 11/1/2005 12:15 |
| 5 | 0.500 | 30 | 1017 | 305 | 1.759 | 0.267 | 0.3662 | 23.2385 | 1.4452 | 11/9/2005 10:45 | 11/1/2005 12:15 |
| 4 | 0.500 | 30 | 836 | 306 | 1.829 | 0.233 | 0.4975 | 27.4401 | 1.8836 | 11/18/2005 15:45 | 11/14/2005 12:00 |
| 7 | 0.500 | 30 | 987 | 307 | 1.902 | 0.267 | 0.3353 | 20.6474 | 1.3039 | 11/9/2005 10:25 | 11/1/2005 12:15 |
| 5 | 0.500 | 30 | 920 | 308 | 1.907 | 0.267 | 0.5062 | 29.0398 | 1.9012 | 11/18/2005 17:15 | 11/14/2005 12:00 |
| 6 | 0.500 | 30 | 885 | 309 | 1.895 | 0.267 | 0.5070 | 27.9649 | 1.8677 | 11/18/2005 17:46 | 11/14/2005 12:00 |
| 10 | 0.500 | 30 | 981 | 310 | 1.989 | 0.267 | 0.3079 | 18.8463 | 1.1939 | 11/10/2005 10:35 | 11/1/2005 12:15 |
| 11 | 0.500 | 30 | 965 | 311 | 1.861 | 0.233 | 0.3113 | 19.8446 | 1.2658 | 11/10/2005 9:55 | 11/1/2005 12:15 |

Angela L. Johnson
 11/23/05

| Cell # | Det # | Run Date | Sample Type | Standard ID | NC | NC units | Recovery/RPD |
|--------|-------|------------------|-------------|-------------|-------|----------|--------------|
| 301 | 3 | 11/5/2005 13:14 | LCS | 0321-H | 24.14 | pCi/L | 98% |
| 302 | 3 | 11/5/2005 13:50 | LCS | 0321-H | 24.14 | pCi/L | 79% |
| 303 | 3 | 11/18/2005 13:00 | LCS | 0321-H | 24.14 | pCi/L | 108% |
| 304 | 3 | 11/10/2005 7:30 | LCS | 0321-H | 24.14 | pCi/L | 95% |
| 305 | 3 | 11/9/2005 10:45 | LCS | 0321-H | 24.14 | pCi/L | 96% |
| 306 | 3 | 11/18/2005 15:45 | LCS | 0321-H | 24.14 | pCi/L | 114% |
| 307 | 3 | 11/9/2005 10:25 | LCS | 0321-H | 24.14 | pCi/L | 86% |
| 308 | 3 | 11/18/2005 17:15 | LCS | 0321-H | 24.14 | pCi/L | 120% |
| 309 | 3 | 11/18/2005 17:46 | LCS | 0321-H | 24.14 | pCi/L | 116% |
| 310 | 3 | 11/10/2005 10:35 | LCS | 0321-H | 24.14 | pCi/L | 78% |
| 311 | 3 | 11/10/2005 9:55 | LCS | 0321-H | 24.14 | pCi/L | 82% |

| DE-EMAN. DATE/TIME | DEGASS-DE-EM | dE-EM-COUNT | constant | constant | constant | Net CPM | Ingrowth constant |
|--------------------|--------------|-------------|----------|----------|----------|---------|-------------------|
| 11/5/2005 9:50 | 93.58 | 3.40 | 0.5067 | 0.9747 | 1.0019 | 22.8663 | 0.4948 |
| 11/5/2005 11:45 | 95.50 | 2.08 | 0.5137 | 0.9844 | 1.0019 | 19.5330 | 0.5067 |
| 11/18/2005 10:45 | 94.75 | 2.25 | 0.5110 | 0.9832 | 1.0019 | 30.1667 | 0.5033 |
| 11/10/2005 4:30 | 208.25 | 3.00 | 0.7924 | 0.9776 | 1.0019 | 37.1003 | 0.7761 |
| 11/9/2005 7:40 | 187.42 | 3.08 | 0.7571 | 0.9770 | 1.0019 | 33.6330 | 0.7411 |
| 11/18/2005 11:10 | 95.17 | 4.58 | 0.5125 | 0.9660 | 1.0019 | 27.6337 | 0.4960 |
| 11/9/2005 8:25 | 188.17 | 2.00 | 0.7584 | 0.9850 | 1.0019 | 32.6330 | 0.7485 |
| 11/18/2005 11:45 | 95.75 | 5.50 | 0.5147 | 0.9598 | 1.0019 | 30.3997 | 0.4947 |
| 11/18/2005 12:20 | 96.33 | 5.43 | 0.5168 | 0.9598 | 1.0019 | 29.2330 | 0.4970 |
| 11/10/2005 7:25 | 211.17 | 3.17 | 0.7970 | 0.9764 | 1.0019 | 32.4330 | 0.7796 |
| 11/10/2005 6:50 | 210.58 | 3.08 | 0.7961 | 0.9770 | 1.0019 | 31.9337 | 0.7792 |

Angelica Johnson
11/23/05

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 |
|-----------|-------------|---------------------|---------------------|---|--------|-------|----------------|--------------|
| VER 2 | 500 | 11/1/05 12:15 | 11/5/05 9:50 | 11/5/05 13:14 | 301 | 3 | 8 | 694 |
| VER 3 | 500 | 11/1/05 12:15 | 11/5/05 11:45 | 11/5/05 13:50 | 302 | 3 | 8 | 594 |
| VER 4 | 500 | 11/1/05 12:15 | 11/9/05 7:00 | 11/9/05 10:00 11/9/05 10:00 11/9/05 10:00 | 303 | 3 | 4 | 990 |
| VER 5 | 500 | 11/1/05 12:15 | 11/9/05 7:40 | 11/9/05 10:45 | 305 | 3 | 8 | 1017 |
| VER 6 | 500 | 11/1/05 12:15 | 11/9/05 8:25 | 11/9/05 10:25 | 307 | 3 | 8 | 987 |
| VER 7 | 500 | 11/1/05 12:15 | 11/9/05 9:00 | 11/9/05 12:00 | 308 | 3 | 5 | 705 |
| VER 8 | 500 | 11/1/05 12:15 | 11/10/05 4:30 | 11/10/05 7:30 | 304 | 3 | 8 | 1120 |
| VER 9 | 500 | 11/1/05 12:15 | 11/10/05 5:05 | 11/10/05 8:20 | 306 | 3 | 8 | 951 |
| VER 10 | 500 | 11/1/05 12:15 | 11/10/05 5:40 | 11/10/05 9:00 | 309 | 3 | 8 | 888 |
| VER 11 | 500 | 11/1/05 12:15 | 11/10/05 6:50 | 11/10/05 9:55 | 311 | 3 | 8 | 966 |
| VER 12 | 500 | 11/1/05 12:15 | 11/10/05 7:25 | 11/10/05 10:35 | 310 | 3 | 8 | 981 |
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AKO 11/23/05

AKO 11/23/05

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 |
|-----------|-------------|---------------------|---------------------|-----------------------|--------|-------|----------------|--------------|
| VER 1 | 500 | 11/14/05 1200 | 11/17/05 625 | 11/17/05 1030 | 302 | 3 | 8 = 0.267 | 954 |
| VER 3 | 500 | 11/14/05 1200 | 11/18/05 1045 | 11/18/05 1300 | 303 | 3 | 8 = 0.267 | 911 |
| VER 4 | 500 | 11/14/05 1200 | 11/18/05 1110 | 11/18/05 1545 | 306 | 3 | 8 = 0.267 | 834 |
| VER 5 | 500 | 11/14/05 1200 | 11/18/05 1145 | 11/18/05 1715 | 308 | 3 | 8 = 0.267 | 920 |
| VER 6 | 500 | 11/14/05 1200 | 11/18/05 1220 | 11/18/05 1746 | 309 | 3 | 8 = 0.267 | 885 |
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50/22/11
JAF

50/22/11
JAF

**General Engineering Laboratories
Verification Source Preparation Sheet**

Applicable SOP Number EL-RAD-A-008 Isotope Ra-226
 Date Standards Prepared 5/18/05 Cocktail Type Used NA
 Standard ID 0321-H Matrix of Vial/Planchett NA
 Amount Used (g or ml) 0.1 NA
 Standard Activity (DPM/g or ml) 269.6188 Type of Scintillation Vial NA
 Reference Date 9/9/91 Pipette ID Used 1429303
 Expiration Date 5/20/06 Balance ID Used 28488
 Residue/Carrier Agent 1M HCl Quenching Agent NA

| | Standard Number | Quenching Vol (uL)/ Residue Volume(mL) | Initial Wt. (g) | Final Wt. (g) | Net Wt. (mg) |
|----|-----------------|---|--------------------|------------------|-----------------|
| 1 | VER1 | | | | |
| 2 | VER2 | | | | |
| 3 | VER3 | | | | |
| 4 | VER4 | | | | |
| 5 | VER5 | | | | |
| 6 | VER6 | | | | |
| 7 | VER7 | | | | |
| 8 | VER8 | | | | |
| 9 | VER9 | | | | |
| 10 | VER10 | | | | |
| 11 | VER11 | | | | |
| 12 | VER12 | | | | |
| | | | | | |
| | | | | | |
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AQ 11/23/05

AQ 11/23/05

Prepared By: Angela J. Johnson Date 11/23/05
 Reviewed By: HTC RLL Date 11/24/05

Verification for Ra-226 Standard 0321-H

A. Fehr
5/20/2005

| Isotope | Detector CPM | BKG CPM | NET CPM | Detector Eff Mass. Used (mL) | Standard Source DPM/mL |
|-----------|--------------|---------|-----------|------------------------------|------------------------|
| 0321-H N1 | 1170.1000 | 34.2000 | 1135.9000 | 4.20643586 | 270.0385881 |
| 0321-H N2 | 1137.8000 | 34.2000 | 1103.6000 | 4.20643586 | 262.3598783 |
| 0321-H N3 | 1149.6000 | 34.2000 | 1115.4000 | 4.20643586 | 265.1651036 |
| | | | | | Average = 265.8545233 |

Mean Value (Counting) = 265.8545233
Stdev = 3.885501322

99.1905663
0.01461514 Rule 3 (Pass/Fail)

Pass

Certificate Value = 268.0
Lower Limit = 258.0835207
Upper Limit = 273.625526
Rule 1 Pass/Fail Pass
Two sigma = 7.771002644
10 % of Mean = 26.58545233
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 0321-H 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 Green using source standard verification. The Ra-226 efficiency calibration which was used for verification calculations was performed on 5/20/05 using source 0299-A (Ra-226). Calibration data is recorded in this logbook under Ra-226 (0299-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

Amanda L. Fehr 5/20/05
Angela A. Johnson 5/24/05

General Engineering Laboratories

2040 Savage Road, Charleston, SC 29414
 (843)556-8171

Lucas Cell Calibration Package

401 - 412

| | YES | NO | Comments |
|--|-------------------------------------|--------------------------|----------|
| 1) Is all calibration standard information enclosed for: the primary standard certificate? the secondard standard(s) documentation? standard preparation information? standard < 1 Year old or verified? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2) Is the efficiency calibration report included ? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 3) Is the raw count data included for: Cell constant determination? Plateau generation? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 4) Are the calibration verifications included? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 5) Are the instrument settings included: HVPS settings? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 6) Has the CELLEFF.xls file been updated ? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 7) Have the calibration dates been updated in ALPHALIMS ? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |

Prepared By: Adh Bal Date: 11/4/05
 Reviewed By: Angela L. Johnson Date: 11/4/05
 Effective Date: 11/4/05

Ra-226 Cell Constants

Standard Reference date: 12/15/1999
standard ID: 0.299-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 | bkg cpm | total counts | count time min | cpm | activity dpm | t1 (days) end-to-flush to count | t2 (days) end-flush to count | t3 (days) Std Ref Date to count | Decay from Std Ref Date to count |
|--------------|---------------|-----------------|--------------------|---------------------------|------------------------|---------|--------------|----------------|--------|--------------|---------------------------------|------------------------------|---------------------------------|----------------------------------|
| 401 | 1.984 | 1 | 9/29/2005 8:40 | 9/29/2005 5:30 | 9/29/2005 12:30 | 0.033 | 5453 | 30 | 181.77 | 242.82 | 2.70833 | 0.13194 | 2115 | 0.9975 |
| 401 | 1.871 | 2 | 10/3/2005 10:45 | 10/3/2005 5:00 | 9/30/2005 11:15 | 0.267 | 5096 | 30 | 169.87 | 242.82 | 2.73958 | 0.23958 | 2119 | 0.9975 |
| 401 | 1.882 | 10 | 10/20/2005 9:55 | 10/20/2005 6:35 | 10/16/2005 14:30 | 0.267 | 6477 | 30 | 215.90 | 242.82 | 3.67014 | 0.13889 | 2136 | 0.9975 |
| 402 | 1.914 | 2 | 9/29/2005 10:05 | 9/29/2005 6:50 | 9/28/2005 12:30 | 0.133 | 5343 | 30 | 178.10 | 242.82 | 2.76389 | 0.13542 | 2115 | 0.9975 |
| 402 | 1.952 | 5 | 10/4/2005 8:25 | 10/4/2005 5:05 | 9/30/2005 11:15 | 0.267 | 6812 | 30 | 227.07 | 242.82 | 3.74306 | 0.13889 | 2120 | 0.9975 |
| 402 | 2.131 | 5 | 10/19/2005 12:50 | 10/19/2005 8:30 | 10/16/2005 14:30 | 0.267 | 5880 | 30 | 196.00 | 242.82 | 2.75000 | 0.18056 | 2136 | 0.9975 |
| 403 | 1.895 | 8 | 9/30/2005 8:20 | 9/30/2005 5:10 | 9/28/2005 12:30 | 0.167 | 6556 | 30 | 218.53 | 242.82 | 3.69444 | 0.13194 | 2116 | 0.9975 |
| 403 | 1.838 | 8 | 10/13/2005 10:40 | 10/13/2005 7:40 | 10/7/2005 12:40 | 0.267 | 8481 | 30 | 282.70 | 242.82 | 5.79167 | 0.12500 | 2129 | 0.9975 |
| 403 | 1.941 | 9 | 10/20/2005 8:55 | 10/20/2005 5:20 | 10/16/2005 14:30 | 0.133 | 6597 | 30 | 219.90 | 242.82 | 3.61806 | 0.14931 | 2136 | 0.9975 |
| 404 | 1.731 | 10 | 10/14/2005 8:35 | 10/14/2005 5:00 | 10/7/2005 12:40 | 0.200 | 8589 | 30 | 286.30 | 242.82 | 6.68056 | 0.14931 | 2130 | 0.9975 |
| 404 | 1.730 | 2 | 10/19/2005 8:55 | 10/19/2005 5:50 | 10/16/2005 14:30 | 0.033 | 4662 | 30 | 155.40 | 242.82 | 2.63889 | 0.12847 | 2135 | 0.9975 |
| 404 | 1.848 | 14 | 10/24/2005 8:35 | 10/24/2005 5:05 | 10/16/2005 14:30 | 0.267 | 9777 | 30 | 325.90 | 242.82 | 7.60764 | 0.14583 | 2140 | 0.9975 |
| 405 | 1.911 | 4 | 9/29/2005 11:15 | 9/29/2005 8:15 | 9/28/2005 12:30 | 0.267 | 5435 | 30 | 181.17 | 242.82 | 2.82292 | 0.12500 | 2115 | 0.9975 |
| 405 | 1.917 | 11 | 9/30/2005 10:55 | 9/30/2005 9:25 | 9/27/2005 11:00 | 0.200 | 5679 | 30 | 189.30 | 242.82 | 2.93403 | 0.06250 | 2116 | 0.9975 |
| 405 | 1.807 | 4 | 10/3/2005 13:15 | 10/3/2005 6:20 | 9/30/2005 11:15 | 0.267 | 4953 | 30 | 165.10 | 242.82 | 2.79514 | 0.28819 | 2120 | 0.9975 |
| 406 | 1.782 | 3 | 10/12/2005 9:20 | 10/12/2005 5:50 | 10/7/2005 12:40 | 0.200 | 7239 | 30 | 241.30 | 242.82 | 4.71528 | 0.14583 | 2128 | 0.9975 |
| 406 | 2.074 | 4 | 10/19/2005 12:05 | 10/19/2005 7:50 | 10/16/2005 14:30 | 0.267 | 5684 | 30 | 189.47 | 242.82 | 2.72222 | 0.17708 | 2136 | 0.9975 |
| 406 | 1.867 | 16 | 10/24/2005 10:10 | 10/24/2005 6:45 | 10/16/2005 14:30 | 0.267 | 9925 | 30 | 330.83 | 242.82 | 7.67708 | 0.14236 | 2140 | 0.9975 |
| 407 | 1.808 | 5 | 9/29/2005 11:55 | 9/29/2005 8:55 | 9/26/2005 12:30 | 0.200 | 5179 | 30 | 172.63 | 242.82 | 2.85069 | 0.12500 | 2115 | 0.9975 |
| 407 | 1.820 | 9 | 9/30/2005 9:50 | 9/30/2005 5:45 | 9/26/2005 12:30 | 0.267 | 6285 | 30 | 209.50 | 242.82 | 3.71875 | 0.17014 | 2116 | 0.9975 |
| 407 | 1.781 | 6 | 10/4/2005 9:00 | 10/4/2005 5:45 | 9/30/2005 11:15 | 0.067 | 6245 | 30 | 208.17 | 242.82 | 3.77083 | 0.13542 | 2120 | 0.9975 |
| 408 | 1.866 | 1 | 10/3/2005 7:10 | 10/3/2005 4:05 | 9/30/2005 11:15 | 0.033 | 5121 | 30 | 170.70 | 242.82 | 2.70139 | 0.12847 | 2119 | 0.9975 |
| 408 | 1.886 | 2 | 10/12/2005 8:30 | 10/12/2005 5:15 | 10/7/2005 12:40 | 0.200 | 7651 | 30 | 255.03 | 242.82 | 4.69097 | 0.13542 | 2128 | 0.9975 |
| 408 | 1.991 | 7 | 10/19/2005 13:50 | 10/19/2005 10:10 | 10/16/2005 14:30 | 0.267 | 5631 | 30 | 187.70 | 242.82 | 2.81944 | 0.15278 | 2136 | 0.9975 |
| 409 | 1.950 | 6 | 9/29/2005 12:40 | 9/29/2005 9:30 | 9/26/2005 12:30 | 0.267 | 5619 | 30 | 187.30 | 242.82 | 2.87500 | 0.13194 | 2116 | 0.9975 |
| 409 | 1.986 | 8 | 10/20/2005 7:50 | 10/20/2005 4:40 | 10/16/2005 14:30 | 0.200 | 6737 | 30 | 224.57 | 242.82 | 3.59028 | 0.13194 | 2136 | 0.9975 |
| 409 | 1.693 | 23 | 11/1/2005 7:25 | 11/1/2005 4:15 | 10/16/2005 14:30 | 0.267 | 11289 | 30 | 376.30 | 242.81 | 15.57292 | 0.13194 | 2148 | 0.9975 |
| 410 | 1.752 | 6 | 10/13/2005 9:25 | 10/13/2005 6:25 | 10/7/2005 12:40 | 0.267 | 8042 | 30 | 268.07 | 242.82 | 5.73958 | 0.12500 | 2129 | 0.9975 |
| 410 | 1.793 | 1 | 10/19/2005 8:00 | 10/19/2005 5:00 | 10/16/2005 14:30 | 0.267 | 4793 | 30 | 159.77 | 242.82 | 2.60417 | 0.12500 | 2135 | 0.9975 |
| 410 | 1.829 | 13 | 10/24/2005 7:50 | 10/24/2005 4:25 | 10/16/2005 14:30 | 0.267 | 9669 | 30 | 322.30 | 242.82 | 7.57986 | 0.14236 | 2140 | 0.9975 |
| 411 | 1.928 | 12 | 9/30/2005 11:25 | 9/30/2005 8:10 | 9/27/2005 11:00 | 0.133 | 5558 | 30 | 185.27 | 242.82 | 2.88194 | 0.13542 | 2116 | 0.9975 |
| 411 | 1.775 | 7 | 10/13/2005 10:05 | 10/13/2005 7:00 | 10/7/2005 12:40 | 0.033 | 8158 | 30 | 271.93 | 242.82 | 5.76389 | 0.12847 | 2129 | 0.9975 |
| 411 | 1.944 | 6 | 10/19/2005 13:20 | 10/19/2005 9:00 | 10/16/2005 14:30 | 0.267 | 5396 | 30 | 179.87 | 242.82 | 2.77083 | 0.18056 | 2136 | 0.9975 |
| 412 | 1.856 | 10 | 9/30/2005 10:25 | 9/30/2005 6:50 | 9/26/2005 12:30 | 0.033 | 6483 | 30 | 216.10 | 242.82 | 3.76389 | 0.14931 | 2116 | 0.9975 |
| 412 | 1.921 | 3 | 10/19/2005 9:55 | 10/19/2005 6:50 | 10/16/2005 14:30 | 0.067 | 5241 | 30 | 174.70 | 242.82 | 2.68056 | 0.12847 | 2135 | 0.9975 |
| 412 | 1.704 | 15 | 10/24/2005 9:30 | 10/24/2005 5:45 | 10/16/2005 14:30 | 0.267 | 9016 | 30 | 300.53 | 242.82 | 7.63542 | 0.15625 | 2140 | 0.9975 |

Adl Bird 11/4/05
Margaret Johnson 11/4/05

CAL

Ra-226 Verification Sheet

Adl Back 11/4/05

Adl 11/4/05

Adl 11/4/05

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Adl 11/4/05

| Sample ID | Volume (mL) | End Degas Date/Time | End De-em Date/Time | Start Count Date/Time | Cell # | Det # | Background CPM | Total Counts |
|------------------|----------------|-------------------------|-------------------------|--------------------------|----------------|--------------|----------------|-----------------|
| CAL 1 | 500 | 9/26/05 1230 | 9/29/05 530 | 9/29/05 840 | 401 | 4 | 1 | 5453 |
| CAL 2 | 500 | 9/26/05 1230 | 9/29/05 650 | 9/29/05 1005 | 402 | 4 | 4 | 5343 |
| CAL 3 | 500 | 9/26/05 1230 | 9/29/05 730 | 9/29/05 1040 | 404 | 4 | 8 | --- |
| CAL 4 | 500 | 9/26/05 1230 | 9/29/05 815 | 9/29/05 1115 | 405 | 4 | 8 | 5435 |
| CAL 5 | 500 | 9/26/05 1230 | 9/29/05 855 | 9/29/05 1155 | 407 | 4 | 6 | 5179 |
| CAL 6 | 500 | 9/26/05 1230 | 9/29/05 930 | 9/29/05 1240 | 409 | 4 | 8 | 5619 |
| CAL 7 | 500 | 9/26/05 1230 | 9/30/05 435 | 9/30/05 740 | 401 | 4 | 8 | 5503 |
| CAL 8 | 500 | 9/26/05 1230 | 9/30/05 510 | 9/30/05 820 | 403 | 4 | 5 | 6556 |
| CAL 9 | 500 | 9/26/05 1230 | 9/30/05 545 | 9/30/05 950 | 407 | 4 | 8 | 6285 |
| CAL 10 | 500 | 9/26/05 1230 | 9/30/05 650 | 9/30/05 1025 | 412 | 4 | 1 | 6483 |
| CAL 11 | 500 | 9/27/05 1100 | 9/30/05 725 | 9/30/05 1055 | 405 | 4 | 6 | 5679 |
| CAL 12 | 500 | 9/27/05 1100 | 9/30/05 810 | 9/30/05 1125 | 411 | 4 | 4 | 5558 |
| CAL 1 | 500 | 9/30/05 1115 | 10/31/05 405 | 10/31/05 710 | 408 | 4 | 1 | 5121 |
| CAL 2 | 500 | 9/30/05 1115 | 10/31/05 500 | 10/31/05 1045 | 401 | 4 | 8 | 5096 |
| CAL 3 | 500 | 9/30/05 1115 | 10/31/05 540 | 10/31/05 1240 | 409 | 4 | 8 | 5241 |
| CAL 4 | 500 | 9/30/05 1115 | 10/31/05 620 | 10/31/05 1315 | 405 | 4 | 8 | 4953 |
| CAL 5 | 500 | 9/30/05 1115 | 10/14/05 505 | 10/14/05 825 | 402 | 4 | 8 | 6812 |
| CAL 6 | 500 | 9/30/05 1115 | 10/14/05 545 | 10/14/05 900 | 407 | 4 | 2 | 6245 |
| CAL 7 | 500 | 9/30/05 1115 | 10/15/05 800 | 10/15/05 1340 | 401 | 4 | 8 | 6812 |
| CAL 8 | 500 | 9/30/05 1115 | 10/16/05 875 | 10/16/05 1225 | 403 | 4 | 6 | 3217 |

Ra-226 Verification Sheet

Adc BCL 11/14/05

APR 11/14/05

APR 11/14/05

APR 11/14/05

APR 11/14/05

APR 11/14/05

| Sample ID | Volume (mL) | End Degas Date/Time | End De-em Date/Time | Start Count Date/Time | Cell # | Det # | Background CPM | Total Counts |
|-------------------|-------------|-------------------------|------------------------|-------------------------|----------------|--------------|----------------|-----------------|
| CAL 1 | 500 | 1017105 1240 | 1017105 435 | 1017105 745 | 405 | 4 | 8 | 7984 |
| CAL 2 | 500 | 1017105 1240 | 1017105 515 | 1017105 830 | 408 | 4 | 6 | 7651 |
| CAL 3 | 500 | 1017105 1240 | 1017105 550 | 1017105 920 | 406 | 4 | 6 | 7239 |
| CAL 4 | 500 | 1017105 1240 | 1017105 680 | 1017105 955 | 407 | 4 | 8 | — |
| CAL 5 | 500 | 1017105 1240 | 1017105 730 | 1017105 1030 | 409 | 4 | 1 | 6608 |
| CAL 6 | 500 | 1017105 1240 | 1017105 625 | 1017105 925 | 416 | 4 | 8 | 8042 |
| CAL 7 | 500 | 1017105 1240 | 1017105 700 | 1017105 1005 | 411 | 4 | 1 | 8158 |
| CAL 8 | 500 | 1017105 1240 | 1017105 740 | 1017105 1040 | 403 | 4 | 8 | 8481 |
| CAL 9 | 500 | 1017105 1240 | 1017105 425 | 1017105 800 | 407 | 4 | 1 | 8694 |
| CAL 10 | 500 | 1017105 1240 | 1017105 500 | 1017105 835 | 404 | 4 | 6 | 8589 |
| CAL 11 | 500 | 1017105 1430 | 1017105 500 | 1017105 800 | 416 | 4 | 18 | 4773 |
| CAL 12 | 500 | 1017105 1430 | 1017105 550 | 1017105 855 | 404 | 4 | 1 | 4662 |
| CAL 3 | 500 | 1017105 1430 | 1017105 650 | 1017105 955 | 412 | 4 | 2 | 5241 |
| CAL 4 | 500 | 1017105 1430 | 1017105 750 | 1017105 1205 | 406 | 4 | 8 | 5684 |
| CAL 5 | 500 | 1017105 1430 | 1017105 830 | 1017105 1250 | 402 | 4 | 8 | 5880 |
| CAL 6 | 500 | 1017105 1430 | 1017105 900 | 1017105 1320 | 411 | 4 | 8 | 5396 |
| CAL 7 | 500 | 1017105 1430 | 1017105 1010 | 1017105 1350 | 408 | 4 | 8 | 5631 |
| CAL 8 | 500 | 1017105 1430 | 1017105 440 | 1017105 750 | 409 | 4 | 6 | 6737 |
| CAL 9 | 500 | 1017105 1430 | 1017105 520 | 1017105 855 | 403 | 4 | 4 | 4597 |
| CAL 10 | 500 | 1017105 1430 | 1017105 635 | 1017105 955 | 401 | 4 | 8 | 6477 |

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 9 | 500 | 9/20/05 1415 | 10/15/05 935 | | 409 | 4 | | |
| CAL 13 | 500 | 10/16/05 1430 | 10/24/05 425 | 10/24/05 730 | 410 | 4 | 8 | 9669 |
| CAL 14 | 500 | 10/16/05 1430 | 10/24/05 505 | 10/24/05 835 | 404 | 4 | 8 | 9777 |
| CAL 15 | 500 | 10/16/05 1430 | 10/24/05 545 | 10/24/05 930 | 412 | 4 | 8 | 9016 |
| CAL 16 | 500 | 10/16/05 1430 | 10/24/05 645 | 10/24/05 1010 | 406 | 4 | 8 | 9925 |
| CAL 23 | 500 | 10/16/05 1430 | 11/1/05 415 | 11/1/05 725 | 409 | 4 | 8 | 11289 |
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AB1 11/4/05

AB1
11/4/05

Ad Bil = 11/4/05

AD 11/4/05

**General Engineering Laboratories
Verification Source Preparation Sheet**

401-412

Applicable SOP Number GL-RAD-A-028 Isotope Ra-226

Date Standards Prepared 8/26/03 Cocktail Type Used _____

Standard ID 0299-E Matrix of Vial/Planchett _____

Amount Used (g or ml) 0.1 ml _____

Standard Activity (DPM/g or ml) 2434.34 Type of Scintillation Vial _____

Reference Date 12/15/99 Pipette ID Used 1429303

Expiration Date 11/4/06 Balance ID Used 28488

Residue/Carrier Agent 0.5M HCl Quenching Agent _____

| | Standard Number | Quenching Vol (uL) Residue Volume(mL) | Initial Wt. (g) | Final Wt. (g) | Net Wt. (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 | | | | |
| 13 | CAL 13 | | | | |
| 14 | CAL 14 | | | | |
| 15 | CAL 15 | | | | |

AB1
11/4/05

Prepared By: Ad Bail Date: 11/4/05

Reviewed By: Angela A. Johnson Date: 11/4/05

Rev 1 RLM 9/10/97

**General Engineering Laboratories
Verification Source Preparation Sheet**

401 - 412

Applicable SOP Number (G) - RAD - A - 028

Isotope Po-226

Date Standards Prepared 8/26/03

Cocktail Type Used ---

Standard ID 0299-E

Matrix of Vial/Planchett ---

Amount Used (g or ml) 0.1 ml

Standard Activity (DPM/g or mL) 2434.34

Type of Scintillation Vial ---

Reference Date 12/15/99

Pipette ID Used 1429303

Expiration Date 11/4/06

Balance ID Used 28488

Residue/Carrier Agent 0.5 m Hcl

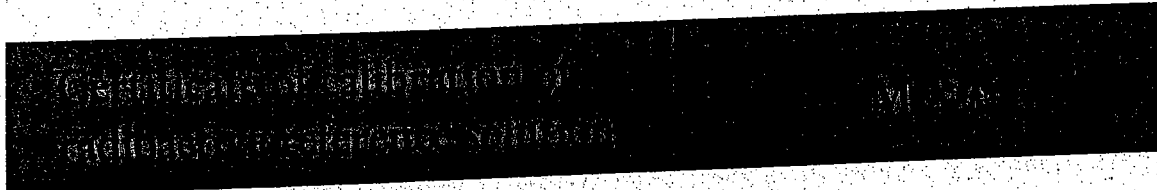
Quenching Agent ---

| | Standard Number | Quenching Vol (uL) Residue Volume(mL) | Initial Wt. (g) | Final Wt. (g) | Net Wt. (mg) |
|----|-----------------|--|--------------------|------------------|-----------------|
| 16 | CAL 16 | | | | |
| 17 | CAL 17 | | | | |
| 18 | CAL 18 | | | | |
| 19 | CAL 19 | | | | |
| 20 | CAL 20 | | | | |
| 21 | CAL 21 | | | | |
| 22 | CAL 22 | | | | |
| 23 | CAL 23 | | | | |
| 24 | CAL 24 | Abi 11/4/05 | | | |
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Prepared By: Ad Bil Date 11/4/05

Reviewed By: Angela Johnson Date 11/4/05

02.7



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 |

Page 473 of 741

17th December 1999

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.

Verification for Ra-226 Standard 0299-E

11/4/2005
A. Fehr

| Standard mL used | Source DPM/G |
|------------------|--------------|
| 0.2000 | 2461.082289 |
| 0.2000 | 2411.298509 |
| 0.2000 | 2383.559208 |
| | 2418.646669 |

| Isotope | Detector CPM | BKG CPM | NET CPM | Detector Eff |
|-----------|--------------|---------|-----------|--------------|
| 0299-F N1 | 1340.3000 | 0.6000 | 1339.7000 | 2.72177002 |
| 0299-F N2 | 1313.2000 | 0.6000 | 1312.6000 | 2.72177002 |
| 0299-F N3 | 1298.1000 | 0.6000 | 1297.5000 | 2.72177002 |

Mean Value (Counting) = 2418.646669
Stdev = 39.28044852
99.6090287 % of known
0.01624067

Certificate Value = 2428.1 dpm/mL
Lower Limit = 2340.085772 dpm/mL
Upper Limit = 2497.207566 dpm/mL
Rule 1 Pass/Fail Pass
Two sigma = 78.56089703 dpm/mL
10 % of Mean = 241.8646669 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-E 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 Yellow (Wallac) using Protocol 8 for Radium source standard verification. The Ra-226 efficiency calibration which was used for verification calculations was performed on 11/4/05 using source 0321-A (Ra-226). Calibration data is recorded in this logbook under Ra-226 0321. 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

*Amanda J. Fehr 11/4/05
Angela J. Johnson 11/4/05*

PROTOCOL : 8 Ra-226 ver
DATE : 2005/11/04
TIME : 11:47
ID : P08AS001

Ra226

Wallac 1414 WinSpectral v1.40 S/N 4140127

Counting mode : CPM
Isotope(s) : Ra226
Ra226 = 400- 900,Alpha,1602.12 y
Protocol name : Ra-226 ver
Counting time : 300
Repeats : 1
Cycles : 1
Replicates : 1
2 sigma % : 0.01
Minimum cpm : 0.00 Checking time: 10
Advanced modes : Halflife,PSA,Chemilum
Halflife zerotime : Start of assay
PSA level : low
Output to Display :
 POS,DATE,CTIME,RACK,RACKPOS,ETIME,SQPE,CPM1,CPM
Additions to Display : Spectrum,Header,Listing
Header : Ra226
Spectrum : Rnd.Cos,Alpha
Window 1 : 1-1024 /Alpha
Window 2 : 1-1024 /Beta
Window 3 : 1-1024 /Beta
Window 4 : 1-1024 /Beta
Window 5 : 1-1024 /Beta
Window 6 : 1-1024 /Beta
FNCT1 = FNCT1 :
FNCT2 = FNCT2 :
FNCT3 = FNCT3 :
FNCT4 = FNCT4 :

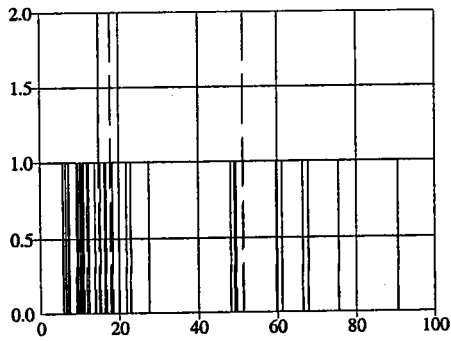
Total count rate:
 Ra226 10537.9 CPM

Amanda L. Leh
11/4/05

AQ
11/4/05

POS CTIME SQPI CPM CPM1

1 300 23.50 1.90

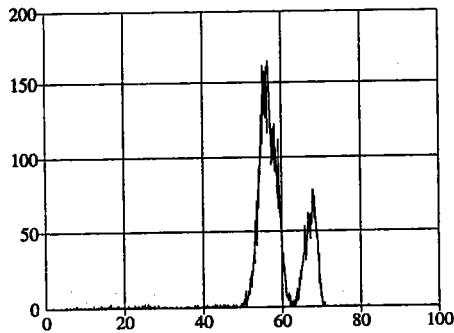


Counts Chem

Counts Alpha

Bkg

2 300 4697.50 2217.70

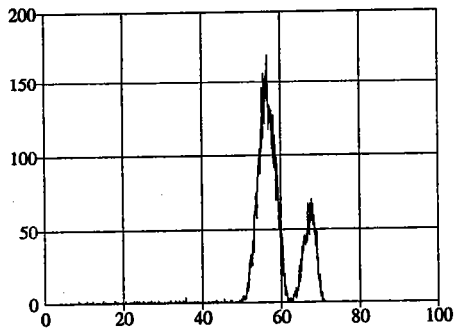


Counts Chem

Counts Alpha

0321-A

3 300 4542.00 2191.80



Counts Chem

Counts Alpha

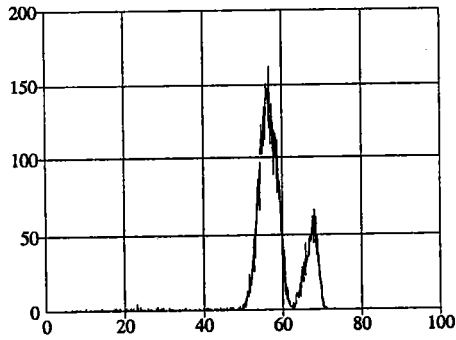
0321-A

ALF 11/4/05

HQ
11/4/05

POS CTIME SQPI CPM CPM1

4 300 4376.00 2174.30

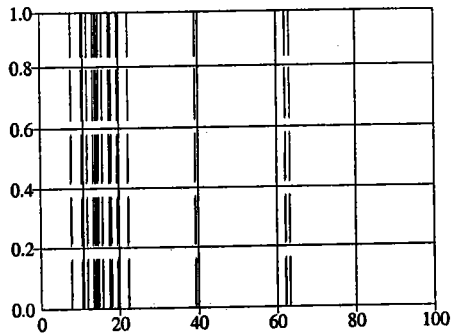


Counts Chem

Counts Alpha

0321-A

5 300 19.50 0.60

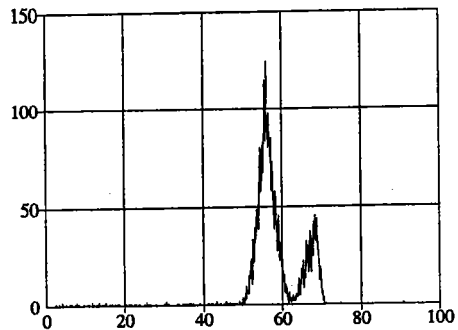


Counts Chem

Counts Alpha

Blkg

6 300 1930.20 1340.30



Counts Chem

Counts Alpha

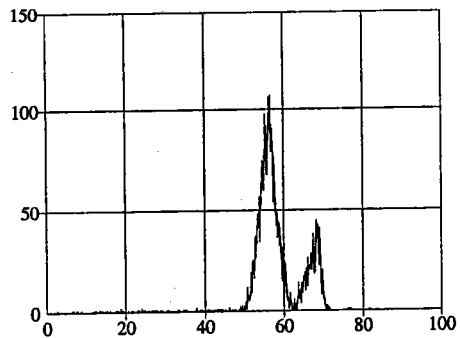
0299-E

ALF 11/4/05

AQ
11/4/05

POS CTIME SQPI CPM CPM1

7 300 1906.90 1313.20

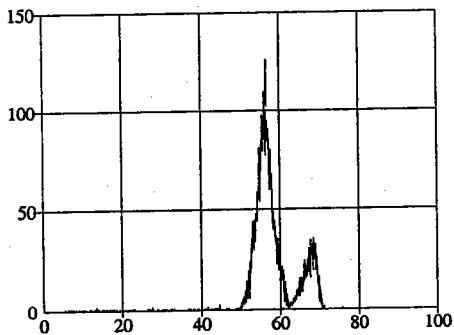


Counts Chem

Counts Alpha

0299-E

8 300 1835.40 1298.10



Counts Chem

Counts Alpha

0299-E

ADQ
11/4/05



Standard Traceability Log Rad

| Source Material Info | | A Solution Material Info | |
|----------------------|--------------|--------------------------|--------------|
| Parent Code: | 0299 | Isotope: | Radium-226 |
| Prepared By: | Angela Albee | Prepared By: | Angela Albee |
| Carrier Conc: | 0.5 M HCL | Prep Date: | 09/15/2000 |
| Reference Date: | 12/15/1999 | Verification Date: | 08/26/2004 |
| Ampoule Mass (g): | 5.0368 g | Expiration Date: | 08/26/2005 |
| 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 |

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

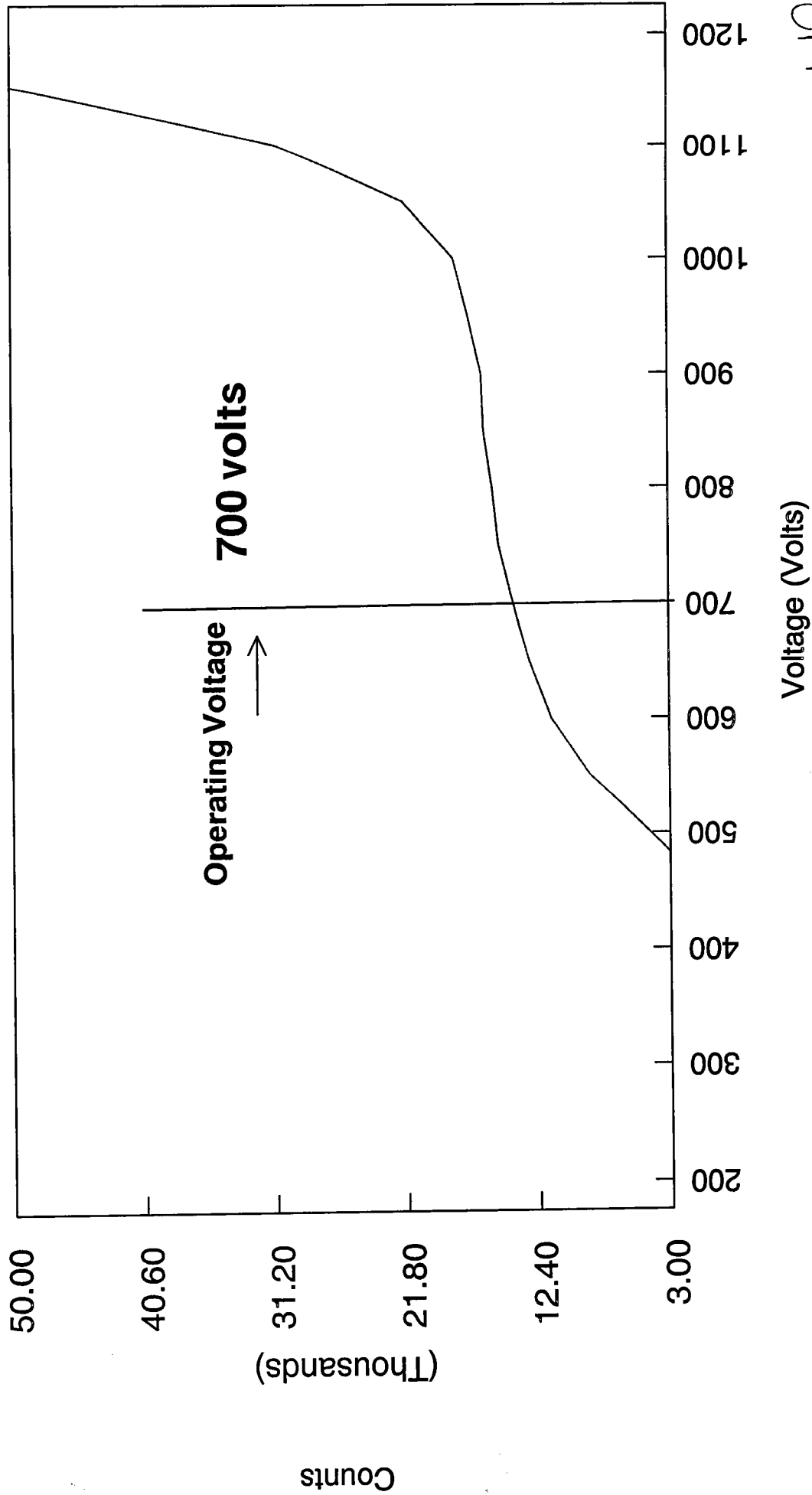
| Prep Date | Preparer | Mass Primary | Dilution (mL) | Code | Conc dpm/mL | Verification Date | Expiration Date |
|------------|--------------|--------------|---------------|--------|------------------|-------------------|-----------------|
| 09/26/2000 | Angela Albee | 2.1096 | 100 | 0299-C | 2579.62 dpm/mL | 10/10/2002 | 10/10/2003 |
| 09/15/2000 | Angela Albee | .2004 | 100 | 0299-B | 245.05 dpm/mL | 09/15/2000 | 09/15/2001 |
| 08/23/2002 | Angela Albee | 2.0443 | 100 | 0299-D | 2499.77 dpm/mL | 08/23/2002 | 08/23/2003 |
| 08/26/2003 | Angela Albee | 1.9909 | 100 | 0299-E | 2434.34 dpm/mL | 11/04/2004 | 11/04/2005 |
| 08/26/2003 | Angela Albee | 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 | 04/06/2005 | 04/06/2006 |

General Engineering Laboratories, LLC
Version 1.0 9/18/2000

Handwritten signature: AJD
11/4/05

Plateau September, 2005

Ludlum # 4



ADD
9/14/05

Ra-226 WATER

Batch : LCSVER
Date : 11/4/2005
Analyst : JMB

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 | 840 | 401 | 1.91 | 0.267 | 0.3963 | 20.7520 | 1.4236 | 10/31/2005 9:30 |
| 2 | 0.500 | 30 | 1132 | 402 | 2.00 | 0.267 | 0.3774 | 26.6781 | 1.5707 | 10/31/2005 10:10 |
| 3 | 0.500 | 30 | 881 | 403 | 1.89 | 0.267 | 0.3975 | 21.8387 | 1.4619 | 10/31/2005 10:40 |
| 4 | 0.500 | 30 | 893 | 404 | 1.77 | 0.267 | 0.4238 | 23.6048 | 1.5692 | 10/31/2005 11:10 |
| 5 | 0.500 | 30 | 888 | 405 | 1.88 | 0.267 | 0.3989 | 22.0913 | 1.4728 | 10/31/2005 11:45 |
| 6 | 0.500 | 30 | 834 | 406 | 1.91 | 0.267 | 0.3926 | 20.4075 | 1.4051 | 10/31/2005 12:30 |
| 7 | 0.500 | 30 | 826 | 407 | 1.80 | 0.267 | 0.4162 | 21.4235 | 1.4824 | 10/31/2005 14:15 |
| 8 | 0.500 | 30 | 1050 | 408 | 1.91 | 0.267 | 0.3614 | 23.6991 | 1.4500 | 11/1/2005 8:05 |
| 9 | 0.500 | 30 | 603 | 409 | 1.88 | 0.267 | 0.6681 | 25.0149 | 2.0368 | 11/4/2005 9:05 |
| 10 | 0.500 | 30 | 879 | 410 | 1.79 | 0.267 | 0.4245 | 23.2686 | 1.5594 | 10/31/2005 8:50 |
| 11 | 0.500 | 30 | 1087 | 411 | 1.88 | 0.267 | 0.3696 | 25.0943 | 1.5084 | 11/1/2005 9:45 |
| 12 | 0.500 | 30 | 976 | 412 | 1.83 | 0.267 | 0.3783 | 23.0455 | 1.4637 | 11/1/2005 10:20 |

Ach Baird 11/4/05

Angela Johnson 11/4/05

Adh Beite 11/4/05

*Angela S. Johnson
11/4/05*

| Sample ID | Sample Dup | Det # | Run Date | Sample Type | Standard ID | NC | NC units | Recovery/RPD |
|-----------|------------|-------|------------------|-------------|-------------|-------|----------|--------------|
| 401 | | 4 | 10/31/2005 9:30 | LCS | 0321-H | 24.14 | pCi/L | 86% |
| 402 | | 4 | 10/31/2005 10:10 | LCS | 0321-H | 24.14 | pCi/L | 111% |
| 403 | | 4 | 10/31/2005 10:40 | LCS | 0321-H | 24.14 | pCi/L | 90% |
| 404 | | 4 | 10/31/2005 11:10 | LCS | 0321-H | 24.14 | pCi/L | 98% |
| 405 | | 4 | 10/31/2005 11:45 | LCS | 0321-H | 24.14 | pCi/L | 92% |
| 406 | | 4 | 10/31/2005 12:30 | LCS | 0321-H | 24.14 | pCi/L | 85% |
| 407 | | 4 | 10/31/2005 14:15 | LCS | 0321-H | 24.14 | pCi/L | 89% |
| 408 | | 4 | 11/1/2005 8:05 | LCS | 0321-H | 24.14 | pCi/L | 98% |
| 409 | | 4 | 11/4/2005 9:05 | LCS | 0321-H | 24.14 | pCi/L | 104% |
| 410 | | 4 | 10/31/2005 8:50 | LCS | 0321-H | 24.14 | pCi/L | 96% |
| 411 | | 4 | 11/1/2005 9:45 | LCS | 0321-H | 24.14 | pCi/L | 104% |
| 412 | | 4 | 11/1/2005 10:20 | LCS | 0321-H | 24.14 | pCi/L | 95% |

| DEGASSING DATE/TIME | DE-EMAN. DATE/TIME | DEGASS-DE-EM | dE-EM-COUNT | constant | constant | constant | Net CPM | Ingrowth constant |
|---------------------|--------------------|--------------|-------------|----------|----------|----------|---------|-------------------|
| 10/25/2005 11:25 | 10/31/2005 5:30 | 138.08 | 4.00 | 0.6474 | 0.9703 | 1.0019 | 27.7333 | 0.6294 |
| 10/25/2005 11:25 | 10/31/2005 6:25 | 139.00 | 3.75 | 0.6499 | 0.9721 | 1.0019 | 37.4663 | 0.6329 |
| 10/25/2005 11:25 | 10/31/2005 7:00 | 139.58 | 3.67 | 0.6514 | 0.9727 | 1.0019 | 29.1000 | 0.6348 |
| 10/25/2005 11:25 | 10/31/2005 7:30 | 140.08 | 3.67 | 0.6527 | 0.9727 | 1.0019 | 29.5000 | 0.6361 |
| 10/25/2005 11:25 | 10/31/2005 8:00 | 140.58 | 3.75 | 0.6540 | 0.9721 | 1.0019 | 29.3333 | 0.6370 |
| 10/25/2005 11:25 | 10/31/2005 8:30 | 141.08 | 4.00 | 0.6553 | 0.9703 | 1.0019 | 27.5333 | 0.6370 |
| 10/25/2005 11:25 | 10/31/2005 9:30 | 142.08 | 4.75 | 0.6579 | 0.9648 | 1.0019 | 27.2667 | 0.6359 |
| 10/25/2005 11:25 | 11/1/2005 5:00 | 161.58 | 3.08 | 0.7048 | 0.9770 | 1.0019 | 34.7333 | 0.6898 |
| 11/1/2005 12:15 | 11/4/2005 5:40 | 65.42 | 3.42 | 0.3898 | 0.9745 | 1.0019 | 19.8333 | 0.3805 |
| 10/25/2005 11:25 | 10/31/2005 4:50 | 137.42 | 4.00 | 0.6457 | 0.9703 | 1.0019 | 29.0333 | 0.6276 |
| 10/25/2005 11:25 | 11/1/2005 5:40 | 162.25 | 4.08 | 0.7062 | 0.9696 | 1.0019 | 35.9667 | 0.6861 |
| 10/25/2005 11:25 | 11/1/2005 6:40 | 163.25 | 3.67 | 0.7084 | 0.9727 | 1.0019 | 32.2667 | 0.6904 |

CALIBRATION STANDARD DETECTOR # 4

| CELL # | END DEGAS TIME | END DE-EM TIME | COUNT TIME | DET # | BKG COUNTS | TOTAL COUNTS | SAMPLE # |
|--------|----------------|----------------|---|-------|------------|--------------|----------|
| 401 | 10/25/05 1125 | 10/31/05 530 | 10/31/05 930 | 4 | 8 | 840 | VER 1 |
| 402 | 10/25/05 1125 | 10/31/05 625 | 10/31/05 1010 | 4 | 8 | 1132 | VER 2 |
| 403 | 10/25/05 1125 | 10/31/05 760 | 10/31/05 1040 | 4 | 8 | 881 | VER 3 |
| 404 | 10/25/05 1125 | 10/31/05 730 | 10/31/05 1110 | 4 | 8 | 893 | VER 4 |
| 405 | 10/25/05 1125 | 10/31/05 800 | 10/31/05 1145 | 4 | 4 | 888 | VER 5 |
| 406 | 10/25/05 1125 | 10/31/05 830 | 10/31/05 1230 | 4 | 8 | 834 | VER 6 |
| 407 | 10/25/05 1125 | 10/31/05 930 | 10/31/05 1415 | 4 | 8 | 826 | VER 7 |
| 408 | 10/25/05 1125 | 11/1/05 500 | 11/1/05 805 | 4 | 8 | 1050 | VER 8 |
| 409 | 11/1/05 1215 | 11/4/05 540 | 11/4/05 905 | 4 | 0 | 603 | VER 9 |
| 410 | 10/25/05 1125 | 10/31/05 450 | 10/31/05 850 10/31/05 850 | 4 | 8 | 879 | VER 10 |
| 411 | 10/25/05 1125 | 11/1/05 540 | 11/1/05 945 | 4 | 8 | 1087 | VER 11 |
| 412 | 10/25/05 1125 | 11/1/05 640 | 11/1/05 1020 | 4 | 8 | 976 | VER 12 |

10/31/05

Ad. Belt 11/4/05

Angela Johnson
11/4/05

Verification for Ra-226 Standard 0321-H

A. Fehr
5/20/2005

| Isotope | Detector CPM | BKG CPM | NET CPM | Detector Eff Mass. Used (mL) | Standard Source DPM/mL |
|-----------|--------------|---------|-----------|------------------------------|------------------------|
| 0321-H N1 | 1170.1000 | 34.2000 | 1135.9000 | 4.20643586 | 270.0385881 |
| 0321-H N2 | 1137.8000 | 34.2000 | 1103.6000 | 4.20643586 | 262.3598783 |
| 0321-H N3 | 1149.6000 | 34.2000 | 1115.4000 | 4.20643586 | 265.1651036 |
| | | | | | Average = 265.8545233 |

Mean Value (Counting) = 265.8545233
Stdev = 3.885501322

99.1905663
0.01461514 Rule 3 (Pass/Fail)

Pass

Certificate Value = 268.0
Lower Limit = 258.0835207
Upper Limit = 273.625526
Rule 1 Pass/Fail Pass
Two sigma = 7.771002644
10 % of Mean = 26.58545233
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 0321-H 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 Green using source standard verification. The Ra-226 efficiency calibration which was used for verification calculations was performed on 5/20/05 using source 0299-A (Ra-226). Calibration data is recorded in this logbook under Ra-226 (0299-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

Amanda L. Fehr 5/20/05
Angela A. Johnson 5/24/05

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: the primary standard certificate? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| the second standard(s) documentation? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| standard preparation information? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| standard < 1 Year old or verified? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2) Is the efficiency calibration report included ? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 3) Is the raw count data included for: Cell constant determination? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Plateau generation? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 4) Are the calibration verifications included? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 5) Are the instrument settings included: HVPS settings? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 6) Has the CELLEFF.xls file been updated ? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 7) Have the calibration dates been updated in ALPHALIMS ? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |

Prepared By: Ad Bail

Date: 12/9/05

Reviewed By: Angela Johnson

Date: 12/8/05

Effective Date: 12/9/05

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 | 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 |
|--------------|---------------|-----------------|--------------------|---------------------------|------------------------|---------|--------------|----------------|--------|--------------------|------------------------------|------------------------------|---------------------------------|----------------------------------|
| 501 | 1.919 | Average 1.889 | 11/14/2005 7:20 | 11/14/2005 4:20 | 11/19/2005 15:30 | 0.267 | 7643 | 30 | 254.77 | 243.03 | 4.53472 | 0.12500 | 2161 | 0.9974 |
| 501 | 1.814 | Stdev 0.065 | 11/15/2005 9:20 | 11/15/2005 5:00 | 11/19/2005 15:30 | 0.267 | 8103 | 30 | 270.10 | 243.03 | 5.56250 | 0.18056 | 2162 | 0.9974 |
| 501 | 1.933 | | 11/10/2005 7:30 | 11/10/2005 4:30 | 11/14/2005 14:20 | 0.233 | 8747 | 30 | 291.57 | 243.03 | 5.59028 | 0.12500 | 2157 | 0.9974 |
| 502 | 2.003 | Average 1.904 | 11/18/2005 7:40 | 11/18/2005 4:40 | 11/15/2005 12:40 | 0.200 | 5456 | 30 | 181.87 | 243.03 | 2.66667 | 0.12500 | 2165 | 0.9974 |
| 502 | 1.878 | Stdev 0.090 | 11/14/2005 8:15 | 11/14/2005 5:10 | 11/19/2005 15:30 | 0.267 | 7511 | 30 | 250.37 | 243.03 | 4.56944 | 0.12847 | 2161 | 0.9974 |
| 502 | 1.830 | | 11/9/2005 8:50 | 11/9/2005 5:40 | 11/14/2005 14:20 | 0.133 | 7380 | 30 | 246.00 | 243.03 | 4.63889 | 0.13194 | 2156 | 0.9974 |
| 503 | 2.039 | Average 1.942 | 11/18/2005 10:20 | 11/18/2005 5:15 | 11/15/2005 12:40 | 0.267 | 5507 | 30 | 183.57 | 243.03 | 2.89097 | 0.21181 | 2165 | 0.9974 |
| 503 | 1.891 | Stdev 0.084 | 11/14/2005 9:00 | 11/14/2005 5:40 | 11/19/2005 15:30 | 0.267 | 7571 | 30 | 252.37 | 243.03 | 4.59028 | 0.13889 | 2161 | 0.9974 |
| 503 | 1.896 | | 11/9/2005 10:00 | 11/9/2005 7:00 | 11/14/2005 14:20 | 0.200 | 7717 | 30 | 257.23 | 243.03 | 4.69444 | 0.12500 | 2156 | 0.9974 |
| 504 | 1.774 | Average 1.736 | 11/18/2005 12:40 | 11/18/2005 5:50 | 11/15/2005 12:40 | 0.033 | 4757 | 30 | 158.57 | 243.03 | 2.71528 | 0.28472 | 2166 | 0.9974 |
| 504 | 1.742 | Stdev 0.042 | 11/15/2005 7:20 | 11/15/2005 4:20 | 11/19/2005 15:30 | 0.267 | 7838 | 30 | 261.27 | 243.03 | 5.53472 | 0.12500 | 2162 | 0.9974 |
| 504 | 1.692 | | 11/10/2005 8:20 | 11/10/2005 5:05 | 11/14/2005 14:20 | 0.133 | 7658 | 30 | 255.27 | 243.03 | 5.61458 | 0.13542 | 2157 | 0.9974 |
| 505 | 2.103 | Average 2.126 | 11/18/2005 11:25 | 11/18/2005 7:00 | 11/15/2005 12:40 | 0.200 | 5826 | 30 | 194.20 | 243.03 | 2.76389 | 0.18403 | 2165 | 0.9974 |
| 505 | 2.090 | Stdev 0.052 | 11/19/2005 10:45 | 11/19/2005 7:40 | 11/14/2005 14:20 | 0.267 | 8534 | 30 | 284.47 | 243.03 | 4.72222 | 0.12847 | 2156 | 0.9974 |
| 505 | 2.186 | | 12/1/2005 9:50 | 12/1/2005 5:20 | 11/28/2005 15:15 | 0.267 | 5750 | 30 | 191.67 | 243.03 | 2.58681 | 0.18750 | 2178 | 0.9974 |
| 506 | 2.134 | Average 2.054 | 11/18/2005 12:00 | 11/18/2005 7:45 | 11/15/2005 12:40 | 0.267 | 5973 | 30 | 199.10 | 243.03 | 2.79514 | 0.17708 | 2166 | 0.9974 |
| 506 | 2.038 | Stdev 0.073 | 12/1/2005 11:10 | 12/1/2005 6:05 | 11/28/2005 15:15 | 0.267 | 5389 | 30 | 179.63 | 243.03 | 2.61806 | 0.21181 | 2178 | 0.9974 |
| 506 | 1.990 | | 12/2/2005 12:20 | 12/2/2005 7:30 | 11/28/2005 15:15 | 0.267 | 6786 | 30 | 226.20 | 243.03 | 3.67708 | 0.20139 | 2180 | 0.9974 |
| 508 | 2.090 | Average 1.942 | 11/18/2005 12:45 | 11/18/2005 8:20 | 11/15/2005 12:40 | 0.067 | 5874 | 30 | 195.80 | 243.03 | 2.81944 | 0.18403 | 2166 | 0.9974 |
| 508 | 1.847 | Stdev 0.130 | 11/14/2005 10:35 | 11/14/2005 7:15 | 11/19/2005 15:30 | 0.267 | 7462 | 30 | 248.73 | 243.03 | 4.65625 | 0.13889 | 2161 | 0.9974 |
| 508 | 1.890 | | 11/9/2005 10:25 | 11/9/2005 8:25 | 11/14/2005 14:20 | 0.200 | 7813 | 30 | 260.43 | 243.03 | 4.75347 | 0.08333 | 2156 | 0.9974 |
| 509 | 2.082 | Average 1.987 | 11/18/2005 13:20 | 11/18/2005 9:20 | 11/15/2005 12:40 | 0.267 | 5942 | 30 | 198.07 | 243.03 | 2.86111 | 0.16667 | 2166 | 0.9974 |
| 509 | 1.906 | Stdev 0.089 | 11/14/2005 11:10 | 11/14/2005 7:50 | 11/19/2005 15:30 | 0.267 | 7726 | 30 | 257.53 | 243.03 | 4.68056 | 0.13889 | 2161 | 0.9974 |
| 509 | 1.973 | | 11/10/2005 9:00 | 11/10/2005 5:40 | 11/14/2005 14:20 | 0.267 | 8953 | 30 | 298.43 | 243.03 | 5.63889 | 0.13889 | 2157 | 0.9974 |
| 510 | 2.063 | Average 2.033 | 11/18/2005 13:50 | 11/18/2005 10:05 | 11/15/2005 12:40 | 0.033 | 5942 | 30 | 198.07 | 243.03 | 2.89236 | 0.15625 | 2166 | 0.9974 |
| 510 | 2.009 | Stdev 0.027 | 11/14/2005 11:40 | 11/14/2005 8:30 | 11/19/2005 15:30 | 0.267 | 8185 | 30 | 272.83 | 243.03 | 4.70833 | 0.13194 | 2161 | 0.9974 |
| 510 | 2.027 | | 11/9/2005 12:00 | 11/9/2005 9:00 | 11/14/2005 14:20 | 0.167 | 8342 | 30 | 278.07 | 243.03 | 4.77778 | 0.12500 | 2157 | 0.9974 |
| 511 | 2.033 | Average 1.994 | 12/1/2005 12:05 | 12/1/2005 6:45 | 11/28/2005 15:15 | 0.267 | 5409 | 30 | 180.30 | 243.03 | 2.64583 | 0.22222 | 2179 | 0.9974 |
| 511 | 2.112 | Stdev 0.141 | 11/14/2005 12:10 | 11/14/2005 9:10 | 11/19/2005 15:30 | 0.267 | 8645 | 30 | 288.17 | 243.03 | 4.79611 | 0.12500 | 2162 | 0.9974 |
| 511 | 1.837 | | 11/9/2005 15:00 | 11/9/2005 9:55 | 11/14/2005 14:20 | 0.133 | 7480 | 30 | 249.33 | 243.03 | 4.81597 | 0.21181 | 2157 | 0.9974 |
| 512 | 1.934 | Average 1.954 | 12/1/2005 7:30 | 12/1/2005 12:40 | 11/28/2005 15:15 | 0.267 | 5966 | 30 | 198.87 | 243.03 | 2.89236 | -0.21528 | 2178 | 0.9974 |
| 512 | 2.119 | Stdev 0.156 | 11/14/2005 13:20 | 11/14/2005 10:00 | 11/19/2005 15:30 | 0.267 | 8693 | 30 | 289.77 | 243.03 | 4.77083 | 0.13889 | 2162 | 0.9974 |
| 512 | 1.809 | | 11/10/2005 9:55 | 11/10/2005 6:50 | 11/14/2005 14:20 | 0.067 | 8259 | 30 | 275.30 | 243.03 | 5.68750 | 0.12847 | 2157 | 0.9974 |

Ad. Bal 12/9/05
 Angela A. Johnson 12/18/05

CAL 5 AB1 12/18/05

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 12 | 500 | 11/4/05 1420 | 11/9/05 540 | 11/9/05 850 | 502 | 5 | 4 | 7380 |
| CAL 13 | 500 | 11/4/05 1420 | 11/9/05 700 | 11/9/05 1000 | 503 | 5 | 6 | 7717 |
| CAL 17 | 500 | 11/4/05 1420 | 11/9/05 740 | 11/9/05 1045 | 505 | 5 | 8 | 8534 |
| CAL 18 | 500 | 11/4/05 1420 | 11/9/05 825 | 11/9/05 1025 | 508 | 5 | 6 | 7813 |
| CAL 19 | 500 | 11/4/05 1420 | 11/9/05 900 | 11/9/05 1200 | 510 | 5 | 5 | 8342 |
| CAL 20 | 500 | 11/4/05 1420 | 11/9/05 955 | 11/9/05 1500 | 511 | 5 | 4 | 7480 |
| CAL 21 | 500 | 11/4/05 1420 | 11/10/05 430 | 11/10/05 730 | 501 | 5 | 7 | 8747 |
| CAL 22 | 500 | 11/4/05 1420 | 11/10/05 505 | 11/10/05 820 | 504 | 5 | 4 | 7658 |
| CAL 23 | 500 | 11/4/05 1420 | 11/10/05 540 | 11/10/05 900 | 509 | 5 | 8 | 8953 |
| CAL 24 | 500 | 11/4/05 1420 | 11/10/05 650 | 11/10/05 955 | 512 | 5 | 2 | 8259 |
| / | | | | | | | | |
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AB1 12/19/05

JAG 12/18/05

JAG 12/18/05

CALS 5 *ADQ*
12/18/05

Ra-226 Verification Sheet

ADQ
12/19/05

ADQ
12/19/05

ADQ
12/19/05

ADQ
12/18/05

| Sample ID | Volume (mL) | End Degas Date/Time | End De-em Date/Time | Start Count Date/Time | Cell # | Det # | Background CPM | Total Counts |
|------------------|-------------|-------------------------|---------------------|-----------------------|--------|-------|----------------|--------------|
| CAL 1 | 500 | 11/9/05 1530 | 11/14/05 420 | 11/14/05 720 | 501 | 5 | 8 | 7643 |
| CAL 2 | 500 | 11/9/05 1530 | 11/14/05 510 | 11/14/05 815 | 502 | 5 | 8 | 7511 |
| CAL 3 | 500 | 11/9/05 1530 | 11/14/05 540 | 11/14/05 900 | 503 | 5 | 8 | 7571 |
| CAL 4 | | 11/9/05 1530 | 11/14/05 | | | | | |
| CAL 5 | 500 | 11/9/05 1530 | 11/14/05 715 | 11/14/05 1035 | 508 | 5 | 8 | 7462 |
| CAL 6 | 500 | 11/9/05 1530 | 11/14/05 750 | 11/14/05 1110 | 509 | 5 | 8 | 7726 |
| CAL 7 | 500 | 11/9/05 1530 | 11/14/05 830 | 11/14/05 1140 | 510 | 5 | 8 | 8185 |
| CAL 9 | 500 | 11/9/05 1530 | 11/14/05 910 | 11/14/05 1210 | 511 | 5 | 8 | 8645 |
| CAL 8 | 500 | 11/9/05 1530 | 11/14/05 1000 | 11/14/05 1320 | 512 | 5 | 8 | 8693 |
| CAL 11 | 500 | 11/9/05 1530 | 11/15/05 420 | 11/15/05 720 | 504 | 5 | 8 | 7828 |
| CAL 13 | 500 | 11/9/05 1530 | 11/15/05 500 | 11/14/05 920 | 501 | 5 | 8 | 8103 |
| / | | | | | | | | |

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 2 | 500 | 11/15/05 1240 | 11/18/05 440 | 11/18/05 740 | 502 | 5 | 6 | 5456 |
| CAL 3 | 500 | 11/15/05 1240 | 11/18/05 515 | 11/18/05 1020 | 503 | 5 | 8 | 5507 |
| CAL 4 | 500 | 11/15/05 1240 | 11/18/05 550 | 11/18/05 1055 | 504 | 5 | 1 | 4757 |
| CAL 5 | 500 | 11/15/05 1240 | 11/18/05 700 | 11/18/05 1125 | 505 | 5 | 6 | 5826 |
| CAL 6 | 500 | 11/15/05 1240 | 11/18/05 745 | 11/18/05 1200 | 506 | 5 | 8 | 5973 |
| CAL 7 | 500 | 11/15/05 1240 | 11/18/05 820 | 11/18/05 1245 | 508 | 5 | 2 | 5874 |
| CAL 8 | 500 | 11/15/05 1240 | 11/18/05 920 | 11/16/05 1320 | 509 | 5 | 8 | 5942 |
| CAL 9 | 500 | 11/15/05 1240 | 11/18/05 1005 | 11/18/05 1350 | 510 | 5 | 1 | 5942 |
| CAL 10 | | 11/15/05 1240 | 11/18/05 1045 | 11/18/05 1420 | 511 | 5 | 6 | 5942 |
| CAL 11 | | 11/15/05 1240 | 11/18/05 1110 | 11/18/05 1545 | 512 | 5 | 8 | 4618 |
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12/18/05

AB1 12/18/05

AB1 12/18/05

AB1 12/18/05

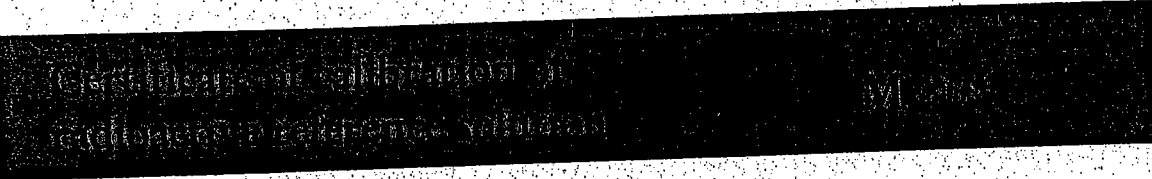
General Engineering Laboratories Calibration Source Preparation Sheet

Applicable SOP Number GL-RAD-A-008 Isotope Ra-226
 Date Standards Prepared 8/26/03 Cocktail Type Used NA
 Standard ID 0299-E Matrix of Vial/Planchett NA
 Amount Used (g or mL) 0.1 NA
 Standard Activity (DPM/g or mL) 2434.34 Type of Scintillation Vial NA
 Reference Date 12/15/99 Pipette ID Used 1429303
 Expiration Date 11/4/06 Balance ID Used 28488
 Residue/Carrier Agent NA Quenching Agent NA

| | Standard Number | Quenching Vol (uL)/ Residue Volume(mL) | Initial Wt. (g) | Final Wt. (g) | Net Wt. (mg) |
|----|-----------------|---|--------------------|------------------|-----------------|
| 1 | CAL1 | | | | |
| 2 | CAL2 | | | | |
| 3 | CAL3 | | | | |
| 4 | CAL4 | | | | |
| 5 | CAL5 | | | | |
| 6 | CAL6 | | | | |
| 7 | CAL7 | | | | |
| 8 | CAL8 | | | | |
| 9 | CAL9 | | | | |
| 10 | CAL10 | | | | |
| 11 | CAL11 | | | | |
| 12 | CAL12 | | | | |
| 13 | CAL13 | | | | |
| 14 | CAL14 | | | | |
| 15 | CAL15 | | | | |

Prepared By: Ad Burt Date 12/8/05
 Reviewed By: Angela Johnson Date 12/8/05
 Rev 1 RLM 9/10/97 12/8/05

02.9



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 |

17th December 1999

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.

Verification for Ra-226 Standard 0299-E

| 11/4/2005 | Isotope | Detector CPM | BKG CPM | NET CPM | Detector Eff | Standard mL used | Source DPM/G |
|-----------|-----------|--------------|---------|------------|--------------|------------------|--------------|
| A.Fehr | 0299-F N1 | 1340.3000 | 0.6000 | 1339.7000 | 2.72177002 | 0.2000 | 2461.082289 |
| | 0299-F N2 | 1313.2000 | 0.6000 | 1312.6000 | 2.72177002 | 0.2000 | 2411.298509 |
| | 0299-F N3 | 1298.1000 | 0.6000 | 1297.5000 | 2.72177002 | 0.2000 | 2383.559208 |
| | | | | 99.6090287 | % of known | | 2418.646669 |
| | | | | 0.01624067 | | | |

Mean Value (Counting) = 2418.646669
 Stdev = 39.28044852

Certificate Value = 2428.1 dpm/mL
 Lower Limit = 2340.085772 dpm/mL
 Upper Limit = 2497.207566 dpm/mL
 Rule 1 Pass/Fail Pass
 Two sigma = 78.56089703 dpm/mL
 10 % of Mean = 241.8646669 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-E 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 Yellow (Wallac) using Protocol 8 for Radium source standard verification. The Ra-226 efficiency calibration which was used for verification calculations was performed on 11/4/05 using source 0321-A (Ra-226). Calibration data is recorded in this logbook under Ra-226 0321. 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

Amanda J. Feehe 11/4/05
Amanda J. Feehe 11/4/05

PROTOCOL : 8 Ra-226 ver
DATE : 2005/11/04
TIME : 11:47
ID : P08AS001

Ra226

Wallac 1414 WinSpectral v1.40 S/N 4140127

Counting mode : CPM
Isotope(s) : Ra226
Ra226 = 400- 900,Alpha,1602.12 y
Protocol name : Ra-226 ver
Counting time : 300
Repeats : 1
Cycles : 1
Replicates : 1
2 sigma % : 0.01
Minimum cpm : 0.00 Checking time: 10
Advanced modes : Halflife,PSA,Chemilum
Halflife zerotime : Start of assay
PSA level : low
Output to Display :
 POS,DATE,CTIME,RACK,RACKPOS,ETIME,SQPE,CPM1,CPM
Additions to Display : Spectrum,Header,Listing
Header : Ra226
Spectrum : Rnd.Cos,Alpha
Window 1 : 1-1024 /Alpha
Window 2 : 1-1024 /Beta
Window 3 : 1-1024 /Beta
Window 4 : 1-1024 /Beta
Window 5 : 1-1024 /Beta
Window 6 : 1-1024 /Beta
FNCT1 = FNCT1 :
FNCT2 = FNCT2 :
FNCT3 = FNCT3 :
FNCT4 = FNCT4 :

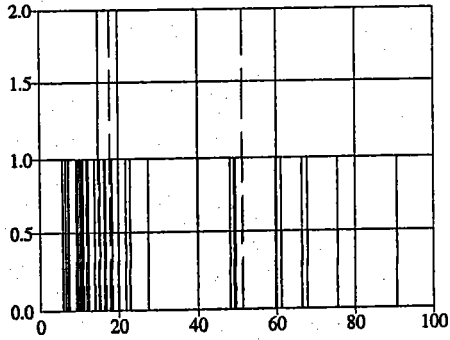
Total count rate:
 Ra226 10537.9 CPM

Amanda L. Lehn
11/4/05

ALQ
11/4/05

POS CTIME SQPI CPM CPM1

1 300 23.50 1.90

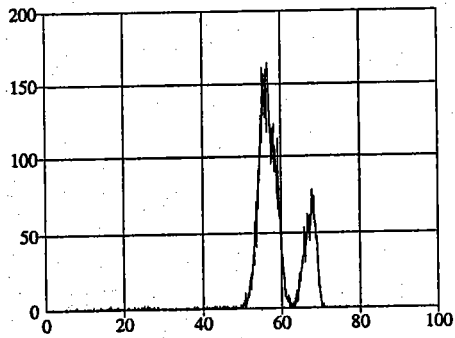


Counts Chem

Counts Alpha

Blcg

2 300 4697.50 2217.70

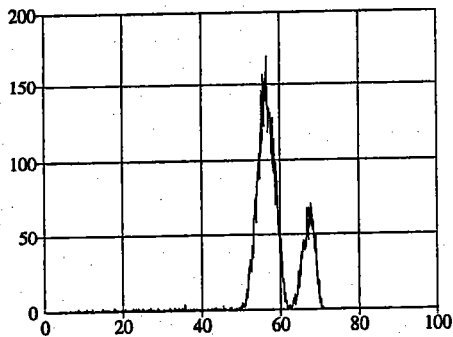


Counts Chem

Counts Alpha

0321-A

3 300 4542.00 2191.80



Counts Chem

Counts Alpha

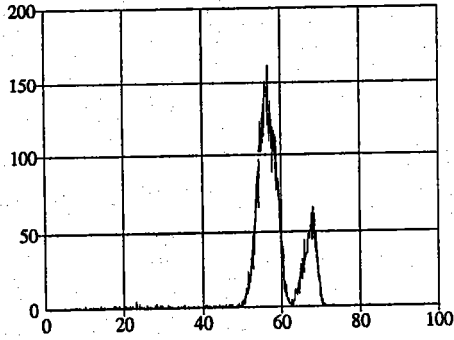
0321-A

ALF 11/4/05

*ALF
11/4/05*

POS CTIME SQPI CPM CPM1

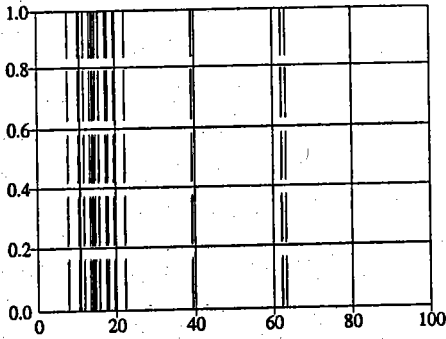
4 300 4376.00 2174.30



Counts Chem
Counts Alpha

0321-A

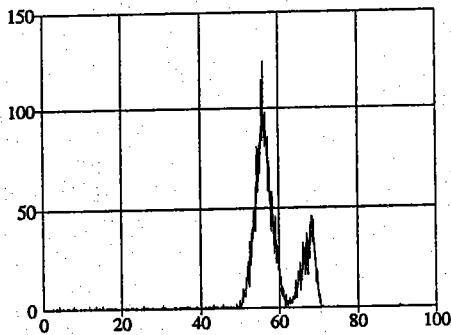
5 300 19.50 0.60



Counts Chem
Counts Alpha

Blky

6 300 1930.20 1340.30



Counts Chem
Counts Alpha

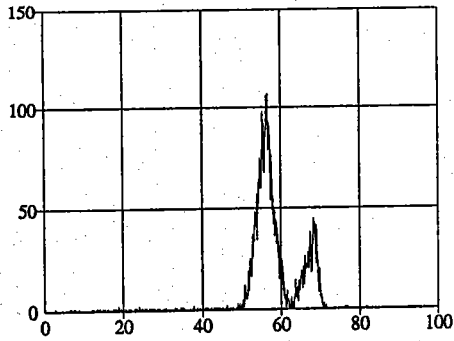
0299-E

ALF 11/4/05

AHQ
11/4/05

POS CTIME SQPI CPM CPM1

7 300 1906.90 1313.20

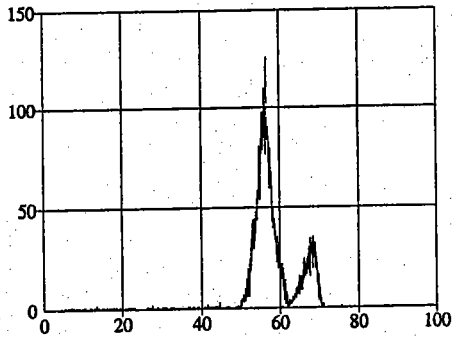


Counts Chem

Counts Alpha

0299-E

8 300 1835.40 1298.10



Counts Chem

Counts Alpha

0299-E

Handwritten signature and date:
11/4/05



Standard Traceability Log Rad

| Source Material Info | | A Solution Material Info | |
|----------------------|--------------|--------------------------|--------------|
| Parent Code: | 0299 | Isotope: | Radium-226 |
| Prepared By: | Angela Albee | Prepared By: | Angela Albee |
| Carrier Conc: | 0.5 M HCL | Prep Date: | 09/15/2000 |
| Reference Date: | 12/15/1999 | Verification Date: | 08/26/2004 |
| Ampoule Mass (g): | 5.0368 g | Expiration Date: | 08/26/2005 |
| 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 |

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 |
|------------|--------------|--------------|---------------|--------|------------------|-------------------|-----------------|
| 09/26/2000 | Angela Albee | 2.1096 | 100 | 0299-C | 2579.62 dpm/mL | 10/10/2002 | 10/10/2003 |
| 09/15/2000 | Angela Albee | .2004 | 100 | 0299-B | 245.05 dpm/mL | 09/15/2000 | 09/15/2001 |
| 08/23/2002 | Angela Albee | 2.0443 | 100 | 0299-D | 2499.77 dpm/mL | 08/23/2002 | 08/23/2003 |
| 08/26/2003 | Angela Albee | 1.9909 | 100 | 0299-E | 2434.34 dpm/mL | 11/04/2004 | 11/04/2005 |
| 08/26/2003 | Angela Albee | 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 | 04/06/2005 | 04/06/2006 |

General Engineering Laboratories, LLC
Version 1.0 9/18/2000

Handwritten signature: AJD
11/4/05

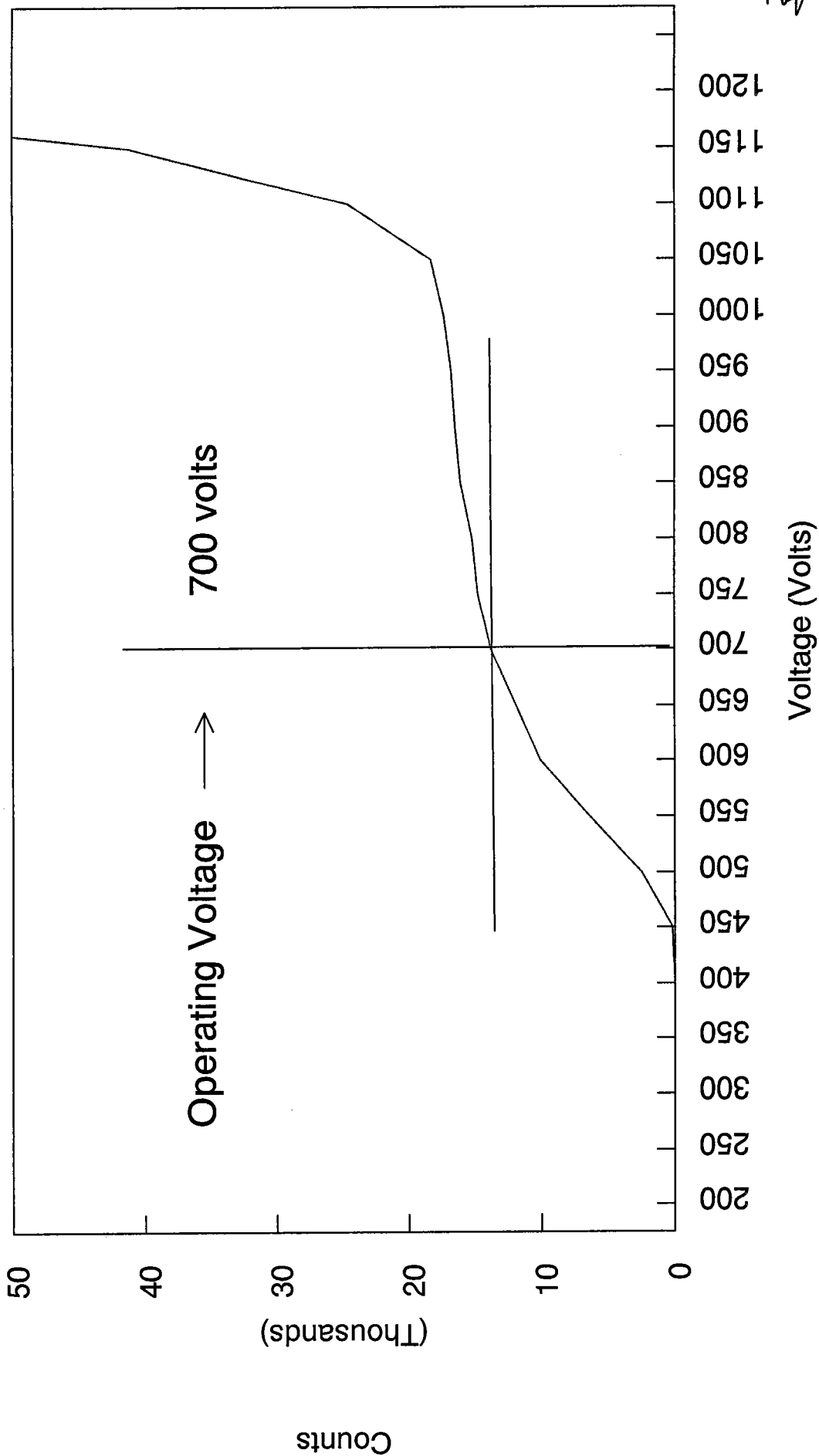
| Voltage Curve Ludlum # 5 | | | | |
|--------------------------|--------|-----------|-------|----------|
| Volts (K.V.) | Counts | Date | Time | Detector |
| 0.20 | 0 | 11/4/2005 | 10:01 | 5 |
| 0.25 | 0 | 11/4/2005 | 10:02 | 5 |
| 0.30 | 0 | 11/4/2005 | 10:03 | 5 |
| 0.35 | 0 | 11/4/2005 | 10:04 | 5 |
| 0.40 | 0 | 11/4/2005 | 10:05 | 5 |
| 0.45 | 188 | 11/4/2005 | 10:06 | 5 |
| 0.50 | 2505 | 11/4/2005 | 10:07 | 5 |
| 0.55 | 6400 | 11/4/2005 | 10:08 | 5 |
| 0.60 | 10095 | 11/4/2005 | 10:09 | 5 |
| 0.65 | 11888 | 11/4/2005 | 10:10 | 5 |
| 0.70 | 13799 | 11/4/2005 | 10:11 | 5 |
| 0.75 | 14773 | 11/4/2005 | 10:12 | 5 |
| 0.80 | 15200 | 11/4/2005 | 10:13 | 5 |
| 0.85 | 16084 | 11/4/2005 | 10:14 | 5 |
| 0.90 | 16485 | 11/4/2005 | 10:15 | 5 |
| 0.95 | 16792 | 11/4/2005 | 10:16 | 5 |
| 1.00 | 17342 | 11/4/2005 | 10:17 | 5 |
| 1.05 | 18321 | 11/4/2005 | 10:18 | 5 |
| 1.10 | 24605 | 11/4/2005 | 10:19 | 5 |
| 1.15 | 41208 | 11/4/2005 | 10:20 | 5 |
| 1.20 | 79240 | 11/4/2005 | 10:21 | 5 |
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ABI 12/8/05

JLJ
12/8/05

Plateau Novemver, 2005

Ludlum # 5



12/18/05
HBI
5018/21
ATD

Ra-226 WATER

Batch : LCSVER
 Date : 12/6/2005
 Analyst : JMB1

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 | 634 | 501 | 1.889 | 0.267 | 0.5139 | 20.2337 | 1.6052 | 12/6/2005 14:30 |
| VER 3 | 0.500 | 30 | 784 | 502 | 1.904 | 0.133 | 0.3824 | 24.7965 | 1.7491 | 12/6/2005 15:00 |
| VER 4 | 0.500 | 30 | 678 | 503 | 1.942 | 0.267 | 0.4931 | 20.7902 | 1.5930 | 12/6/2005 15:35 |
| VER 5 | 0.500 | 30 | 650 | 504 | 1.736 | 0.200 | 0.4891 | 22.3018 | 1.7384 | 12/6/2005 16:15 |
| VER 6 | 0.500 | 30 | 953 | 505 | 2.126 | 0.133 | 0.3308 | 26.0930 | 1.6671 | 12/6/2005 16:45 |
| VER 12 | 0.500 | 30 | 951 | 506 | 2.054 | 0.267 | 0.3693 | 21.9160 | 1.4106 | 12/8/2005 13:05 |
| VER 7 | 0.500 | 30 | 769 | 508 | 1.942 | 0.133 | 0.3321 | 21.1178 | 1.5043 | 12/7/2005 12:55 |
| VER 8 | 0.500 | 30 | 778 | 509 | 1.987 | 0.267 | 0.4287 | 20.7621 | 1.4817 | 12/7/2005 13:50 |
| VER 9 | 0.500 | 30 | 986 | 510 | 2.033 | 0.200 | 0.3706 | 25.7153 | 1.6199 | 12/7/2005 14:25 |
| VER 10 | 0.500 | 30 | 915 | 511 | 1.994 | 0.267 | 0.4227 | 24.1275 | 1.5840 | 12/7/2005 15:05 |
| VER 11 | 0.500 | 30 | 1016 | 512 | 1.954 | 0.267 | 0.4296 | 27.2513 | 1.6956 | 12/7/2005 15:50 |

Ad Bail 12/8/05
~~12/9/05~~ 12/19/05
Angela Johnson 12/18/05

| Sample ID | Sample Dup | Det # | Run Date | Sample Type | Standard ID | NC | NC units | Recovery/RPD |
|-----------|------------|-------|-----------------|-------------|-------------|-------|----------|--------------|
| VER 2 | | 5 | 12/6/2005 14:30 | LCS | 0321-H | 24.14 | pCi/L | 84% |
| VER 3 | | 5 | 12/6/2005 15:00 | LCS | 0321-H | 24.14 | pCi/L | 103% |
| VER 4 | | 5 | 12/6/2005 15:35 | LCS | 0321-H | 24.14 | pCi/L | 86% |
| VER 5 | | 5 | 12/6/2005 16:15 | LCS | 0321-H | 24.14 | pCi/L | 92% |
| VER 6 | | 5 | 12/6/2005 16:45 | LCS | 0321-H | 24.14 | pCi/L | 108% |
| VER 12 | | 5 | 12/8/2005 13:05 | LCS | 0321-H | 24.14 | pCi/L | 91% |
| VER 7 | | 5 | 12/7/2005 12:55 | LCS | 0321-H | 24.14 | pCi/L | 87% |
| VER 8 | | 5 | 12/7/2005 13:50 | LCS | 0321-H | 24.14 | pCi/L | 86% |
| VER 9 | | 5 | 12/7/2005 14:25 | LCS | 0321-H | 24.14 | pCi/L | 107% |
| VER 10 | | 5 | 12/7/2005 15:05 | LCS | 0321-H | 24.14 | pCi/L | 100% |
| VER 11 | | 5 | 12/7/2005 15:50 | LCS | 0321-H | 24.14 | pCi/L | 113% |

| DEGASSING DATE/TIME | DE-EMAN. DATE/TIME | DEGASS-DE-EM | dE-EM-COUNT | constant | constant | constant | Net CPM | Ingrowth constant |
|---------------------|--------------------|--------------|-------------|----------|----------|----------|---------|-------------------|
| 12/2/2005 14:25 | 12/6/2005 11:10 | 92.75 | 3.33 | 0.5035 | 0.9751 | 1.0019 | 20.8663 | 0.4920 |
| 12/2/2005 14:25 | 12/6/2005 12:00 | 93.58 | 3.00 | 0.5067 | 0.9776 | 1.0019 | 26.0000 | 0.4962 |
| 12/2/2005 14:25 | 12/6/2005 12:35 | 94.17 | 3.00 | 0.5088 | 0.9776 | 1.0019 | 22.3333 | 0.4984 |
| 12/2/2005 14:25 | 12/6/2005 13:05 | 94.67 | 3.17 | 0.5107 | 0.9764 | 1.0019 | 21.4667 | 0.4996 |
| 12/2/2005 14:25 | 12/6/2005 15:15 | 96.83 | 1.50 | 0.5186 | 0.9887 | 1.0019 | 31.6333 | 0.5137 |
| 12/2/2005 14:25 | 12/8/2005 8:50 | 138.42 | 4.25 | 0.6483 | 0.9684 | 1.0019 | 31.4333 | 0.6290 |
| 12/2/2005 14:25 | 12/7/2005 8:35 | 114.17 | 4.33 | 0.5777 | 0.9678 | 1.0019 | 25.5000 | 0.5601 |
| 12/2/2005 14:25 | 12/7/2005 9:10 | 114.75 | 4.67 | 0.5795 | 0.9654 | 1.0019 | 25.6663 | 0.5605 |
| 12/2/2005 14:25 | 12/7/2005 9:50 | 115.42 | 4.58 | 0.5816 | 0.9660 | 1.0019 | 32.6667 | 0.5629 |
| 12/2/2005 14:25 | 12/7/2005 10:40 | 116.25 | 4.42 | 0.5843 | 0.9672 | 1.0019 | 30.2333 | 0.5662 |
| 12/2/2005 14:25 | 12/7/2005 11:25 | 117.00 | 4.42 | 0.5866 | 0.9672 | 1.0019 | 33.6000 | 0.5684 |

12/8/05
~~12/9/05~~ #B1 12/9/05
Ad Bail
Cingela S. Johnson 12/8/05

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 |
|-----------|-------------|---------------------|---------------------|-----------------------|--------|-------|----------------|--------------|
| VER 2 | 500 | 12/2/05 1425 | 12/6/05 1110 | 12/6/05 1430 | 501 | 5 | 8 | 634 |
| VER 3 | 500 | 12/2/05 1425 | 12/6/05 1200 | 12/6/05 1500 | 502 | 5 | 4 | 784 |
| VER 4 | 500 | 12/2/05 1425 | 12/6/05 1235 | 12/6/05 1535 | 503 | 5 | 8 | 678 |
| VER 5 | 500 | 12/2/05 1425 | 12/6/05 1305 | 12/6/05 1615 | 504 | 5 | 4 | 650 |
| VER 6 | 500 | 12/2/05 1425 | 12/6/05 1315 | 12/6/05 1645 | 505 | 5 | 4 | 953 |
| VER 7 | 500 | 12/2/05 1425 | 12/7/05 835 | 12/7/05 1255 | 508 | 5 | 4 | 769 |
| VER 8 | 500 | 12/2/05 1425 | 12/7/05 910 | 12/7/05 1330 | 509 | 5 | 8 | 778 |
| VER 9 | 500 | 12/2/05 1425 | 12/7/05 950 | 12/7/05 1425 | 510 | 5 | 6 | 986 |
| VER 10 | 500 | 12/2/05 1425 | 12/7/05 1040 | 12/7/05 1505 | 511 | 5 | 8 | 915 |
| VER 11 | 500 | 12/2/05 1425 | 12/7/05 1125 | 12/7/05 1550 | 512 | 5 | 8 | 1016 |
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AB 12/7/05

508/21
12/18/05

5018/12/12/05

Ra-226 Verification Sheet

ADJ 12/14/05

ADJ 12/15/05

ADJ 12/18/05

| Sample ID | Volume (mL) | End Degas Date/Time | End De-em Date/Time | Start Count Date/Time | Cell # | Det # | Background CPM | Total Counts |
|-----------|-------------|---------------------|---------------------|-----------------------|--------|-------|----------------|--------------|
| Ver-12 | | 12/2/05 1425 | 12/8/05 850 | 12/8/05 1305 | 506 | 5 | 8 | 951 |
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**General Engineering Laboratories
Verification Source Preparation Sheet**

Applicable SOP Number GL-RAD-A-008 Isotope Ra-226
 Date Standards Prepared 5/18/05 Cocktail Type Used NA
 Standard ID 0321-H Matrix of Vial/Planchett NA
 Amount Used (g or ml) 0.1 NA
 Standard Activity (DPM/g or ml) 269.6188 Type of Scintillation Vial NA
 Reference Date 9/9/91 Pipette ID Used 1429303
 Expiration Date 5/20/04 Balance ID Used 28488
 Residue/Carrier Agent NA Quenching Agent NA

| | Standard Number | Quenching Vol (uL)/ Residue Volume(mL) | Initial Wt. (g) | Final Wt. (g) | Net Wt. (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 | | | | |
| NA 12/8/05 | | | | | |
| NA 12/8/05 | | | | | |

Prepared By: Adri Bail Date 12/9/05
 Reviewed By: Angela Johnson Date 12/8/05

Rev 1 RLM 9/10/97

Verification for Ra-226 Standard 0321-H

A. Fehr
5/20/2005

| Isotope | Detector CPM | BKG CPM | NET CPM | Detector Eff Mass. Used (mL) | Standard Source DPM/mL |
|-----------|--------------|---------|-----------|------------------------------|------------------------|
| 0321-H N1 | 1170.1000 | 34.2000 | 1135.9000 | 4.20643586 | 270.0385881 |
| 0321-H N2 | 1137.8000 | 34.2000 | 1103.6000 | 4.20643586 | 262.3598783 |
| 0321-H N3 | 1149.6000 | 34.2000 | 1115.4000 | 4.20643586 | 265.1651036 |
| | | | | | Average = 265.8545233 |

Mean Value (Counting) = 265.8545233
Stdev = 3.895501322

99.1905663
0.01461514 Rule 3 (Pass/Fail)

Certificate Value = 268.0
Lower Limit = 258.0835207
Upper Limit = 273.625526
Rule 1 Pass/Fail Pass
Two sigma = 7.771002644
10 % of Mean = 26.58545233
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 0321-H 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 Green using source standard verification. The Ra-226 efficiency calibration which was used for verification calculations was performed on 5/20/05 using source 0299-A (Ra-226). Calibration data is recorded in this logbook under Ra-226 (0299-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

Amanda L. Fehr 5/20/05
Angela A. Johnson 5/24/05

General Engineering Laboratories

2040 Savage Road, Charleston, SC 29414
 (843)556-8171

Lucas Cell Calibration Package

601-612

| | YES | NO | Comments |
|--|-------------------------------------|--------------------------|----------|
| 1) Is all calibration standard information enclosed for: the primary standard certificate? the secondard standard(s) documentation? standard preparation information? standard < 1 Year old or verified? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2) Is the efficiency calibration report included ? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 3) Is the raw count data included for: Cell constant determination? Plateau generation? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 4) Are the calibration verifications included? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 5) Are the instrument settings included: HVPS settings? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 6) Has the CELLEFF.xls file been updated ? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 7) Have the calibration dates been updated in ALPHALIMS ? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |

Prepared By: Ad Bait

Date: 12/29/05

Reviewed By: Angela Johnson

Date: 12/29/05

Effective Date: 12/29/05

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 | 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 | | | |
|--------------|---------------|-----------------|--------------------|---------------------------|------------------------|-----------------|------------------|----------------|--------------------|------------------------------|------------------------------|---------------------------------|----------------------------------|---------|------|--------|
| | | | | | | | | | | | | | | degas | cpm | min |
| 601 | 1.935 | Average | 2.064 | 10 | 12/9/2005 12:35 | 12/9/2005 6:40 | 12/2/2005 13:20 | 0.133 | 4742 | 15 | 316.13 | 243.02 | 6.72222 | 0.24653 | 2187 | 0.9974 |
| 601 | 2.050 | Stdev | 0.137 | 1 | 12/6/2005 15:05 | 12/6/2005 9:50 | 12/2/2005 13:20 | 0.033 | 7192 | 30 | 239.73 | 243.02 | 3.85417 | 0.21875 | 2184 | 0.9974 |
| 601 | 2.207 | | | 1 | 12/1/2005 11:00 | 12/1/2005 5:20 | 11/28/2005 15:15 | 0.267 | 5755 | 30 | 191.83 | 243.02 | 2.58681 | 0.23611 | 2178 | 0.9974 |
| 602 | 1.968 | Average | 1.884 | 11 | 12/9/2005 13:40 | 12/9/2005 6:00 | 12/2/2005 13:20 | 0.133 | 4750 | 15 | 316.67 | 243.02 | 6.69444 | 0.31944 | 2187 | 0.9974 |
| 602 | 1.842 | Stdev | 0.073 | 2 | 12/6/2005 15:35 | 12/6/2005 10:35 | 12/2/2005 13:20 | 0.133 | 6515 | 30 | 217.17 | 243.02 | 3.88542 | 0.20833 | 2184 | 0.9974 |
| 602 | 1.842 | | | 13 | 8/24/2005 7:30 | 8/24/2005 4:25 | 8/19/2005 16:30 | 0.133 | 7286 | 30 | 242.87 | 243.02 | 4.49653 | 0.12847 | 2079 | 0.9975 |
| 603 | 1.933 | Average | 1.798 | 3 | 12/6/2005 16:15 | 12/6/2005 11:10 | 12/2/2005 13:20 | 0.267 | 6864 | 30 | 228.80 | 243.02 | 3.90972 | 0.21181 | 2184 | 0.9974 |
| 603 | 1.754 | Stdev | 0.118 | 3 | 8/22/2005 17:40 | 8/22/2005 11:35 | 8/19/2005 16:30 | 0.267 | 4842 | 30 | 161.40 | 243.02 | 2.79514 | 0.25347 | 2078 | 0.9975 |
| 603 | 1.709 | | | 12 | 12/9/2005 13:25 | 12/9/2005 9:00 | 12/2/2005 13:20 | 0.200 | 4269 | 15 | 284.60 | 243.02 | 6.81944 | 0.18403 | 2187 | 0.9974 |
| 604 | 1.845 | Average | 1.798 | 13 | 12/9/2005 14:00 | 12/9/2005 9:40 | 12/2/2005 13:20 | 0.200 | 4620 | 15 | 308.00 | 243.02 | 6.84722 | 0.18056 | 2187 | 0.9974 |
| 604 | 1.750 | Stdev | 0.048 | 4 | 8/22/2005 18:15 | 8/22/2005 12:25 | 8/19/2005 16:30 | 0.267 | 4886 | 30 | 162.87 | 243.02 | 2.82986 | 0.24306 | 2078 | 0.9975 |
| 604 | 1.800 | | | 4 | 12/4/2005 9:00 | 12/2/2005 5:50 | 11/28/2005 15:15 | 0.267 | 4271 | 30 | 142.37 | 243.02 | 3.60764 | 2.13194 | 2181 | 0.9974 |
| 605 | 1.828 | Average | 1.843 | 11 | 8/19/2005 14:50 | 8/19/2005 10:35 | 8/12/2005 8:30 | 0.233 | 9306 | 30 | 310.20 | 243.02 | 7.06681 | 0.17708 | 2075 | 0.9975 |
| 605 | 1.909 | Stdev | 0.060 | 14 | 12/9/2005 14:30 | 12/9/2005 5:20 | 12/2/2005 13:20 | 0.200 | 4547 | 15 | 303.13 | 243.02 | 6.66667 | 0.38194 | 2187 | 0.9974 |
| 605 | 1.791 | | | 5 | 12/4/2005 11:50 | 12/2/2005 9:30 | 11/28/2005 15:15 | 0.267 | 4404 | 30 | 146.80 | 243.02 | 3.76042 | 2.09722 | 2181 | 0.9974 |
| 607 | 1.876 | Average | 1.985 | 15 | 12/9/2005 15:05 | 12/9/2005 7:25 | 12/2/2005 13:20 | 0.267 | 4551 | 15 | 303.40 | 243.02 | 6.75347 | 0.31944 | 2187 | 0.9974 |
| 607 | 1.886 | Stdev | 0.179 | 4 | 12/6/2005 16:45 | 12/6/2005 12:00 | 12/2/2005 13:20 | 0.267 | 6758 | 30 | 225.27 | 243.02 | 3.94444 | 0.19792 | 2184 | 0.9974 |
| 607 | 2.192 | | | 3 | 12/1/2005 12:15 | 12/1/2005 6:45 | 11/28/2005 15:15 | 0.267 | 5824 | 30 | 194.13 | 243.02 | 2.64583 | 0.22917 | 2179 | 0.9974 |
| 608 | 1.868 | Average | 1.958 | 16 | 12/9/2005 15:20 | 12/9/2005 11:00 | 12/2/2005 13:20 | 0.267 | 4899 | 15 | 313.27 | 243.02 | 6.90278 | 0.18056 | 2187 | 0.9974 |
| 608 | 2.036 | Stdev | 0.085 | 5 | 12/6/2005 17:20 | 12/6/2005 12:35 | 12/2/2005 13:20 | 0.267 | 7324 | 30 | 244.13 | 243.02 | 3.96875 | 0.19792 | 2184 | 0.9974 |
| 608 | 1.971 | | | 13 | 12/4/2005 12:25 | 12/2/2005 10:50 | 11/28/2005 15:15 | 0.267 | 4921 | 30 | 164.03 | 243.02 | 3.81597 | 2.06597 | 2182 | 0.9974 |
| 609 | 1.848 | Average | 1.984 | 17 | 12/9/2005 15:45 | 12/9/2005 11:25 | 12/2/2005 13:20 | 0.133 | 4651 | 15 | 310.07 | 243.02 | 6.92014 | 0.18056 | 2187 | 0.9974 |
| 609 | 2.015 | Stdev | 0.124 | 6 | 12/6/2005 18:00 | 12/6/2005 13:05 | 12/2/2005 13:20 | 0.267 | 7266 | 30 | 242.20 | 243.02 | 3.98958 | 0.20486 | 2184 | 0.9974 |
| 609 | 2.090 | | | 9 | 12/1/2005 13:25 | 12/1/2005 10:05 | 11/28/2005 15:15 | 0.267 | 5872 | 30 | 195.73 | 243.02 | 2.78472 | 0.13889 | 2179 | 0.9974 |
| 610 | 1.774 | Average | 1.792 | 7 | 12/6/2005 18:35 | 12/6/2005 15:15 | 12/2/2005 13:20 | 0.200 | 6570 | 30 | 219.00 | 243.02 | 4.07986 | 0.13889 | 2184 | 0.9974 |
| 610 | 1.762 | Stdev | 0.043 | 10 | 8/23/2005 11:15 | 8/23/2005 8:15 | 8/19/2005 16:30 | 0.267 | 6068 | 30 | 202.27 | 243.02 | 3.65625 | 0.12500 | 2078 | 0.9975 |
| 610 | 1.841 | | | 18 | 12/9/2005 16:05 | 12/9/2005 11:45 | 12/2/2005 13:20 | 0.067 | 4638 | 15 | 309.20 | 243.02 | 6.93403 | 0.18056 | 2187 | 0.9974 |
| 611 | 1.963 | Average | 1.944 | 8 | 12/7/2005 14:25 | 12/7/2005 8:35 | 12/2/2005 13:20 | 0.267 | 7936 | 30 | 264.53 | 243.02 | 4.80208 | 0.24306 | 2185 | 0.9974 |
| 611 | 1.843 | Stdev | 0.093 | 11 | 8/23/2005 15:10 | 8/23/2005 9:10 | 8/19/2005 16:30 | 0.233 | 6248 | 30 | 208.27 | 243.02 | 3.69444 | 0.25000 | 2079 | 0.9975 |
| 611 | 2.026 | | | 11 | 12/1/2005 14:10 | 12/1/2005 8:15 | 11/28/2005 15:15 | 0.267 | 5464 | 30 | 182.13 | 243.02 | 2.70633 | 0.24653 | 2179 | 0.9974 |
| 612 | 2.041 | Average | 1.927 | 16 | 12/2/2005 10:30 | 12/2/2005 11:30 | 11/28/2005 15:15 | 0.267 | 5223 | 30 | 174.10 | 243.02 | 3.84375 | 1.95833 | 2181 | 0.9974 |
| 612 | 1.867 | Stdev | 0.099 | 20 | 12/9/2005 16:25 | 12/9/2005 12:20 | 12/2/2005 13:20 | 0.067 | 4720 | 15 | 314.67 | 243.02 | 6.95833 | 0.17014 | 2187 | 0.9974 |
| 612 | 1.873 | | | 9 | 12/7/2005 13:50 | 12/7/2005 9:10 | 12/2/2005 13:20 | 0.267 | 7663 | 30 | 255.43 | 243.02 | 4.82639 | 0.19444 | 2185 | 0.9974 |

Ad Baik 12/29/05
Angela A. Johnson 12/29/05

Ra-226 Verification Sheet

Count Time 15 min

| Sample ID | Volume (mL) | End Degas Date/Time | End De-em Date/Time | Start Count Date/Time | Cell # | Det # | Background CPM | Total Counts |
|-----------|-------------|-------------------------------|---------------------|-----------------------|--------|-------|----------------|--------------|
| CAL 10 | 500 | 12/2/05 1320 | 12/19/05 0640 | 12/19/05 1235 | 601 | 6 | 4 | 4742 |
| CAL 11 | 500 | 12/2/05 1320 12/15/05 1320 | 12/19/05 0600 | 12/19/05 1340 | 602 | 6 | 4 | 4750 |
| CAL 12 | 500 | 12/2/05 1320 | 12/19/05 0900 | 12/19/05 1325 | 603 | 6 | 6 | 4269 |
| CAL 13 | 500 | 12/2/05 1320 | 12/19/05 0940 | 12/19/05 1400 | 604 | 6 | 6 | 4620 |
| CAL 14 | 500 | 12/2/05 1320 | 12/19/05 0520 | 12/19/05 1430 | 605 | 6 | 6 | 4547 |
| CAL 15 | 500 | 12/2/05 1320 | 12/19/05 0725 | 12/19/05 1505 | 607 | 6 | 8 | 4551 |
| CAL 16 | 500 | 12/2/05 1320 | 12/19/05 1100 | 12/19/05 1520 | 608 | 6 | 8 | 4699 |
| CAL 17 | 500 | 12/2/05 1320 | 12/19/05 1125 | 12/19/05 1545 | 609 | 6 | 4 | 4651 |
| CAL 18 | 500 | 12/2/05 1320 | 12/19/05 1145 | 12/19/05 1605 | 610 | 6 | 2 | 4638 |
| CAL 19 | 500 | 12/2/05 1320 | 12/19/05 1220 | 12/19/05 1625 | 612 | 6 | 2 | 4720 |
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Abi 12/29/05

Abi 12/29/05

Abi 12/20/05

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 1 | 500 | 12/2/05 1320 | 12/6/05 950 | 12/6/05 1505 | 601 | 6 | 1 | 7192 |
| CAL 2 | 500 | 12/2/05 1320 | 12/6/05 1035 | 12/6/05 1535 | 602 | 4 | 4 | 6515 |
| CAL 3 | 500 | 12/2/05 1320 | 12/6/05 1110 | 12/6/05 1615 | 603 | 4 | 6 | 6864 |
| CAL 4 | 500 | 12/2/05 1320 | 12/6/05 1200 | 12/6/05 1645 | 607 | 6 | 8 | 6708 |
| CAL 5 | 500 | 12/2/05 1320 | 12/6/05 1235 | 12/6/05 1720 | 608 | 6 | 8 | 7324 |
| CAL 6 | 500 | 12/2/05 1320 | 12/6/05 1305 | 12/6/05 1800 | 609 | 6 | 8 | 7266 |
| CAL 7 | 500 | 12/2/05 1320 | 12/6/05 1515 | 12/6/05 1835 | 610 | 6 | 6 | 6570 |
| CAL 8 | 500 | 12/2/05 1320 | 12/7/05 835 | 12/7/05 1255 | 611 | 6 | 6 | 7663 |
| CAL 9 | 500 | 12/2/05 1320 | 12/7/05 910 | 12/7/05 1350 | 612 | 6 | 8 | 7936 |
| CAL 10 | 500 | 12/2/05 1320 | 12/7/05 835 | 12/7/05 1425 | 611 | 6 | 8 | 7936 |
| <div style="display: flex; justify-content: space-between;"> 15 mins Abi 12/20/05 Abi 12/21/05 Abi 12/21/05 </div> | | | | | | | | |

Page 5150

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 1 | 500 | 11/28/05 1515 | 12/1/05 520 | 12/1/05 1100 | 601 | 6 | 8 | 5255 |
| CAL 4 | 500 | 11/28/05 1515 | 12/2/05 550 | 12/4/05 900 | 604 | 6 | 8 | 4271 |
| CAL 5 | 500 | 11/28/05 1515 | 12/2/05 930 | 12/4/05 1150 | 605 | 6 | 8 | 4409 |
| CAL 3 | 500 | 11/28/05 1515 | 12/1/05 645 | 12/1/05 1215 | 607 | 6 | 8 | 5824 |
| CAL 13 | 500 | 11/28/05 1515 | 12/2/05 1050 | 12/4/05 1225 | 608 | 6 | 8 | 4921 |
| CAL 9 | 500 | 11/28/05 1515 | 12/1/05 1005 | 12/1/05 1325 | 609 | 6 | 8 | 5872 |
| CAL 11 | 500 | 11/28/05 1515 | 12/1/05 815 | 12/1/05 1410 | 611 | 6 | 8 | 5464 |
| CAL 16 | 500 | 11/28/05 1515 | 12/2/05 1130 | 12/4/05 1030 | 612 | 6 | 8 | 5223 |
| <div style="position: absolute; top: 0; right: 0; transform: rotate(90deg); transform-origin: right top;"> <p>12/29/05 AAJ</p> </div> | | | | | | | | |
| <div style="position: absolute; top: 0; right: 0; transform: rotate(90deg); transform-origin: right top;"> <p>12/29/05 AAJ</p> </div> | | | | | | | | |
| <div style="position: absolute; top: 0; right: 0; transform: rotate(90deg); transform-origin: right top;"> <p>12/29/05 AAJ</p> </div> | | | | | | | | |
| <div style="position: absolute; top: 0; right: 0; transform: rotate(90deg); transform-origin: right top;"> <p>12/29/05 AAJ</p> </div> | | | | | | | | |
| <div style="position: absolute; top: 0; right: 0; transform: rotate(90deg); transform-origin: right top;"> <p>12/29/05 AAJ</p> </div> | | | | | | | | |
| <div style="position: absolute; top: 0; right: 0; transform: rotate(90deg); transform-origin: right top;"> <p>12/29/05 AAJ</p> </div> | | | | | | | | |
| <div style="position: absolute; top: 0; right: 0; transform: rotate(90deg); transform-origin: right top;"> <p>12/29/05 AAJ</p> </div> | | | | | | | | |
| <div style="position: absolute; top: 0; right: 0; transform: rotate(90deg); transform-origin: right top;"> <p>12/29/05 AAJ</p> </div> | | | | | | | | |
| <div style="position: absolute; top: 0; right: 0; transform: rotate(90deg); transform-origin: right top;"> <p>12/29/05 AAJ</p> </div> | | | | | | | | |
| <div style="position: absolute; top: 0; right: 0; transform: rotate(90deg); transform-origin: right top;"> <p>12/29/05 AAJ</p> </div> | | | | | | | | |

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 13 | 500 | 8/19/05 1630 | 8/24/05 435 | 8/24/05 730 | 602 | 6 | 4 | 7286 |
| CAL 14 | 500 | 8/24/05 1630 | 8/24/05 455 | 8/24/05 755 | 600 | 6 | 8 | 7449 |
| CAL 1 | 500 | 8/24/05 1140 | 9/10/05 423 | 9/10/05 730 | 601 | 6 | 3 | 8623 |
| CAL 2 | 500 | 8/24/05 1140 | 9/10/05 505 | 9/10/05 805 | 602 | 6 | 6 | 8178 |
| CAL 3 | 500 | 8/24/05 1140 | 9/10/05 545 | 9/10/05 845 | 603 | 6 | 8 | 8730 |
| CAL 4 | 500 | 8/24/05 1140 | 9/10/05 655 | 9/10/05 955 | 606 | 6 | 6 | 8603 |
| CAL 5 | 500 | 8/24/05 1140 | 9/10/05 735 | 9/10/05 1035 | 607 | 6 | 7 | 8462 |
| CAL 6 | 500 | 8/24/05 1140 | 9/10/05 810 | 9/10/05 1110 | 608 | 6 | 8 | 8080 |
| CAL 7 | 500 | 8/24/05 1140 | 9/10/05 850 | 9/10/05 1150 | 609 | 6 | 8 | 7578 |
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 ABI 12/20/05
 ABI 12/20/05
 ABI 12/20/05

12/20/05
 ABI

50/12/21
 DAD

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 1 | 500 | 8/17/05 830 | 8/17/05 510 | 8/17/05 1005 | 607 | 6 | 8 | 6837 |
| CAL 2 | 500 | 8/17/05 830 | 8/17/05 625 | 8/17/05 1045 | 608 | 6 | 8 | 7369 |
| CAL 3 | 500 | 8/17/05 830 | 8/17/05 730 | 8/17/05 1120 | 609 | 6 | 2 | 6287 |
| CAL 4 | 500 | 8/17/05 830 | 8/17/05 820 | 8/17/05 1155 | 610 | 6 | 6 | 6945 |
| CAL 5 | 500 | 8/17/05 830 | 8/17/05 955 | 8/17/05 1315 | 611 | 6 | 8 | 6811 |
| CAL 6 | 500 | 8/17/05 830 | 8/17/05 1000 | 8/17/05 1515 | 612 | 6 | 5 | 3252 |
| CAL 7 | 500 | 8/17/05 830 | 8/17/05 1105 | 8/17/05 1600 | 601 | 6 | 1 | 7261 |
| CAL 8 | 500 | 8/17/05 830 | 8/17/05 1140 | 8/17/05 1640 | 603 | 6 | 8 | 6542 |
| CAL 9 | 500 | 8/17/05 830 | 8/17/05 910 | 8/17/05 1335 | 602 | 6 | 5 | 7636 |
| CAL 10 | 500 | 8/17/05 830 | 8/17/05 955 | 8/19/05 1415 | 604 | 6 | 6 | 8361 |
| CAL 11 | 500 | 8/17/05 830 | 8/17/05 1035 | 8/19/05 1450 | 605 | 6 | 7 | 9306 |
| CAL 12 | 500 | 8/17/05 830 | 8/17/05 1105 | 8/19/05 1525 | 606 | 6 | 5 | 7361 |
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12/29/05
 AP
 12/29/05

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 1 | 500 | 8/19/05 1630 | 8/22/05 1005 | 8/22/05 1305 | 601 | 6 | 8 | 5175 |
| CAL 2 | 500 | 8/19/05 1630 | 8/22/05 1040 | 8/22/05 1350 | 602 | 6 | 4 | 4515 |
| CAL 3 | 500 | 8/19/05 1630 | 8/22/05 1135 | 8/22/05 1740 | 603 | 6 | 8 | 4842 |
| CAL 4 | 500 | 8/19/05 1630 | 8/22/05 1225 | 8/22/05 1815 | 604 | 6 | 8 | 4886 |
| CAL 5 | 500 | 8/19/05 1630 | 8/22/05 1310 | 8/22/05 2340 | 605 | 6 | 8 | 4167 |
| CAL 6 | 500 | 8/19/05 1630 | 8/22/05 1430 | 8/22/05 740 | 606 | 6 | 8 | 5573 |
| CAL 7 | 500 | 8/19/05 1630 | 8/22/05 510 | 8/23/05 815 | 607 | 6 | 8 | 5367 |
| CAL 8 | 500 | 8/19/05 1630 | 8/23/05 630 | 8/23/05 925 | 608 | 6 | 8 | 5786 |
| CAL 9 | 500 | 8/19/05 1630 | 8/23/05 715 | 8/23/05 1045 | 609 | 6 | 8 | 4991 |
| CAL 10 | 500 | 8/19/05 1630 | 8/23/05 815 | 8/23/05 1115 | 610 | 6 | 8 | 6068 |
| CAL U | 500 | 8/19/05 1630 | 8/23/05 910 | 8/23/05 1510 1245 1245 611 | 611 | 6 | 7 | 6248 |
| CAL 12 | 500 | 8/19/05 1630 | 8/23/05 1015 | 8/23/05 1420 | 612 | 6 | 7 | 5899 |
| CAL | | | | | | | | |

ABI 12/20/05

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ABI 12/20/05

General Engineering Laboratories Verification Source Preparation Sheet

Applicable SOP Number GL-RAD-A-008 Isotope Ra-226
 Date Standards Prepared 8/26/03 Cocktail Type Used N/A
 Standard ID 0299-E Matrix of Vial/Planchett N/A
 Amount Used (g or ml) 0.1 N/A
 Standard Activity (DPM/g or ml) 2434.34 Type of Scintillation Vial N/A
 Reference Date 12/15/99 Pipette ID Used 1429303
 Expiration Date 11/4/06 Balance ID Used 3640216
 Residue/Carrier Agent 0.5 m Hcl Quenching Agent N/A

| | Standard Number | Quenching Vol (uL) Residue Volume(mL) | Initial Wt. (g) | Final Wt. (g) | Net Wt. (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 | | | | |
| 13 | CAL 13 | | | | |
| 14 | CAL 14 | | | | |
| 15 | CAL 15 | | | | |

(A diagonal line is drawn through the table from the bottom-left to the top-right. The text "HCl" and "12/29/05" are written in the 8th row, 3rd and 4th columns respectively.)

Prepared By: Ad Bail Date 12/29/05
 Reviewed By: Angela A. Johnson Date 12/29/05

Rev 1 RLM 9/10/97

General Engineering Laboratories Verification Source Preparation Sheet

Applicable SOP Number GL-RAD-A-009 Isotope Po-226
 Date Standards Prepared 8/26/03 Cocktail Type Used N/A
 Standard ID 0299-E Matrix of Vial/Planchett N/A
 Amount Used (g or ml) 0.1 N/A
 Standard Activity (DPM/g or ml) 2434.34 Type of Scintillation Vial N/A
 Reference Date 12/15/99 Pipette ID Used 1429303
 Expiration Date 11/4/06 Balance ID Used 36040216
 Residue/Carrier Agent 0.5 M HCl Quenching Agent N/A

| | Standard Number | Quenching Vol (uL) Residue Volume (mL) | Initial Wt. (g) | Final Wt. (g) | Net Wt. (mg) |
|----|-----------------|---|--------------------|------------------|-----------------|
| 16 | CAL 16 | | | | |
| 17 | CAL 17 | | | | |
| 18 | CAL 18 | | | | |
| 19 | CAL 19 | | | | |
| 20 | CAL 20 | | | | |
| 21 | CAL 21 | | | | |
| 22 | CAL 22 | | | | |
| 23 | CAL 23 | | | | |
| 24 | CAL 24 | <u>AB1</u> <u>12/29/05</u> | | | |
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Prepared By: Ad Beck Date 12/29/05
 Reviewed By: Angela A. Johnson Date 12/29/05

Rev 1 RLM 9/10/97

8-21-00

Nycomed Amersham plc
Amersham Laboratories

0279



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 |

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Page 522 of 741

Date of
issue

17th December 1999

**Nycomed
Amersham**

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.



Standard Traceability Log Rad

| Source Material Info | |
|----------------------|--------------|
| Parent Code: | 0299 |
| Prepared By: | Angela Albee |
| 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 Albee |
| Prep Date: | 09/15/2000 |
| Verification Date: | 08/26/2004 |
| Expiration Date: | 08/26/2005 |
| Primary Code: | 0299-A |
| Dilution(mL): | 100 mL |
| Mass of Parent(g): | 4.6634 g |
| Density(g/mL): | 1.0012 |

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 |
|------------|--------------|--------------|---------------|--------|----------------|-------------------|-----------------|
| 09/26/2000 | Angela Albee | 2.1096 | 100 | 0299-C | 2579.62 dpm/mL | 10/10/2002 | 10/10/2003 |
| 09/15/2000 | Angela Albee | .2004 | 100 | 0299-B | 245.05 dpm/mL | 09/15/2000 | 09/15/2001 |
| 08/23/2002 | Angela Albee | 2.0443 | 100 | 0299-D | 2499.77 dpm/mL | 08/23/2002 | 08/23/2003 |
| 08/26/2003 | Angela Albee | 1.9909 | 100 | 0299-E | 2434.34 dpm/mL | 08/26/2004 | 08/26/2005 |
| 08/26/2003 | Angela Albee | 1.9872 | 100 | 0299-F | 2429.82 dpm/mL | 08/26/2004 | 08/26/2005 |

General Engineering Laboratories, LLC
Version 1.0 9/18/2000

Verification for Ra-226 Standard 0299-E

8/26/2004
A.Fehr

Isotope
0299-F N1
0299-F N2
0299-F N3

Detector CPM
561.0000
567.3000
540.4000

BKG CPM
26.9000
26.9000
26.9000

NET CPM
534.1000
540.4000
513.5000

Detector Eff
3.38485694
3.38485694
3.38485694

Mass. Used (G)
0.0645
0.0658
0.0652

Source DPM/G
2446.372267
2426.325867
2326.765061
2399.821065

Mean Value (Counting) = 2399.821065
Stdev = 64.05739118

Certificate Value = 2429.4 dpm/mL
Lower Limit = 2271.706283 dpm/mL
Upper Limit = 2527.935847 dpm/mL

Rule 1 Pass/Fail Pass
Two sigma = 128.1147824 dpm/mL
10 % of Mean = 239.9821065 dpm/mL

Rule 2 (Pass/Fail) Pass
98.7828559 % of known
0.02669257

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.

The analyst prepared three standard verification sources for Ra-226 source 0299-E 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 Yellow (Wallac) using Protocol 23 for Radium source standard verification. The Ra-226 efficiency calibration which was used for verification calculations was performed on 8/26/04 using source 0321-A (Ra-226). Calibration data is recorded in this logbook under Ra-226 0321. 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

Amanda L. Fehr 8/26/04
Heather B. Co
8/26/04

| Voltage Curve Ludlum # 6 | | | | |
|--------------------------|--------|-----------|------|----------|
| Volts (K.V.) | Counts | Date | Time | Detector |
| 0.20 | 0 | 8/22/2005 | 9:15 | 6 |
| 0.25 | 0 | 8/22/2005 | 9:16 | 6 |
| 0.30 | 0 | 8/22/2005 | 9:17 | 6 |
| 0.35 | 0 | 8/22/2005 | 9:18 | 6 |
| 0.40 | 0 | 8/22/2005 | 9:19 | 6 |
| 0.45 | 0 | 8/22/2005 | 9:20 | 6 |
| 0.50 | 0 | 8/22/2005 | 9:21 | 6 |
| 0.55 | 76 | 8/22/2005 | 9:22 | 6 |
| 0.60 | 1407 | 8/22/2005 | 9:23 | 6 |
| 0.65 | 5153 | 8/22/2005 | 9:24 | 6 |
| 0.70 | 8502 | 8/22/2005 | 9:25 | 6 |
| 0.75 | 11150 | 8/22/2005 | 9:26 | 6 |
| 0.80 | 12291 | 8/22/2005 | 9:27 | 6 |
| 0.85 | 13641 | 8/22/2005 | 9:28 | 6 |
| 0.90 | 14585 | 8/22/2005 | 9:29 | 6 |
| 0.95 | 15162 | 8/22/2005 | 9:30 | 6 |
| 1.00 | 15489 | 8/22/2005 | 9:31 | 6 |
| 1.05 | 16151 | 8/22/2005 | 9:32 | 6 |
| 1.10 | 16340 | 8/22/2005 | 9:33 | 6 |
| 1.15 | 16607 | 8/22/2005 | 9:34 | 6 |
| 1.20 | 16845 | 8/22/2005 | 9:35 | 6 |
| 1.25 | 18048 | 8/22/2005 | 9:36 | 6 |
| 1.30 | 21465 | 8/22/2005 | 9:37 | 6 |
| 1.35 | 31258 | 8/22/2005 | 9:38 | 6 |

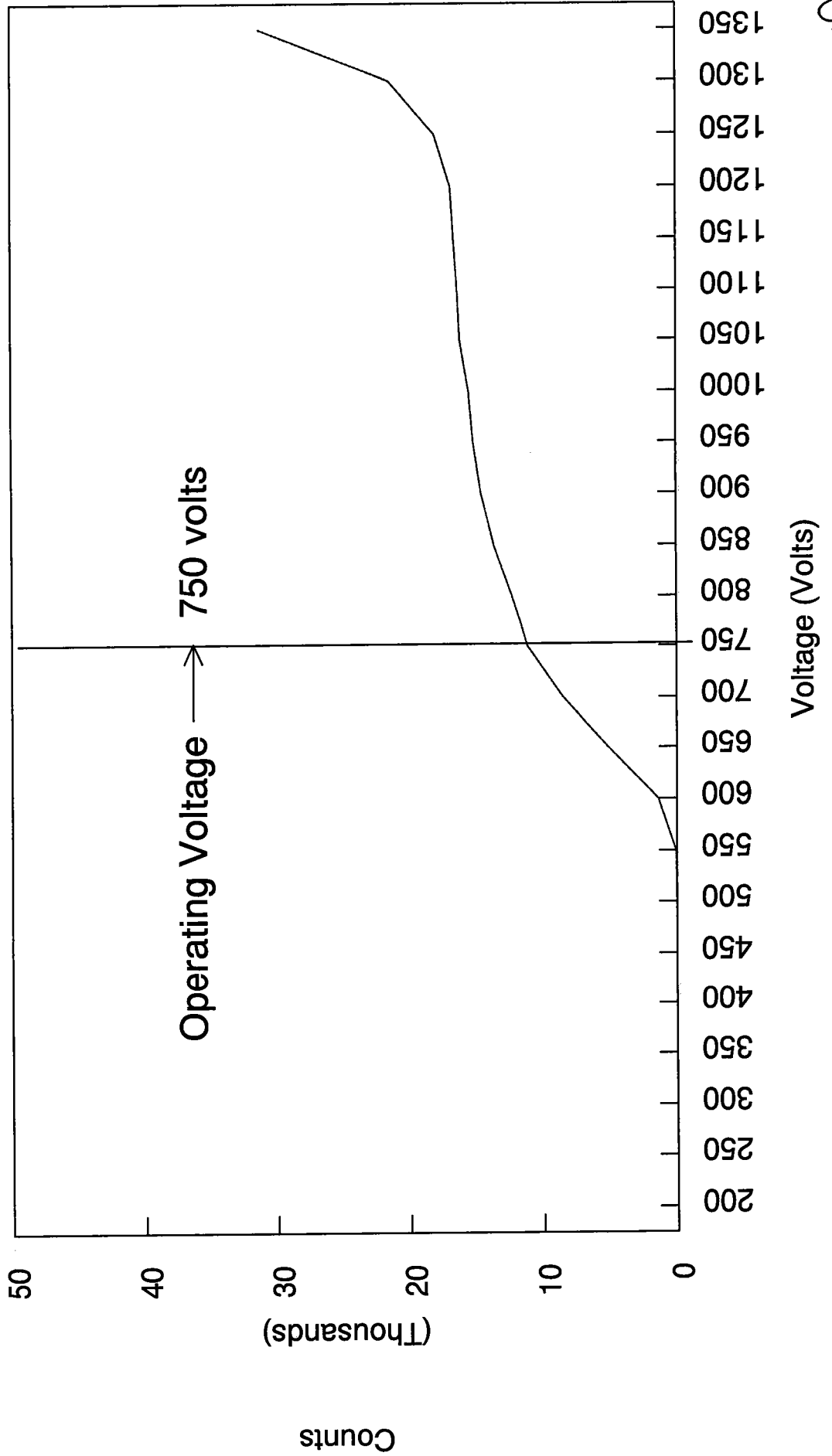
Ad Bal - 12/29/05

*AdQ
12/29/05*

Plateau August, 2005

Ludlum # 6

Hot Bank 12/29/05



*AT
12/29/05*

Ra-226 WATER

Batch : LCSVER
 Date : 12/27/2005
 Analyst : SSE

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 |
|-----------|--------------|----------------|------------------|------------|-----------------|---------|------------------|---------------------|--------------------|------------------|
| 5 | 0.500 | 30 | 967 | 601 | 2.064 | 0.267 | 0.3672 | 22.1465 | 1.4134 | 12/28/2005 17:20 |
| 7 | 0.500 | 30 | 1032 | 602 | 1.884 | 0.267 | 0.4018 | 25.8803 | 1.5975 | 12/28/2005 18:20 |
| 8 | 0.500 | 30 | 947 | 603 | 1.798 | 0.267 | 0.4161 | 24.5773 | 1.5854 | 12/22/2005 14:00 |
| 9 | 0.500 | 30 | 816 | 604 | 1.798 | 0.167 | 0.3429 | 21.1635 | 1.4656 | 12/22/2005 14:45 |
| 10 | 0.500 | 30 | 803 | 605 | 1.843 | 0.267 | 0.4043 | 20.2180 | 1.4195 | 12/22/2005 15:30 |
| 4 | 0.500 | 30 | 819 | 607 | 1.985 | 0.267 | 0.4100 | 20.9156 | 1.4537 | 12/27/2005 16:30 |
| 6 | 0.500 | 30 | 791 | 608 | 1.958 | 0.200 | 0.4514 | 25.0896 | 1.7685 | 12/20/2005 10:50 |
| 8 | 0.500 | 30 | 844 | 609 | 1.984 | 0.267 | 0.3807 | 20.0188 | 1.3700 | 12/28/2005 18:55 |
| 7 | 0.500 | 30 | 767 | 610 | 1.792 | 0.200 | 0.4913 | 26.4718 | 1.8956 | 12/20/2005 11:20 |
| 2 | 0.500 | 30 | 608 | 611 | 1.944 | 0.167 | 0.5458 | 25.0449 | 2.0156 | 12/19/2005 10:00 |
| 3 | 0.500 | 30 | 561 | 612 | 1.927 | 0.200 | 0.5861 | 23.0297 | 1.9366 | 12/19/2005 10:40 |

Adl Bark 12/29/05

Angela D. Johnson 12/29/05

| Sample ID | Sample Dup | Det # | Run Date | Sample Type | Standard ID | NC | NC units | Recovery/RPD |
|-----------|------------|-------|------------------|-------------|-------------|-------|----------|--------------|
| 5 | | 6 | 12/28/2005 17:20 | LCS | 0321-H | 24.14 | pCi/L | 92% |
| 7 | | 6 | 12/28/2005 18:20 | LCS | 0321-H | 24.14 | pCi/L | 107% |
| 8 | | 6 | 12/22/2005 14:00 | LCS | 0321-H | 24.14 | pCi/L | 102% |
| 9 | | 6 | 12/22/2005 14:45 | LCS | 0321-H | 24.14 | pCi/L | 88% |
| 10 | | 6 | 12/22/2005 15:30 | LCS | 0321-H | 24.14 | pCi/L | 84% |
| 4 | | 6 | 12/27/2005 16:30 | LCS | 0321-H | 24.14 | pCi/L | 87% |
| 6 | | 6 | 12/20/2005 10:50 | LCS | 0321-H | 24.14 | pCi/L | 104% |
| 8 | | 6 | 12/28/2005 18:55 | LCS | 0321-H | 24.14 | pCi/L | 83% |
| 7 | | 6 | 12/20/2005 11:20 | LCS | 0321-H | 24.14 | pCi/L | 110% |
| 2 | | 6 | 12/19/2005 10:00 | LCS | 0321-H | 24.14 | pCi/L | 104% |
| 3 | | 6 | 12/19/2005 10:40 | LCS | 0321-H | 24.14 | pCi/L | 95% |

| DEGASSING DATE/TIME | DE-EMAN. DATE/TIME | DEGASS-DE-EM | dE-EM-COUNT | constant | constant | constant | Net CPM | Ingrowth constant |
|---------------------|--------------------|--------------|-------------|----------|----------|----------|---------|-------------------|
| 12/22/2005 12:30 | 12/28/2005 11:05 | 142.58 | 6.25 | 0.6592 | 0.9539 | 1.0019 | 31.9663 | 0.6300 |
| 12/22/2005 12:30 | 12/28/2005 11:50 | 143.33 | 6.50 | 0.6611 | 0.9521 | 1.0019 | 34.1330 | 0.6307 |
| 12/16/2005 14:40 | 12/22/2005 10:45 | 140.08 | 3.25 | 0.6527 | 0.9758 | 1.0019 | 31.2997 | 0.6381 |
| 12/16/2005 14:40 | 12/22/2005 11:30 | 140.83 | 3.25 | 0.6547 | 0.9758 | 1.0019 | 27.0330 | 0.6400 |
| 12/16/2005 14:40 | 12/22/2005 12:05 | 141.42 | 3.42 | 0.6562 | 0.9745 | 1.0019 | 26.4997 | 0.6407 |
| 12/22/2005 12:30 | 12/27/2005 13:30 | 121.00 | 3.00 | 0.5989 | 0.9776 | 1.0019 | 27.0330 | 0.5866 |
| 12/16/2005 14:40 | 12/20/2005 7:50 | 89.17 | 3.00 | 0.4899 | 0.9776 | 1.0019 | 26.1667 | 0.4799 |
| 12/22/2005 12:30 | 12/28/2005 12:25 | 143.92 | 6.50 | 0.6626 | 0.9521 | 1.0019 | 27.8663 | 0.6321 |
| 12/16/2005 14:40 | 12/20/2005 8:20 | 89.67 | 3.00 | 0.4919 | 0.9776 | 1.0019 | 25.3667 | 0.4817 |
| 12/16/2005 14:40 | 12/19/2005 6:20 | 63.67 | 3.67 | 0.3816 | 0.9727 | 1.0019 | 20.0997 | 0.3719 |
| 12/16/2005 14:40 | 12/19/2005 7:05 | 64.42 | 3.58 | 0.3851 | 0.9733 | 1.0019 | 18.5000 | 0.3756 |

Ad Bail 12/29/05

Angela D. Johnson 12/29/05

Ra-226 Verification Sheet

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| 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 | 12/14/05 1440 | 12/19/05 540 | 12/19/05 9:00 | 602 | 6 | 8 | 487 |
| VER 2 | 500 | 12/16/05 1440 | 12/19/05 620 | 12/19/05 1000 | 611 | 6 | 5 | 608 |
| VER 3 | 500 | 12/16/05 1440 | 12/19/05 705 | 12/19/05 1040 | 612 | 6 | 6 | 561 |
| VER 4 | 500 | 12/16/05 1440 | 12/20/05 610 | 12/20/05 910 | 601 | 6 | 8 | 678 |
| VER 5 | 500 | 12/16/05 1440 | 12/20/05 640 | 12/20/05 945 | 607 | 6 | 8 | 602 |
| VER 6 | 500 | 12/16/05 1440 | 12/20/05 750 | 12/20/05 1050 1220 1220 | 608 | 6 | 6 | 791 |
| VER 7 | 500 | 12/16/05 1440 | 12/20/05 820 | 12/20/05 1120 | 610 | 6 | 6 | 767 |
| VER 8 | 500 | 12/16/05 1440 12/22/05 1445 | 12/22/05 1045 | 12/22/05 1400 | 603 | 6 | 8 | 947 |
| VER 9 | 500 | 12/16/05 1440 | 12/22/05 1130 | 12/22/05 1445 | 604 | 6 | 5 | 816 |
| VER 10 | 500 | 12/16/05 1440 | 12/22/05 1205 | 12/22/05 1530 | 605 | 6 | 8 | 803 |
| VER 11 | | | | | 607 | 6 | | |
| VER 12 | | | | | | 6 | | |

AB1 12/27/05

AB1 12/27/05

AB1
12/29/05

AB1
12/27/05

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 |
|-----------|-------------|---------------------|---------------------|-----------------------|--------|-------|----------------|--------------|
| VER 1 | 500 | 12/22/05 1230 | 12/22/05 1135 | 12/22/05 1445 | 602 | 6 | 8 | 557 |
| VER 2 | 500 | 12/22/05 1230 | 12/22/05 1210 | 12/22/05 1520 | 609 | 6 | 8 | 633 |
| VER 3 | 500 | 12/22/05 1230 | 12/22/05 1250 | 12/22/05 1600 | 601 | 6 | 4 | 601 |
| VER 4 | 500 | 12/22/05 1230 | 12/22/05 1330 | 12/22/05 1630 | 607 | 6 | 8 | 819 |
| ABI | | | | | | | | |
| 12/29/05 | | | | | | | | |
| VER 5 | 500 | 12/22/05 1230 | 12/28/05 1105 | 12/20/05 1720 | 601 | 6 | 8 | 967 |
| VER 6 | 500 | 12/22/05 1230 | 12/28/05 1150 | 12/28/05 1820 | 602 | 6 | 8 | 1032 |
| VER 8 | 500 | 12/22/05 1230 | 12/28/05 1225 | 12/28/05 1855 | 609 | 6 | 8 | 844 |
| ABI | | | | | | | | |
| 12/29/05 | | | | | | | | |
| 12/29/05 | | | | | | | | |

ABI 12/29/05
 ABI 12/29/05
 ABI 12/29/05

ABI
 12/29/05

**General Engineering Laboratories
Verification Source Preparation Sheet**

Applicable SOP Number GL-RAD-A-008

Isotope Ra-226

Date Standards Prepared 5/18/05

Cocktail Type Used N/A

Standard ID 0321-H

Matrix of Vial/Planchett N/A

Amount Used (g or ml) 0.1

N/A
N/A

Standard Activity (DPM/g or ml) 269.6188

Type of Scintillation Vial N/A

Reference Date 9/9/91

Pipette ID Used 1429303

Expiration Date 5/20/06

Balance ID Used 36040216

Residue/Carrier Agent 1M HCl

Quenching Agent N/A

| | Standard Number | Quenching Vol (uL) Residue Volume(mL) | Initial Wt. (g) | Final Wt. (g) | Net Wt. (mg) |
|----|-----------------|--|--------------------|------------------|-----------------|
| 1 | VER 1 | | | | |
| 2 | VER 2 | | | | |
| 3 | VER 3 | | | | |
| 4 | VER 4 | | | | |
| 5 | VER 5 | | | | |
| 6 | VER 6 | | ABI | | |
| 7 | VER 7 | | | 12/29/05 | |
| 8 | VER 8 | | | | |
| 9 | VER 9 | | | | |
| 10 | VER 10 | | | | |
| 11 | VER 11 | | | | |
| 12 | VER 12 | | | | |
| | ABI | | | | |
| | 12/29/05 | | | | |

Prepared By: Ad Bacht Date 12/29/05

Reviewed By: Angela Johnson Date 12/29/05

Rev 1 RLM 9/10/97

Verification for Ra-226 Standard 0321-H

A. Fehr
5/20/05

| Standard | Detector Eff Mass. Used (mL) | Source DPM/mL |
|-----------|------------------------------|---------------|
| 1.0000 | 4.20643586 | 270.0385881 |
| 1.0000 | 4.20643586 | 262.3598783 |
| 1.0000 | 4.20643586 | 265.1651036 |
| Average = | | 265.8545233 |

| NET CPM | BKG CPM | Detector CPM |
|-----------|---------|--------------|
| 1135.9000 | 34.2000 | 1170.1000 |
| 1103.6000 | 34.2000 | 1137.8000 |
| 1115.4000 | 34.2000 | 1149.6000 |

Mean Value (Counting) = 265.8545233
Stdev = 3.885501322

99.1905663
0.01461514 Rule 3 (Pass/Fail)

Certificate Value = 268.0
Lower Limit = 258.0835207
Upper Limit = 273.625526
Rule 1 Pass/Fail Pass
Two sigma = 7.771002644
10 % of Mean = 26.58545233
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 0321-H 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 Green using source standard verification. The Ra-226 efficiency calibration which was used for verification calculations was performed on 5/20/05 using source 0299-A (Ra-226). Calibration data is recorded in this logbook under Ra-226 (0299-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

Amanda L. Fehr 5/20/05
Angela A. Johnson 5/24/05

CONTINUING CALIBRATION DATA



Gas Flow Proportional Counter Checks for 10-APR-2006

| Short Name | Parmname | Run Time | Count Time | Counts | CPM | Stdev | Status | Comments |
|------------|-----------|----------|------------|----------|------|-------|--------|-------------------------------|
| LB4100A1 | ALPHA BKG | 09:11 | 60 | 3.00 | 0.05 | -0.22 | GOOD | |
| | BETA BKG | 09:11 | 60 | 55.0 | 0.92 | -0.16 | GOOD | |
| | ALPHA EFF | 09:46 | 30 | 23844 | 795 | 0.19 | GOOD | |
| | BETA EFF | 09:46 | 30 | 1.77E+05 | 5890 | 0.18 | GOOD | |
| LB4100A2 | ALPHA BKG | 09:11 | 60 | 3.00 | 0.05 | -0.51 | GOOD | |
| | BETA BKG | 09:11 | 60 | 49.0 | 0.82 | -0.25 | GOOD | |
| | ALPHA EFF | 09:46 | 30 | 15950 | 532 | -0.35 | GOOD | |
| | BETA EFF | 09:46 | 30 | 1.29E+05 | 4300 | 0.29 | GOOD | |
| LB4100A3 | ALPHA BKG | 09:11 | 60 | 3.00 | 0.05 | -0.44 | GOOD | |
| | BETA BKG | 09:11 | 60 | 53.0 | 0.88 | -0.34 | GOOD | |
| | ALPHA EFF | 09:46 | 30 | 22493 | 750 | -0.11 | GOOD | |
| | BETA EFF | 09:46 | 30 | 1.56E+05 | 5190 | -0.11 | GOOD | |
| LB4100A4 | ALPHA BKG | 09:11 | 60 | 1.00 | 0.02 | -0.74 | GOOD | |
| | BETA BKG | 09:11 | 60 | 59.0 | 0.98 | 0.12 | GOOD | |
| | ALPHA EFF | 09:46 | 30 | 19184 | 639 | -2 | DETL | Outside 2 sigma for >= 2 days |
| | BETA EFF | 09:46 | 30 | 1.72E+05 | 5740 | 1.63 | GOOD | |
| LB4100B1 | ALPHA BKG | 09:11 | 60 | 4.00 | 0.07 | 0.88 | GOOD | |
| | BETA BKG | 09:11 | 60 | 50.0 | 0.83 | -0.38 | GOOD | |
| | ALPHA EFF | 09:46 | 30 | 21398 | 713 | 0.37 | GOOD | |
| | BETA EFF | 09:46 | 30 | 1.88E+05 | 6260 | 0.35 | GOOD | |
| LB4100B2 | ALPHA BKG | 09:11 | 60 | 2.00 | 0.03 | -0.25 | GOOD | |
| | BETA BKG | 09:11 | 60 | 50.0 | 0.83 | -0.2 | GOOD | |
| | ALPHA EFF | 09:46 | 30 | 21381 | 713 | 0.61 | GOOD | |
| | BETA EFF | 09:46 | 30 | 1.63E+05 | 5420 | -0.01 | GOOD | |
| LB4100B3 | ALPHA BKG | 09:11 | 60 | 1.00 | 0.02 | -0.85 | GOOD | |
| | BETA BKG | 09:11 | 60 | 71.0 | 1.18 | -0.16 | GOOD | |
| | ALPHA EFF | 09:46 | 30 | 16175 | 539 | 0.71 | GOOD | |
| | BETA EFF | 09:46 | 30 | 1.23E+05 | 4090 | 0.62 | GOOD | |
| LB4100B4 | ALPHA BKG | 09:11 | 60 | 2.00 | 0.03 | -0.21 | GOOD | |
| | BETA BKG | 09:11 | 60 | 207 | 3.45 | 24.4 | DETL | Outside 2 sigma for >= 2 days |
| | ALPHA EFF | 09:46 | 30 | 18721 | 624 | -0.13 | GOOD | |
| | BETA EFF | 09:46 | 30 | 1.55E+05 | 5160 | 0.82 | GOOD | |
| LB4100C1 | ALPHA BKG | 09:11 | 60 | 7.00 | 0.12 | -2 | GOOD | |
| | BETA BKG | 09:11 | 60 | 68.0 | 1.13 | -0.5 | GOOD | |
| | ALPHA EFF | 09:46 | 30 | 22459 | 749 | 1.32 | GOOD | |
| | BETA EFF | 09:46 | 30 | 1.34E+05 | 4480 | -00 | GOOD | |
| LB4100C2 | ALPHA BKG | 09:11 | 60 | 7.00 | 0.12 | 0.9 | GOOD | |
| | BETA BKG | 09:11 | 60 | 56.0 | 0.93 | 0.21 | GOOD | |
| | ALPHA EFF | 09:46 | 30 | 22208 | 740 | 0.98 | GOOD | |
| | BETA EFF | 09:46 | 30 | 1.96E+05 | 6540 | 1.64 | GOOD | |
| LB4100C3 | ALPHA BKG | 09:11 | 60 | 3.00 | 0.05 | -0.24 | GOOD | |
| | BETA BKG | 09:11 | 60 | 51.0 | 0.85 | -0.24 | GOOD | |

α only lockout
αβ lockout

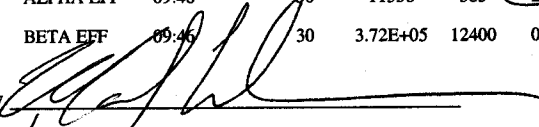
| | | | | | | | | |
|-----------------|-----------|-------|----|----------|-------------|-------------|-------|-------------------------------|
| | ALPHA EFF | 09:46 | 30 | 16832 | 561 | 0.37 | GOOD | |
| | BETA EFF | 09:46 | 30 | 1.35E+05 | 4490 | -0.14 | GOOD | |
| LB4100C4 | ALPHA BKG | 09:11 | 60 | 2.00 | 0.03 | -0.68 | GOOD | |
| | BETA BKG | 09:11 | 60 | 48.0 | 0.8 | -0.13 | GOOD | |
| | ALPHA EFF | 09:46 | 30 | 24697 | 823 | 0.74 | GOOD | |
| | BETA EFF | 09:46 | 30 | 2.20E+05 | 7330 | 0.75 | GOOD | |
| <u>LB4100D1</u> | ALPHA BKG | 09:11 | 60 | 15.0 | 0.25 | <u>3.7</u> | DETL | Outside 2 sigma for >= 2 days |
| | BETA BKG | 09:11 | 60 | 64.0 | 1.07 | 1.66 | GOOD | |
| | ALPHA EFF | 09:46 | 30 | 26784 | 893 | -0.17 | GOOD | |
| | BETA EFF | 09:46 | 30 | 2.37E+05 | 7900 | 0.12 | GOOD | |
| LB4100D2 | ALPHA BKG | 09:11 | 60 | 6.00 | 0.1 | -0.73 | GOOD | |
| | BETA BKG | 09:11 | 60 | 56.0 | 0.93 | -0.42 | GOOD | |
| | ALPHA EFF | 09:46 | 30 | 19283 | 643 | -0.29 | GOOD | |
| | BETA EFF | 09:46 | 30 | 1.48E+05 | 4938 | -0.72 | GOOD | |
| LB4100D3 | ALPHA BKG | 09:11 | 60 | 1.00 | 0.02 | -0.76 | GOOD | |
| | BETA BKG | 09:11 | 60 | 52.0 | 0.87 | 0.8 | GOOD | |
| | ALPHA EFF | 09:46 | 30 | 18344 | 611 | -0.53 | GOOD | |
| | BETA EFF | 09:46 | 30 | 1.50E+05 | 4990 | 0.8 | GOOD | |
| LB4100D4 | ALPHA BKG | 09:11 | 60 | 5.00 | 0.08 | 0.17 | GOOD | |
| | BETA BKG | 09:11 | 60 | 47.0 | 0.78 | -0.73 | GOOD | |
| | ALPHA EFF | 09:46 | 30 | 21016 | 701 | -0.59 | GOOD | |
| | BETA EFF | 09:46 | 30 | 1.83E+05 | 6090 | 0.88 | GOOD | |
| LB4100E1 | ALPHA BKG | 09:15 | 60 | 10.0 | 0.17 | -0.3 | GOOD | |
| | BETA BKG | 09:15 | 60 | 82.0 | 1.37 | 0.61 | GOOD | |
| | ALPHA EFF | 09:51 | 30 | 33780 | 1126 | -0.03 | GOOD | |
| | BETA EFF | 09:51 | 30 | 2.11E+05 | 7030 | -0.21 | GOOD | |
| LB4100E2 | ALPHA BKG | 09:15 | 60 | 5.00 | 0.08 | -0.85 | GOOD | |
| | BETA BKG | 09:15 | 60 | 100 | 1.67 | 0.06 | GOOD | |
| | ALPHA EFF | 09:51 | 30 | 35197 | 1170 | 0.08 | GOOD | |
| | BETA EFF | 09:51 | 30 | 2.91E+05 | 9700 | 0.77 | GOOD | |
| LB4100E3 | ALPHA BKG | 09:15 | 60 | 2.00 | 0.03 | -1.1 | GOOD | |
| | BETA BKG | 09:15 | 60 | 65.0 | 1.08 | 0.12 | GOOD | |
| | ALPHA EFF | 09:51 | 30 | 35927 | 1200 | 0.09 | GOOD | |
| | BETA EFF | 09:51 | 30 | 2.26E+05 | 7550 | -0.94 | GOOD | |
| <u>LB4100E4</u> | ALPHA BKG | 09:15 | 60 | 4.00 | 0.07 | -1.1 | GOOD | |
| | BETA BKG | 09:15 | 60 | 122 | <u>2.03</u> | 0.8 | RERUN | |
| | ALPHA EFF | 09:51 | 30 | 30.0 | 1 | <u>-3.5</u> | DETL | Outside 3 sigma for > 2 days |
| | BETA EFF | 09:51 | 30 | 2.26E+05 | 7550 | 0.26 | GOOD | |
| LB4100F1 | ALPHA BKG | 09:15 | 60 | 11.0 | 0.18 | 2.85 | GOOD | |
| | BETA BKG | 09:15 | 60 | 71.0 | 1.18 | 2.03 | GOOD | |
| | ALPHA EFF | 09:51 | 30 | 29227 | 974 | 0.89 | GOOD | |
| | BETA EFF | 09:51 | 30 | 2.04E+05 | 6800 | 0.57 | GOOD | |
| <u>LB4100F2</u> | ALPHA BKG | 09:15 | 60 | 5.00 | 0.08 | -0.65 | GOOD | |
| | BETA BKG | 09:15 | 60 | 79.0 | 1.32 | 1.7 | GOOD | |
| | ALPHA EFF | 09:51 | 30 | 27803 | 927 | <u>2.24</u> | DETL | Outside 2 sigma for >= 2 days |
| | BETA EFF | 09:51 | 30 | 2.19E+05 | 7290 | -0.36 | GOOD | |
| LB4100F3 | ALPHA BKG | 09:15 | 60 | 1.00 | 0.02 | -2.2 | GOOD | |

| | | | | | | | | |
|----------|-----------|-------|----|----------|------|-------|------|-------------------------------|
| | BETA BKG | 09:15 | 60 | 79.0 | 1.32 | -0.3 | GOOD | |
| | ALPHA EFF | 09:51 | 30 | 28663 | 955 | 1.95 | GOOD | |
| | BETA EFF | 09:51 | 30 | 2.61E+05 | 8690 | 1.22 | GOOD | |
| LB4100F4 | ALPHA BKG | 09:15 | 60 | 1.00 | 0.02 | -0.69 | GOOD | |
| | BETA BKG | 09:15 | 60 | 46.0 | 0.77 | -0.41 | GOOD | |
| | ALPHA EFF | 09:51 | 30 | 24749 | 825 | -1.7 | GOOD | |
| | BETA EFF | 09:51 | 30 | 2.02E+05 | 6730 | 1.33 | GOOD | |
| LB4100G1 | ALPHA BKG | 09:15 | 60 | 6.00 | 0.1 | -1 | GOOD | |
| | BETA BKG | 09:15 | 60 | 140 | 2.33 | 4.04 | DETL | Outside 2 sigma for >= 2 days |
| | ALPHA EFF | 09:51 | 30 | 32363 | 1080 | 1.24 | GOOD | |
| | BETA EFF | 09:51 | 30 | 2.22E+05 | 7390 | -0.15 | GOOD | |
| LB4100G2 | ALPHA BKG | 09:15 | 60 | 5.00 | 0.08 | 0.64 | GOOD | |
| | BETA BKG | 09:15 | 60 | 77.0 | 1.28 | 4.5 | DETL | Outside 2 sigma for >= 2 days |
| | ALPHA EFF | 09:51 | 30 | 31299 | 1040 | -0.5 | GOOD | |
| | BETA EFF | 09:51 | 30 | 2.85E+05 | 9500 | 0.14 | GOOD | |
| LB4100G3 | ALPHA BKG | 09:15 | 60 | 13.0 | 0.22 | 0.16 | GOOD | |
| | BETA BKG | 09:15 | 60 | 39.0 | 0.65 | -2.6 | GOOD | |
| | ALPHA EFF | 09:51 | 30 | 22382 | 746 | -0.27 | GOOD | |
| | BETA EFF | 09:51 | 30 | 2.45E+05 | 8170 | -0.45 | GOOD | |
| LB4100G4 | ALPHA BKG | 09:15 | 60 | 1.00 | 0.02 | -0.85 | GOOD | |
| | BETA BKG | 09:15 | 60 | 73.0 | 1.22 | 1.65 | GOOD | |
| | ALPHA EFF | 09:51 | 30 | 15411 | 514 | 1.42 | GOOD | |
| | BETA EFF | 09:51 | 30 | 1.52E+05 | 5070 | 1.08 | GOOD | |
| LB4100H1 | ALPHA BKG | 09:15 | 60 | 5.00 | 0.08 | -0.19 | GOOD | |
| | BETA BKG | 09:15 | 60 | 38.0 | 0.63 | -0.84 | GOOD | |
| | ALPHA EFF | 09:51 | 30 | 29183 | 973 | -0.89 | GOOD | |
| | BETA EFF | 09:51 | 30 | 1.41E+05 | 4680 | -0.57 | GOOD | |
| LB4100H2 | ALPHA BKG | 09:15 | 60 | 5.00 | 0.08 | 0.15 | GOOD | |
| | BETA BKG | 09:15 | 60 | 41.0 | 0.68 | -1.5 | GOOD | |
| | ALPHA EFF | 09:51 | 30 | 18789 | 626 | 0.1 | GOOD | |
| | BETA EFF | 09:51 | 30 | 1.51E+05 | 5040 | 1.08 | GOOD | |
| LB4100H3 | ALPHA BKG | 09:15 | 60 | 2.00 | 0.03 | -1.6 | GOOD | |
| | BETA BKG | 09:15 | 60 | 47.0 | 0.78 | -0.23 | GOOD | |
| | ALPHA EFF | 09:51 | 30 | 19487 | 650 | 0.18 | GOOD | |
| | BETA EFF | 09:51 | 30 | 1.53E+05 | 5100 | 0.11 | GOOD | |
| LB4100H4 | ALPHA BKG | 09:15 | 60 | 1.00 | 0.02 | -1.5 | GOOD | |
| | BETA BKG | 09:15 | 60 | 36.0 | 0.6 | -1.8 | GOOD | |
| | ALPHA EFF | 09:51 | 30 | 18677 | 623 | -0.17 | GOOD | |
| | BETA EFF | 09:51 | 30 | 1.22E+05 | 4060 | -0.42 | GOOD | |
| PIC1A | ALPHA BKG | 09:05 | 60 | 6.00 | 0.1 | -0.77 | GOOD | |
| | BETA BKG | 09:05 | 60 | 35.0 | 0.58 | 0.28 | GOOD | |
| | ALPHA EFF | 09:41 | 30 | 9892 | 330 | -0.69 | GOOD | |
| | BETA EFF | 09:41 | 30 | 1.96E+05 | 6550 | 0.63 | GOOD | |
| PIC1B | ALPHA BKG | 09:06 | 60 | 2.00 | 0.03 | -1.4 | GOOD | |
| | BETA BKG | 09:06 | 60 | 19.0 | 0.32 | -0.5 | GOOD | |
| | ALPHA EFF | 09:42 | 30 | 11142 | 371 | -1.3 | GOOD | |
| | BETA EFF | 09:42 | 30 | 2.13E+05 | 7100 | -1.2 | GOOD | |

| | | | | | | | |
|-------|-----------|-------|----|----------|------|-------|------|
| PIC1C | ALPHA BKG | 09:06 | 60 | 4.00 | 0.07 | -0.6 | GOOD |
| | BETA BKG | 09:06 | 60 | 11.0 | 0.18 | -1.2 | GOOD |
| | ALPHA EFF | 09:42 | 30 | 16106 | 537 | 0.29 | GOOD |
| | BETA EFF | 09:42 | 30 | 2.46E+05 | 8200 | 1.05 | GOOD |
| PIC1D | ALPHA BKG | 09:06 | 60 | 2.00 | 0.03 | -1.6 | GOOD |
| | BETA BKG | 09:06 | 60 | 26.0 | 0.43 | -0.08 | GOOD |
| | ALPHA EFF | 09:42 | 30 | 17580 | 586 | 0.79 | GOOD |
| | BETA EFF | 09:42 | 30 | 1.89E+05 | 6290 | 0.06 | GOOD |
| PIC2A | ALPHA BKG | 09:06 | 60 | 5.00 | 0.08 | -0.31 | GOOD |
| | BETA BKG | 09:06 | 60 | 32.0 | 0.53 | 0.04 | GOOD |
| | ALPHA EFF | 09:42 | 30 | 16057 | 535 | -0.74 | GOOD |
| | BETA EFF | 09:42 | 30 | 2.34E+05 | 7790 | 1.79 | GOOD |
| PIC2B | ALPHA BKG | 09:06 | 60 | 1.00 | 0.02 | -1.4 | GOOD |
| | BETA BKG | 09:06 | 60 | 17.0 | 0.28 | -0.51 | GOOD |
| | ALPHA EFF | 09:42 | 30 | 13942 | 465 | -0.49 | GOOD |
| | BETA EFF | 09:42 | 30 | 2.30E+05 | 7670 | 1.36 | GOOD |
| PIC2C | ALPHA BKG | 09:06 | 60 | 4.00 | 0.07 | -0.98 | GOOD |
| | BETA BKG | 09:06 | 60 | 14.0 | 0.23 | -0.89 | GOOD |
| | ALPHA EFF | 09:42 | 30 | 19696 | 657 | 0.29 | GOOD |
| | BETA EFF | 09:42 | 30 | 1.93E+05 | 6420 | -0.58 | GOOD |
| PIC2D | ALPHA BKG | 09:06 | 60 | 3.00 | 0.05 | -1.3 | GOOD |
| | BETA BKG | 09:06 | 60 | 21.0 | 0.35 | -0.4 | GOOD |
| | ALPHA EFF | 09:42 | 30 | 17671 | 589 | -0.41 | GOOD |
| | BETA EFF | 09:42 | 30 | 2.25E+05 | 7500 | 1.68 | GOOD |
| PIC3A | ALPHA BKG | 09:06 | 60 | 5.00 | 0.08 | -0.87 | GOOD |
| | BETA BKG | 09:06 | 60 | 19.0 | 0.32 | -0.84 | GOOD |
| | ALPHA EFF | 09:42 | 30 | 23100 | 770 | -0.77 | GOOD |
| | BETA EFF | 09:42 | 30 | 1.78E+05 | 5940 | 1.11 | GOOD |
| PIC3B | ALPHA BKG | 09:06 | 60 | 4.00 | 0.07 | -1.2 | GOOD |
| | BETA BKG | 09:06 | 60 | 21.0 | 0.35 | -0.62 | GOOD |
| | ALPHA EFF | 09:43 | 30 | 21783 | 726 | 0.08 | GOOD |
| | BETA EFF | 09:43 | 30 | 1.97E+05 | 6560 | 0.81 | GOOD |
| PIC3C | ALPHA BKG | 09:06 | 60 | 6.00 | 0.1 | -0.38 | GOOD |
| | BETA BKG | 09:06 | 60 | 35.0 | 0.58 | 1.36 | GOOD |
| | ALPHA EFF | 09:43 | 30 | 18280 | 609 | -0.09 | GOOD |
| | BETA EFF | 09:43 | 30 | 2.13E+05 | 7090 | 1.04 | GOOD |
| PIC3D | ALPHA BKG | 09:06 | 60 | 1.00 | 0.02 | -2.3 | GOOD |
| | BETA BKG | 09:06 | 60 | 25.0 | 0.42 | -0.13 | GOOD |
| | ALPHA EFF | 09:43 | 30 | 25339 | 845 | -0.8 | GOOD |
| | BETA EFF | 09:43 | 30 | 2.12E+05 | 7080 | -2.1 | GOOD |
| PIC4A | ALPHA BKG | 09:07 | 60 | 5.00 | 0.08 | -0.55 | GOOD |
| | BETA BKG | 09:07 | 60 | 14.0 | 0.23 | -1.5 | GOOD |
| | ALPHA EFF | 09:43 | 30 | 13020 | 434 | -0.66 | GOOD |
| | BETA EFF | 09:43 | 30 | 1.75E+05 | 5840 | 0.24 | GOOD |
| PIC4B | ALPHA BKG | 09:07 | 60 | 6.00 | 0.1 | 0.18 | GOOD |
| | BETA BKG | 09:07 | 60 | 28.0 | 0.47 | 0.09 | GOOD |
| | ALPHA EFF | 09:43 | 30 | 17989 | 600 | -0.95 | GOOD |

| | | | | | | | |
|--------------|-----------|-------|----|----------|-----------------|-------|-------|
| | BETA EFF | 09:43 | 30 | 2.24E+05 | 7460 | 1.11 | GOOD |
| PIC4C | ALPHA BKG | 09:07 | 60 | 1.00 | 0.02 | -2 | GOOD |
| | BETA BKG | 09:07 | 60 | 19.0 | 0.32 | -0.64 | GOOD |
| | ALPHA EFF | 09:43 | 30 | 20885 | 696 | -0.63 | GOOD |
| | BETA EFF | 09:43 | 30 | 2.02E+05 | 6740 | 1.13 | GOOD |
| PIC4D | ALPHA BKG | 09:07 | 60 | 6.00 | 0.1 | -0.4 | GOOD |
| | BETA BKG | 09:07 | 60 | 29.0 | 0.48 | 0.26 | GOOD |
| | ALPHA EFF | 09:44 | 30 | 21613 | 720 | -0.32 | GOOD |
| | BETA EFF | 09:44 | 30 | 2.12E+05 | 7060 | 0.95 | GOOD |
| PIC5A | ALPHA BKG | 09:07 | 60 | 5.00 | 0.08 | 0.05 | GOOD |
| | BETA BKG | 09:07 | 60 | 30.0 | 0.5 | 0.43 | GOOD |
| | ALPHA EFF | 09:44 | 30 | 12068 | 402 | 0.5 | GOOD |
| | BETA EFF | 09:44 | 30 | 3.99E+05 | 13300 | -0.75 | GOOD |
| <u>PIC5B</u> | ALPHA BKG | 09:07 | 60 | 8.00 | 0.13 | 1.07 | GOOD |
| | BETA BKG | 09:07 | 60 | 137 | 2.28 | 0.7 | RERUN |
| | ALPHA EFF | 09:44 | 30 | 10823 | 361 | 0.27 | GOOD |
| | BETA EFF | 09:44 | 30 | 3.49E+05 | 11600 | 0.09 | GOOD |
| PIC5C | ALPHA BKG | 09:07 | 60 | 4.00 | 0.07 | 1 | GOOD |
| | BETA BKG | 09:07 | 60 | 20.0 | 0.33 | -0.42 | GOOD |
| | ALPHA EFF | 09:44 | 30 | 11002 | 367 | 0.5 | GOOD |
| | BETA EFF | 09:44 | 30 | 3.89E+05 | 13000 | -0.35 | GOOD |
| PIC5D | ALPHA BKG | 09:08 | 60 | 3.00 | 0.05 | 0.16 | GOOD |
| | BETA BKG | 09:08 | 60 | 16.0 | 0.27 | -0.73 | GOOD |
| | ALPHA EFF | 09:45 | 30 | 9424 | 314 | 0.32 | GOOD |
| | BETA EFF | 09:45 | 30 | 3.10E+05 | 10300 | -0.4 | GOOD |
| PIC6A | ALPHA BKG | 09:08 | 60 | 1.00 | 0.02 | -0.75 | GOOD |
| | BETA BKG | 09:08 | 60 | 20.0 | 0.33 | -0.3 | GOOD |
| | ALPHA EFF | 09:45 | 30 | 8532 | 284 | 0.58 | GOOD |
| | BETA EFF | 09:45 | 30 | 2.82E+05 | 9390 | 0.13 | GOOD |
| PIC6B | ALPHA BKG | 09:08 | 60 | 2.00 | 0.03 | -0.4 | GOOD |
| | BETA BKG | 09:08 | 60 | 13.0 | 0.22 | -0.77 | GOOD |
| | ALPHA EFF | 09:45 | 30 | 11003 | 367 | 0.48 | GOOD |
| | BETA EFF | 09:45 | 30 | 2.90E+05 | 9650 | -1.1 | GOOD |
| PIC6C | ALPHA BKG | 09:08 | 60 | 4.00 | 0.07 | 0.58 | GOOD |
| | BETA BKG | 09:08 | 60 | 14.0 | 0.23 | -0.63 | GOOD |
| | ALPHA EFF | 09:45 | 30 | 15325 | 511 | 0.36 | GOOD |
| | BETA EFF | 09:45 | 30 | 3.52E+05 | 11700 | 0.55 | GOOD |
| PIC6D | ALPHA BKG | 09:08 | 60 | 2.00 | 0.03 | -0.3 | GOOD |
| | BETA BKG | 09:08 | 60 | 23.0 | 0.38 | 0.15 | GOOD |
| | ALPHA EFF | 09:45 | 30 | 12091 | 403 | 0.67 | GOOD |
| | BETA EFF | 09:45 | 30 | 3.60E+05 | 12000 | -0.84 | GOOD |
| PIC7A | ALPHA BKG | 09:08 | 60 | 4.00 | 0.07 | -0.57 | GOOD |
| | BETA BKG | 09:08 | 60 | 16.0 | 0.27 | -0.8 | GOOD |
| | ALPHA EFF | 09:45 | 30 | 10307 | 344 | -0.01 | GOOD |
| | BETA EFF | 09:45 | 30 | 3.77E+05 | 12600 | -1.4 | GOOD |
| <u>PIC7B</u> | ALPHA BKG | 09:09 | 60 | 22.0 | 0.37 | -0.05 | RERUN |
| | BETA BKG | 09:09 | 60 | 22.0 | 0.37 | -0.66 | GOOD |

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|-------|-----------|-------|----|----------|-------|-----------------|------|-------------------------------|
| | ALPHA EFF | 09:46 | 30 | 10791 | 360 | 0.18 | GOOD | |
| | BETA EFF | 09:46 | 30 | 3.18E+05 | 10600 | -0.55 | GOOD | |
| PIC7C | ALPHA BKG | 09:09 | 60 | 5.00 | 0.08 | -0.7 | GOOD | |
| | BETA BKG | 09:09 | 60 | 15.0 | 0.25 | -1 | GOOD | |
| | ALPHA EFF | 09:46 | 30 | 12490 | 416 | 0.55 | GOOD | |
| | BETA EFF | 09:46 | 30 | 3.82E+05 | 12700 | -0.35 | GOOD | |
| PIC7D | ALPHA BKG | 09:09 | 60 | 9.00 | 0.15 | -0.55 | GOOD | |
| | BETA BKG | 09:09 | 60 | 28.0 | 0.47 | -0.45 | GOOD | |
| | ALPHA EFF | 09:46 | 30 | 8634 | 288 | 0.09 | GOOD | |
| | BETA EFF | 09:46 | 30 | 2.83E+05 | 9430 | -0.28 | GOOD | |
| PIC8A | ALPHA BKG | 09:09 | 60 | 2.00 | 0.03 | -0.94 | GOOD | |
| | BETA BKG | 09:09 | 60 | 41.0 | 0.68 | -0.65 | GOOD | |
| | ALPHA EFF | 09:46 | 30 | 13609 | 454 | 0.76 | GOOD | |
| | BETA EFF | 09:46 | 30 | 3.72E+05 | 12400 | -1.5 | GOOD | |
| PIC8B | ALPHA BKG | 09:09 | 60 | 4.00 | 0.07 | -0.44 | GOOD | |
| | BETA BKG | 09:09 | 60 | 72.0 | 1.2 | -0.06 | GOOD | |
| | ALPHA EFF | 09:46 | 30 | 10113 | 337 | 0.3 | GOOD | |
| | BETA EFF | 09:46 | 30 | 3.72E+05 | 12400 | -0.13 | GOOD | |
| PIC8C | ALPHA BKG | 09:09 | 60 | 12.0 | 0.2 | -0.74 | GOOD | |
| | BETA BKG | 09:09 | 60 | 37.0 | 0.62 | -0.09 | GOOD | |
| | ALPHA EFF | 09:46 | 30 | 15428 | 514 | 0.59 | GOOD | |
| | BETA EFF | 09:46 | 30 | 4.29E+05 | 14300 | -0.3 | GOOD | |
| PIC8D | ALPHA BKG | 09:10 | 60 | 13.0 | 0.22 | -0.37 | GOOD | |
| | BETA BKG | 09:10 | 60 | 71.0 | 1.18 | -0.43 | GOOD | |
| | ALPHA EFF | 09:46 | 30 | 11556 | 385 | 2.28 | DETL | Outside 2 sigma for >= 2 days |
| | BETA EFF | 09:46 | 30 | 3.72E+05 | 12400 | 0.11 | GOOD | |

Reviewed by 

Date 4/10/06

General Engineering Laboratories, LLC

Gas Flow Proportional Counter Checks for 25-APR-2006

| Short Name | Parmname | Run Time | Count Time | Counts | CPM | Stdev | Status | Comments |
|-----------------|-----------|----------|------------|----------|------|-------|--------|--|
| LB4100A1 | ALPHA BKG | 09:40 | 60 | 2.00 | 0.03 | -0.7 | GOOD | |
| | BETA BKG | 09:40 | 60 | 63.0 | 1.05 | 0.82 | GOOD | |
| | ALPHA EFF | 10:15 | 30 | 24213 | 807 | 0.61 | GOOD | |
| | BETA EFF | 10:15 | 30 | 1.77E+05 | 5890 | 0.14 | GOOD | |
| LB4100A2 | ALPHA BKG | 09:40 | 60 | 3.00 | 0.05 | -0.51 | GOOD | |
| | BETA BKG | 09:40 | 60 | 56.0 | 0.93 | 0.51 | GOOD | |
| | ALPHA EFF | 10:15 | 30 | 16050 | 535 | -0.21 | GOOD | |
| | BETA EFF | 10:15 | 30 | 1.29E+05 | 4290 | 0.11 | GOOD | |
| LB4100A3 | ALPHA BKG | 09:40 | 60 | 2.00 | 0.03 | -0.6 | GOOD | |
| | BETA BKG | 09:40 | 60 | 51.0 | 0.85 | -0.51 | GOOD | |
| | ALPHA EFF | 10:15 | 30 | 22984 | 766 | 0.34 | GOOD | |
| | BETA EFF | 10:15 | 30 | 1.55E+05 | 5160 | -0.36 | GOOD | |
| <u>LB4100A4</u> | ALPHA BKG | 09:40 | 60 | 0 | 0 | -1.1 | GOOD | |
| | BETA BKG | 09:40 | 60 | 1169 | 19.5 | 53.5 | DETL | Outside 3 sigma for > 2 days |
| | ALPHA EFF | 10:15 | 30 | 19396 | 647 | -1.6 | GOOD | |
| | BETA EFF | 10:15 | 30 | 1.73E+05 | 5780 | 2.05 | DETL | Outside 2 sigma for >= 2 days |
| LB4100B1 | ALPHA BKG | 09:40 | 60 | 2.00 | 0.03 | -0.11 | GOOD | |
| | BETA BKG | 09:40 | 60 | 49.0 | 0.82 | -0.48 | GOOD | |
| | ALPHA EFF | 10:15 | 30 | 21400 | 713 | 0.37 | DETL | Outside 3 sigma for > 2 days Not a lockout condition w/ 4/25/06 |
| | BETA EFF | 10:15 | 30 | 1.86E+05 | 6200 | -0.11 | GOOD | |
| LB4100B2 | ALPHA BKG | 09:40 | 60 | 0 | 0 | -1.2 | GOOD | |
| | BETA BKG | 09:40 | 60 | 52.0 | 0.87 | -0.16 | GOOD | |
| | ALPHA EFF | 10:15 | 30 | 20980 | 699 | 0 | DETL | Outside 3 sigma for >= 2 days Not a lockout condition w/ 4/25/06 |
| | BETA EFF | 10:15 | 30 | 1.62E+05 | 5390 | -0.14 | GOOD | |
| LB4100B3 | ALPHA BKG | 09:40 | 60 | 2.00 | 0.03 | -0.42 | GOOD | |
| | BETA BKG | 09:40 | 60 | 88.0 | 1.47 | 1.83 | GOOD | |
| | ALPHA EFF | 10:15 | 30 | 16244 | 541 | 0.86 | DETL | Outside 3 sigma for > 2 days Not a lockout condition w/ 4/25/06 |
| | BETA EFF | 10:15 | 30 | 1.23E+05 | 4100 | 0.7 | GOOD | |
| <u>LB4100B4</u> | ALPHA BKG | 09:40 | 60 | 1.00 | 0.02 | -0.74 | GOOD | |
| | BETA BKG | 09:40 | 60 | 238 | 3.97 | 29 | DETL | Outside 2 sigma for >= 2 days |
| | ALPHA EFF | 10:15 | 30 | 19028 | 634 | 0.46 | DETL | Outside 3 sigma for > 2 days |
| | BETA EFF | 10:15 | 30 | 1.54E+05 | 5130 | 0.51 | GOOD | |
| LB4100C1 | ALPHA BKG | 09:40 | 60 | 15.0 | 0.25 | 0.12 | GOOD | |
| | BETA BKG | 09:40 | 60 | 67.0 | 1.12 | -0.56 | GOOD | |
| | ALPHA EFF | 10:15 | 30 | 22149 | 738 | 1.02 | DETL | Outside 3 sigma for > 2 days Not a lockout condition w/ 4/25/06 |
| | BETA EFF | 10:15 | 30 | 1.34E+05 | 4470 | -0.09 | DETL | Outside 3 sigma for > 2 days |
| LB4100C2 | ALPHA BKG | 09:40 | 60 | 5.00 | 0.08 | 0.21 | GOOD | |
| | BETA BKG | 09:40 | 60 | 51.0 | 0.85 | -0.41 | GOOD | |
| | ALPHA EFF | 10:15 | 30 | 21999 | 733 | 0.76 | GOOD | |
| | BETA EFF | 10:15 | 30 | 1.91E+05 | 6360 | 0.08 | DETL | Outside 3 sigma for > 2 days Not a lockout condition w/ 4/25/06 |

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|-----------------|-----------|-------|----|----------|------|-------|------|-------------------------------|
| LB4100C3 | ALPHA BKG | 09:40 | 60 | 1.00 | 0.02 | -1.1 | GOOD | |
| | BETA BKG | 09:40 | 60 | 54.0 | 0.9 | 0.19 | GOOD | |
| | ALPHA EFF | 10:15 | 30 | 16882 | 563 | 0.44 | GOOD | |
| | BETA EFF | 10:15 | 30 | 1.36E+05 | 4550 | 0.72 | GOOD | |
| LB4100C4 | ALPHA BKG | 09:40 | 60 | 3.00 | 0.05 | -0.13 | GOOD | |
| | BETA BKG | 09:40 | 60 | 55.0 | 0.92 | 0.55 | GOOD | |
| | ALPHA EFF | 10:15 | 30 | 25090 | 836 | 0.91 | GOOD | |
| | BETA EFF | 10:15 | 30 | 2.17E+05 | 7244 | 0.44 | GOOD | |
| <u>LB4100D1</u> | ALPHA BKG | 09:40 | 60 | 17.0 | 0.28 | 4.4 | DETL | Outside 2 sigma for >= 2 days |
| | BETA BKG | 09:40 | 60 | 54.0 | 0.9 | 0.55 | GOOD | |
| | ALPHA EFF | 10:15 | 30 | 26568 | 886 | -0.4 | GOOD | |
| | BETA EFF | 10:15 | 30 | 2.38E+05 | 7930 | 0.25 | GOOD | |
| LB4100D2 | ALPHA BKG | 09:40 | 60 | 8.00 | 0.13 | -0.23 | GOOD | |
| | BETA BKG | 09:40 | 60 | 64.0 | 1.07 | 0.49 | GOOD | |
| | ALPHA EFF | 10:15 | 30 | 19295 | 643 | -0.26 | GOOD | |
| | BETA EFF | 10:15 | 30 | 1.49E+05 | 4960 | -0.47 | GOOD | |
| LB4100D3 | ALPHA BKG | 09:40 | 60 | 4.00 | 0.07 | 0.31 | GOOD | |
| | BETA BKG | 09:40 | 60 | 55.0 | 0.92 | 1.2 | GOOD | |
| | ALPHA EFF | 10:15 | 30 | 18683 | 623 | 0.12 | GOOD | |
| | BETA EFF | 10:15 | 30 | 1.48E+05 | 4950 | 0.19 | GOOD | |
| LB4100D4 | ALPHA BKG | 09:40 | 60 | 3.00 | 0.05 | -0.57 | GOOD | |
| | BETA BKG | 09:40 | 60 | 58.0 | 0.97 | 0.28 | GOOD | |
| | ALPHA EFF | 10:15 | 30 | 20867 | 696 | -0.81 | GOOD | |
| | BETA EFF | 10:15 | 30 | 1.82E+05 | 6070 | 0.77 | GOOD | |
| LB4100E1 | ALPHA BKG | 09:29 | 60 | 10.0 | 0.17 | -0.3 | GOOD | |
| | BETA BKG | 09:29 | 60 | 73.0 | 1.22 | -0.53 | GOOD | |
| | ALPHA EFF | 10:03 | 30 | 32731 | 1090 | -1.2 | GOOD | |
| | BETA EFF | 10:03 | 30 | 2.12E+05 | 7080 | 0.25 | GOOD | |
| LB4100E2 | ALPHA BKG | 09:29 | 60 | 3.00 | 0.05 | -1.5 | GOOD | |
| | BETA BKG | 09:29 | 60 | 82.0 | 1.37 | -0.86 | GOOD | |
| | ALPHA EFF | 10:03 | 30 | 34819 | 1160 | -0.27 | GOOD | |
| | BETA EFF | 10:03 | 30 | 2.86E+05 | 9540 | 0.05 | GOOD | |
| LB4100E3 | ALPHA BKG | 09:29 | 60 | 3.00 | 0.05 | -0.61 | GOOD | |
| | BETA BKG | 09:29 | 60 | 54.0 | 0.9 | -1.3 | GOOD | |
| | ALPHA EFF | 10:03 | 30 | 35785 | 1190 | -0.04 | GOOD | |
| | BETA EFF | 10:03 | 30 | 2.26E+05 | 7520 | -1.1 | GOOD | |
| LB4100E4 | ALPHA BKG | 09:29 | 60 | 5.00 | 0.08 | -0.83 | GOOD | |
| | BETA BKG | 09:29 | 60 | 105 | 1.75 | -0.53 | GOOD | |
| | ALPHA EFF | 10:03 | 30 | 30084 | 1000 | -0.58 | GOOD | |
| | BETA EFF | 10:03 | 30 | 2.24E+05 | 7470 | -0.29 | GOOD | |
| LB4100F1 | ALPHA BKG | 09:29 | 60 | 3.00 | 0.05 | -0.67 | GOOD | |
| | BETA BKG | 09:29 | 60 | 65.0 | 1.08 | 1.14 | GOOD | |
| | ALPHA EFF | 10:03 | 30 | 29113 | 970 | 0.74 | GOOD | |
| | BETA EFF | 10:03 | 30 | 2.03E+05 | 6780 | 0.44 | GOOD | |

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|-----------------|-----------|-------|----|----------|------|-------|-------|-------------------------------|
| <u>LB4100F2</u> | ALPHA BKG | 09:29 | 60 | 4.00 | 0.07 | -0.98 | GOOD | |
| | BETA BKG | 09:29 | 60 | 95.0 | 1.58 | 3.77 | RERUN | |
| | ALPHA EFF | 10:03 | 30 | 28124 | 937 | 2.66 | DETL | Outside 2 sigma for >= 2 days |
| | BETA EFF | 10:03 | 30 | 2.13E+05 | 7110 | -1.2 | GOOD | |
| LB4100F3 | ALPHA BKG | 09:29 | 60 | 14.0 | 0.23 | 0.76 | GOOD | |
| | BETA BKG | 09:29 | 60 | 101 | 1.68 | 1.89 | GOOD | |
| | ALPHA EFF | 10:03 | 30 | 27405 | 914 | 0.15 | GOOD | |
| | BETA EFF | 10:03 | 30 | 2.64E+05 | 8790 | 1.56 | GOOD | |
| LB4100F4 | ALPHA BKG | 09:29 | 60 | 0 | 0 | -1.1 | GOOD | |
| | BETA BKG | 09:29 | 60 | 41.0 | 0.68 | -0.67 | GOOD | |
| | ALPHA EFF | 10:03 | 30 | 25176 | 839 | -1.2 | GOOD | |
| | BETA EFF | 10:03 | 30 | 1.99E+05 | 6620 | 0.73 | GOOD | |
| <u>LB4100G1</u> | ALPHA BKG | 09:29 | 60 | 6.00 | 0.1 | -1 | GOOD | |
| | BETA BKG | 09:29 | 60 | 121 | 2.02 | 3.08 | DETL | Outside 2 sigma for >= 2 days |
| | ALPHA EFF | 10:03 | 30 | 31774 | 1060 | 0.43 | GOOD | |
| | BETA EFF | 10:03 | 30 | 2.22E+05 | 7390 | -0.17 | GOOD | |
| LB4100G2 | ALPHA BKG | 09:29 | 60 | 6.00 | 0.1 | 1.11 | GOOD | |
| | BETA BKG | 09:29 | 60 | 58.0 | 0.97 | 1.66 | GOOD | |
| | ALPHA EFF | 10:03 | 30 | 30870 | 1029 | -1 | GOOD | |
| | BETA EFF | 10:03 | 30 | 2.81E+05 | 9350 | -0.82 | GOOD | |
| LB4100G3 | ALPHA BKG | 09:29 | 60 | 12.0 | 0.2 | -0.09 | GOOD | |
| | BETA BKG | 09:29 | 60 | 75.0 | 1.25 | 1.87 | GOOD | |
| | ALPHA EFF | 10:03 | 30 | 22614 | 754 | 0.68 | GOOD | |
| | BETA EFF | 10:03 | 30 | 2.42E+05 | 8070 | -2.2 | GOOD | |
| LB4100G4 | ALPHA BKG | 09:29 | 60 | 1.00 | 0.02 | -0.85 | GOOD | |
| | BETA BKG | 09:29 | 60 | 55.0 | 0.92 | -0.2 | GOOD | |
| | ALPHA EFF | 10:03 | 30 | 15296 | 510 | 0.65 | GOOD | |
| | BETA EFF | 10:03 | 30 | 1.51E+05 | 5020 | -0.36 | GOOD | |
| LB4100H1 | ALPHA BKG | 09:29 | 60 | 6.00 | 0.1 | 0.21 | GOOD | |
| | BETA BKG | 09:29 | 60 | 40.0 | 0.67 | -0.49 | GOOD | |
| | ALPHA EFF | 10:03 | 30 | 29921 | 997 | -0.39 | GOOD | |
| | BETA EFF | 10:03 | 30 | 1.39E+05 | 4650 | -0.81 | GOOD | |
| LB4100H2 | ALPHA BKG | 09:29 | 60 | 4.00 | 0.07 | -0.16 | GOOD | |
| | BETA BKG | 09:29 | 60 | 39.0 | 0.65 | -1.8 | PEND | |
| | ALPHA EFF | 10:03 | 30 | 18632 | 621 | -0.06 | GOOD | |
| | BETA EFF | 10:03 | 30 | 1.46E+05 | 4870 | -0.41 | GOOD | |
| LB4100H3 | ALPHA BKG | 09:29 | 60 | 6.00 | 0.1 | -0.34 | GOOD | |
| | BETA BKG | 09:29 | 60 | 52.0 | 0.87 | 0.43 | GOOD | |
| | ALPHA EFF | 10:03 | 30 | 18916 | 631 | -0.42 | GOOD | |
| | BETA EFF | 10:03 | 30 | 1.52E+05 | 5055 | -0.28 | GOOD | |
| LB4100H4 | ALPHA BKG | 09:29 | 60 | 5.00 | 0.08 | 0.25 | GOOD | |
| | BETA BKG | 09:29 | 60 | 32.0 | 0.53 | -2.5 | GOOD | |
| | ALPHA EFF | 10:03 | 30 | 18286 | 610 | -0.54 | GOOD | |
| | BETA EFF | 10:03 | 30 | 1.23E+05 | 4100 | -0.06 | GOOD | |

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|--------------|-----------|-------|----|----------|------|-------|-------|-------------------------------|
| <u>PIC1A</u> | ALPHA BKG | 09:08 | 60 | 2.00 | 0.03 | -2 | DETL | Outside 2 sigma for >= 2 days |
| | BETA BKG | 09:08 | 60 | 16.0 | 0.27 | -1.6 | GOOD | |
| | ALPHA EFF | 09:43 | 30 | 9573 | 319 | -1.6 | GOOD | |
| | BETA EFF | 09:43 | 30 | 1.93E+05 | 6440 | -3.9 | RERUN | |
| PIC1B | ALPHA BKG | 09:08 | 60 | 1.00 | 0.02 | -1.8 | GOOD | |
| | BETA BKG | 09:08 | 60 | 21.0 | 0.35 | -0.19 | GOOD | |
| | ALPHA EFF | 09:43 | 30 | 11001 | 367 | -1.6 | GOOD | |
| | BETA EFF | 09:43 | 30 | 2.13E+05 | 7100 | -1.5 | GOOD | |
| PIC1C | ALPHA BKG | 09:08 | 60 | 1.00 | 0.02 | -1.5 | GOOD | |
| | BETA BKG | 09:08 | 60 | 11.0 | 0.18 | -1.2 | GOOD | |
| | ALPHA EFF | 09:43 | 30 | 15968 | 532 | 0.02 | GOOD | |
| | BETA EFF | 09:43 | 30 | 2.43E+05 | 8110 | -2.2 | GOOD | |
| PIC1D | ALPHA BKG | 09:08 | 60 | 7.00 | 0.12 | -0.53 | GOOD | |
| | BETA BKG | 09:08 | 60 | 36.0 | 0.6 | 1.11 | GOOD | |
| | ALPHA EFF | 09:43 | 30 | 16570 | 552 | -0.47 | GOOD | |
| | BETA EFF | 09:43 | 30 | 1.88E+05 | 6270 | -0.56 | GOOD | |
| PIC2A | ALPHA BKG | 09:08 | 60 | 5.00 | 0.08 | -0.31 | GOOD | |
| | BETA BKG | 09:08 | 60 | 23.0 | 0.38 | -0.44 | GOOD | |
| | ALPHA EFF | 09:44 | 30 | 15581 | 519 | -1.4 | GOOD | |
| | BETA EFF | 09:44 | 30 | 2.31E+05 | 7710 | -0.14 | GOOD | |
| <u>PIC2B</u> | ALPHA BKG | 09:08 | 60 | 5.00 | 0.08 | 0.02 | GOOD | |
| | BETA BKG | 09:08 | 60 | 21.0 | 0.35 | -0.18 | GOOD | |
| | ALPHA EFF | 09:44 | 30 | 13366 | 446 | -2.6 | DETL | Outside 2 sigma for >= 2 days |
| | BETA EFF | 09:44 | 30 | 2.29E+05 | 7640 | 0.14 | GOOD | |
| PIC2C | ALPHA BKG | 09:08 | 60 | 3.00 | 0.05 | -1.3 | GOOD | |
| | BETA BKG | 09:08 | 60 | 12.0 | 0.2 | -1.1 | GOOD | |
| | ALPHA EFF | 09:44 | 30 | 18873 | 629 | -0.84 | GOOD | |
| | BETA EFF | 09:44 | 30 | 1.93E+05 | 6430 | -0.17 | GOOD | |
| PIC2D | ALPHA BKG | 09:09 | 60 | 7.00 | 0.12 | 0.11 | GOOD | |
| | BETA BKG | 09:09 | 60 | 28.0 | 0.47 | 0.39 | GOOD | |
| | ALPHA EFF | 09:44 | 30 | 16907 | 564 | -1.4 | GOOD | |
| | BETA EFF | 09:44 | 30 | 2.23E+05 | 7450 | 0.06 | GOOD | |
| PIC3A | ALPHA BKG | 09:09 | 60 | 7.00 | 0.12 | -0.14 | GOOD | |
| | BETA BKG | 09:09 | 60 | 19.0 | 0.32 | -0.84 | GOOD | |
| | ALPHA EFF | 09:44 | 30 | 22073 | 736 | -1.5 | DETL | Outside 2 sigma for >= 2 days |
| | BETA EFF | 09:44 | 30 | 1.77E+05 | 5900 | 0.29 | GOOD | |
| PIC3B | ALPHA BKG | 09:09 | 60 | 7.00 | 0.12 | -0.12 | GOOD | |
| | BETA BKG | 09:09 | 60 | 31.0 | 0.52 | 0.43 | GOOD | |
| | ALPHA EFF | 09:44 | 30 | 20635 | 688 | -0.98 | GOOD | |
| | BETA EFF | 09:44 | 30 | 1.96E+05 | 6530 | -0.01 | GOOD | |
| PIC3C | ALPHA BKG | 09:09 | 60 | 1.00 | 0.02 | -1.8 | GOOD | |
| | BETA BKG | 09:09 | 60 | 24.0 | 0.4 | -0.08 | GOOD | |
| | ALPHA EFF | 09:44 | 30 | 17594 | 586 | -0.89 | GOOD | |
| | BETA EFF | 09:44 | 30 | 2.12E+05 | 7070 | 0.6 | GOOD | |

Not a lockout
condition
W 4/25/06

| | | | | | | | | |
|--------------|-----------|-------|----|----------|-------|-------|------|-------------------------------|
| PIC3D | ALPHA BKG | 09:09 | 60 | 6.00 | 0.1 | -0.29 | GOOD | |
| | BETA BKG | 09:09 | 60 | 31.0 | 0.52 | 0.64 | GOOD | |
| | ALPHA EFF | 09:45 | 30 | 24886 | 830 | -1.3 | GOOD | |
| | BETA EFF | 09:45 | 30 | 2.13E+05 | 7100 | -1.3 | GOOD | |
| PIC4A | ALPHA BKG | 09:09 | 60 | 2.00 | 0.03 | -1.5 | GOOD | |
| | BETA BKG | 09:09 | 60 | 22.0 | 0.37 | -0.78 | GOOD | |
| | ALPHA EFF | 09:45 | 30 | 12971 | 432 | -0.77 | GOOD | |
| | BETA EFF | 09:45 | 30 | 1.75E+05 | 5830 | -0.2 | GOOD | |
| PIC4B | ALPHA BKG | 09:09 | 60 | 5.00 | 0.08 | -0.11 | GOOD | |
| | BETA BKG | 09:09 | 60 | 19.0 | 0.32 | -0.56 | GOOD | |
| | ALPHA EFF | 09:45 | 30 | 17555 | 585 | -2.9 | GOOD | |
| | BETA EFF | 09:45 | 30 | 2.22E+05 | 7400 | -1.6 | GOOD | |
| PIC4C | ALPHA BKG | 09:10 | 60 | 6.00 | 0.1 | -0.57 | GOOD | |
| | BETA BKG | 09:10 | 60 | 25.0 | 0.42 | -0.26 | GOOD | |
| | ALPHA EFF | 09:45 | 30 | 20181 | 673 | -1.5 | GOOD | |
| | BETA EFF | 09:45 | 30 | 2.01E+05 | 6710 | 0.23 | GOOD | |
| PIC4D | ALPHA BKG | 09:10 | 60 | 7.00 | 0.12 | -0.17 | GOOD | |
| | BETA BKG | 09:10 | 60 | 23.0 | 0.38 | -0.38 | GOOD | |
| | ALPHA EFF | 09:45 | 30 | 20328 | 678 | -1.4 | GOOD | |
| | BETA EFF | 09:45 | 30 | 2.12E+05 | 7080 | 1.3 | GOOD | |
| <u>PIC5A</u> | ALPHA BKG | 09:10 | 60 | 3.00 | 0.05 | -0.55 | GOOD | |
| | BETA BKG | 09:10 | 60 | 31.0 | 0.52 | 0.54 | GOOD | |
| | ALPHA EFF | 09:46 | 30 | 11165 | 372 | -0.91 | GOOD | |
| | BETA EFF | 09:46 | 30 | 3.97E+05 | 13200 | -2.5 | DETL | Outside 2 sigma for >= 2 days |
| PIC5B | ALPHA BKG | 09:10 | 60 | 7.00 | 0.12 | 0.73 | GOOD | |
| | BETA BKG | 09:10 | 60 | 112 | 1.87 | 0.23 | GOOD | |
| | ALPHA EFF | 09:46 | 30 | 10069 | 336 | -0.24 | GOOD | |
| | BETA EFF | 09:46 | 30 | 3.49E+05 | 11600 | 0.08 | GOOD | |
| PIC5C | ALPHA BKG | 09:10 | 60 | 2.00 | 0.03 | -0.19 | GOOD | |
| | BETA BKG | 09:10 | 60 | 21.0 | 0.35 | -0.24 | GOOD | |
| | ALPHA EFF | 09:46 | 30 | 10243 | 341 | -0.68 | GOOD | |
| | BETA EFF | 09:46 | 30 | 3.86E+05 | 12900 | -2.3 | GOOD | |
| <u>PIC5D</u> | ALPHA BKG | 09:10 | 60 | 7.00 | 0.12 | 2.22 | DETL | Outside 2 sigma for >= 2 days |
| | BETA BKG | 09:10 | 60 | 19.0 | 0.32 | -0.15 | GOOD | |
| | ALPHA EFF | 09:46 | 30 | 8798 | 293 | -0.84 | GOOD | |
| | BETA EFF | 09:46 | 30 | 3.07E+05 | 10200 | -3.1 | DETL | Outside 2 sigma for >= 2 days |
| PIC6A | ALPHA BKG | 09:10 | 60 | 5.00 | 0.08 | 0.38 | GOOD | |
| | BETA BKG | 09:10 | 60 | 29.0 | 0.48 | 1.05 | GOOD | |
| | ALPHA EFF | 09:46 | 30 | 7782 | 259 | -0.95 | GOOD | |
| | BETA EFF | 09:46 | 30 | 2.79E+05 | 9310 | -2.3 | DETL | Outside 2 sigma for >= 2 days |
| PIC6B | ALPHA BKG | 09:11 | 60 | 2.00 | 0.03 | -0.4 | GOOD | |
| | BETA BKG | 09:11 | 60 | 22.0 | 0.37 | 1.3 | GOOD | |
| | ALPHA EFF | 09:46 | 30 | 10154 | 338 | -0.77 | GOOD | |
| | BETA EFF | 09:46 | 30 | 2.89E+05 | 9640 | -1.5 | GOOD | |

*Not a lockup condition
M 4/25/06*

| | | | | | | | | |
|--------------|-----------|-------|----|----------|-------|-------|-------|-------------------------------|
| PIC6C | ALPHA BKG | 09:11 | 60 | 1.00 | 0.02 | -0.93 | GOOD | |
| | BETA BKG | 09:11 | 60 | 19.0 | 0.32 | 0.32 | GOOD | |
| | ALPHA EFF | 09:46 | 30 | 14237 | 475 | -0.82 | GOOD | |
| | BETA EFF | 09:46 | 30 | 3.49E+05 | 11600 | -2.4 | GOOD | |
| <u>PIC6D</u> | ALPHA BKG | 09:11 | 60 | 1.00 | 0.02 | -0.65 | GOOD | |
| | BETA BKG | 09:11 | 60 | 29.0 | 0.48 | 0.85 | GOOD | |
| | ALPHA EFF | 09:47 | 30 | 11072 | 369 | -0.78 | GOOD | |
| | BETA EFF | 09:47 | 30 | 3.58E+05 | 11900 | -2.1 | DETL | Outside 2 sigma for >= 2 days |
| PIC7A | ALPHA BKG | 09:11 | 60 | 4.00 | 0.07 | -0.57 | GOOD | |
| | BETA BKG | 09:11 | 60 | 33.0 | 0.55 | -0.36 | GOOD | |
| | ALPHA EFF | 09:47 | 30 | 9725 | 324 | -0.61 | GOOD | |
| | BETA EFF | 09:47 | 30 | 3.77E+05 | 12600 | -1.5 | GOOD | |
| PIC7B | ALPHA BKG | 09:11 | 60 | 18.0 | 0.3 | -0.35 | GOOD | |
| | BETA BKG | 09:11 | 60 | 26.0 | 0.43 | -0.59 | GOOD | |
| | ALPHA EFF | 09:47 | 30 | 10103 | 337 | -0.75 | GOOD | |
| | BETA EFF | 09:47 | 30 | 3.16E+05 | 10500 | -0.8 | GOOD | |
| PIC7C | ALPHA BKG | 09:11 | 60 | 4.00 | 0.07 | -0.84 | GOOD | |
| | BETA BKG | 09:11 | 60 | 22.0 | 0.37 | -0.82 | GOOD | |
| | ALPHA EFF | 09:47 | 30 | 11299 | 377 | -0.69 | GOOD | |
| | BETA EFF | 09:47 | 30 | 3.80E+05 | 12700 | -0.65 | GOOD | |
| PIC7D | ALPHA BKG | 09:12 | 60 | 6.00 | 0.1 | -0.74 | GOOD | |
| | BETA BKG | 09:12 | 60 | 23.0 | 0.38 | -0.57 | GOOD | |
| | ALPHA EFF | 09:47 | 30 | 8211 | 274 | -0.6 | GOOD | |
| | BETA EFF | 09:47 | 30 | 2.82E+05 | 9390 | -0.39 | GOOD | |
| PIC8A | ALPHA BKG | 09:12 | 60 | 3.00 | 0.05 | -0.83 | GOOD | |
| | BETA BKG | 09:12 | 60 | 34.0 | 0.57 | -0.7 | GOOD | |
| | ALPHA EFF | 09:47 | 30 | 12828 | 428 | -0.22 | GOOD | |
| | BETA EFF | 09:47 | 30 | 3.72E+05 | 12400 | -1.9 | GOOD | |
| PIC8B | ALPHA BKG | 09:12 | 60 | 2.00 | 0.03 | -0.65 | GOOD | |
| | BETA BKG | 09:12 | 60 | 48.0 | 0.8 | -0.44 | GOOD | |
| | ALPHA EFF | 09:47 | 30 | 9320 | 311 | -1.1 | GOOD | |
| | BETA EFF | 09:47 | 30 | 3.70E+05 | 12300 | -0.41 | GOOD | |
| <u>PIC8C</u> | ALPHA BKG | 09:12 | 60 | 20.0 | 0.33 | -0.25 | RERUN | |
| | BETA BKG | 09:12 | 60 | 25.0 | 0.42 | -0.53 | GOOD | |
| | ALPHA EFF | 09:48 | 30 | 14694 | 490 | -0.23 | GOOD | |
| | BETA EFF | 09:48 | 30 | 4.28E+05 | 14300 | -0.4 | GOOD | |
| PIC8D | ALPHA BKG | 09:12 | 60 | 15.0 | 0.25 | -0.2 | GOOD | |
| | BETA BKG | 09:12 | 60 | 88.0 | 1.47 | -0.21 | GOOD | |
| | ALPHA EFF | 09:48 | 30 | 10896 | 363 | 1.31 | GOOD | |
| | BETA EFF | 09:48 | 30 | 3.72E+05 | 12400 | 0.16 | GOOD | |

Reviewed by 

Date 4/25/06

General Engineering Laboratories, LLC

Starting with bank 1

Ending with bank 19

| | Detector | Parameter | Flag |
|-------------|----------|---------------|-------|
| 20-APR-2006 | 6 | PSFWHM-5000 | Below |
| 20-APR-2006 | 6 | PSENERGY-5000 | Above |
| 20-APR-2006 | 6 | PSCENTRD-5000 | Above |
| 20-APR-2006 | 14 | PSFWHM-5000 | Below |
| 20-APR-2006 | 14 | PSENERGY-5000 | Above |
| 20-APR-2006 | 22 | PSENERGY-5000 | Above |
| 20-APR-2006 | 24 | PSFWHM-5000 | Below |
| 20-APR-2006 | 25 | PSFWHM-5000 | Below |
| 20-APR-2006 | 25 | PSCENTRD-5000 | Below |
| 20-APR-2006 | 28 | PSFWHM-5000 | Above |
| 20-APR-2006 | 39 | PSENERGY-5000 | Above |
| 20-APR-2006 | 66 | PSFWHM-5000 | Above |
| 20-APR-2006 | 67 | PSFWHM-5000 | Above |
| 20-APR-2006 | 68 | PSFWHM-5000 | Above |
| 20-APR-2006 | 71 | PSFWHM-5000 | Below |
| 20-APR-2006 | 71 | PSENERGY-5000 | Above |
| 20-APR-2006 | 74 | PSENERGY-5000 | Above |
| 20-APR-2006 | 84 | PSENERGY-5000 | Above |
| 20-APR-2006 | 97 | PSENERGY-5000 | Above |
| 20-APR-2006 | 105 | PSENERGY-5000 | Above |
| 20-APR-2006 | 106 | PSFWHM-5000 | Above |
| 20-APR-2006 | 109 | PSFWHM-5000 | Above |

MA 4/20/06

20-APR-2006

115

PSFWMH-5000

Above

DETECTORS NOT LISTED HAVE PASSED ALL QUALITY ASSURANCE PARAMETERS

APPROVAL DATE: 4/20/06

APPROVAL TIME: 1620

APPROVED BY: *GLD*

PROCEDURE # GL-RAD-I-009

Report completed at 20-APR-2006 16:17:59.07

Review of QA results (Daily checks) 20-APR-2006 16:18:00.20

Starting with bank 1

Ending with bank 19

This is a list of Detectors that may not have properly transferred to the QA file

APPROVAL DATE: 4/20/06 APPROVAL TIME: 1620

APPROVED BY: *JLD* PROCEDURE # GL-RAD-I-009

Report completed at 20-APR-2006 16:18:46.01

Starting with bank 1

Ending with bank 19

| | Detector | Parameter | Flag |
|-------------|----------|---------------|-------|
| 21-APR-2006 | 6 | PSFWHM-5000 | Below |
| 21-APR-2006 | 6 | PSENERGY-5000 | Above |
| 21-APR-2006 | 6 | PSCENTRD-5000 | Above |
| 21-APR-2006 | 14 | PSFWHM-5000 | Below |
| 21-APR-2006 | 14 | PSENERGY-5000 | Above |
| 21-APR-2006 | 22 | PSENERGY-5000 | Above |
| 21-APR-2006 | 24 | PSFWHM-5000 | Below |
| 21-APR-2006 | 25 | PSFWHM-5000 | Below |
| 21-APR-2006 | 25 | PSCENTRD-5000 | Below |
| 21-APR-2006 | 28 | PSFWHM-5000 | Above |
| 21-APR-2006 | 39 | PSENERGY-5000 | Above |
| 21-APR-2006 | 66 | PSFWHM-5000 | Above |
| 21-APR-2006 | 67 | PSFWHM-5000 | Above |
| 21-APR-2006 | 68 | PSFWHM-5000 | Above |
| 21-APR-2006 | 71 | PSFWHM-5000 | Below |
| 21-APR-2006 | 71 | PSENERGY-5000 | Above |
| 21-APR-2006 | 84 | PSENERGY-5000 | Above |
| 21-APR-2006 | 96 | PSFWHM-5000 | Above |
| 21-APR-2006 | 97 | PSENERGY-5000 | Above |
| 21-APR-2006 | 99 | PSFWHM-5000 | Above |
| 21-APR-2006 | 101 | PSFWHM-5000 | Above |
| 21-APR-2006 | 105 | PSENERGY-5000 | Above |

gzo 4/21/06

| | | | |
|-------------|-----|-------------|-------|
| 21-APR-2006 | 106 | PSFWHM-5000 | Above |
| 21-APR-2006 | 108 | PSFWHM-5000 | Above |
| 21-APR-2006 | 109 | PSFWHM-5000 | Above |
| 21-APR-2006 | 115 | PSFWHM-5000 | Above |
| 21-APR-2006 | 131 | PSFWHM-5000 | Above |

DETECTORS NOT LISTED HAVE PASSED ALL QUALITY ASSURANCE PARAMETERS

APPROVAL DATE: *4/21/06* APPROVAL TIME: *1005*

APPROVED BY: *GLD* PROCEDURE # GL-RAD-I-009

Report completed at 21-APR-2006 10:01:23.18

Review of QA results (Daily checks) 21-APR-2006 10:01:24.55

Starting with bank 1

Ending with bank 19

This is a list of Detectors that may not have properly transferred to the QA file

APPROVAL DATE: 4/21/06 APPROVAL TIME: 1005

APPROVED BY: *gld* PROCEDURE # GL-RAD-I-009

Report completed at 21-APR-2006 10:02:10.65

Starting with bank 1

Ending with bank 19

| | Detector | Parameter | Flag |
|-------------|----------|---------------|-------|
| 22-APR-2006 | 6 | PSFWHM-5000 | Below |
| 22-APR-2006 | 6 | PSENERGY-5000 | Above |
| 22-APR-2006 | 6 | PSCENTRD-5000 | Above |
| 22-APR-2006 | 14 | PSFWHM-5000 | Below |
| 22-APR-2006 | 14 | PSENERGY-5000 | Above |
| 22-APR-2006 | 22 | PSENERGY-5000 | Above |
| 22-APR-2006 | 24 | PSFWHM-5000 | Below |
| 22-APR-2006 | 25 | PSFWHM-5000 | Below |
| 22-APR-2006 | 25 | PSCENTRD-5000 | Below |
| 22-APR-2006 | 28 | PSFWHM-5000 | Above |
| 22-APR-2006 | 39 | PSENERGY-5000 | Above |
| 22-APR-2006 | 66 | PSFWHM-5000 | Above |
| 22-APR-2006 | 67 | PSFWHM-5000 | Above |
| 22-APR-2006 | 68 | PSFWHM-5000 | Above |
| 22-APR-2006 | 71 | PSENERGY-5000 | Above |
| 22-APR-2006 | 84 | PSENERGY-5000 | Above |
| 22-APR-2006 | 96 | PSFWHM-5000 | Above |
| 22-APR-2006 | 97 | PSENERGY-5000 | Above |
| 22-APR-2006 | 99 | PSFWHM-5000 | Above |
| 22-APR-2006 | 101 | PSFWHM-5000 | Above |
| 22-APR-2006 | 105 | PSENERGY-5000 | Above |
| 22-APR-2006 | 106 | PSFWHM-5000 | Above |

| | | | |
|-------------|-----|-------------|-------|
| 22-APR-2006 | 108 | PSFWHM-5000 | Above |
| 22-APR-2006 | 109 | PSFWHM-5000 | Above |
| 22-APR-2006 | 115 | PSFWHM-5000 | Above |
| 22-APR-2006 | 131 | PSFWHM-5000 | Above |

DETECTORS NOT LISTED HAVE PASSED ALL QUALITY ASSURANCE PARAMETERS

APPROVAL DATE: 4.22.06

APPROVAL TIME: 9:03

APPROVED BY: SRS

PROCEDURE # GL-RAD-I-009

Report completed at 22-APR-2006 08:57:38.65

Review of QA results (Daily checks) 22-APR-2006 08:57:39.83

Starting with bank 1

Ending with bank 19

This is a list of Detectors that may not have properly transferred to the QA file

APPROVAL DATE: 4.22.06

APPROVAL TIME: 9:03

APPROVED BY: SRS

PROCEDURE # GL-RAD-I-009

Report completed at 22-APR-2006 08:58:25.59

VMS Quality Assurance Report V1.3 Generated 25-APR-2006 05:50:27

QA filename : DKA300:[CANBERRA.GAMMA]QC_GAMMA6.QAF;5

Sample ID : QC_GAMMA6 Sample quantity : 1.00 LITER
 Sample date : 1-JAN-2001 12:00:00 Acquisition date : 25-APR-2006 05:41:13
 Elapsed live time: 0 00:05:00.00 Elapsed real time: 0 00:05:00.97

Out-of-range Test: BOUNDARY

| Parameter Description | Lower | Upper | Value | Flag |
|----------------------------------|----------|----------|----------|------|
| PEAK CENTROID (CHANS) CD-109 | 172 | 180 | 178 | |
| PEAK CENTROID (CHANS) CS-137 | 1319 | 1327 | 1323 | |
| PEAK CENTROID (CHANS) CO-60 | 2661 | 2669 | 2662 | |
| *PEAK ENERGY (keV) CD-109 | 86 | 90 | 88 | |
| *PEAK ENERGY (keV) CS-137 | 660 | 664 | 662 | |
| *PEAK ENERGY (keV) CO-60 | 1330 | 1334 | 1333 | |
| *PEAK FWHM (keV) CD-109 | 0.1 | 2.0 | 0.9 | |
| *PEAK FWHM (keV) CS-137 | 0.1 | 3.0 | 1.4 | |
| *PEAK FWHM (keV) CO-60 | 0.1 | 3.0 | 1.9 | |
| DECAY CORR ACTIVITY (pCi) CD-109 | 7.32E+05 | 8.94E+05 | 7.75E+05 | |
| DECAY CORR ACTIVITY (pCi) CS-137 | 2.42E+04 | 2.96E+04 | 2.64E+04 | |
| DECAY CORR. ACTIVITY (pCi) CO-60 | 3.64E+04 | 4.45E+04 | 4.21E+04 | |

Flags: "*" means the out-of-range test is parameter-dependent

Approved by: *mm* Approval Date: 4 / 25 / 06

QA filename : DKA300:[CANBERRA.GAMMA]QC_WELL.QAF;4

Sample ID : QC_WELL Sample quantity : 1.00 LITER
Sample date : 1-APR-2002 12:00:00 Acquisition date : 25-APR-2006 05:50:55
Elapsed live time: 0 00:05:00.00 Elapsed real time: 0 00:05:01.71

Out-of-range Test: BOUNDARY

| Parameter Description | Lower | Upper | Value | Flag |
|--------------------------------|----------|----------|----------|------|
| PEAK CENTROID (CHANS) CD-109 | 170 | 178 | 175 | |
| PEAK CENTROID (CHANS) CS-137 | 1310 | 1318 | 1314 | |
| PEAK CENTROID (CHANS) CO-60 | 2644 | 2652 | 2648 | |
| *PEAK ENERGY (keV) CD-109 | 86 | 90 | 88 | |
| *PEAK ENERGY (keV) CS-137 | 660 | 664 | 662 | |
| *PEAK ENERGY (keV) CO-60 | 1330 | 1334 | 1332 | |
| *PEAK FWHM (keV) CD-109 | 0.1 | 2.0 | 1.4 | |
| *PEAK FWHM (keV) CS-137 | 0.1 | 3.0 | 1.7 | |
| *PEAK FWHM (keV) CO-60 | 0.1 | 3.0 | 2.1 | |
| *DECAY CORR. ACT. (pCi) CD-109 | 7.40E+05 | 9.90E+05 | 8.86E+05 | |
| *DECAY CORR. ACT. (pCi) CS-137 | 2.50E+04 | 3.06E+04 | 2.88E+04 | |
| *DECAY CORR. ACT. (pCi) CO-60 | 3.67E+04 | 4.49E+04 | 4.02E+04 | |

Flags: "*" means the out-of-range test is parameter-dependent

Approved by: ym Approval Date: 4 / 25 / 06

QA filename : DKA300:[CANBERRA.GAMMA]QC_GAMMA6.QAF;5

Sample ID : QC_GAMMA6 Sample quantity : 1.00 LITER
 Sample date : 1-JAN-2001 12:00:00 Acquisition date : 26-APR-2006 04:52:35
 Elapsed live time: 0 00:05:00.00 Elapsed real time: 0 00:05:00.98

Out-of-range Test: BOUNDARY

| Parameter Description | Lower | Upper | Value | Flag |
|----------------------------------|----------|----------|----------|------|
| PEAK CENTROID (CHANS) CD-109 | 172 | 180 | 177 | |
| PEAK CENTROID (CHANS) CS-137 | 1319 | 1327 | 1323 | |
| PEAK CENTROID (CHANS) CO-60 | 2661 | 2669 | 2662 | |
| *PEAK ENERGY (keV) CD-109 | 86 | 90 | 88 | |
| *PEAK ENERGY (keV) CS-137 | 660 | 664 | 662 | |
| *PEAK ENERGY (keV) CO-60 | 1330 | 1334 | 1333 | |
| *PEAK FWHM (keV) CD-109 | 0.1 | 2.0 | 1.1 | |
| *PEAK FWHM (keV) CS-137 | 0.1 | 3.0 | 1.4 | |
| *PEAK FWHM (keV) CO-60 | 0.1 | 3.0 | 2.0 | |
| DECAY CORR ACTIVITY (pCi) CD-109 | 7.32E+05 | 8.94E+05 | 8.44E+05 | |
| DECAY CORR ACTIVITY (pCi) CS-137 | 2.42E+04 | 2.96E+04 | 2.79E+04 | |
| DECAY CORR. ACTIVITY (pCi) CO-60 | 3.64E+04 | 4.45E+04 | 4.07E+04 | |

Flags: "*" means the out-of-range test is parameter-dependent

Approved by: _____

ym

Approval Date: 4 / 26 / 06

QA filename : DKA0:[CANBERRA.GAMMA.SCUSR.QA]QCC_GAM19_CAN.QAF;5

Sample ID : Calib Check Sample quantity : 1.00 EACH
Sample date : 1-APR-2005 12:00:00 Acquisition date : 26-APR-2006 05:16:13
Elapsed live time: 0 00:05:00.00 Elapsed real time: 0 00:05:02.97


Out-of-range Test: N-SIGMA

| Parameter Description | Value | Deviation | Flag |
|--|------------|-----------|------|
| [Mean+/-Stdev] | | | |
| *DECAY CORRECTED ACTIVITY CD-109 [4.5528E+05+/-6559] | 4.5951E+05 | 0.64 | |
| *DECAY CORRECTED ACTIVITY CS-137 [2.4788E+04+/-427.4] | 2.5535E+04 | 1.75 | |
| *DECAY CORRECTED ACTIVITY CO-60 [3.4880E+04+/-552.9] | 3.4376E+04 | -0.91 | |

Out-of-range Test: BOUNDARY

| Parameter Description | Lower | Upper | Value | Flag |
|-----------------------|------------|------------|------------|------|
| *PEAK CENTROID CD-109 | 1.7400E+02 | 1.8200E+02 | 1.7594E+02 | |
| *PEAK CENTROID CS-137 | 1.3170E+03 | 1.3250E+03 | 1.3229E+03 | |
| *PEAK CENTROID CO-60 | 2.6590E+03 | 2.6670E+03 | 2.6656E+03 | |
| *PEAK ENERGY CD-109 | 8.6030E+01 | 9.0030E+01 | 8.8181E+01 | |
| *PEAK ENERGY CS-137 | 6.5964E+02 | 6.6364E+02 | 6.6223E+02 | |
| *PEAK ENERGY CO-60 | 1.3305E+03 | 1.3345E+03 | 1.3339E+03 | |
| *PEAK FWHM CD-109 | 1.0000E+00 | 1.5000E+00 | 1.2784E+00 | |
| *PEAK FWHM CS-137 | 1.0000E+00 | 2.0000E+00 | 1.6309E+00 | |
| *PEAK FWHM CO-60 | 1.5000E+00 | 2.5000E+00 | 2.1150E+00 | |

Flags: "*" means the out-of-range test is parameter-dependent

Approved by:  Approval Date: 4 / 26 / 04



Ludlum Alpha Scintillation Counter Checks for 11-APR-2006

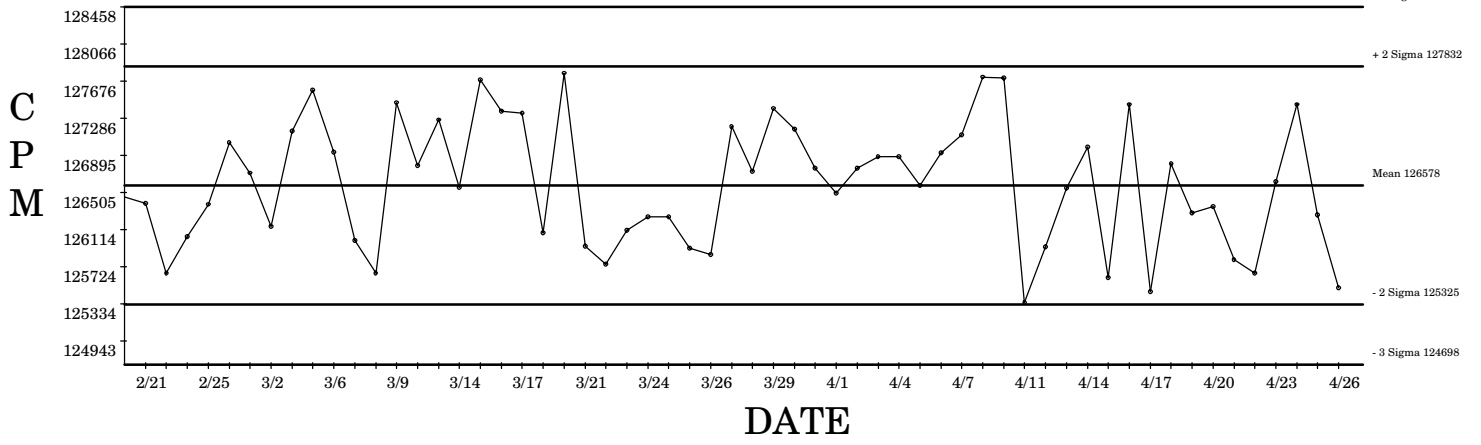
| Short Name | Parmname | Run Time | Count Time | Counts | CPM | Stdev | Status | Comments |
|------------|----------|----------|------------|--------|--------|-------|--------|----------|
| LUCAS1 | EFF | 09:10 | .1 | 12686 | 126860 | 1.15 | GOOD | |
| LUCAS2 | EFF | 09:10 | .1 | 12535 | 125350 | -2 | GOOD | |
| LUCAS3 | EFF | 09:10 | .1 | 12625 | 126250 | 0.15 | GOOD | |
| LUCAS4 | EFF | 09:10 | .1 | 13880 | 138800 | 0.53 | GOOD | |
| LUCAS5 | EFF | 09:10 | .1 | 13628 | 136280 | -0.41 | GOOD | |
| LUCAS6 | EFF | 09:10 | .1 | 12443 | 124430 | -0.73 | GOOD | |

Reviewed by Date 4/11/06

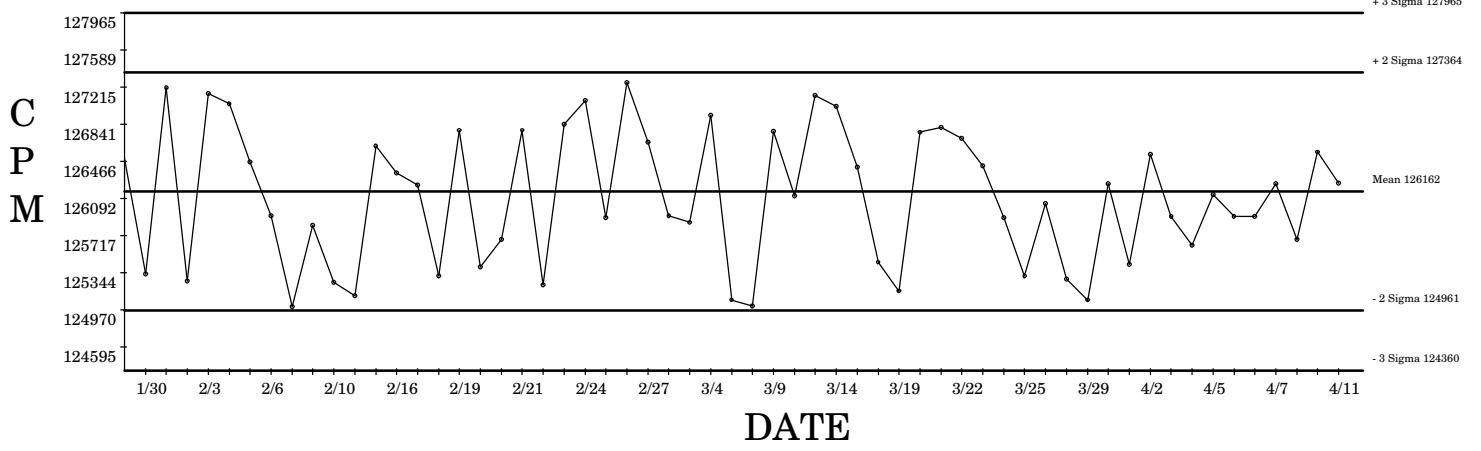
General Engineering Laboratories, LLC

BACKGROUND AND EFFICIENCY DATA

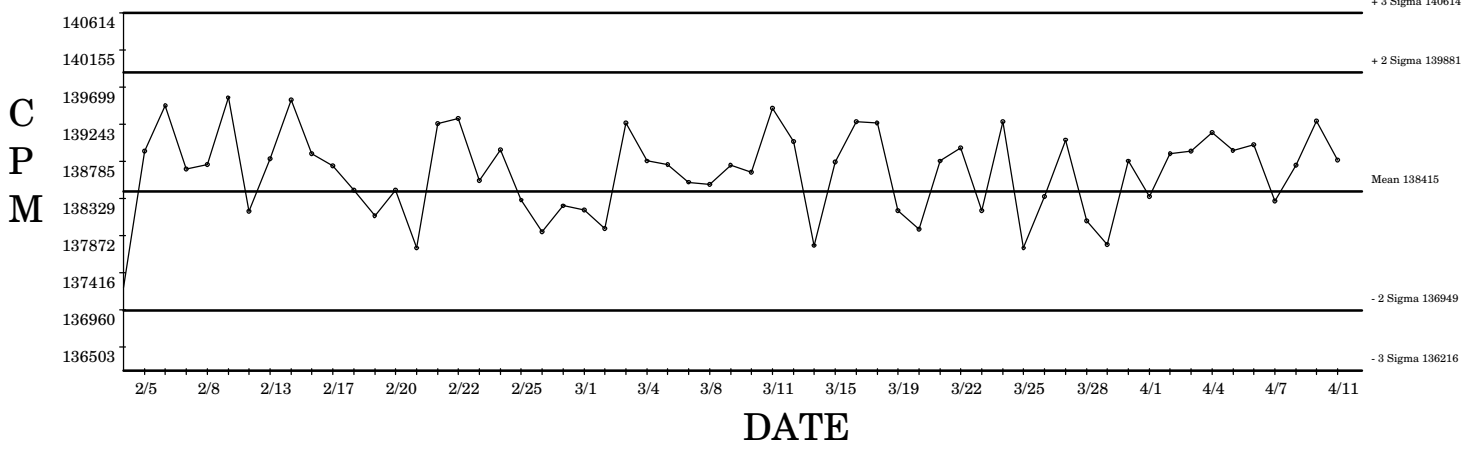
LUCAS2 04/26/2006 EFF



LUCAS3 04/11/2006 EFF

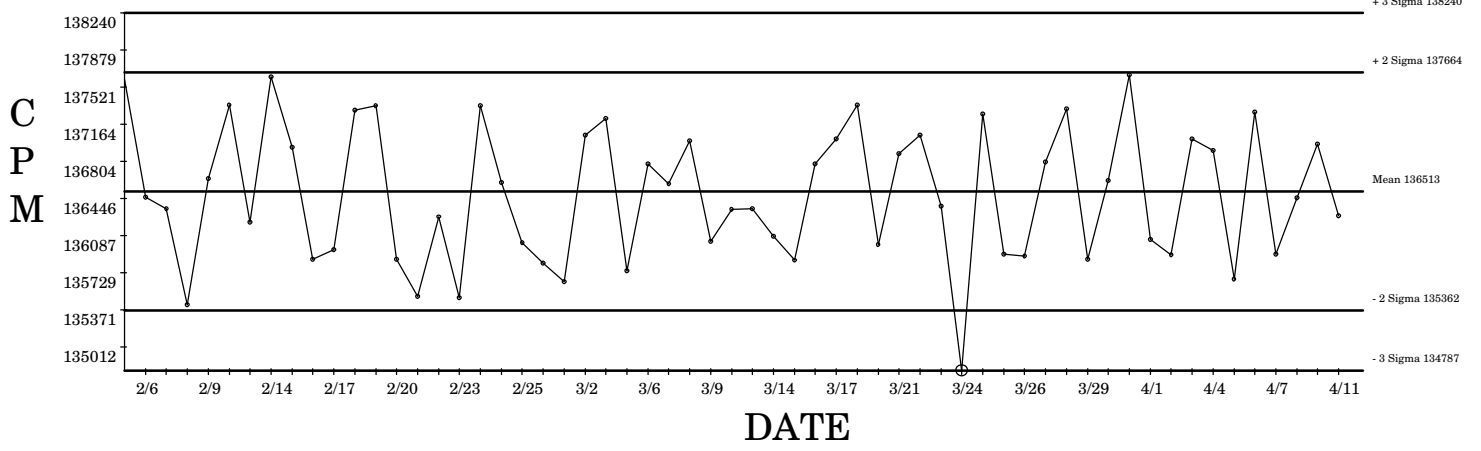


LUCAS4 04/11/2006 EFF



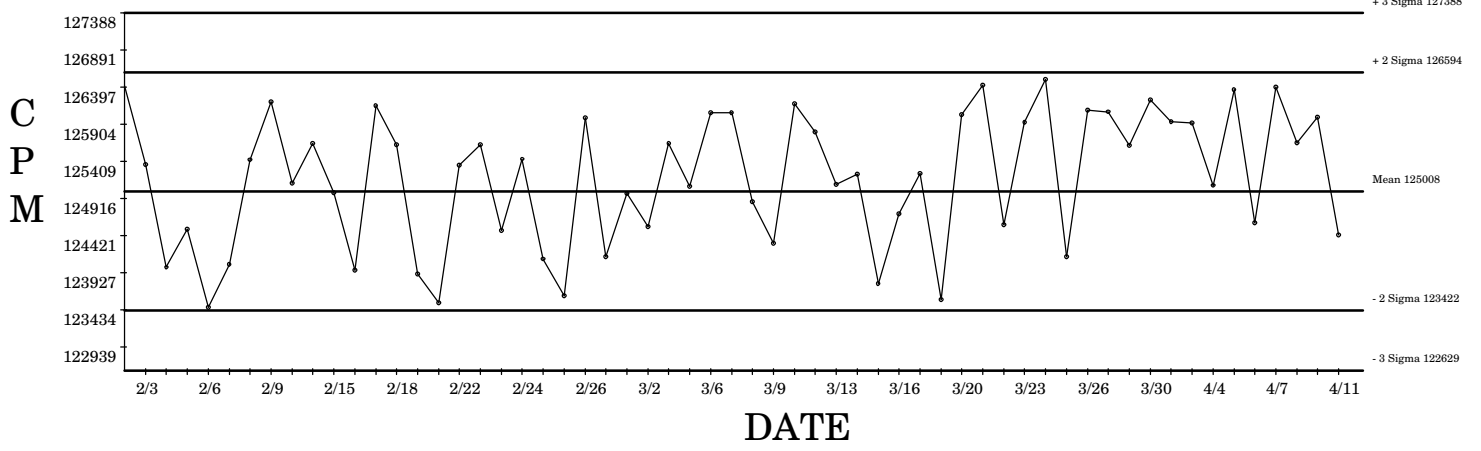
○ Denotes Outlier

LUCAS5 04/11/2006 EFF

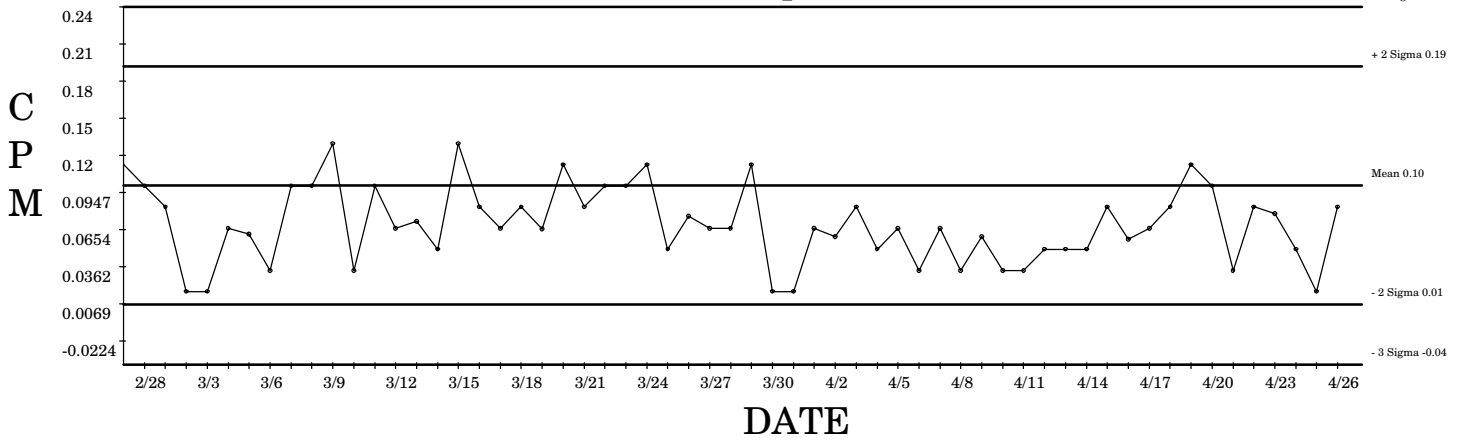


○ Denotes Outlier

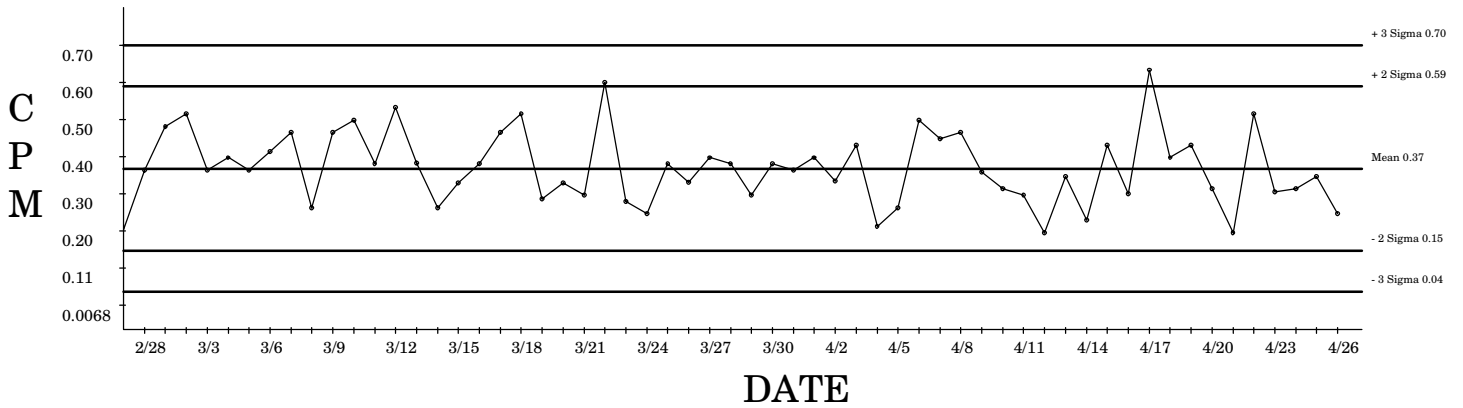
LUCAS6 04/11/2006 EFF



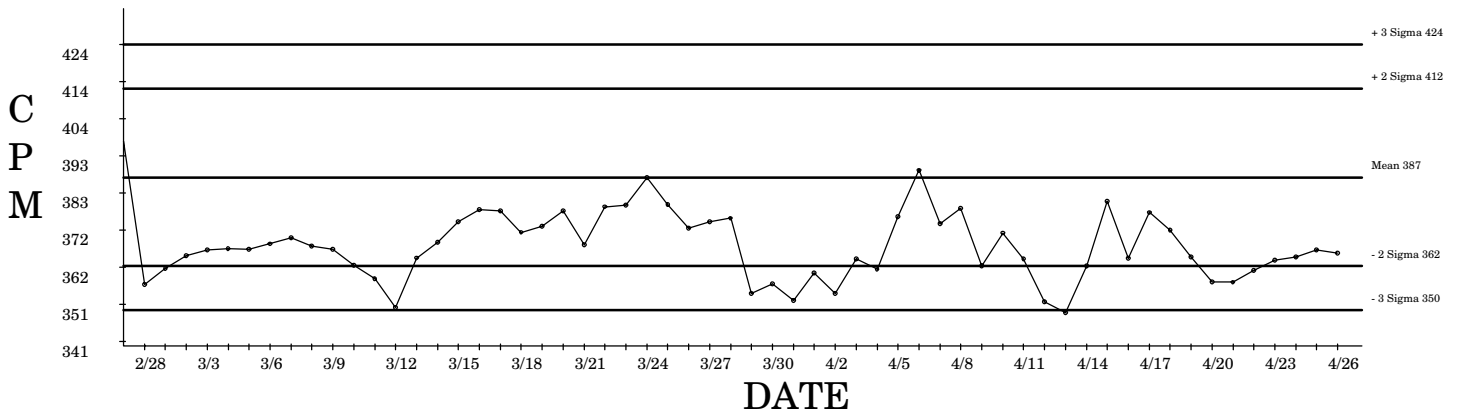
PIC1B 04/26/2006
Alpha BKG



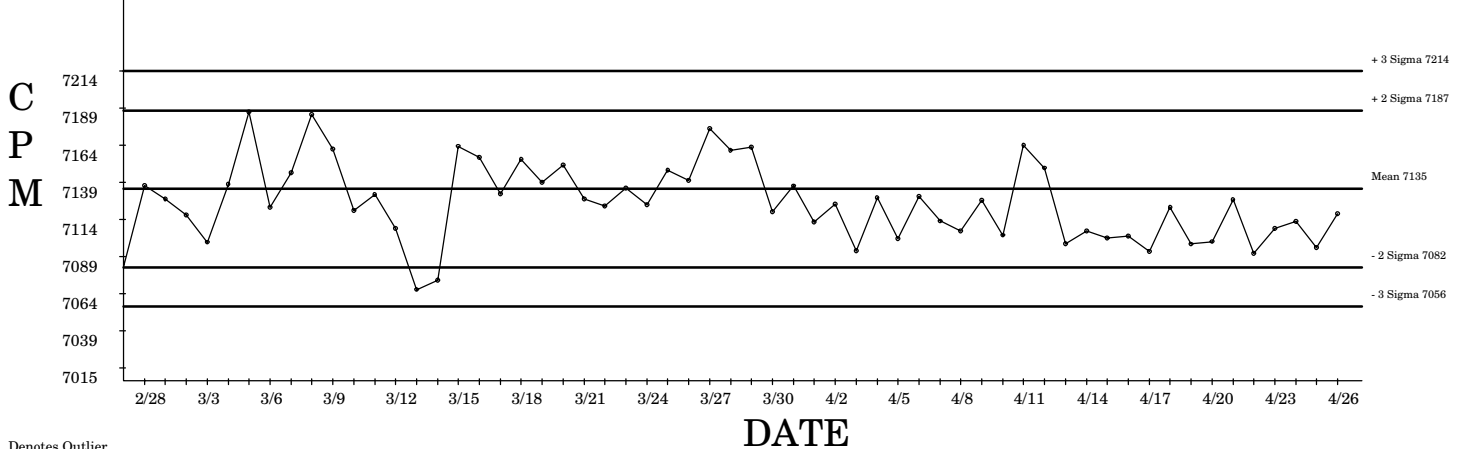
Beta BKG



Alpha EFF

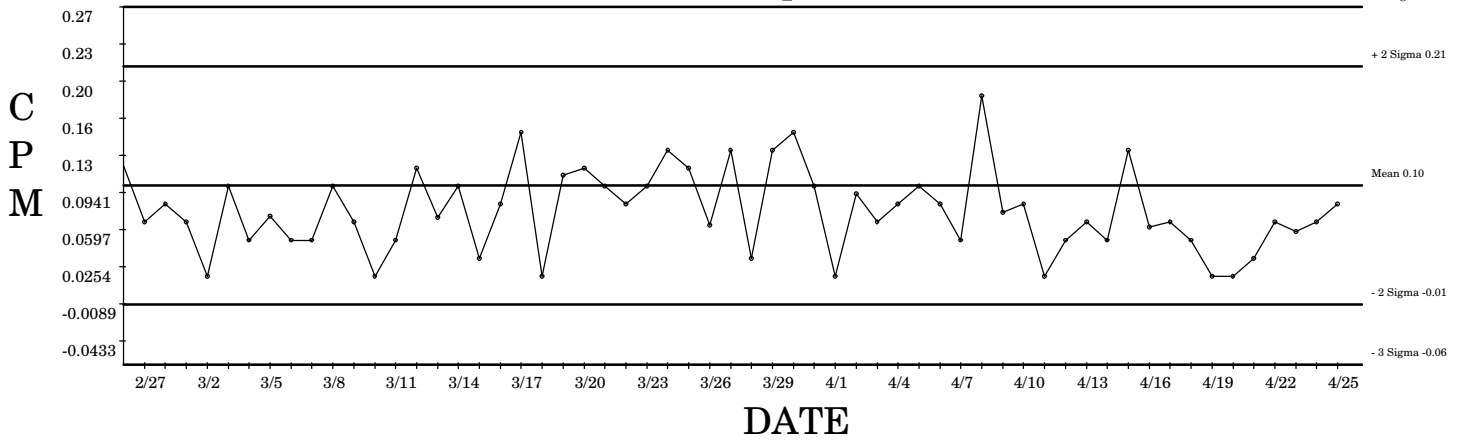


Beta EFF

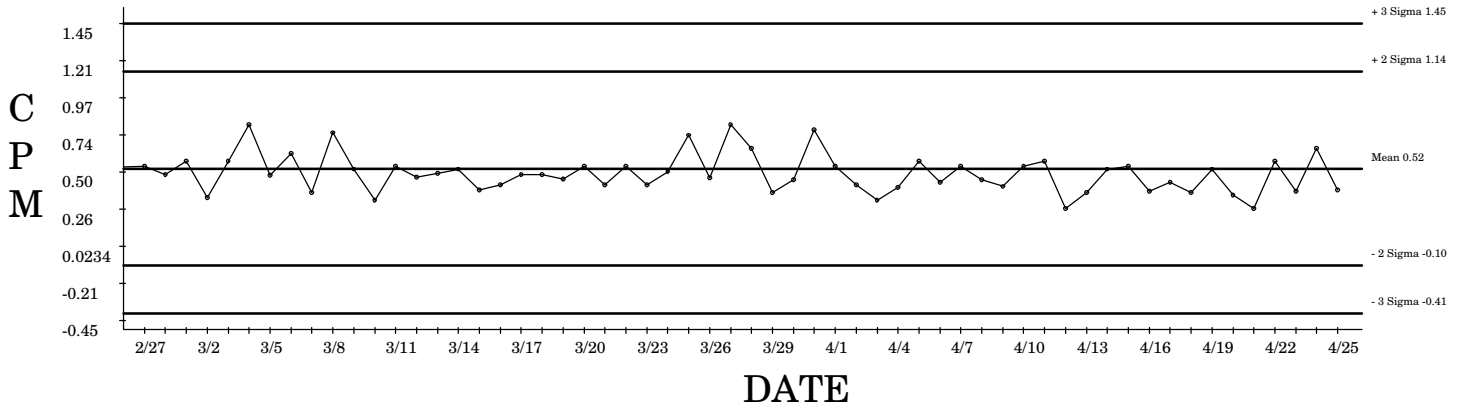


○ Denotes Outlier

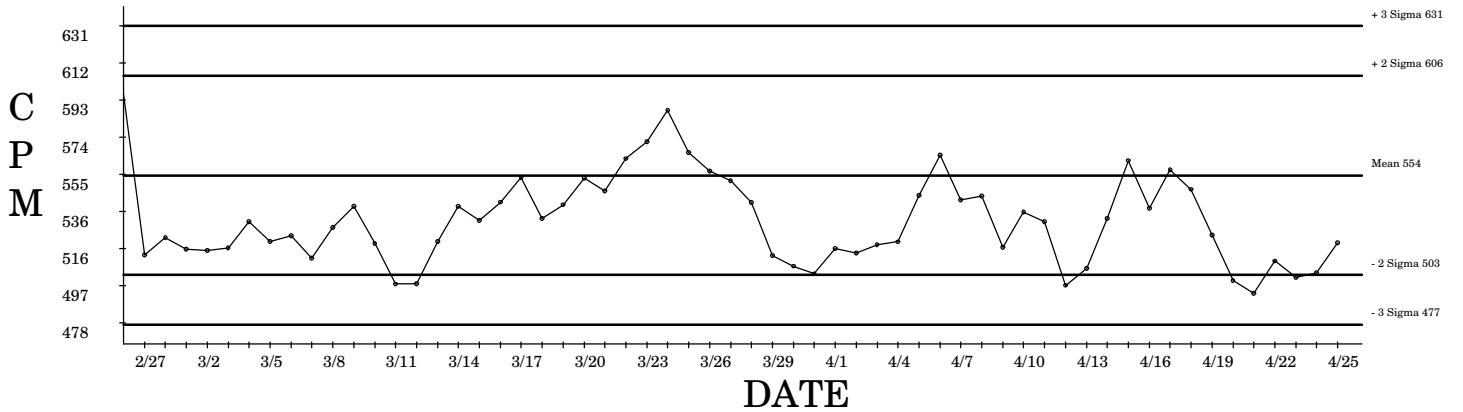
PIC2A 04/25/2006
Alpha BKG



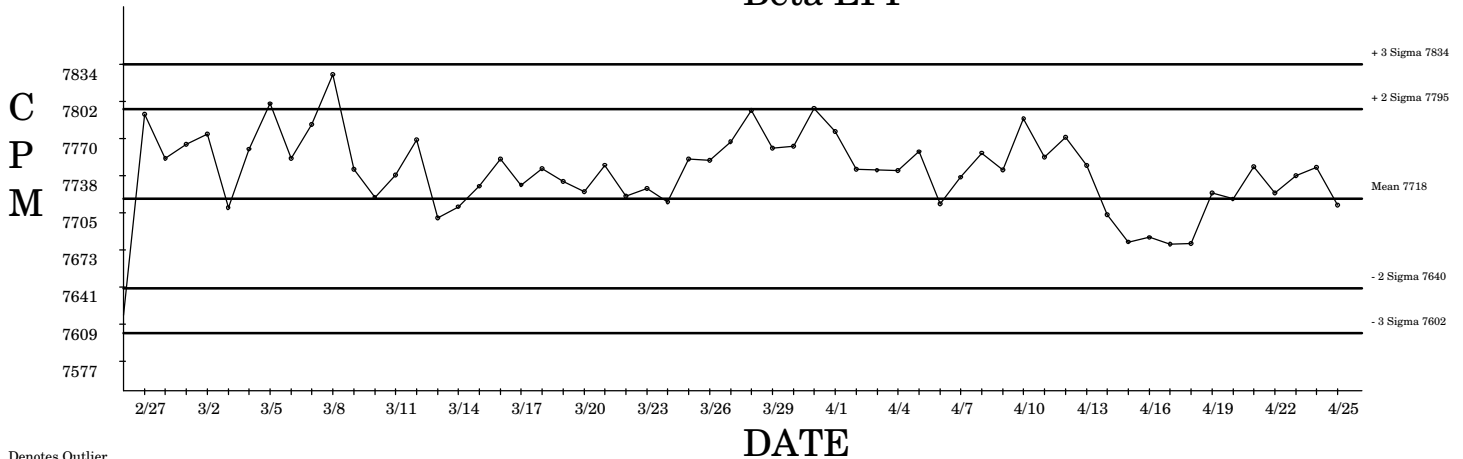
Beta BKG



Alpha EFF



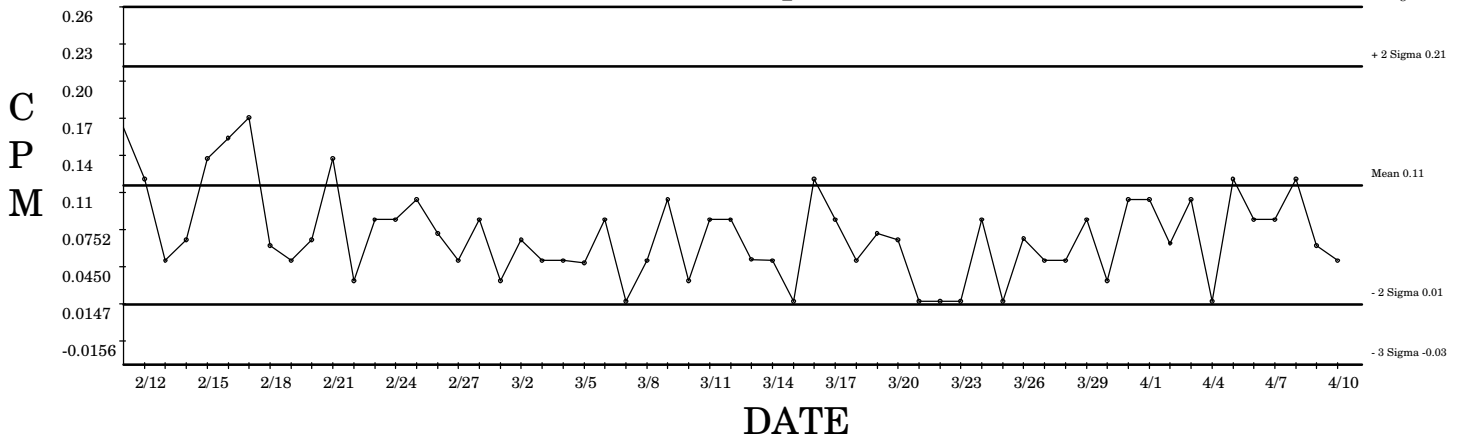
Beta EFF



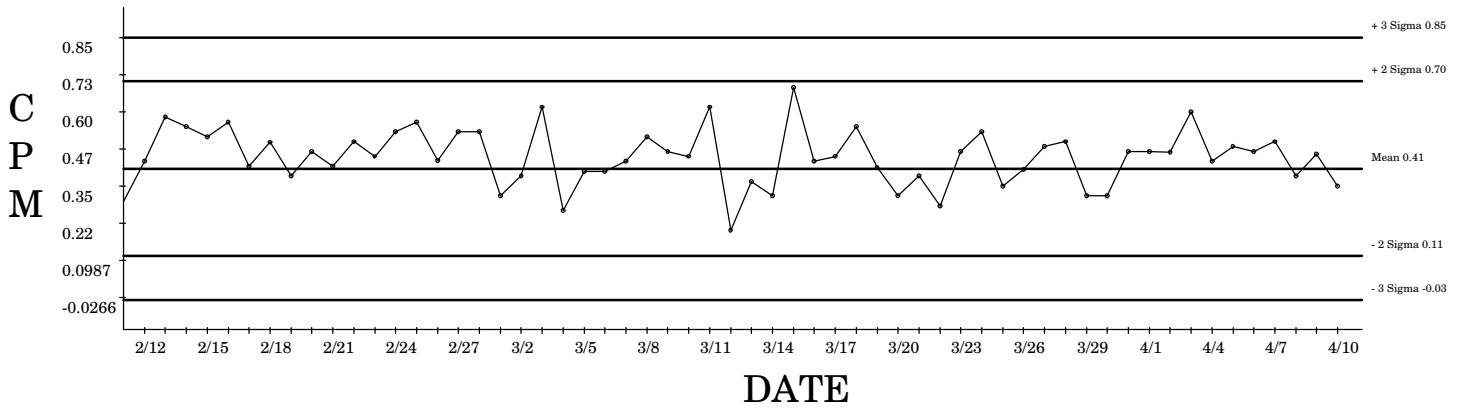
○ Denotes Outlier

PIC2D 04/10/2006

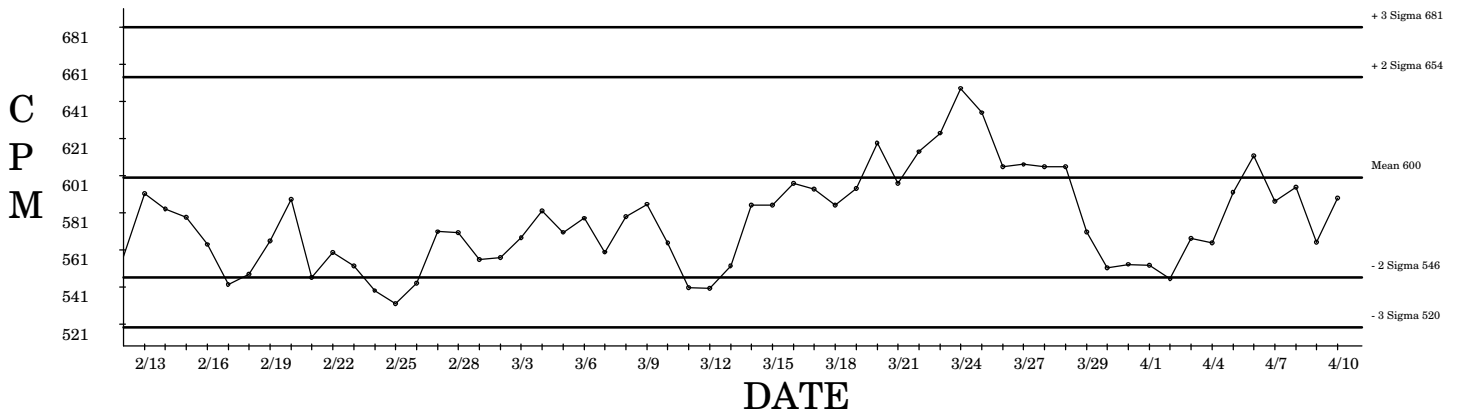
Alpha BKG



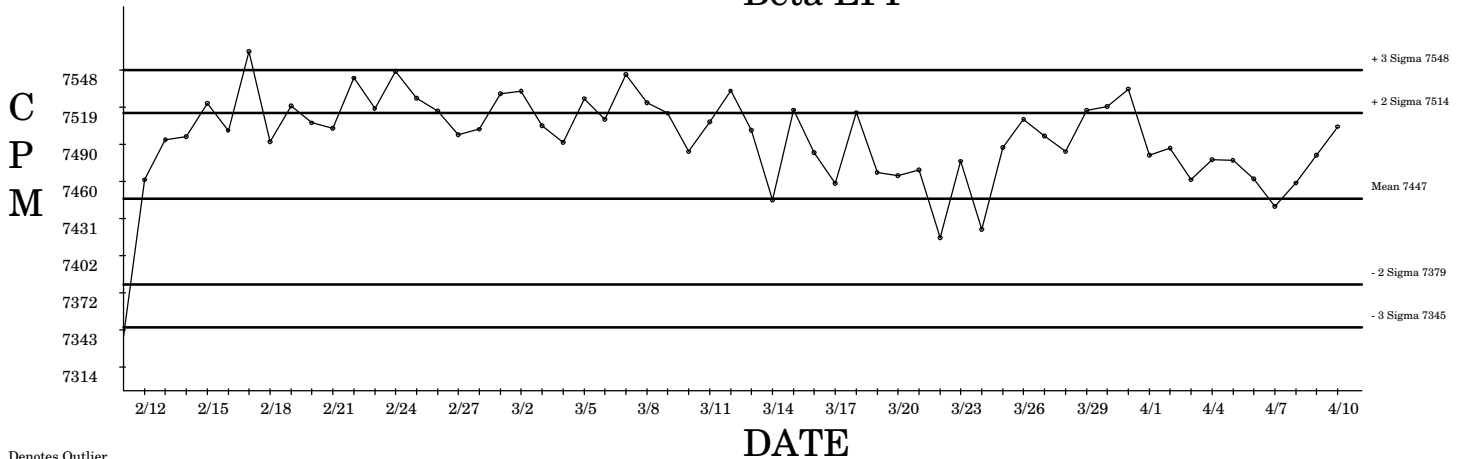
Beta BKG



Alpha EFF

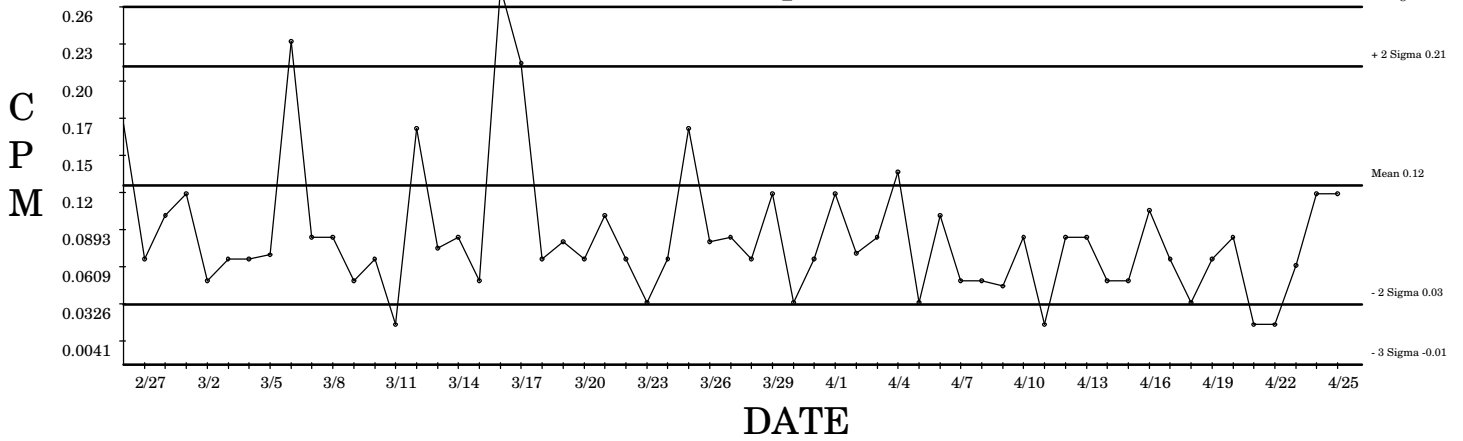


Beta EFF

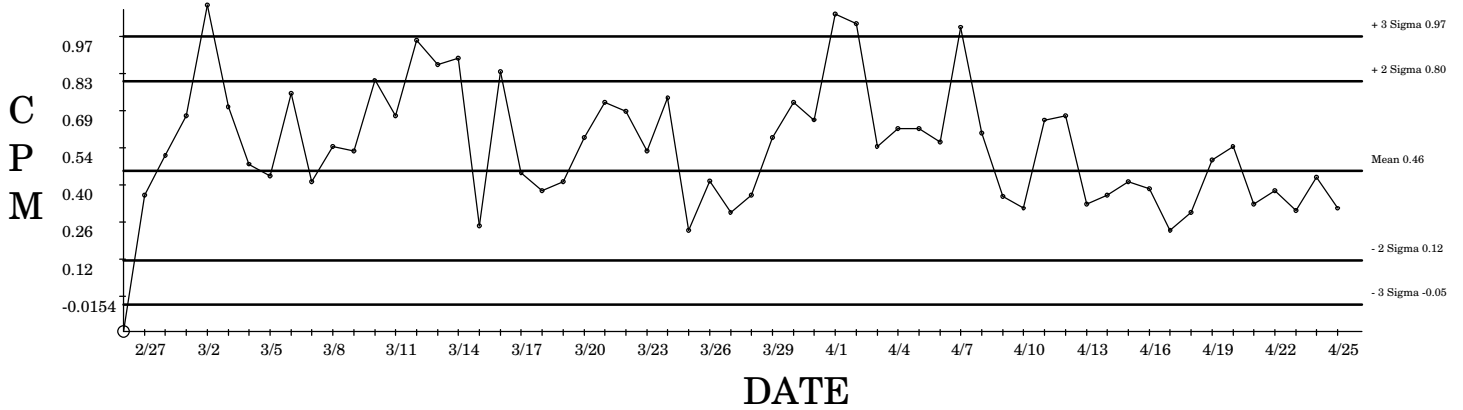


○ Denotes Outlier

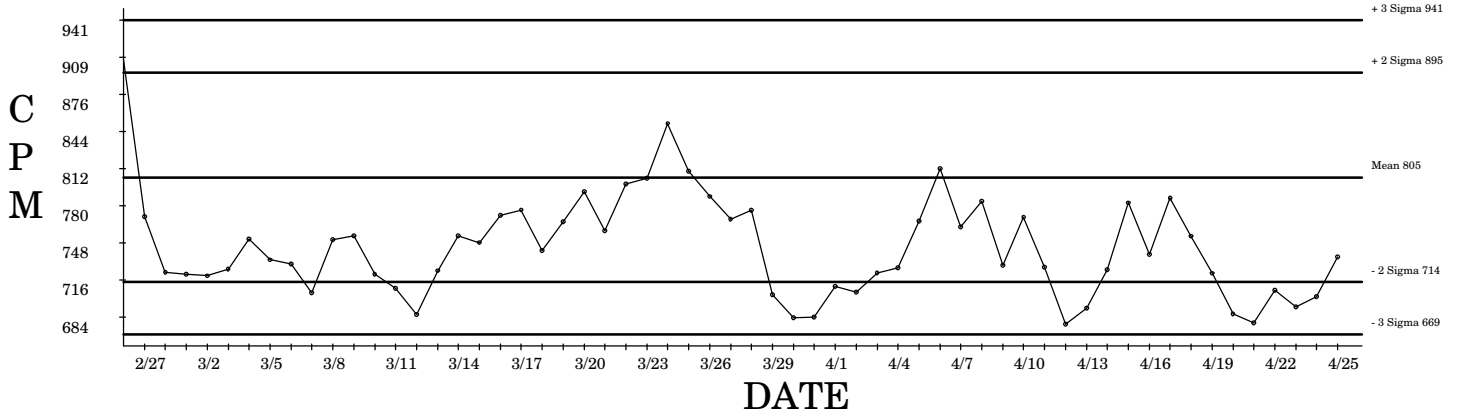
PIC3A 04/25/2006
Alpha BKG



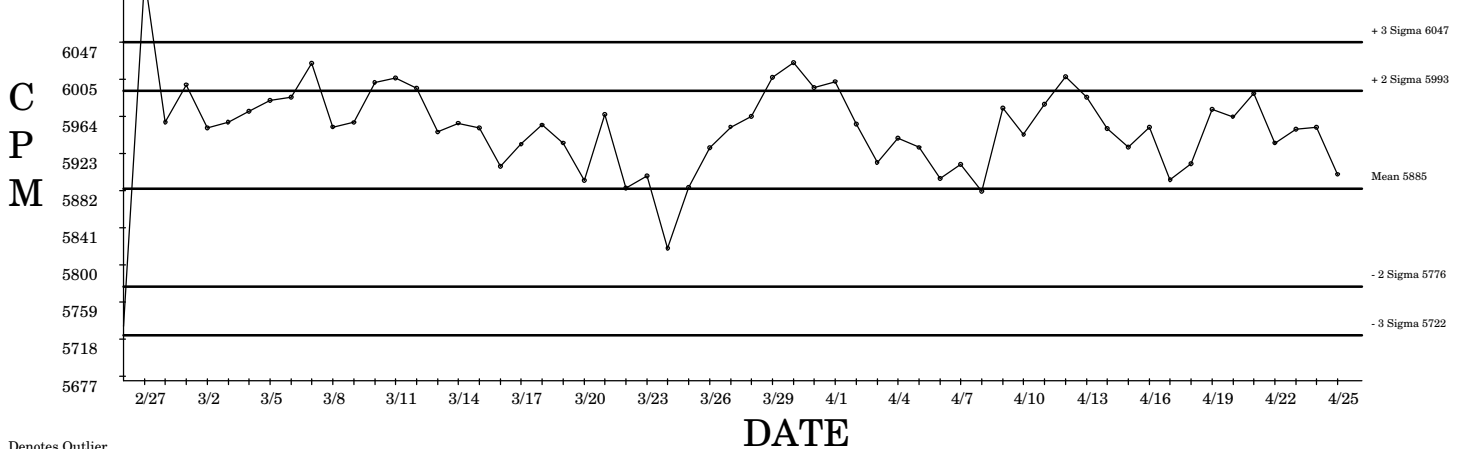
Beta BKG



Alpha EFF

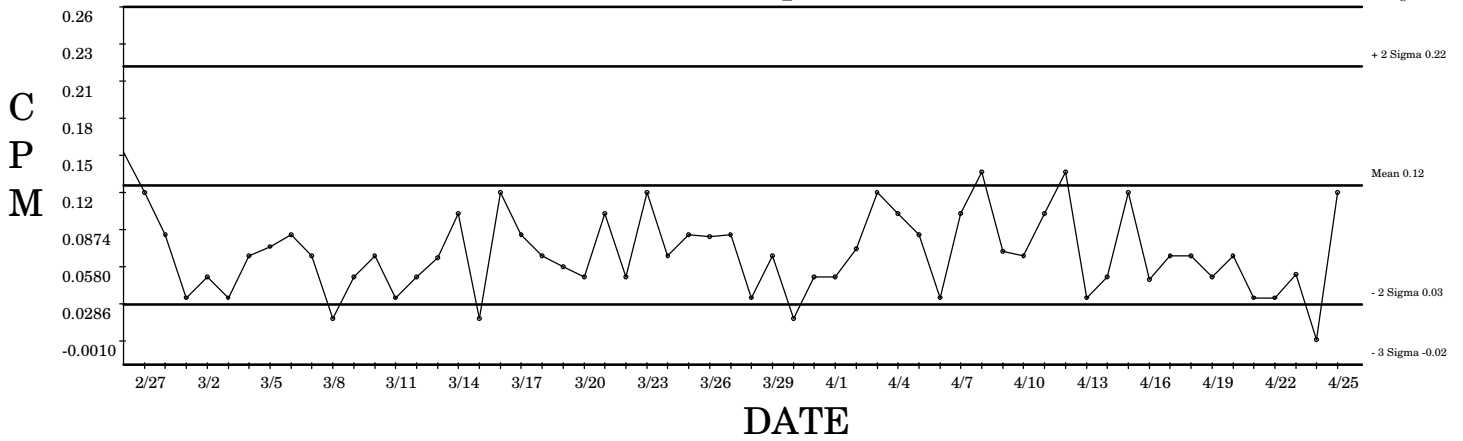


Beta EFF

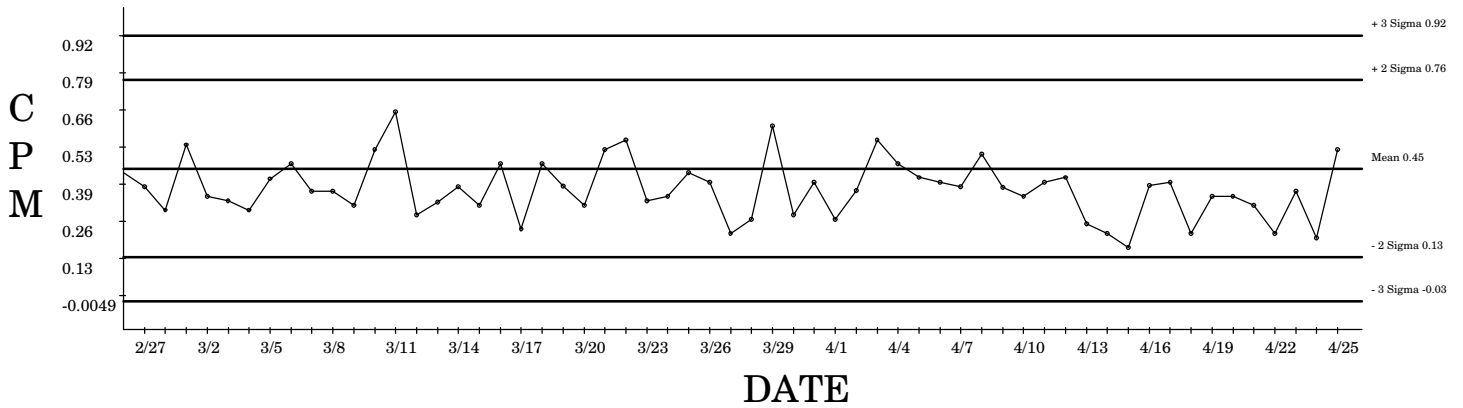


○ Denotes Outlier

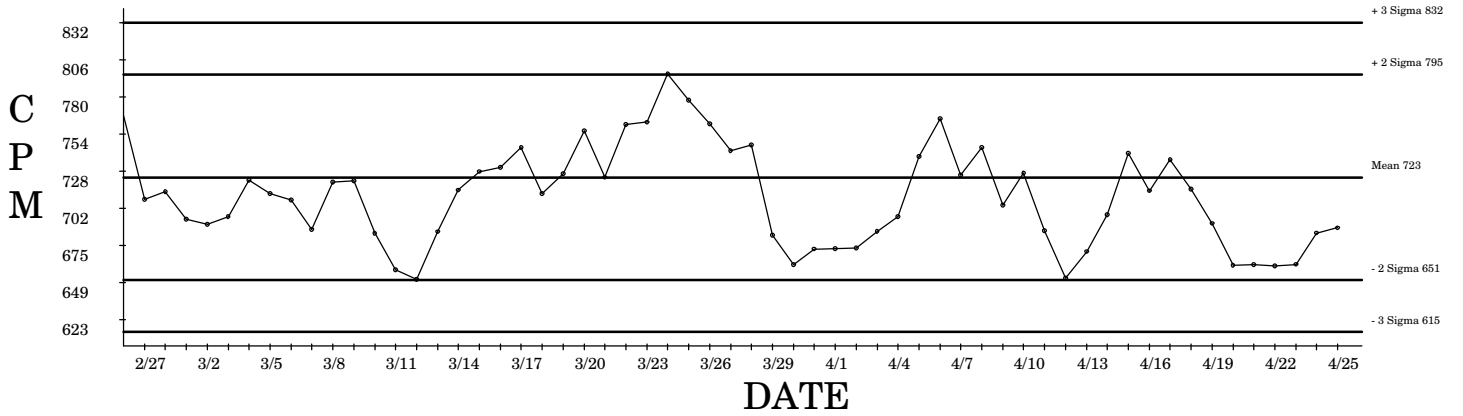
PIC3B 04/25/2006
Alpha BKG



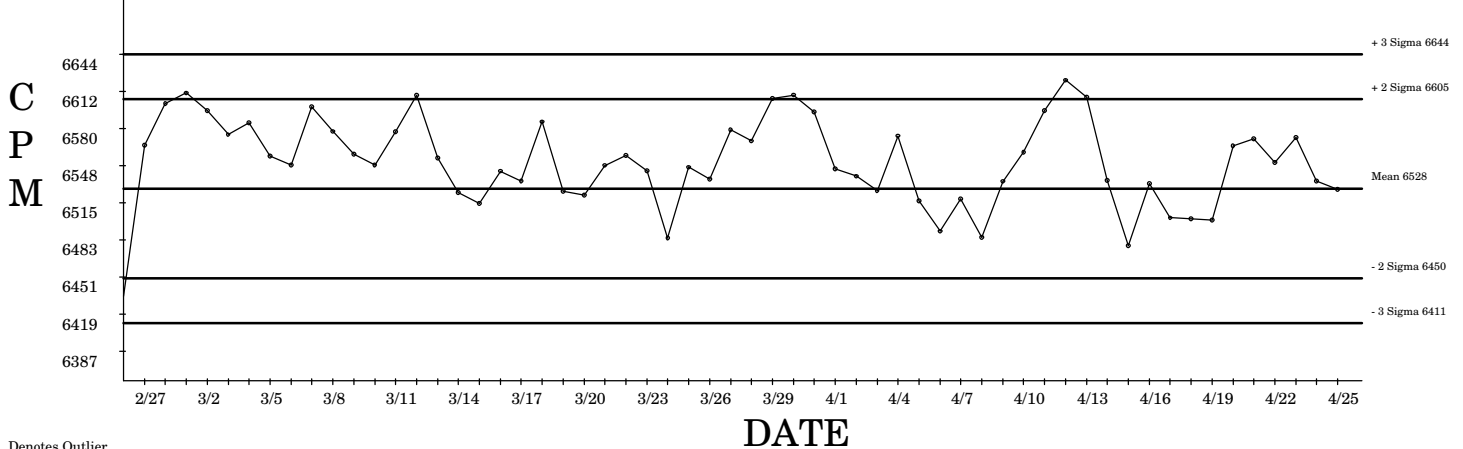
Beta BKG



Alpha EFF

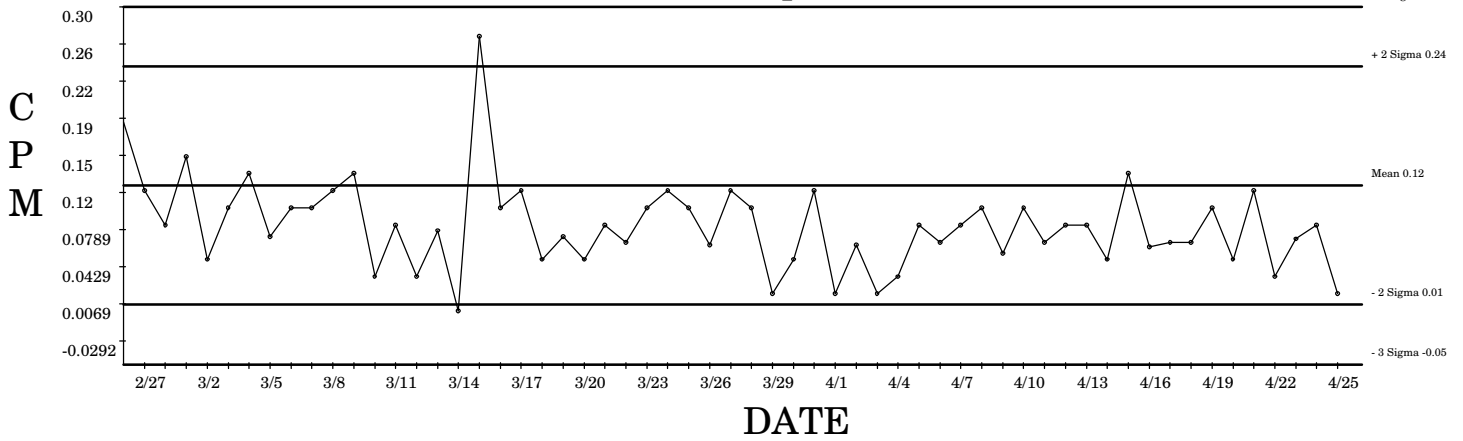


Beta EFF

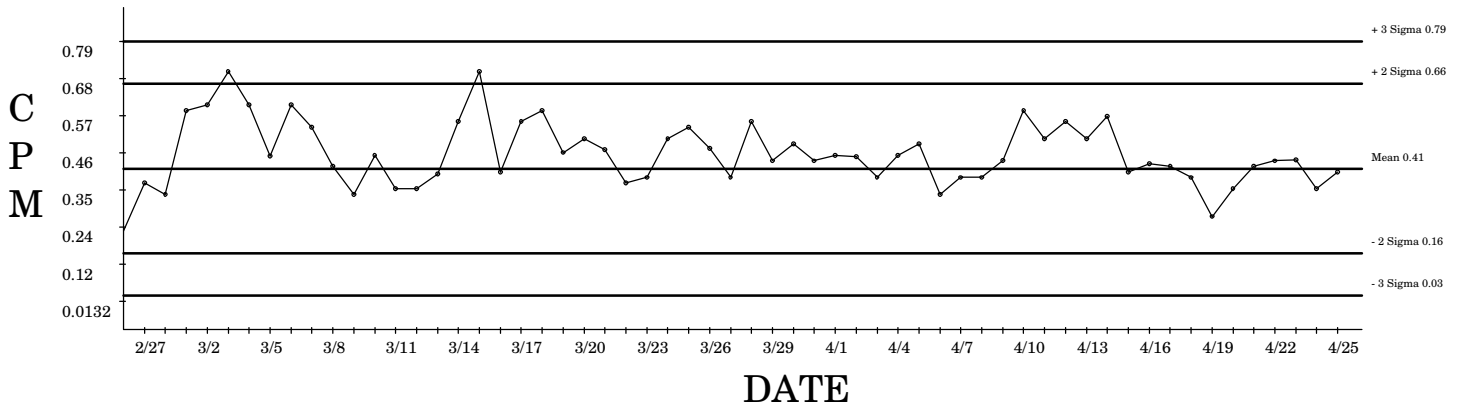


○ Denotes Outlier

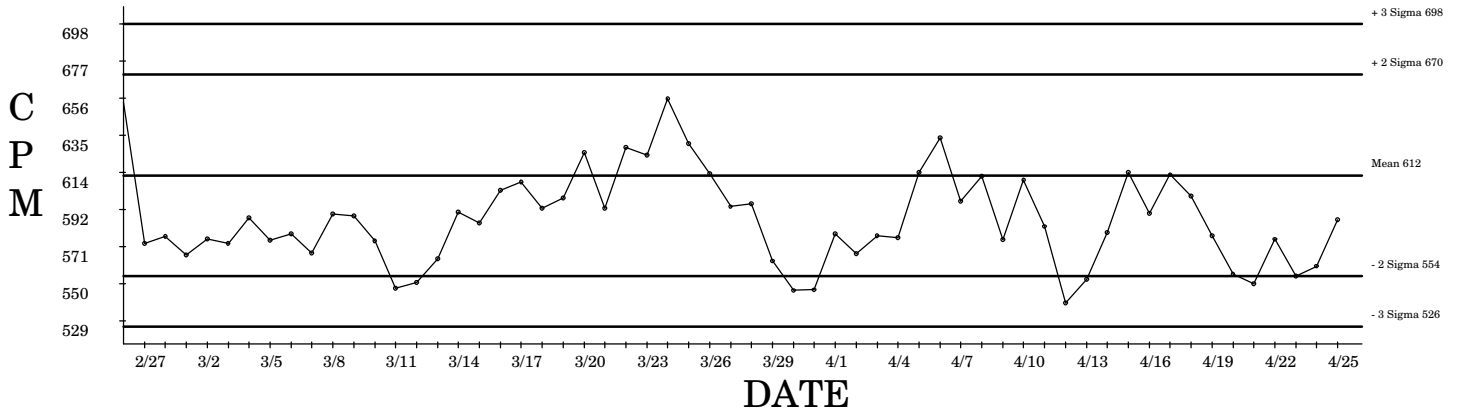
PIC3C 04/25/2006 Alpha BKG



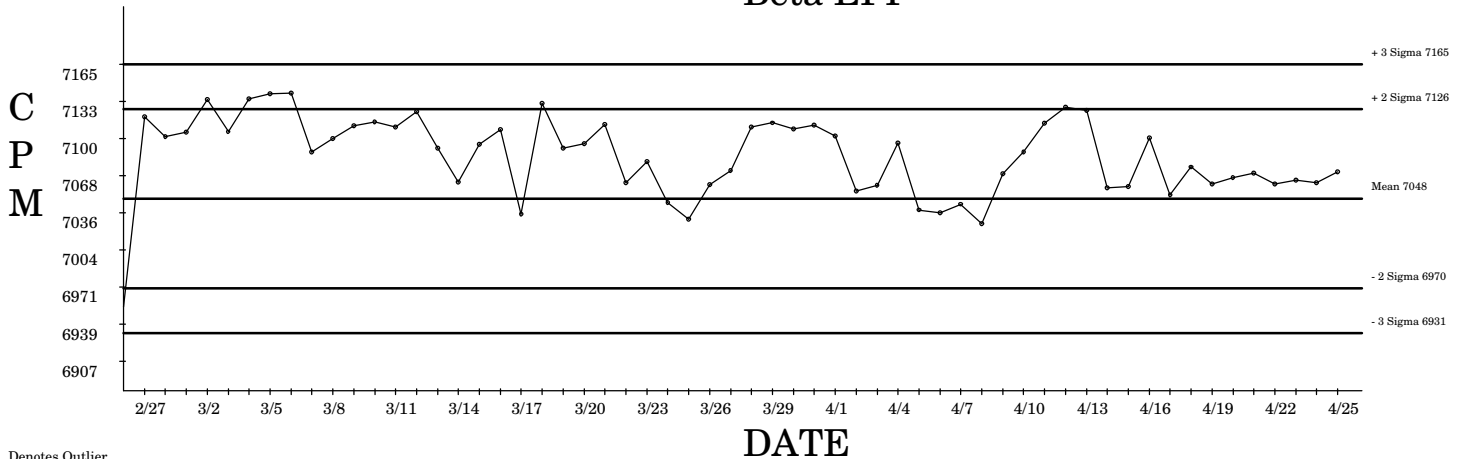
Beta BKG



Alpha EFF

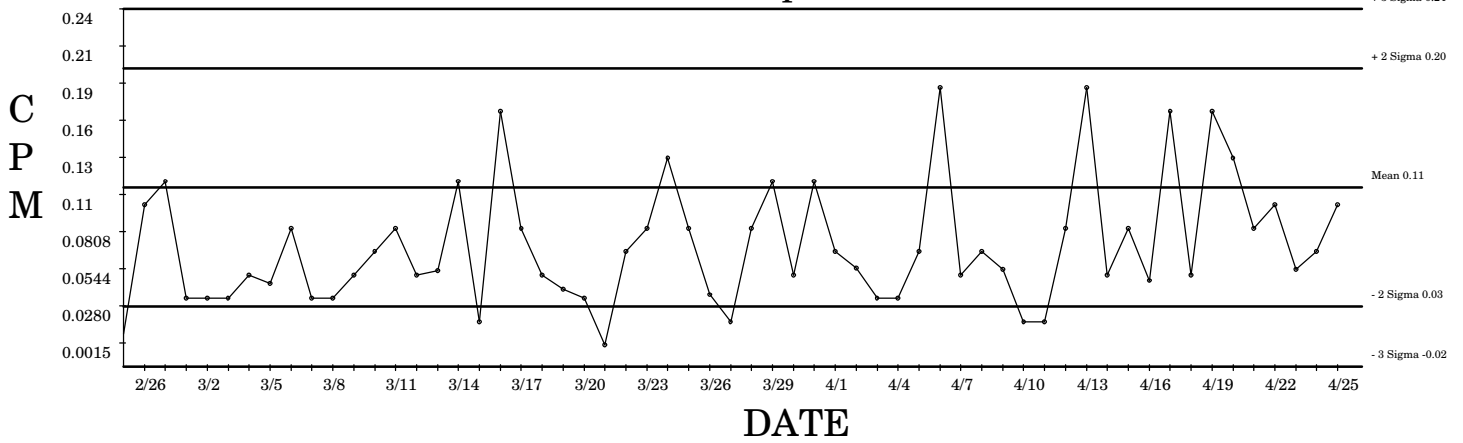


Beta EFF

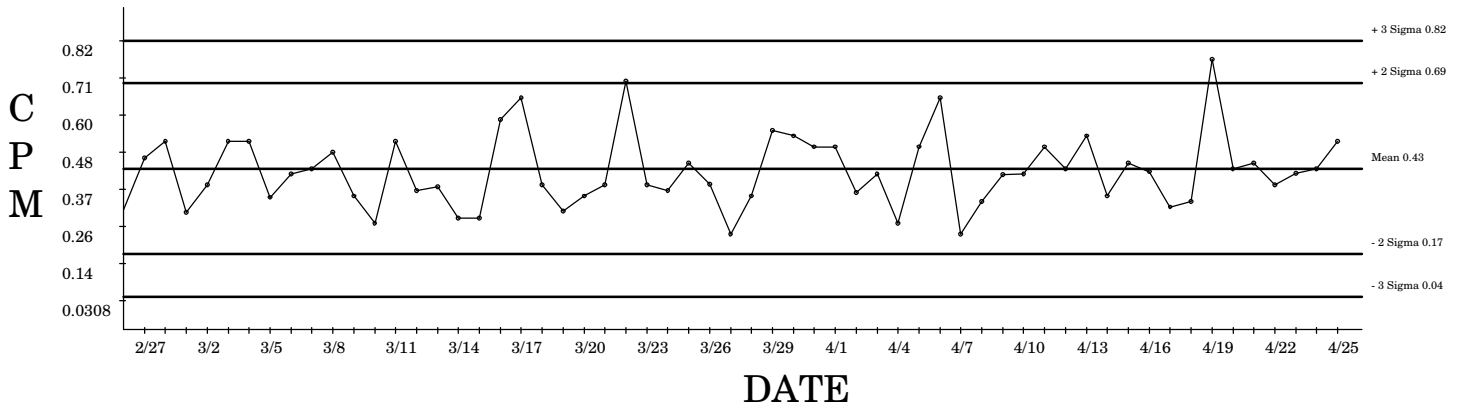


○ Denotes Outlier

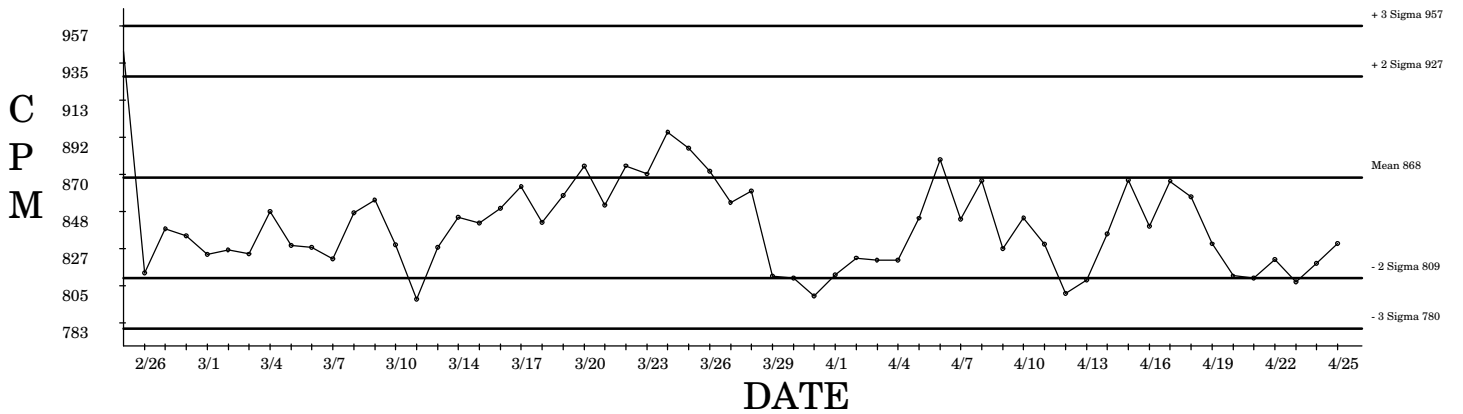
PIC3D 04/25/2006 Alpha BKG



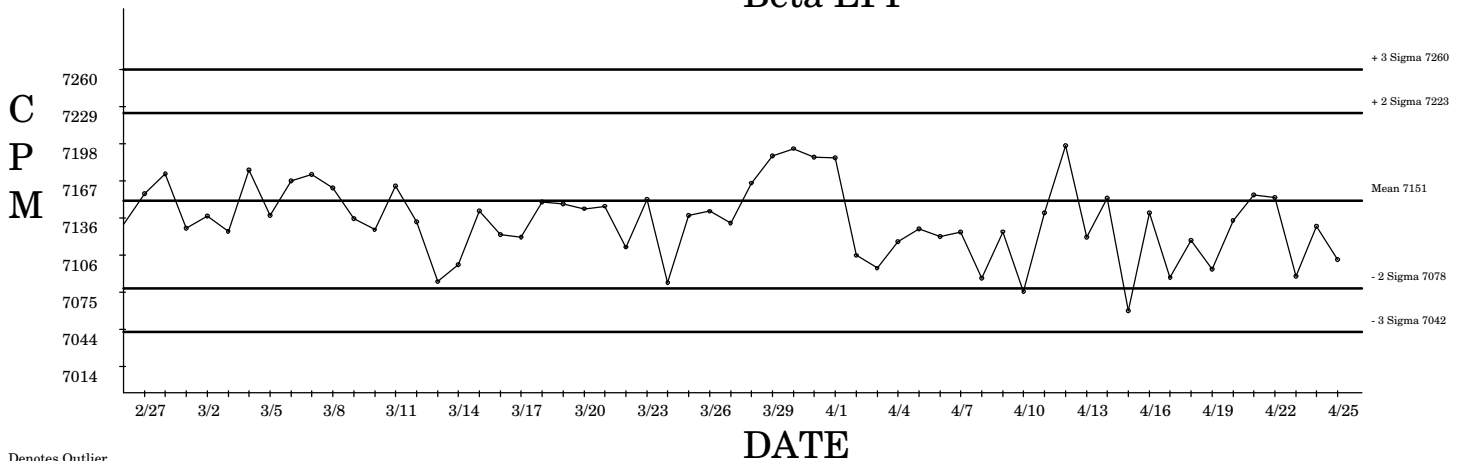
Beta BKG



Alpha EFF



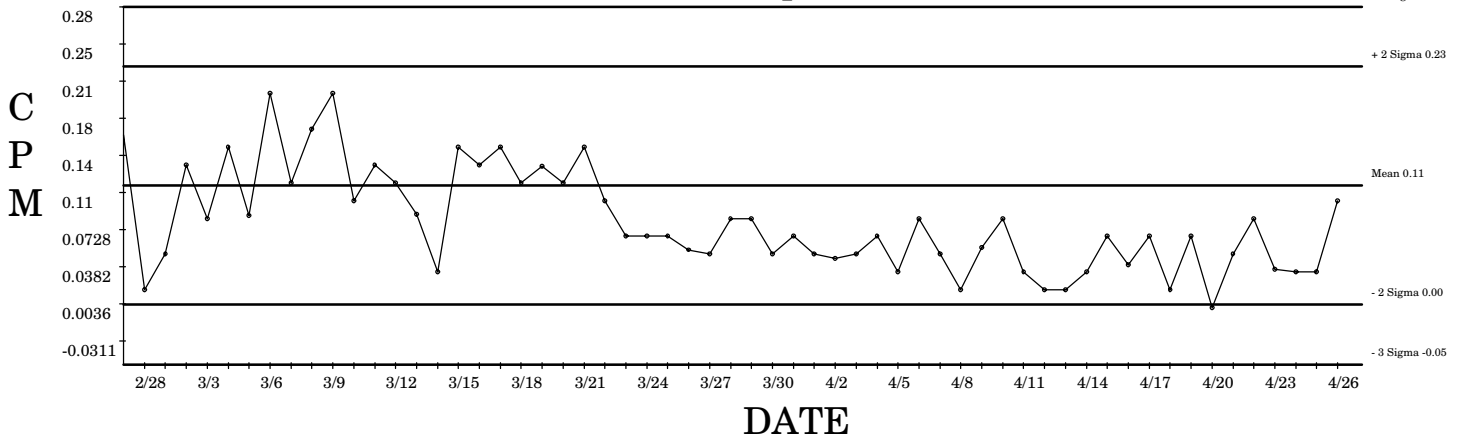
Beta EFF



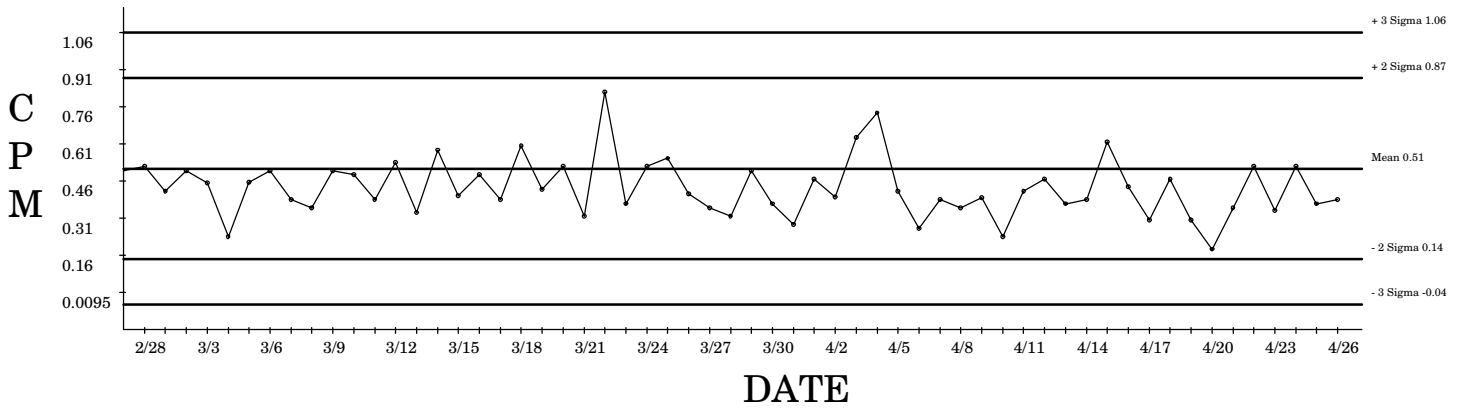
○ Denotes Outlier

PIC4A 04/26/2006

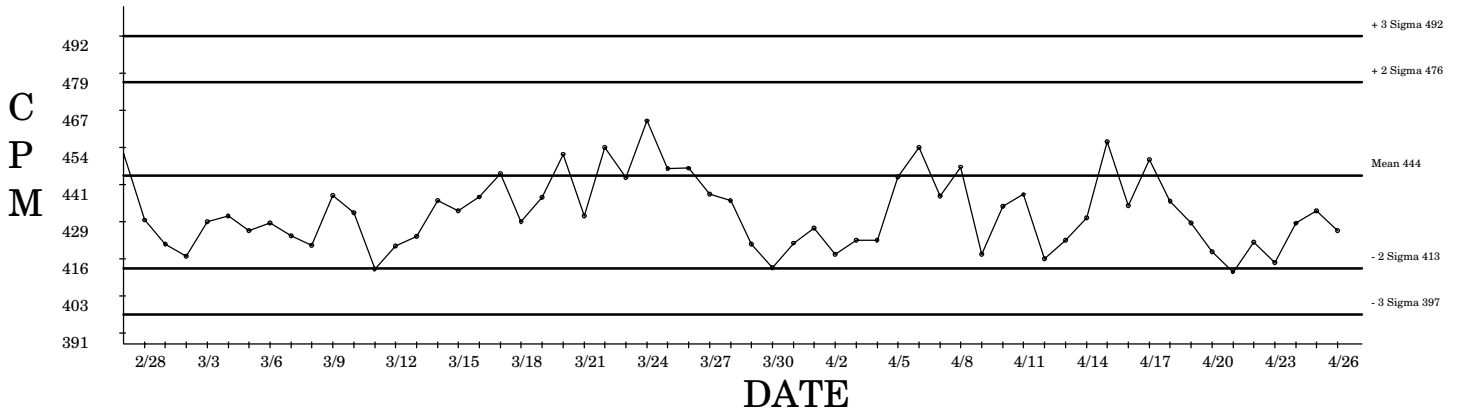
Alpha BKG



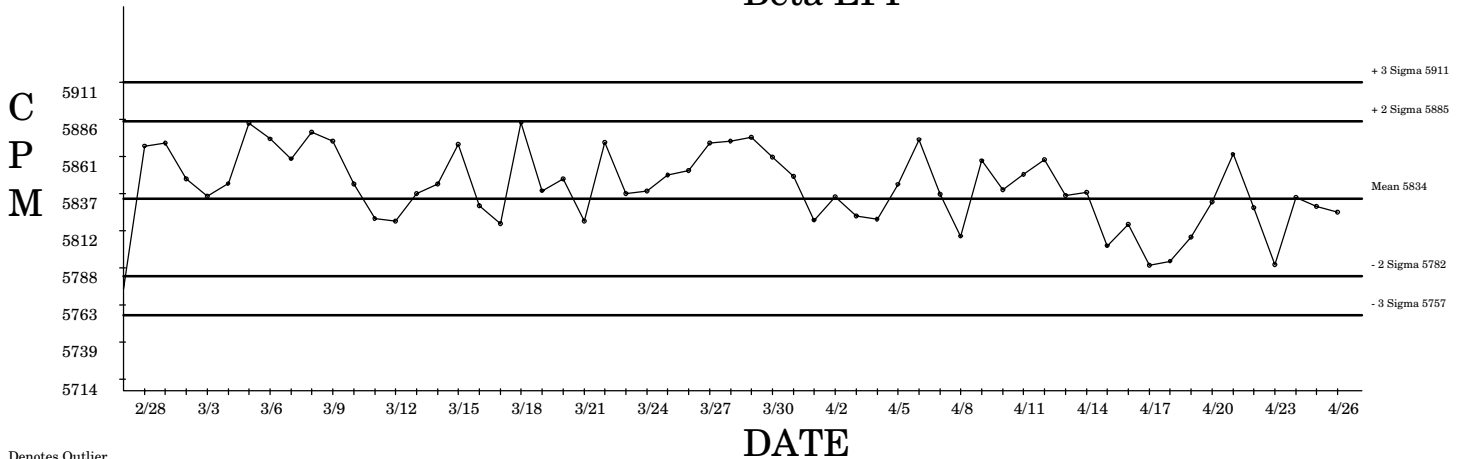
Beta BKG



Alpha EFF

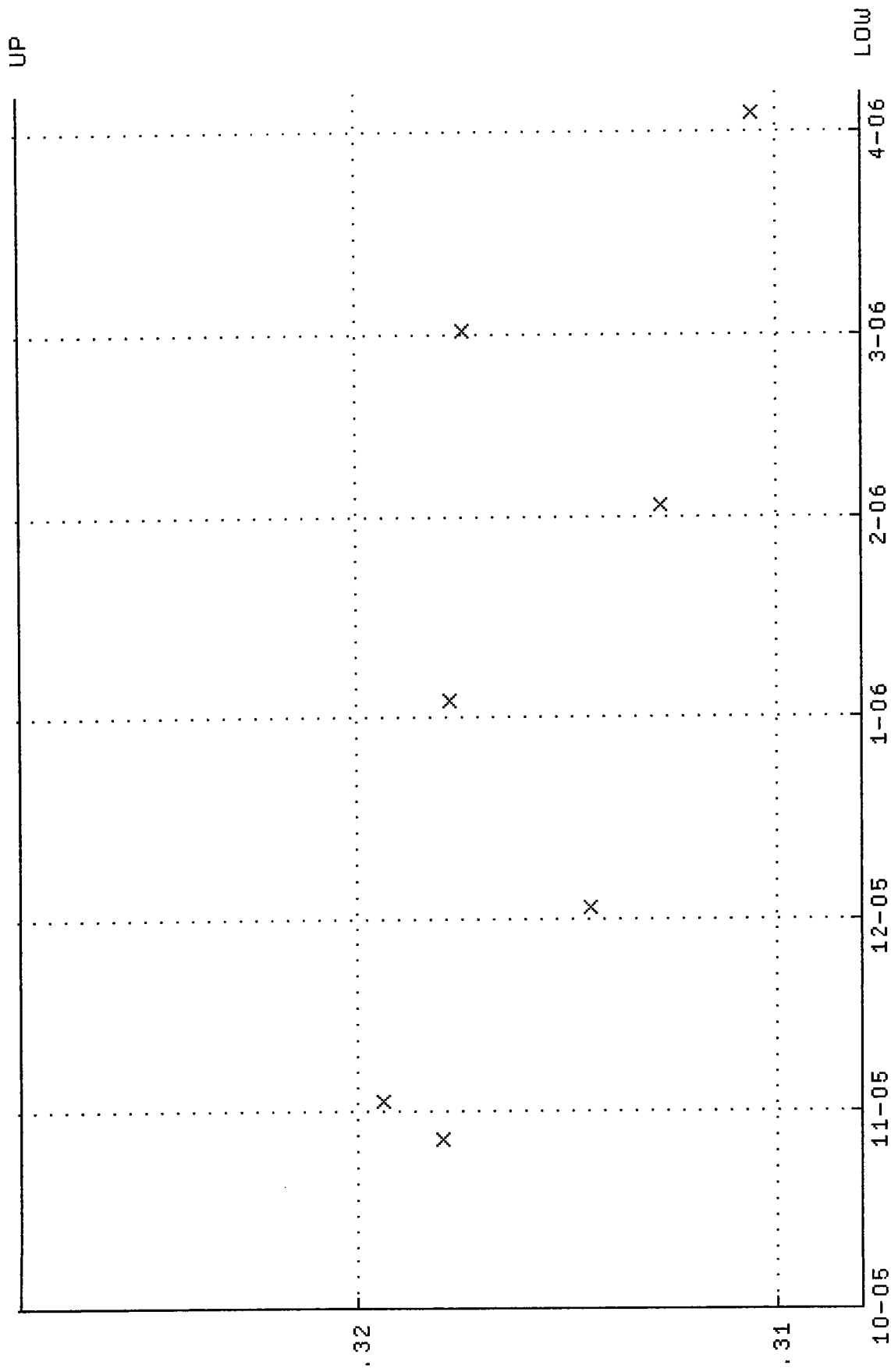


Beta EFF

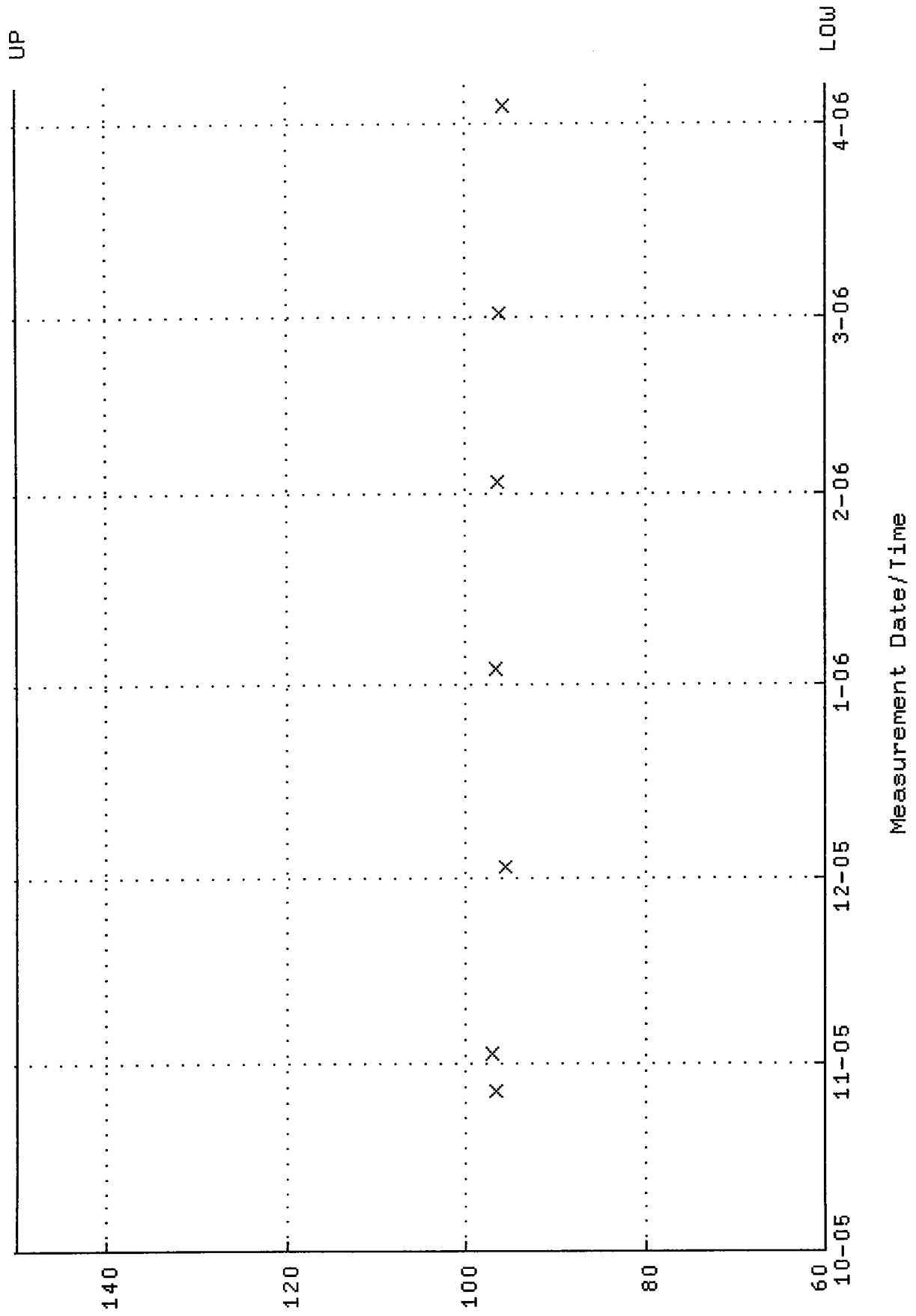


○ Denotes Outlier

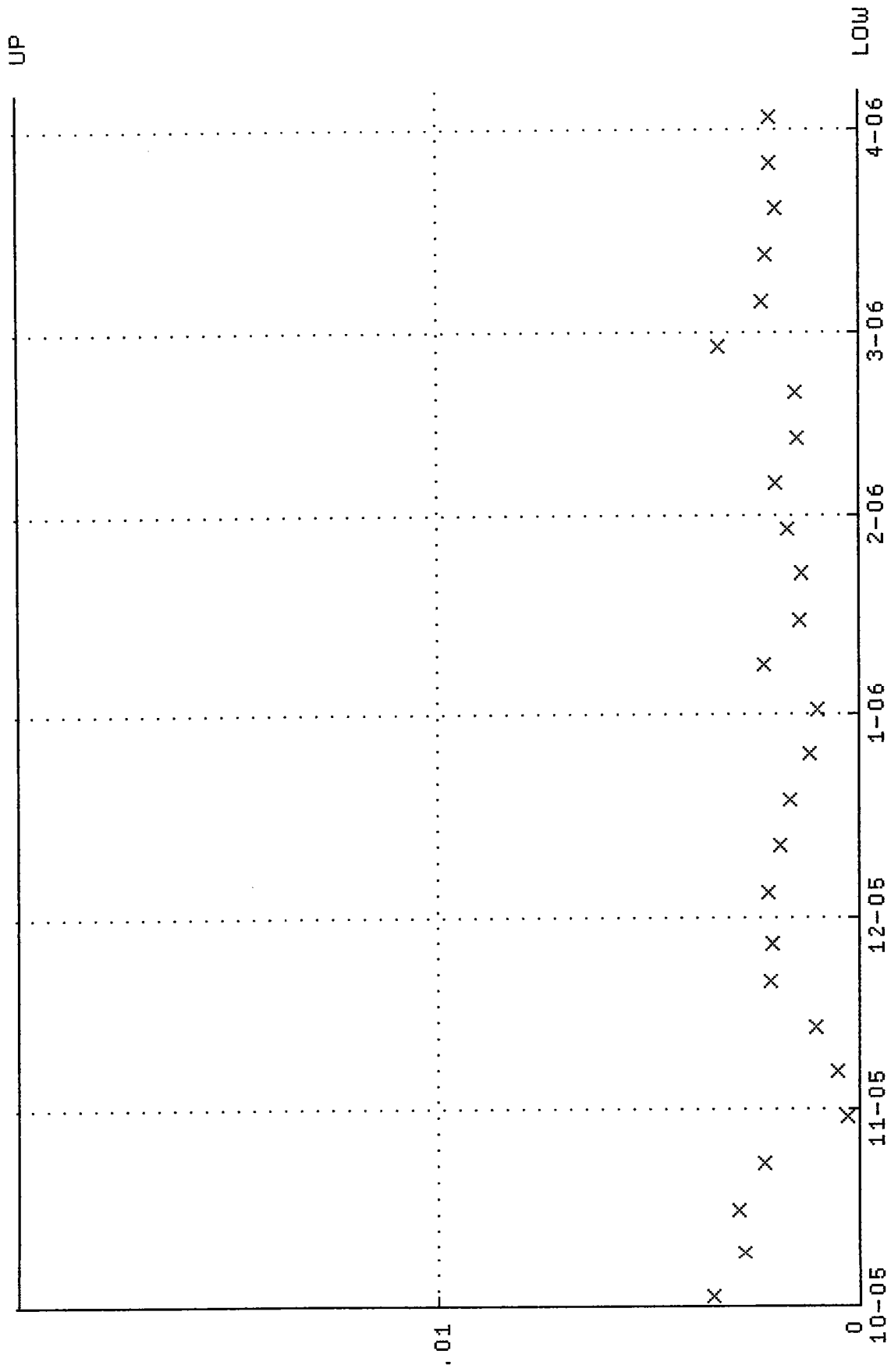
QA filename : DKA100:[ENV_ALPHA.QA.W]W011.QAF;4
 Parameter Name : AVRGEFF (Average Efficiency)
 Start/End Dates : 27-OCT-2005 08:48:47 through 6-APR-2006 12:00:00
 Lower/Upper Lmts: 0.308000 through 0.328000



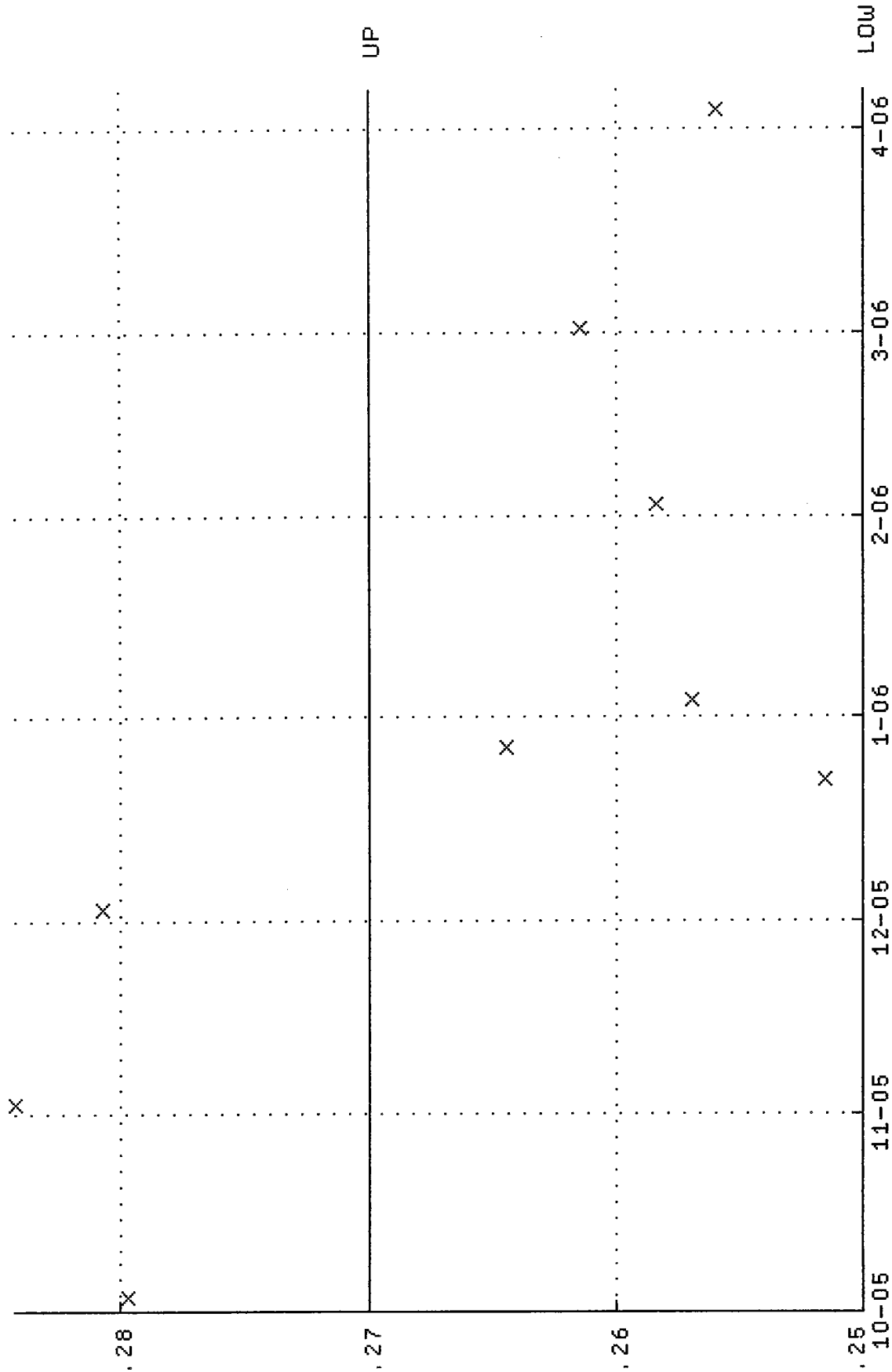
QA filename : DKA100:[ENV_ALPHA.QA.W]W011.QAF;4
 Parameter Name : NACTIVITY-GD148 (NUCLIDE ACTIVITY GD-148)
 Start/End Dates : 27-OCT-2005 08:48:47 through 6-APR-2006 12:00:00
 Lower/Upper Lmts: 60.0000 through 150.0000



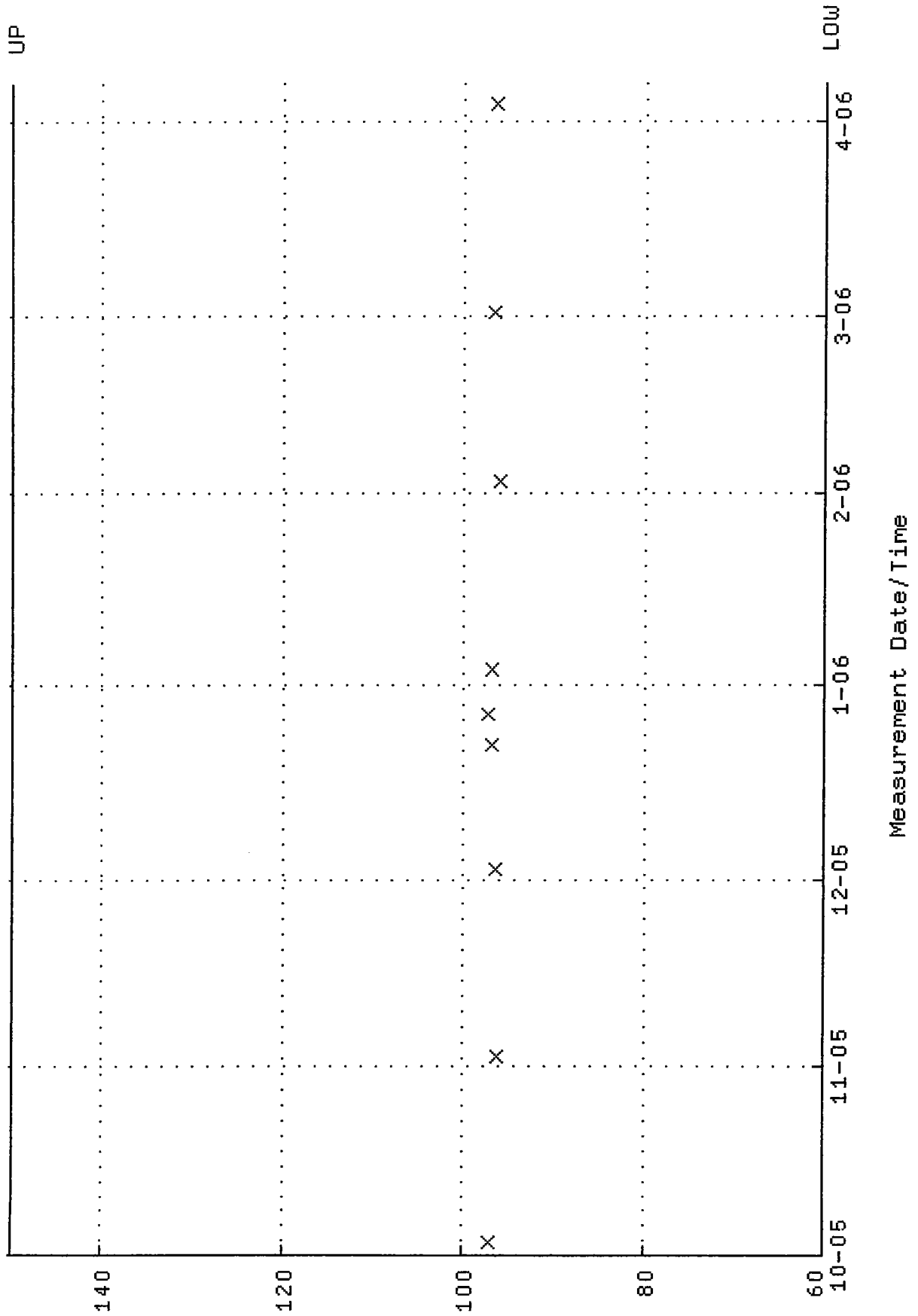
QA filename : DKA100:[ENV_ALPHA.QA,B]B011.QAF;2
 Parameter Name : BACKRATE (Background Rate)
 Start/End Dates : 2-OCT-2005 13:25:39 through 6-APR-2006 12:00:00
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



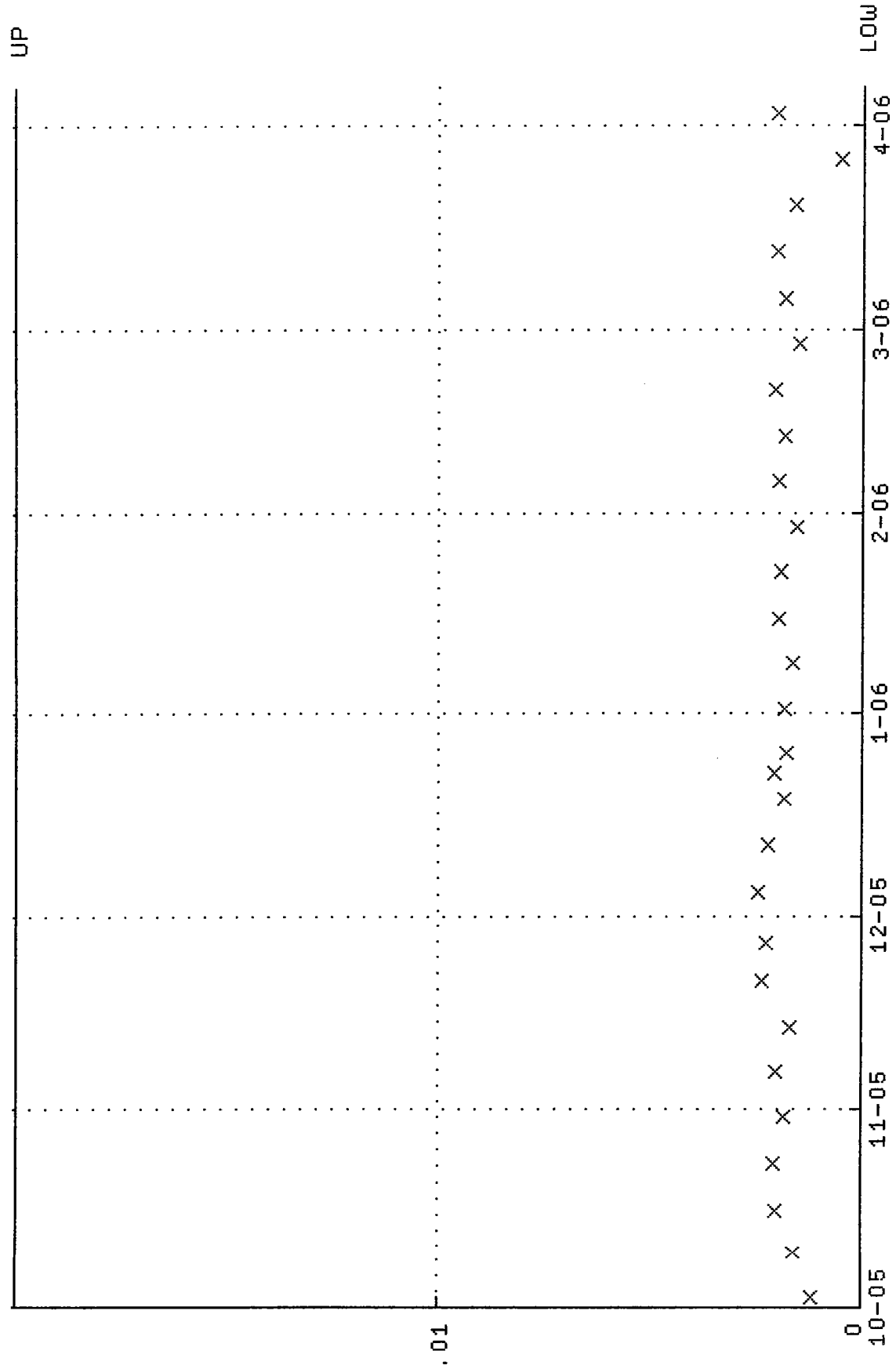
QA filename : DKA100:[ENV_ALPHA.QA.W]W018.QAF;3
 Parameter Name : AVRGEFF (Average Efficiency)
 Start/End Dates : 3-OCT-2005 07:10:41 through 6-APR-2006 12:00:00
 Lower/Upper Lmts: 0.250000 through 0.270000



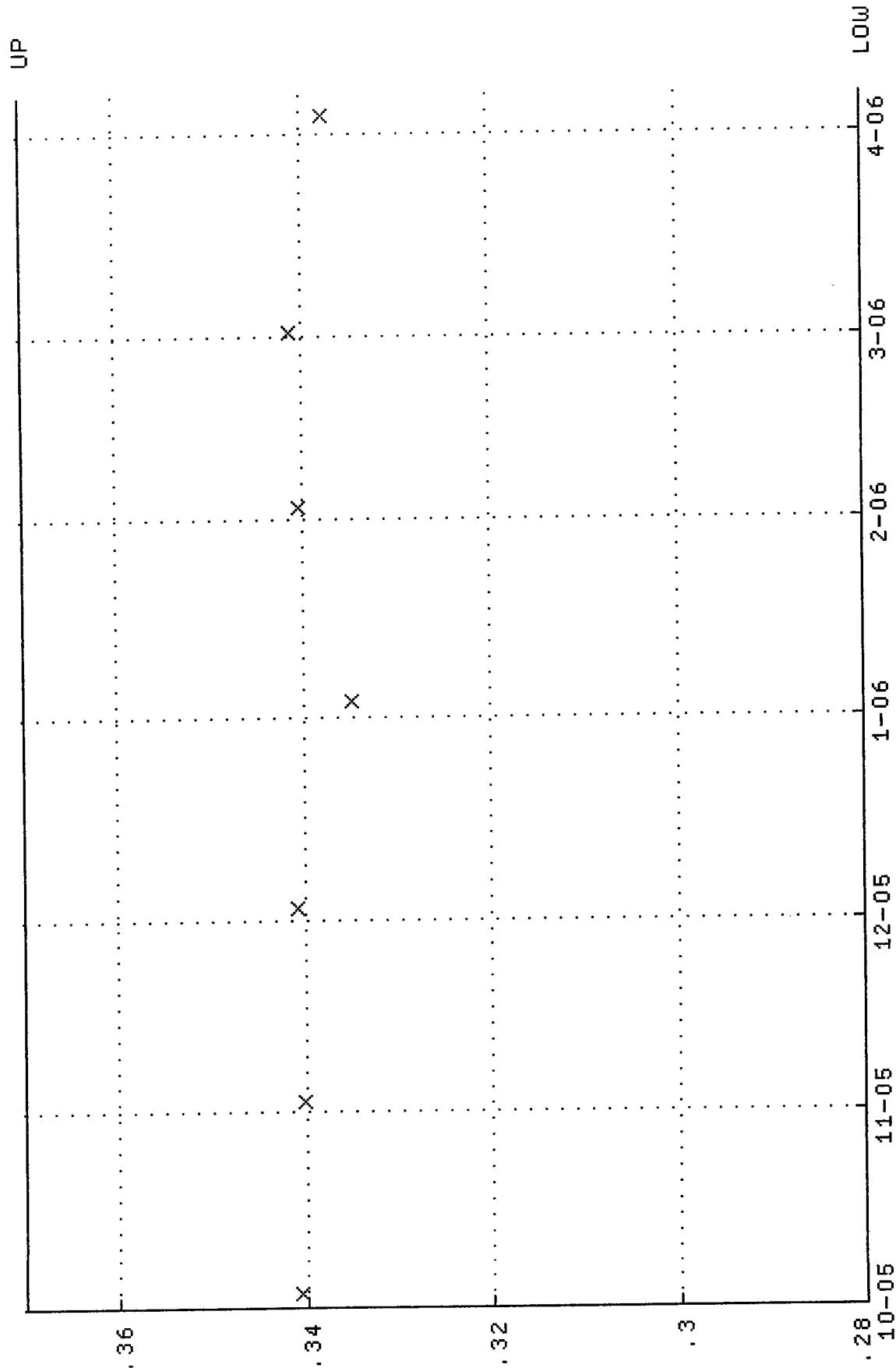
QA filename : DKA100:[ENV_ALPHA,QA,W]W018.QAF;3
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)
 Start/End Dates : 3-OCT-2005 07:10:41 through 6-APR-2006 12:00:00
 Lower/Upper Lmts: 60.0000 through 150.0000



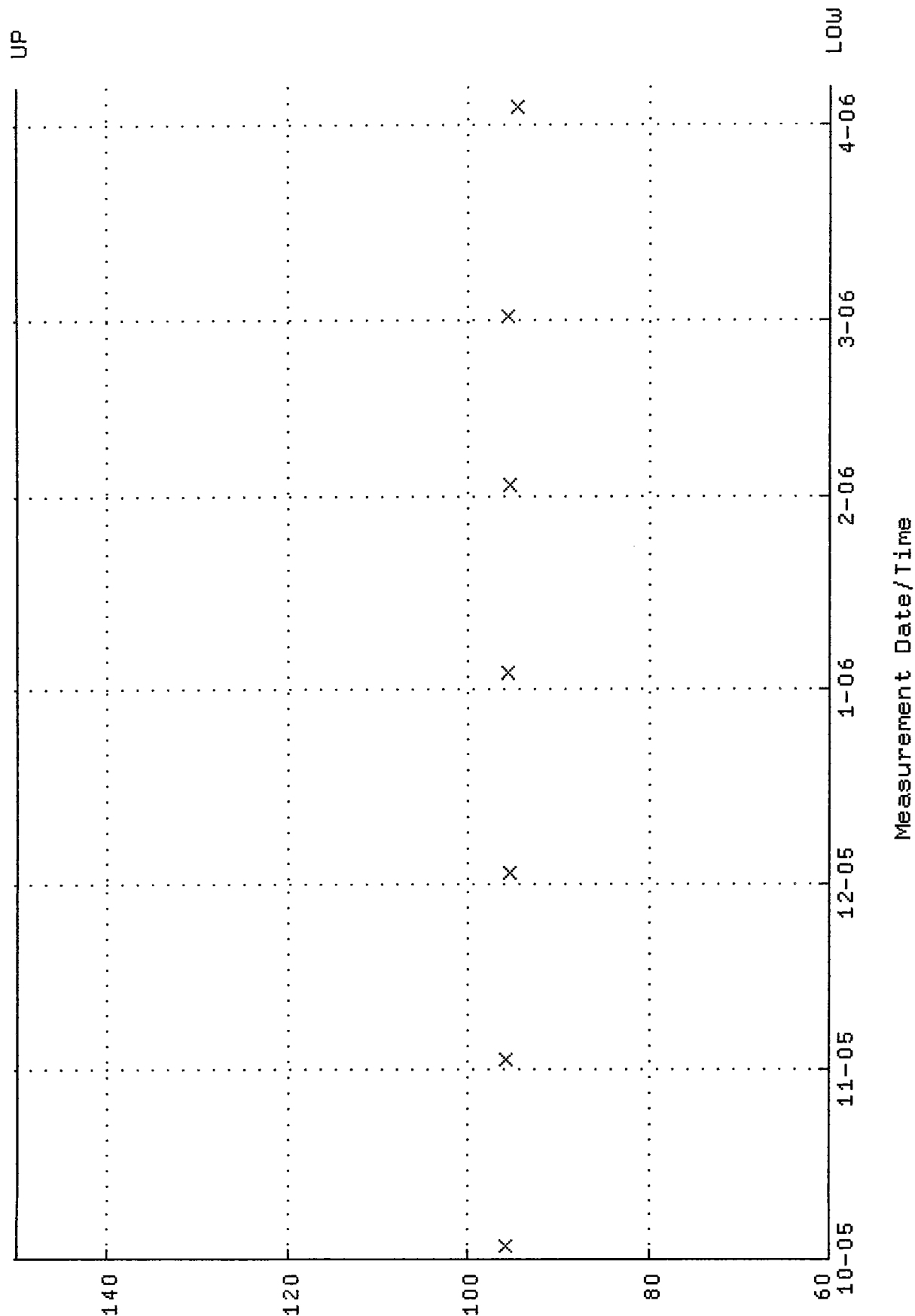
QA filename : DKA100:[ENV_ALPHA.QA.B]B018.QAF;1
 Parameter Name : BACKRATE (Background Rate)
 Start/End Dates : 2-OCT-2005 13:25:40 through 6-APR-2006 12:00:00
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



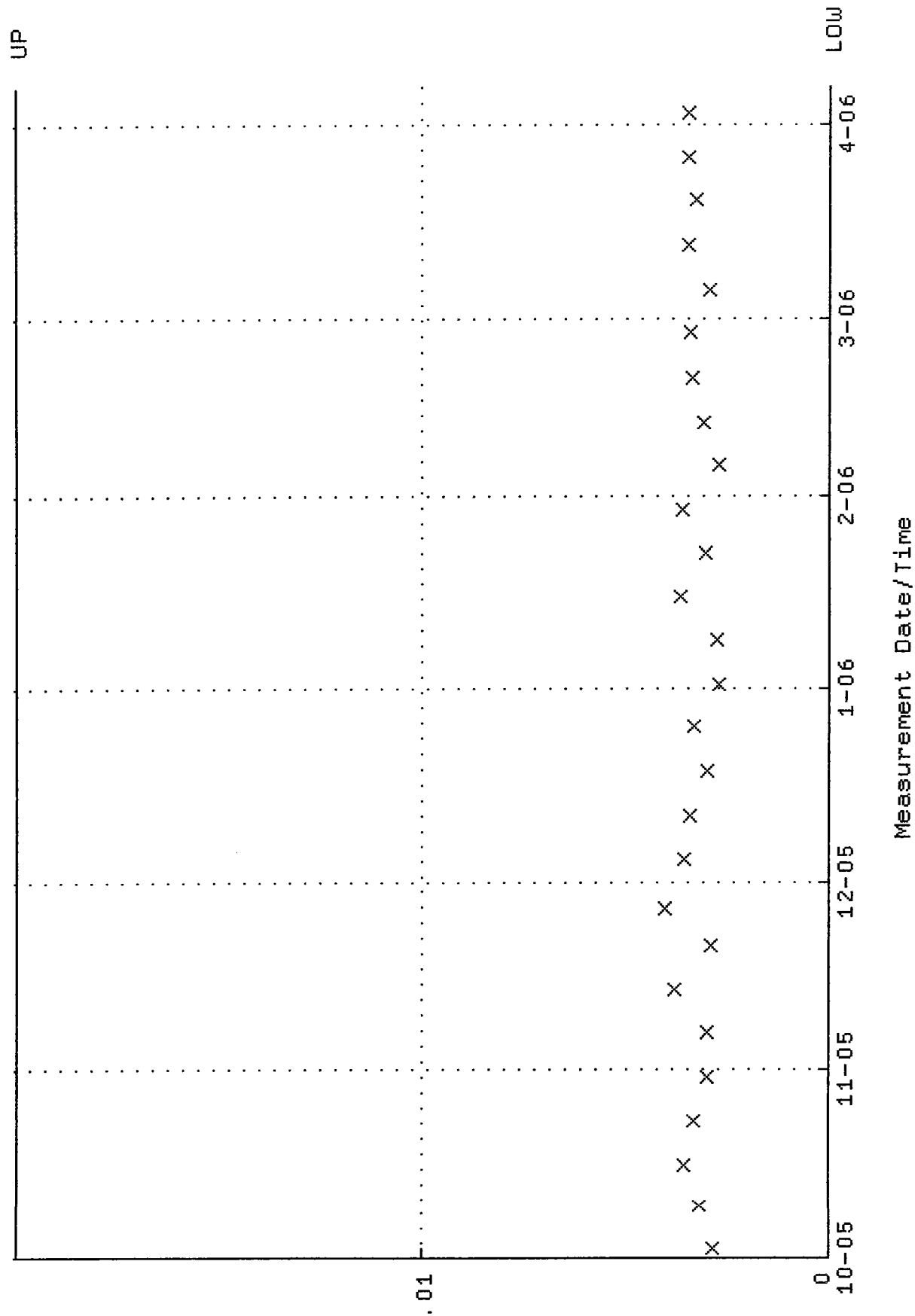
QA filename : DKA100:[ENV_ALPHA.QA.W]W020.QAF;3
 Parameter Name : AVRGEFF (Average Efficiency)
 Start/End Dates : 3-OCT-2005 07:10:43 through 6-APR-2006 12:00:00
 Lower/Upper Lmts: 0.280000 through 0.370000



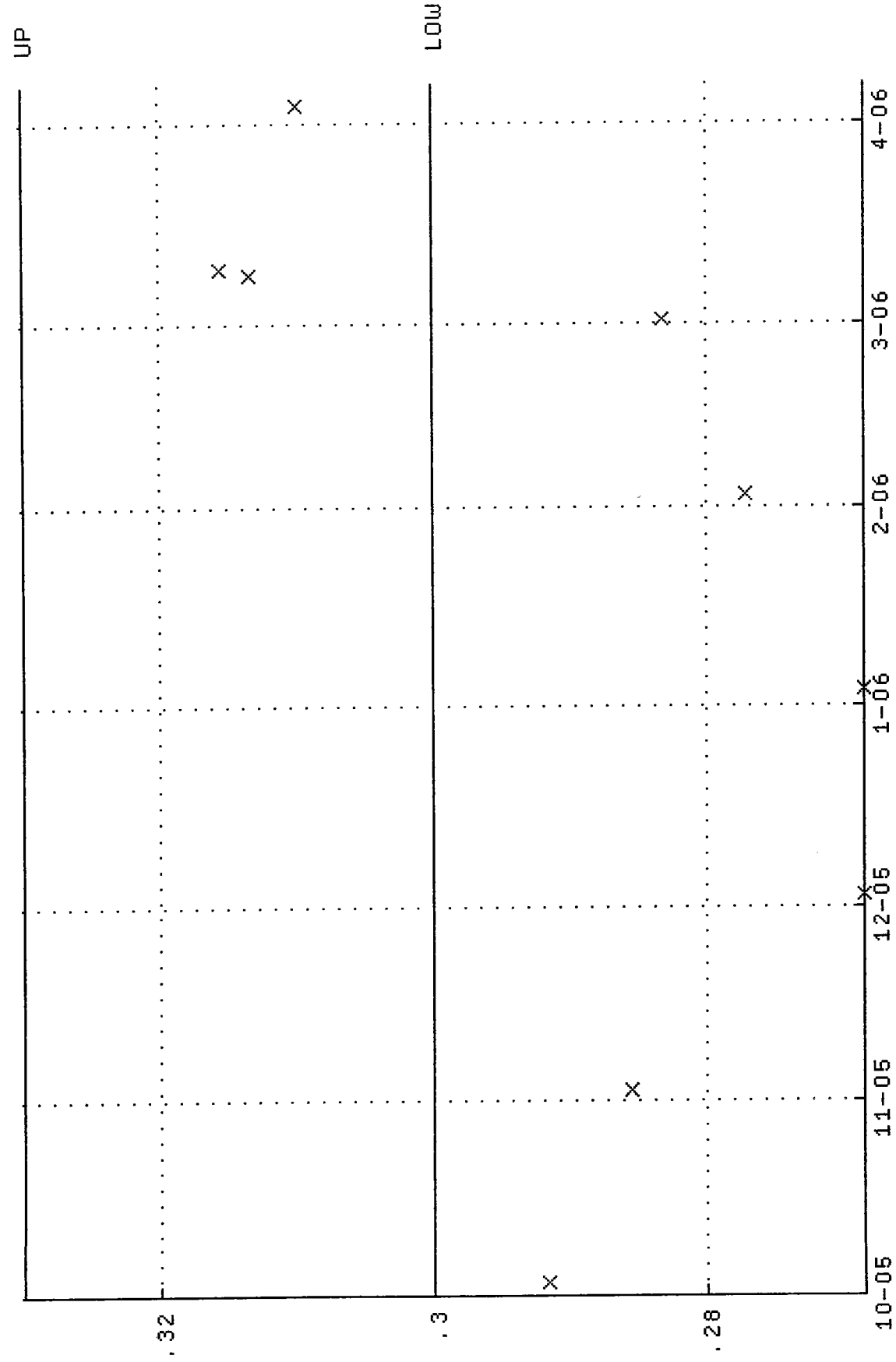
QA filename : DKA100:[ENV_ALPHA.QA.W]W020.QAF;3
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)
 Start/End Dates : 3-OCT-2005 07:10:43 through 6-APR-2006 12:00:00
 Lower/Upper Lmts: 60.0000 through 150.000



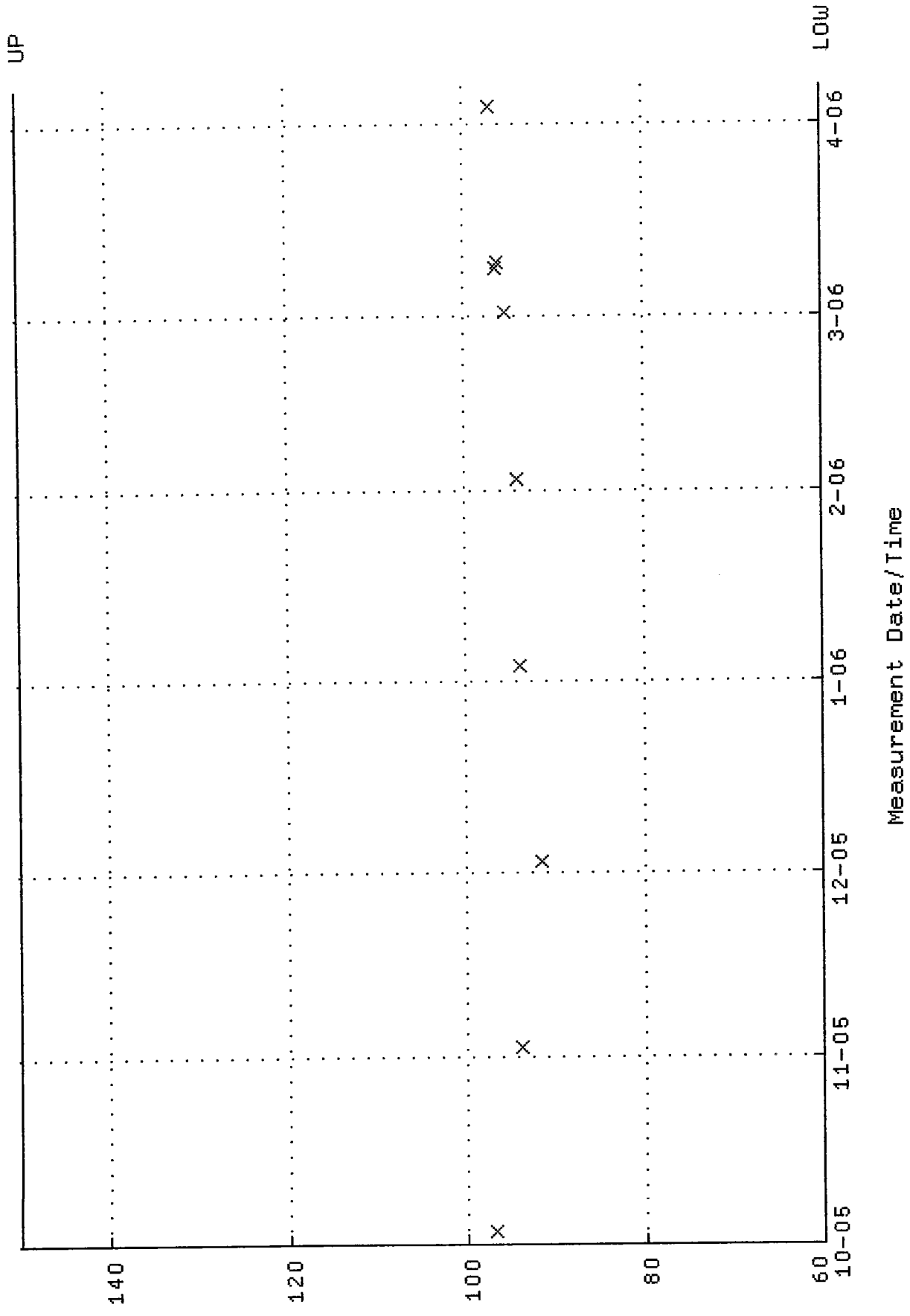
QA filename : DKA100:[ENV_ALPHA.QA.B]B020.QAF;1
 Parameter Name : BACKRATE (Background Rate)
 Start/End Dates : 2-OCT-2005 13:25:41 through 6-APR-2006 12:00:00
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



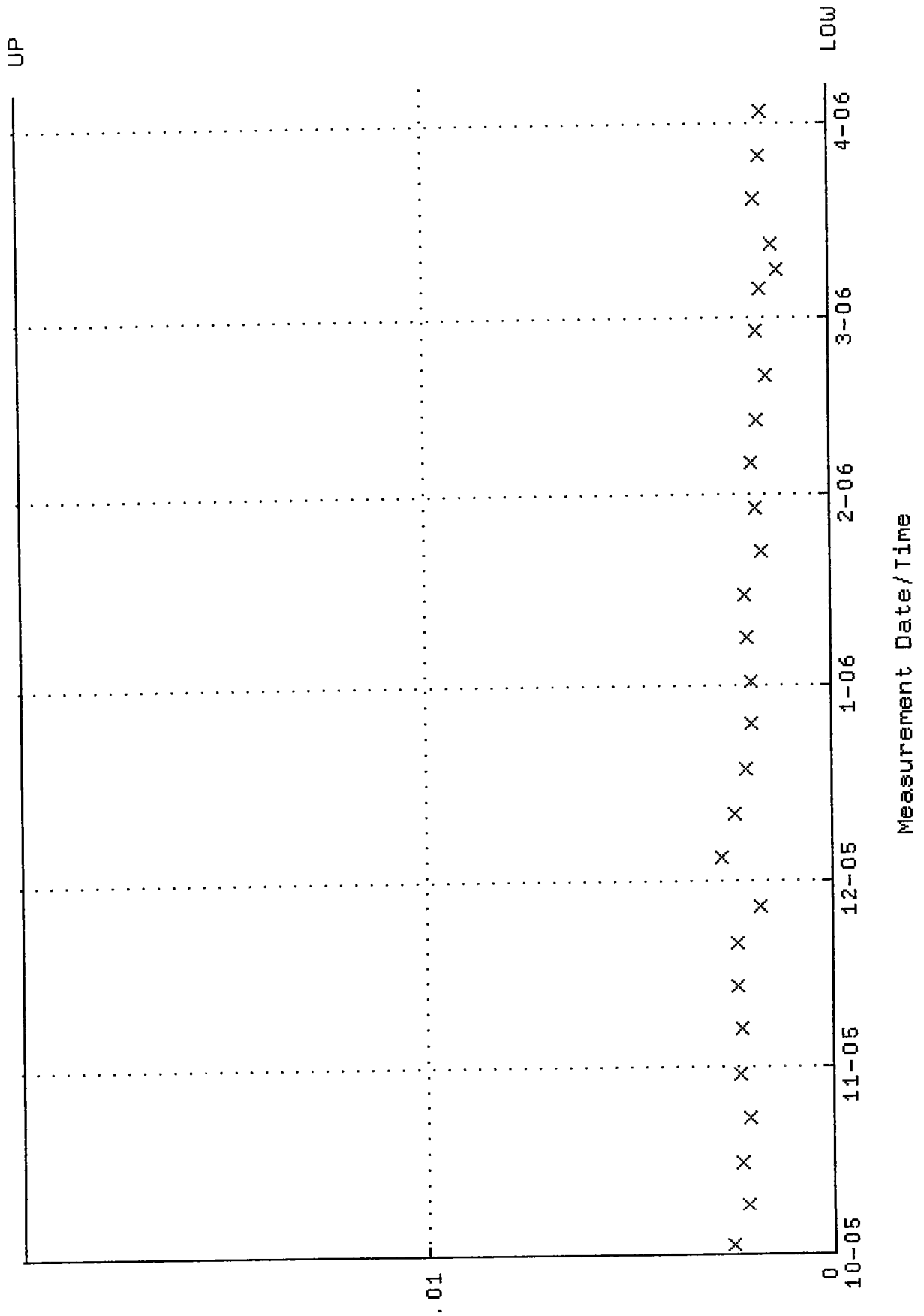
QA filename : DKA100:[ENV_ALPHA.QA.W]W021.QAF;4
 Parameter Name : AVRGEFF (Average Efficiency)
 Start/End Dates : 3-OCT-2005 07:10:43 through 6-APR-2006 12:00:00
 Lower/Upper Lmts: 0.300000 through 0.330000



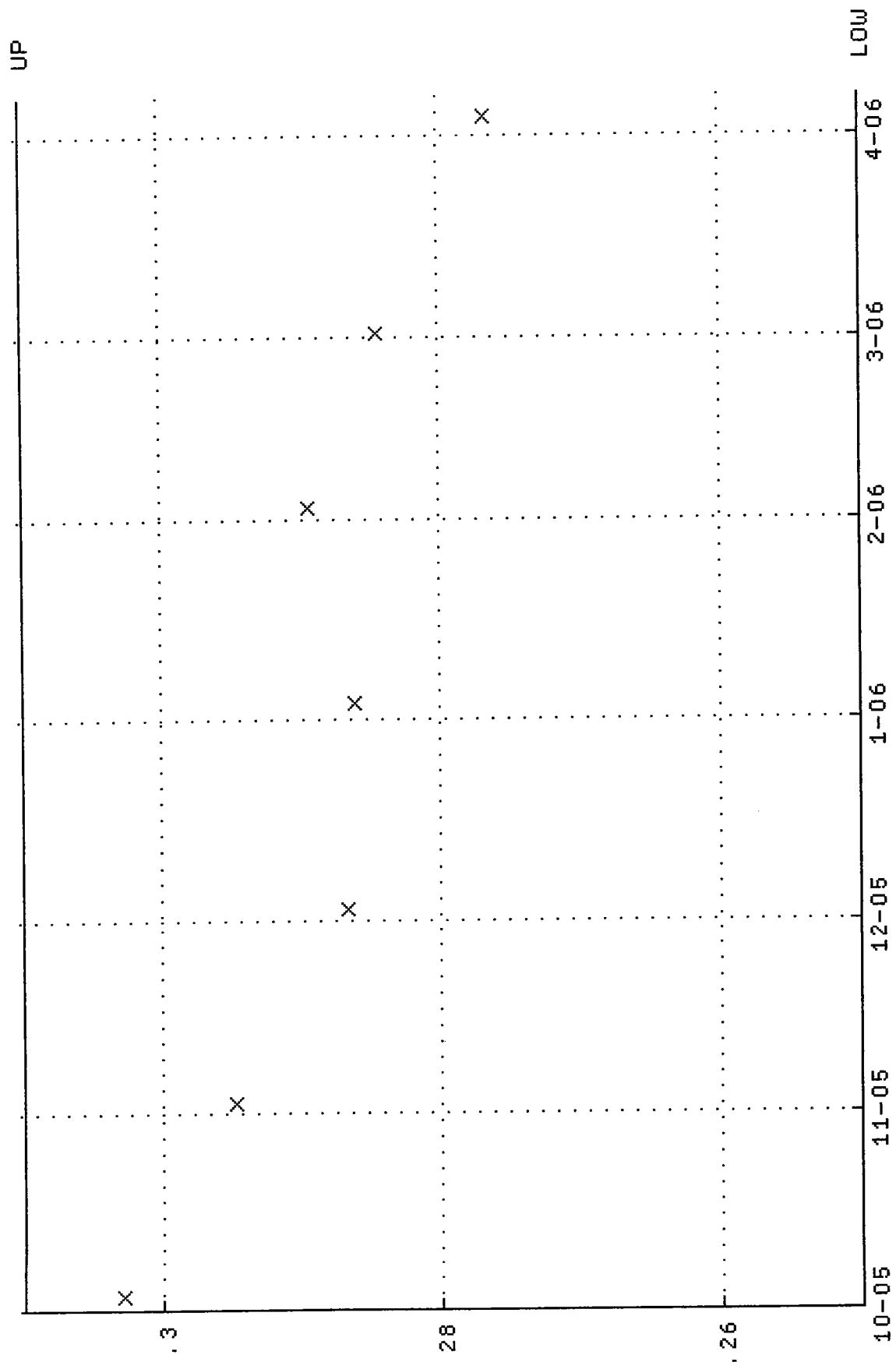
QA filename : DKA100:[ENV_ALPHA.QA.W]W021.QAF;4
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)
 Start/End Dates : 3-OCT-2005 07:10:43 through 6-APR-2006 12:00:00
 Lower/Upper Lmts: 60.0000 through 150.0000



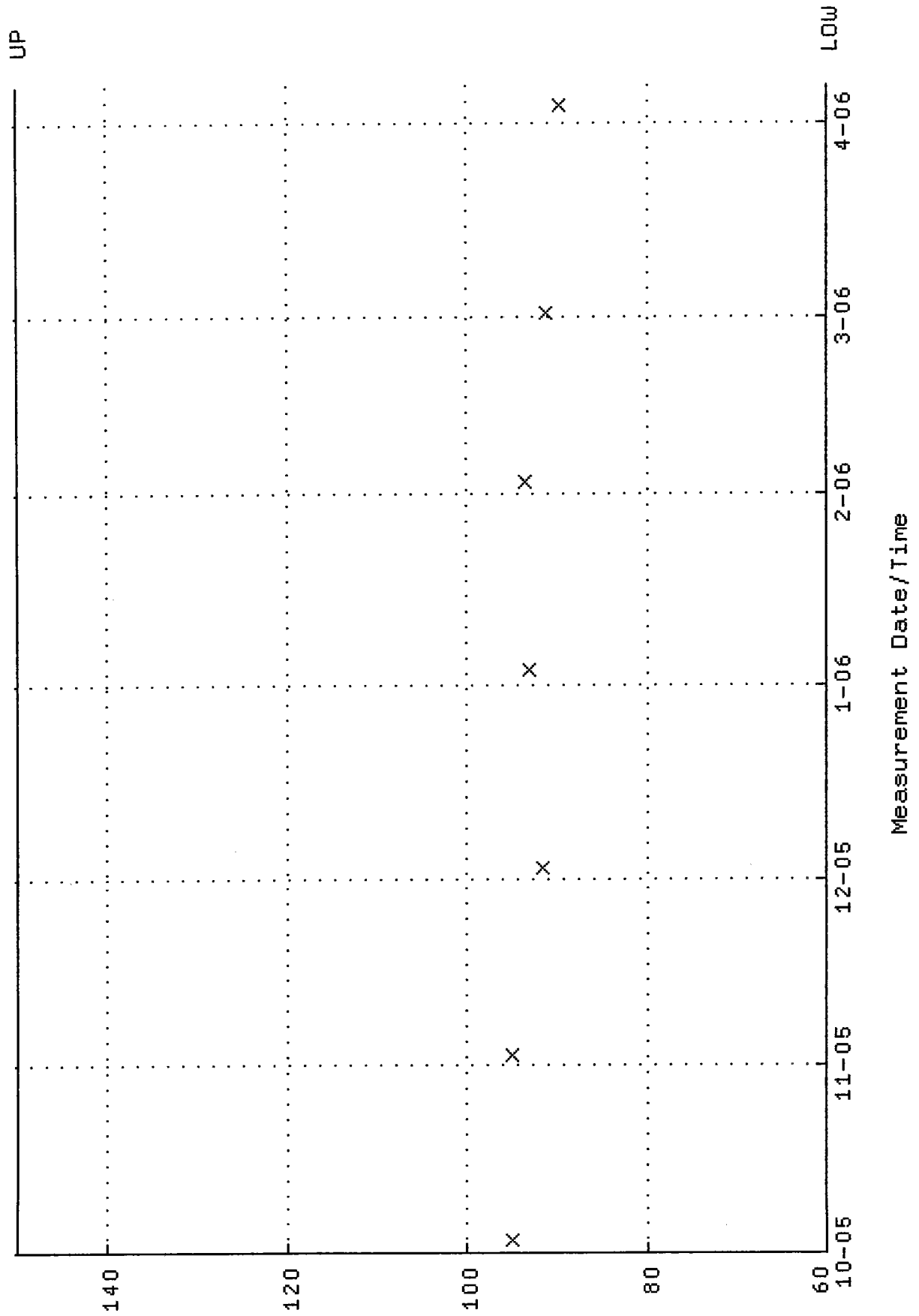
QA filename : DKA100:[ENV_ALPHA.QA.B]B021.QAF;1
 Parameter Name : BACKRATE (Background Rate)
 Start/End Dates : 2-OCT-2005 13:25:41 through 6-APR-2006 12:00:00
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



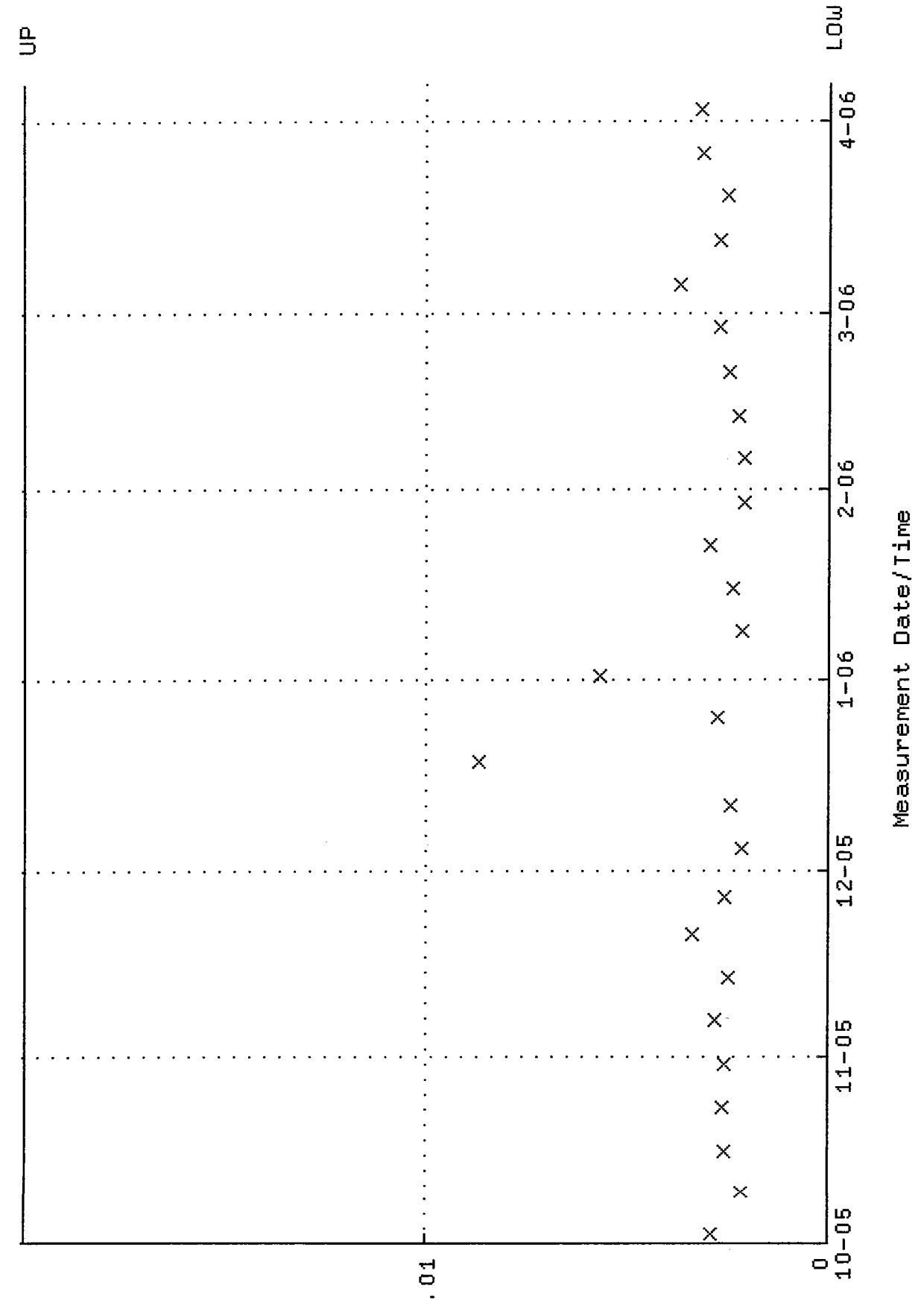
QA filename : DKA100:[ENV_ALPHA.QA.W]W023.QAF;3
 Parameter Name : AVRGEFF (Average Efficiency)
 Start/End Dates : 3-OCT-2005 07:10:43 through 6-APR-2006 12:00:00
 Lower/Upper Lmts: 0.250000 through 0.310000



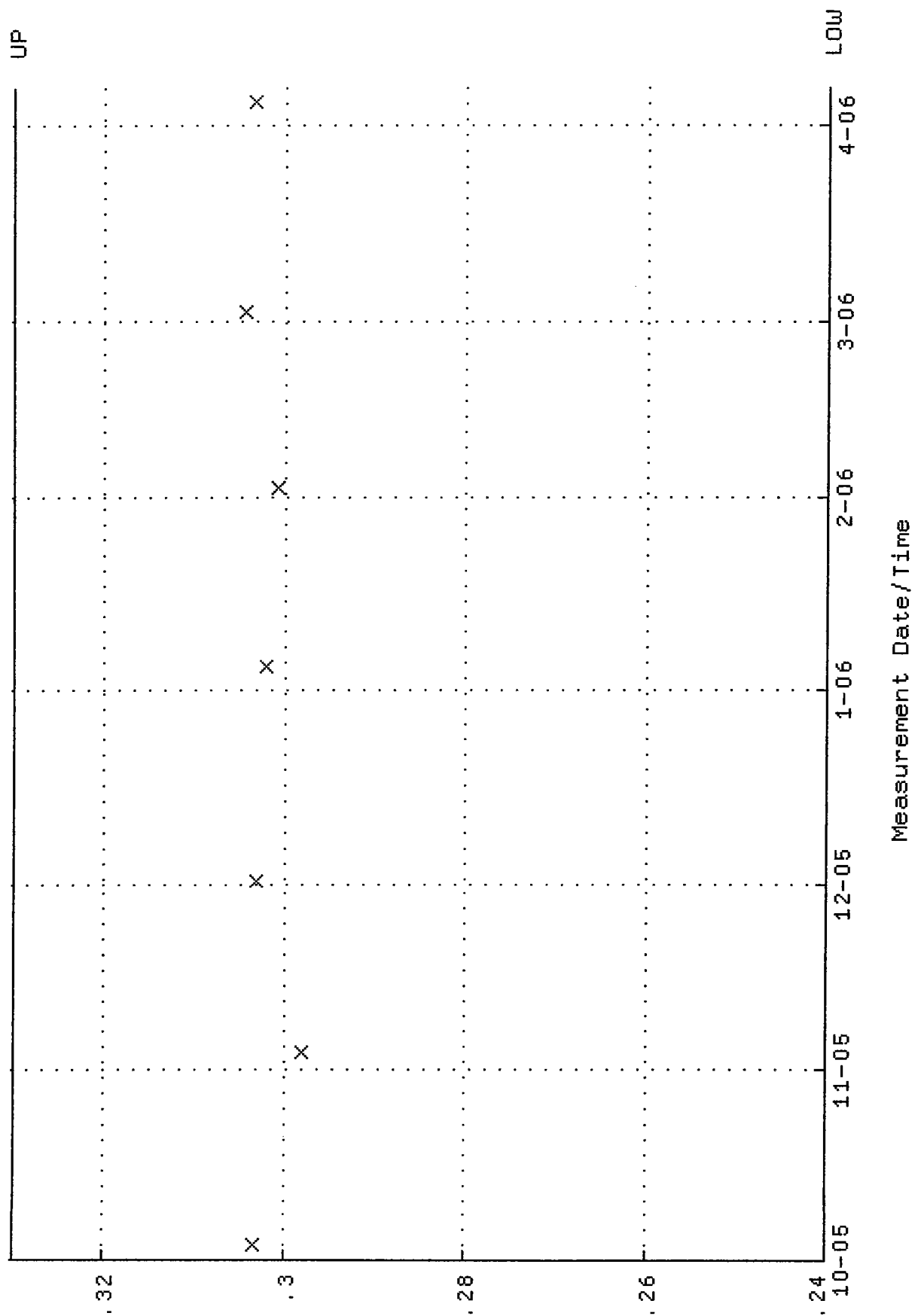
QA filename : DKA100:[ENV_ALPHA.QA.W]W023.QAF;3
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)
 Start/End Dates : 3-OCT-2005 07:10:43 through 6-APR-2006 12:00:00
 Lower/Upper Lmts: 60.0000 through 150.0000



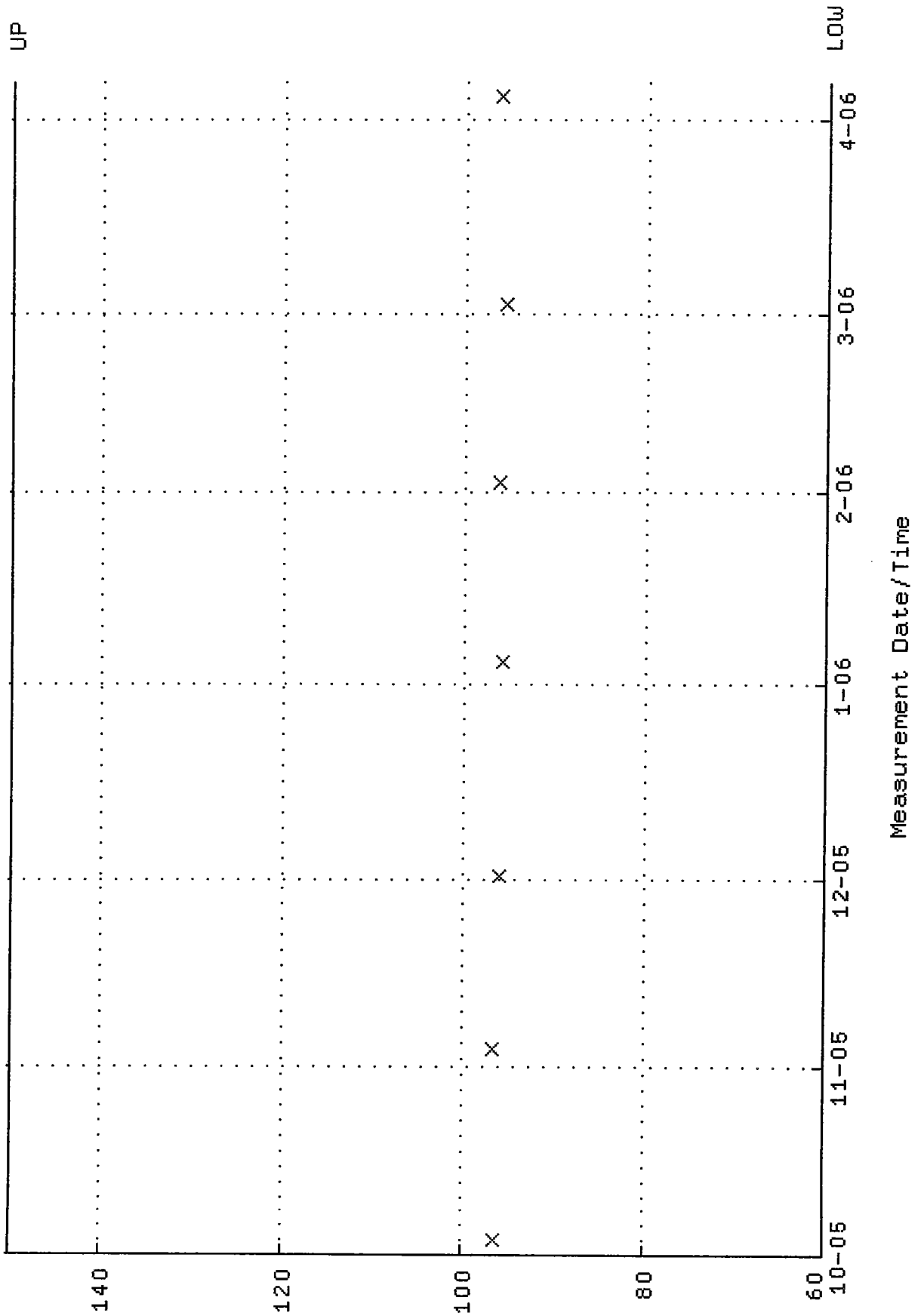
QA filename : DKA100:[ENV_ALPHA.QA.B]B023.QAF;1
 Parameter Name : BACKRATE (Background Rate)
 Start/End Dates : 2-OCT-2005 13:25:41 through 6-APR-2006 12:00:00
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



QA filename : DKA100:[ENV_ALPHA.QA.W]W030.QAF;3
 Parameter Name : AVRGEFF (Average Efficiency)
 Start/End Dates : 3-OCT-2005 12:02:07 through 6-APR-2006 12:00:00
 Lower/Upper Lmts: 0.240000 through 0.330000

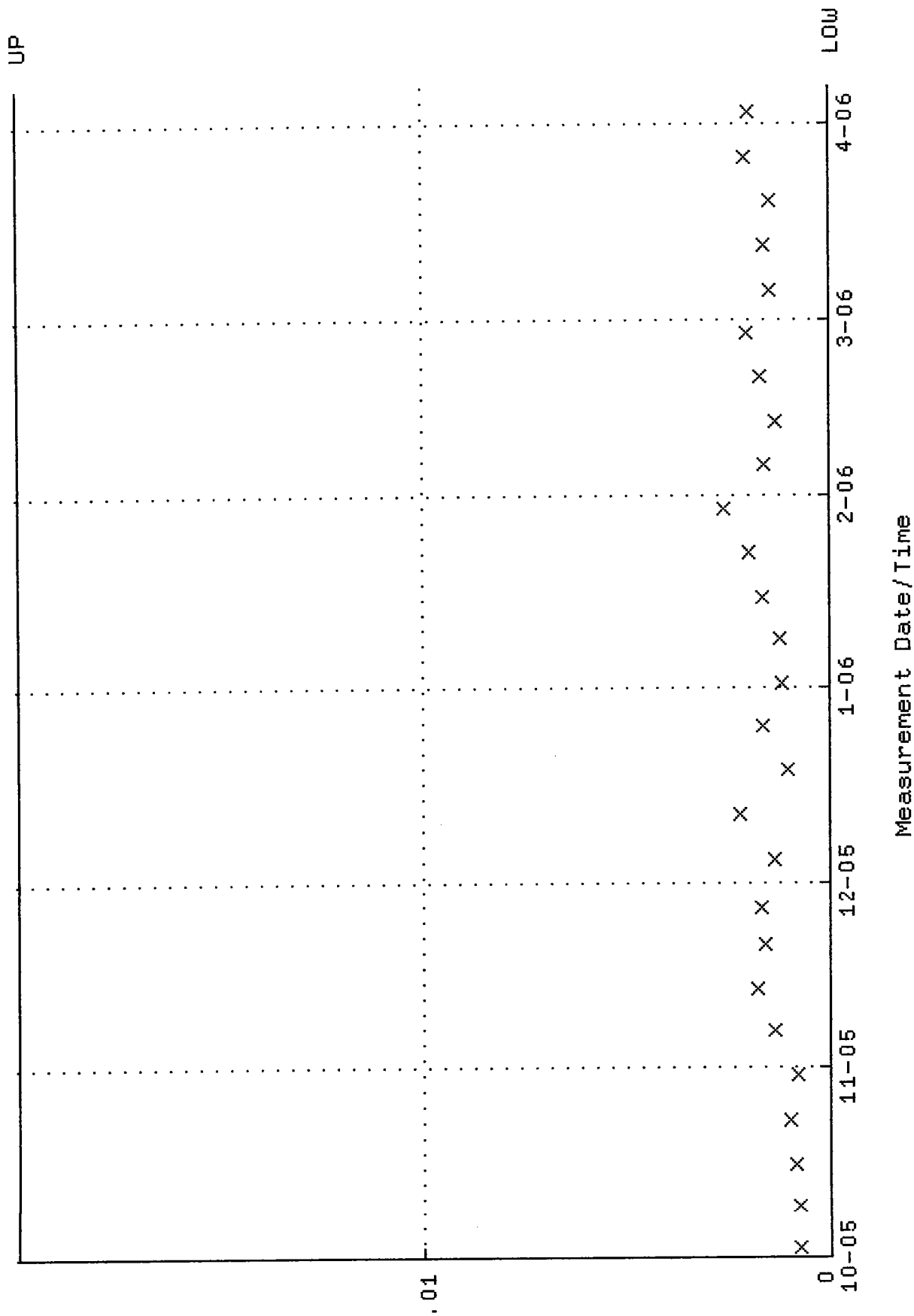


QA filename : DKA100:[ENV_ALPHA.QA.W]W030.QAF;3
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)
 Start/End Dates : 3-OCT-2005 12:02:07 through 6-APR-2006 12:00:00
 Lower/Upper Lmts: 60.0000 through 150.000

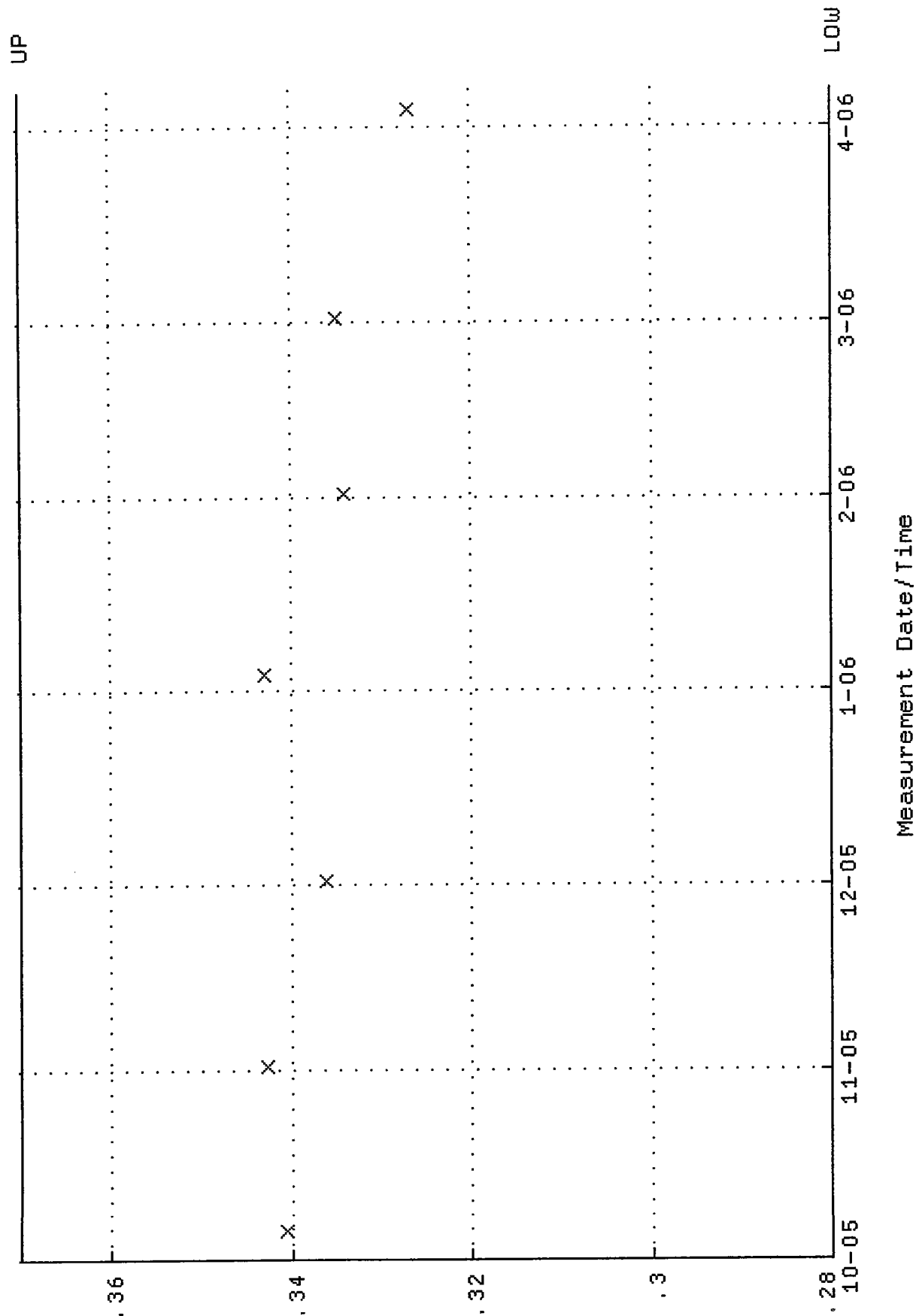


QA filename : DKA100:[ENV_ALPHA.QA.B]B030.QAF;1
Parameter Name : BACKRATE (Background Rate)
Start/End Dates : 2-OCT-2006 13:25:42 through 6-APR-2006 12:00:00
Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02

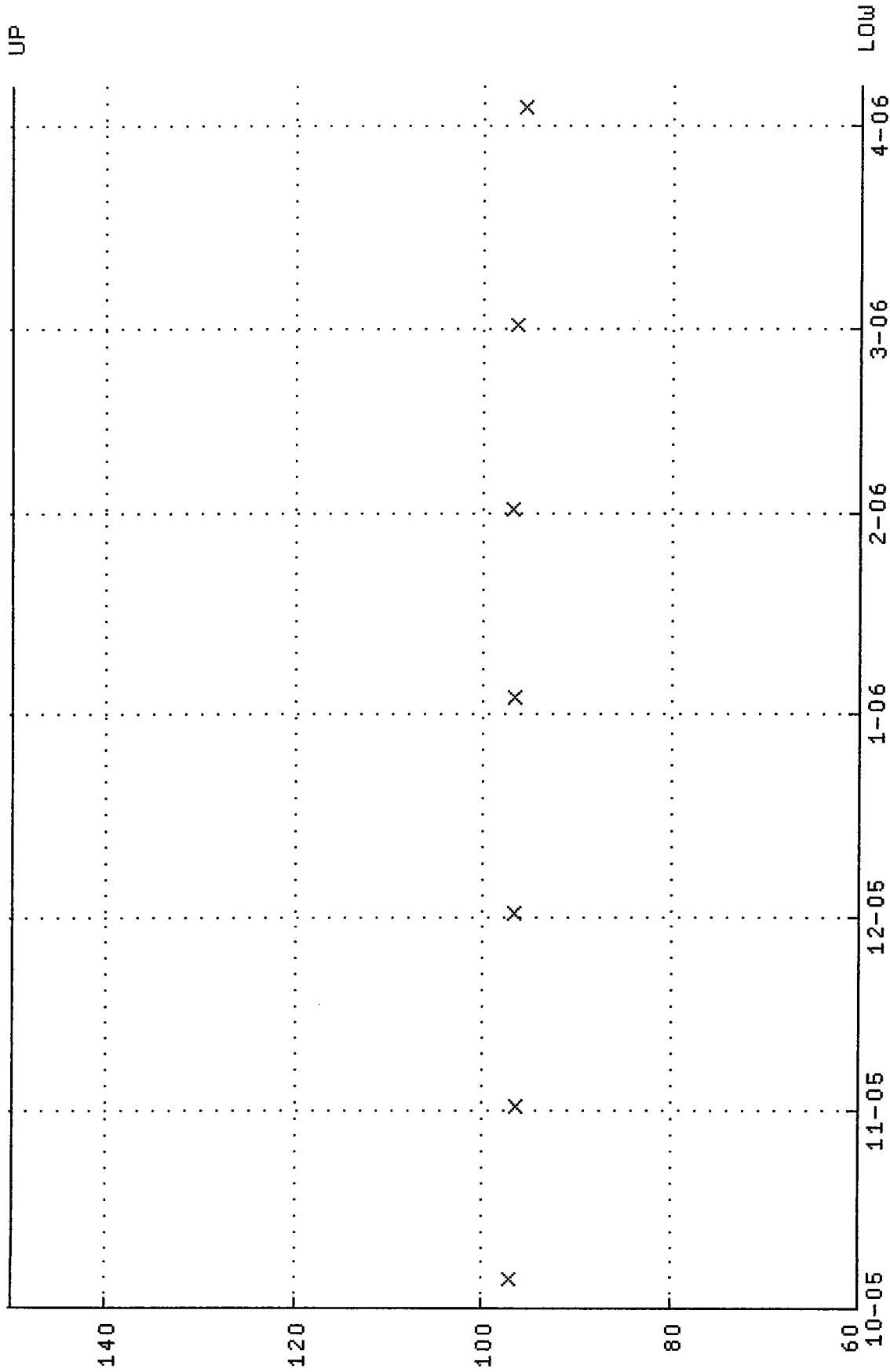
Background Rate



QA filename : DKA100:[ENV_ALPHA.QA.W]W078.QAF;6
 Parameter Name : AVRGEFF (Average Efficiency)
 Start/End Dates : 5-OCT-2005 12:08:53 through 6-APR-2006 12:00:00
 Lower/Upper Lmts: 0.280000 through 0.370000

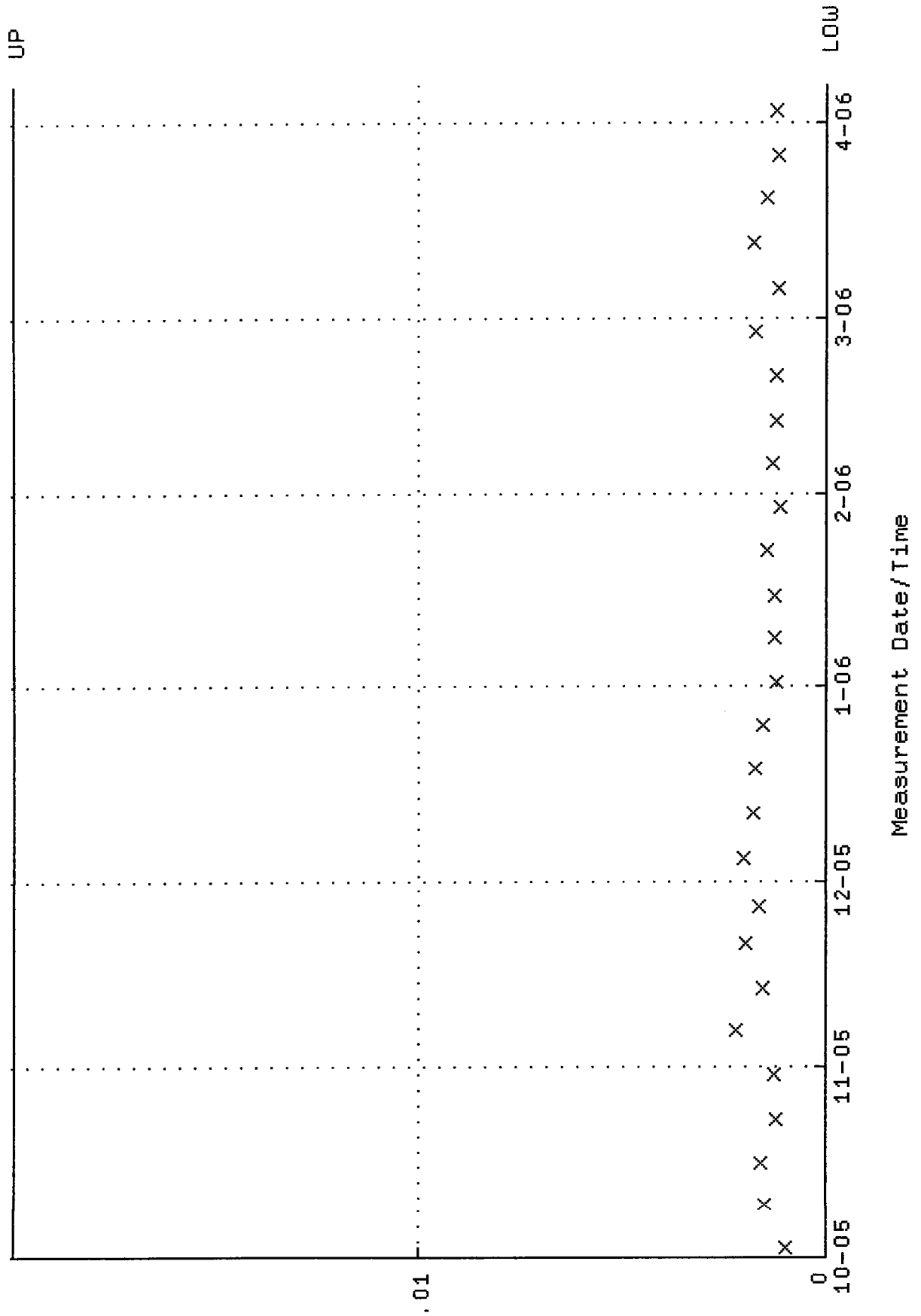


QA filename : DKA100:[ENV_ALPHA.QA.W]W078.QAF;6
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)
 Start/End Dates : 5-OCT-2005 12:08:53 through 6-APR-2006 12:00:00
 Lower/Upper Lmts: 60.0000 through 150.0000

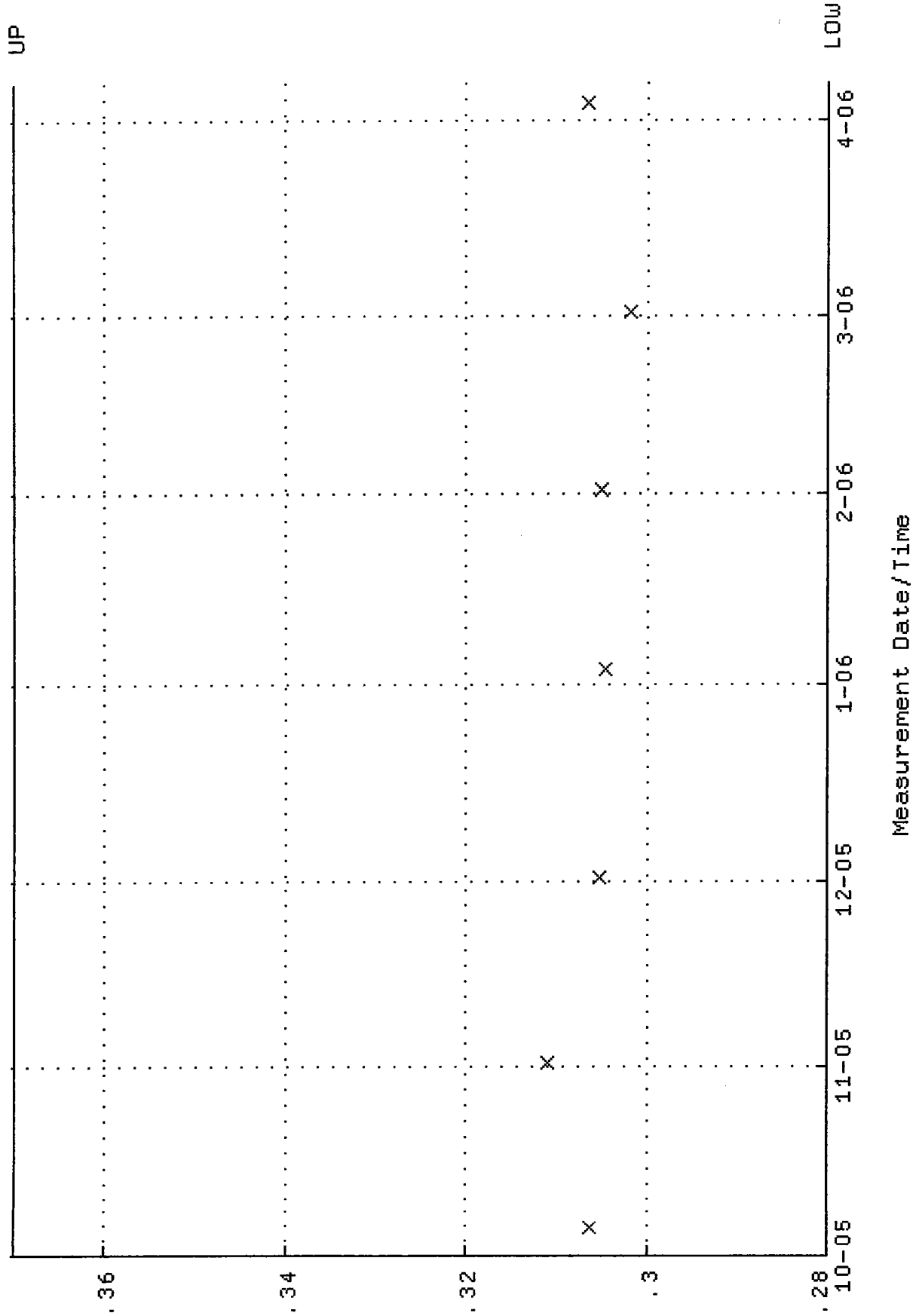


QA filename : DKA100:[ENV_ALPHA.QA.B]B078.QAF;2
 Parameter Name : BACKRATE (Background Rate)
 Start/End Dates : 2-OCT-2005 13:57:18 through 6-APR-2006 12:00:00
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02

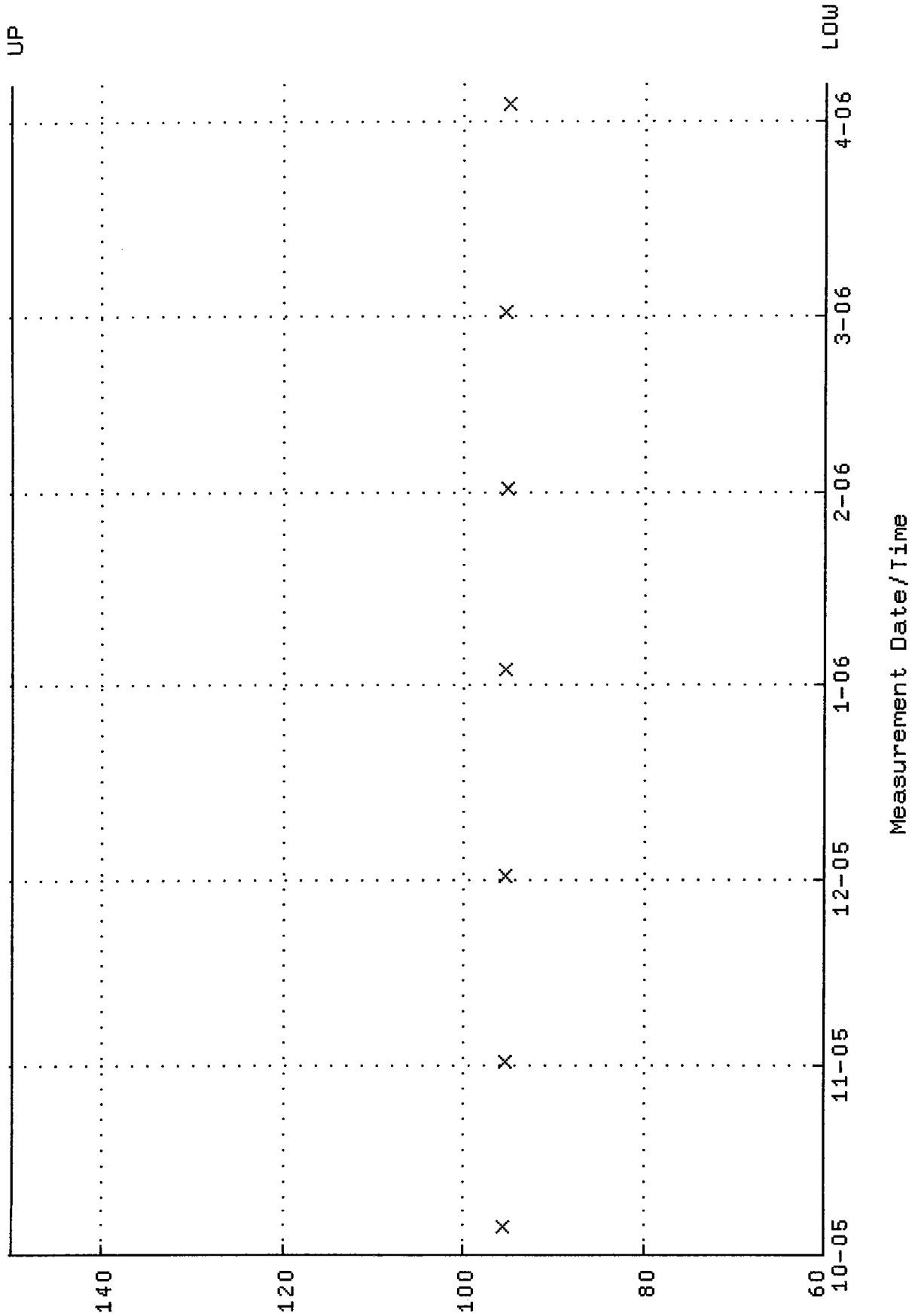
Background Rate



QA filename : DKA100:[ENV_ALPHA.QA.W]W083.QAF;5
 Parameter Name : AVRGEFF (Average Efficiency)
 Start/End Dates : 5-OCT-2005 12:08:55 through 6-APR-2006 12:00:00
 Lower/Upper Lmts: 0.280000 through 0.370000



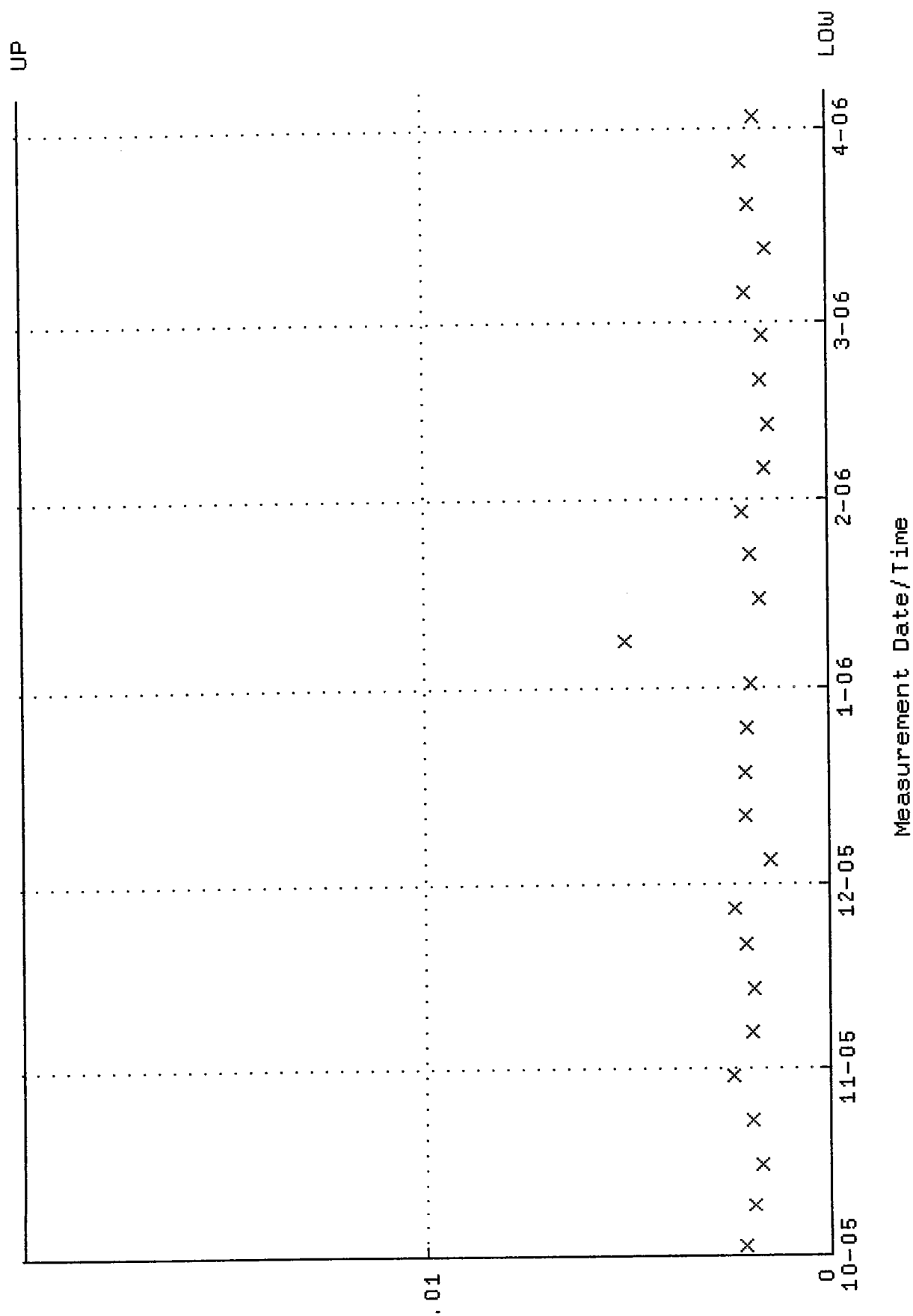
QA filename : DKA100:[ENV_ALPHA.QA.W]W083.QAF;5
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)
 Start/End Dates : 5-OCT-2005 12:08:55 through 6-APR-2006 12:00:00
 Lower/Upper Lmts: 60.0000 through 150.0000



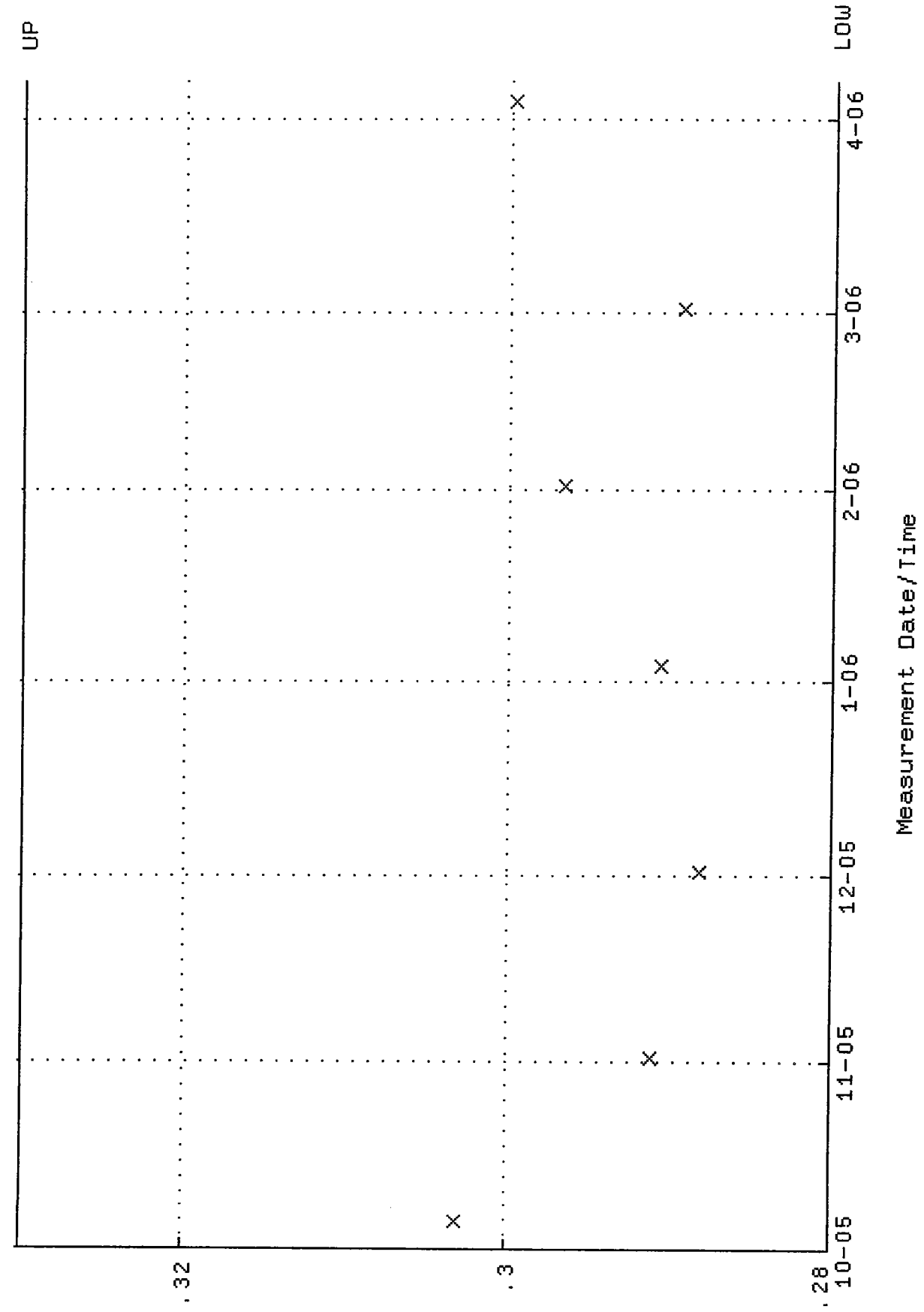
QA filename : DKA100: [ENV_ALPHA, QA, B]B083, QAF; 3
Parameter Name : BACKRATE (Background Rate)
Start/End Dates : 2-OCT-2005 13:57:19 through 6-APR-2006 12:00:00
Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02

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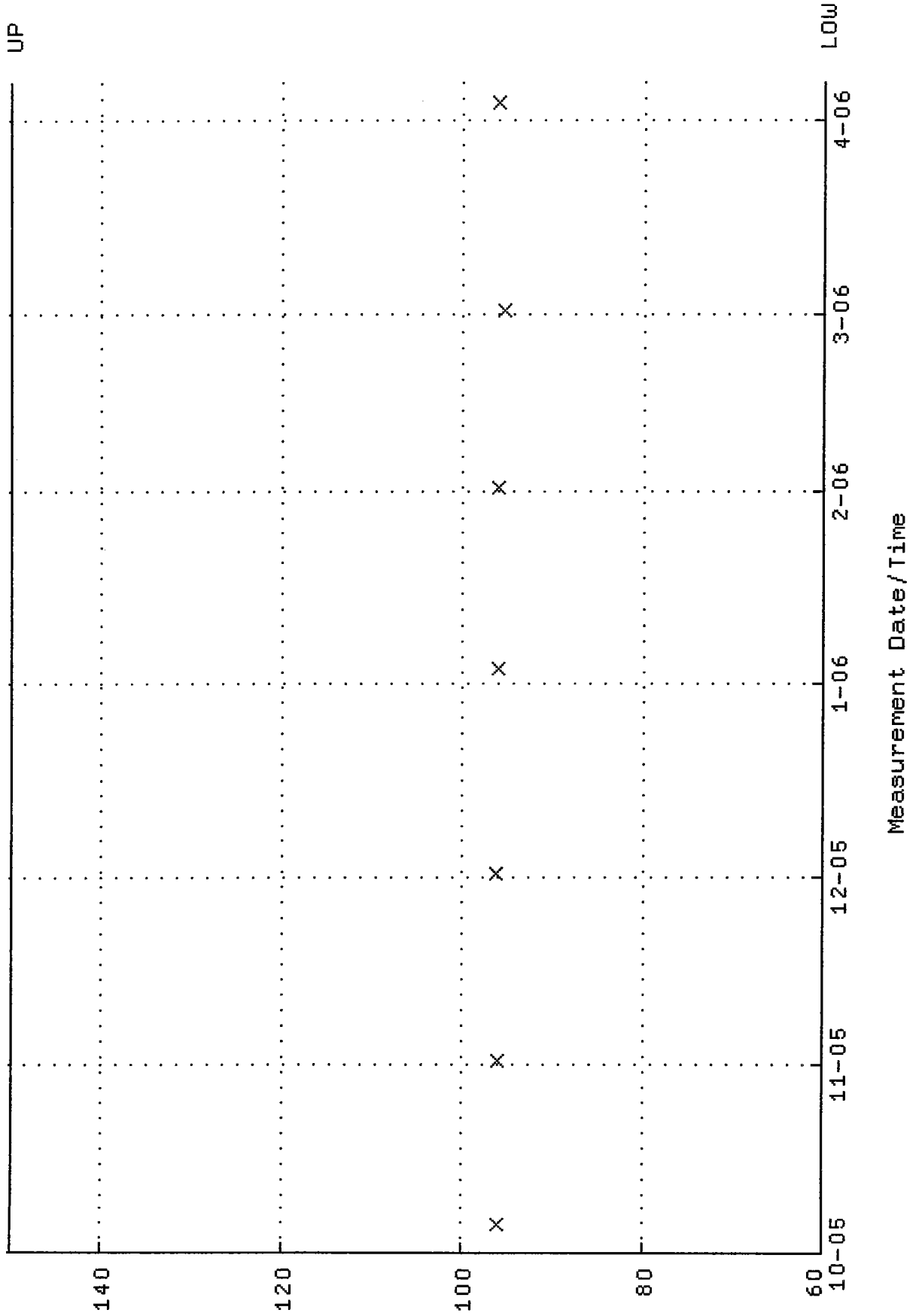
Background Rate



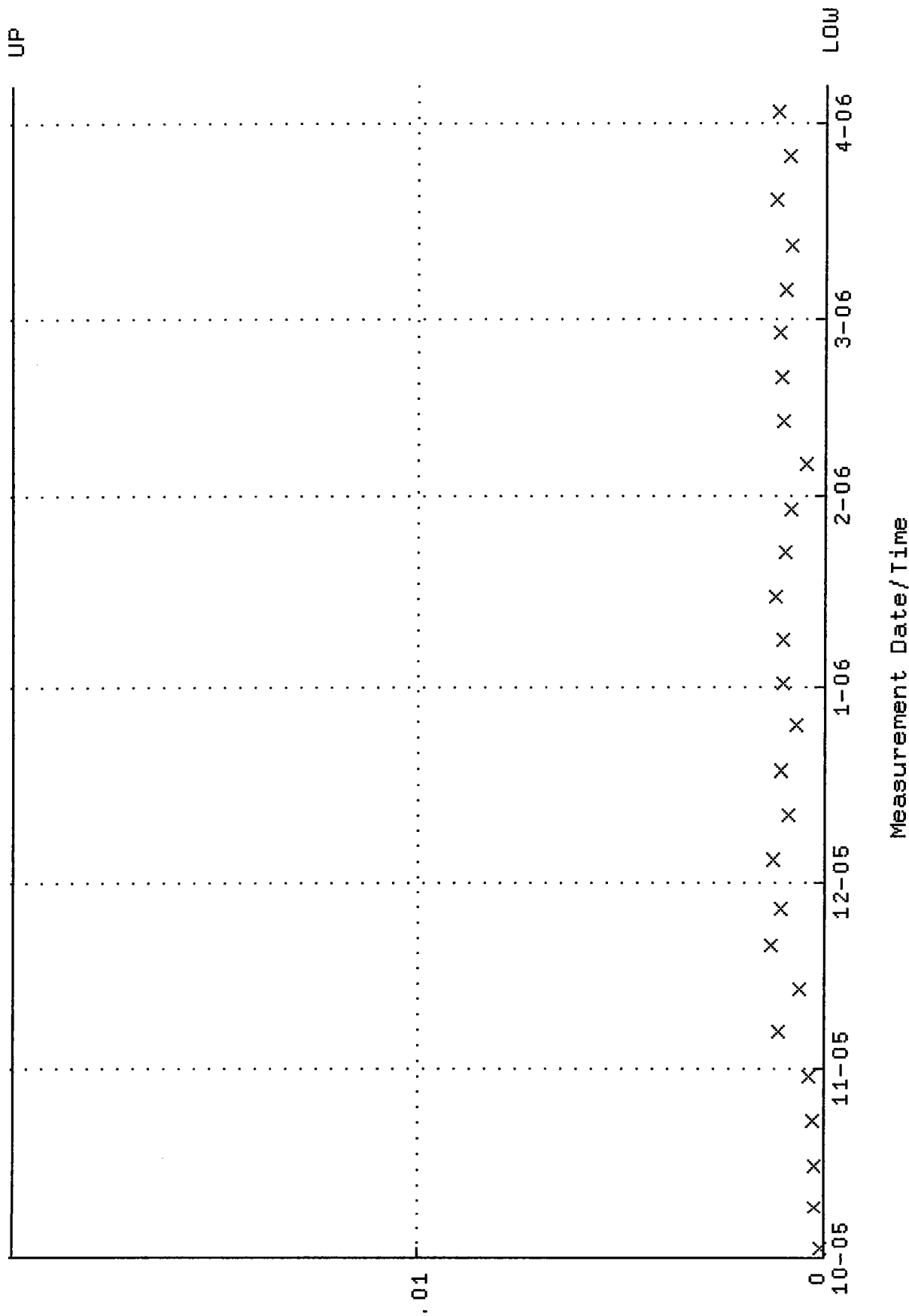
QA filename : DKA100:[ENV_ALPHA.QA.W]W085.QAF;6
 Parameter Name : AVREFF (Average Efficiency)
 Start/End Dates : 5-OCT-2005 12:08:55 through 6-APR-2006 12:00:00
 Lower/Upper Lmts: 0.280000 through 0.330000



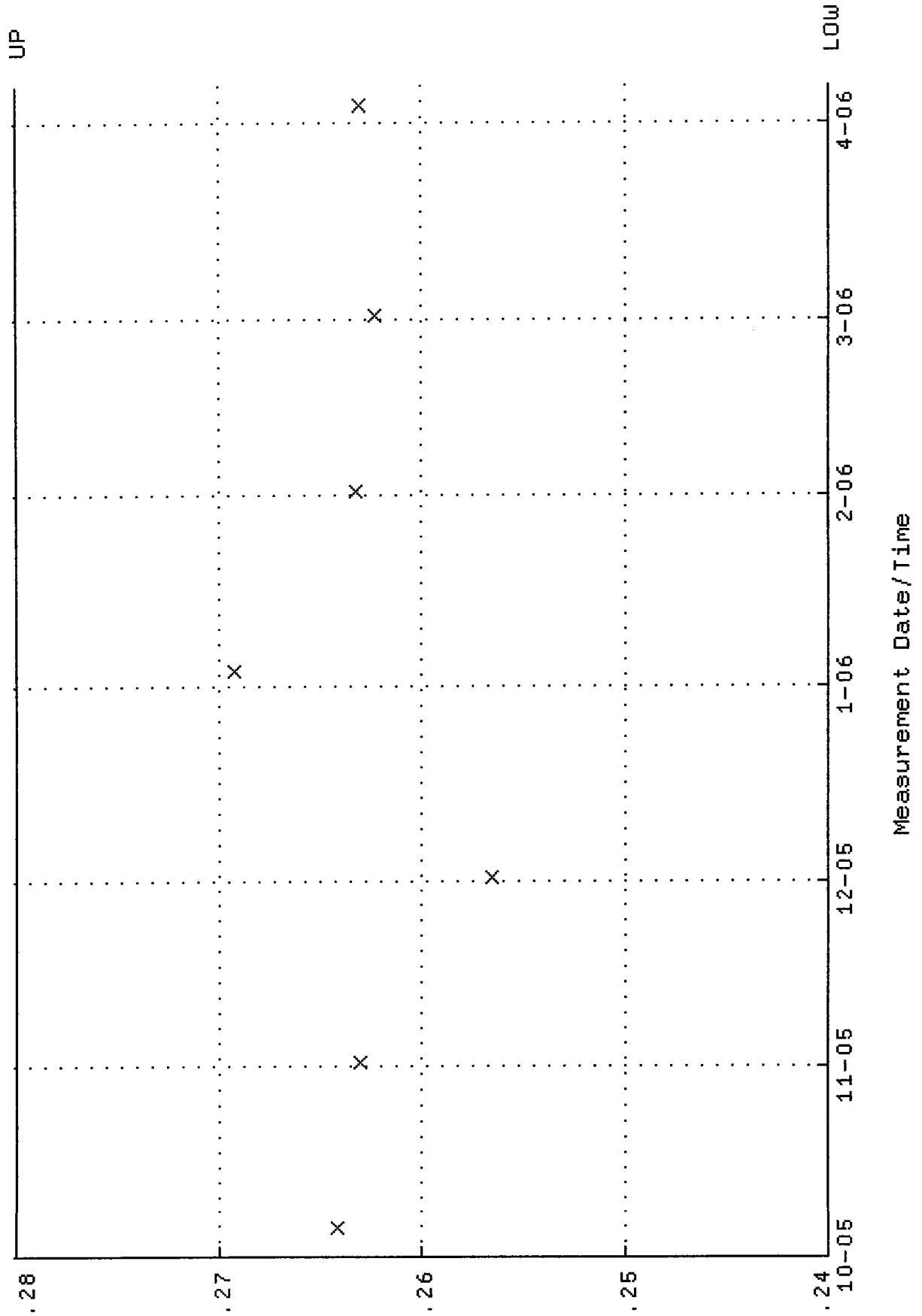
QA filename : DKA100:[ENV_ALPHA.QA.W]W085.QAF;6
 Parameter Name : NACTIVITY-GD148 (NUCLIDE ACTIVITY GD-148)
 Start/End Dates : 5-OCT-2005 12:08:55 through 6-APR-2006 12:00:00
 Lower/Upper Lmts: 60.0000 through 150.0000



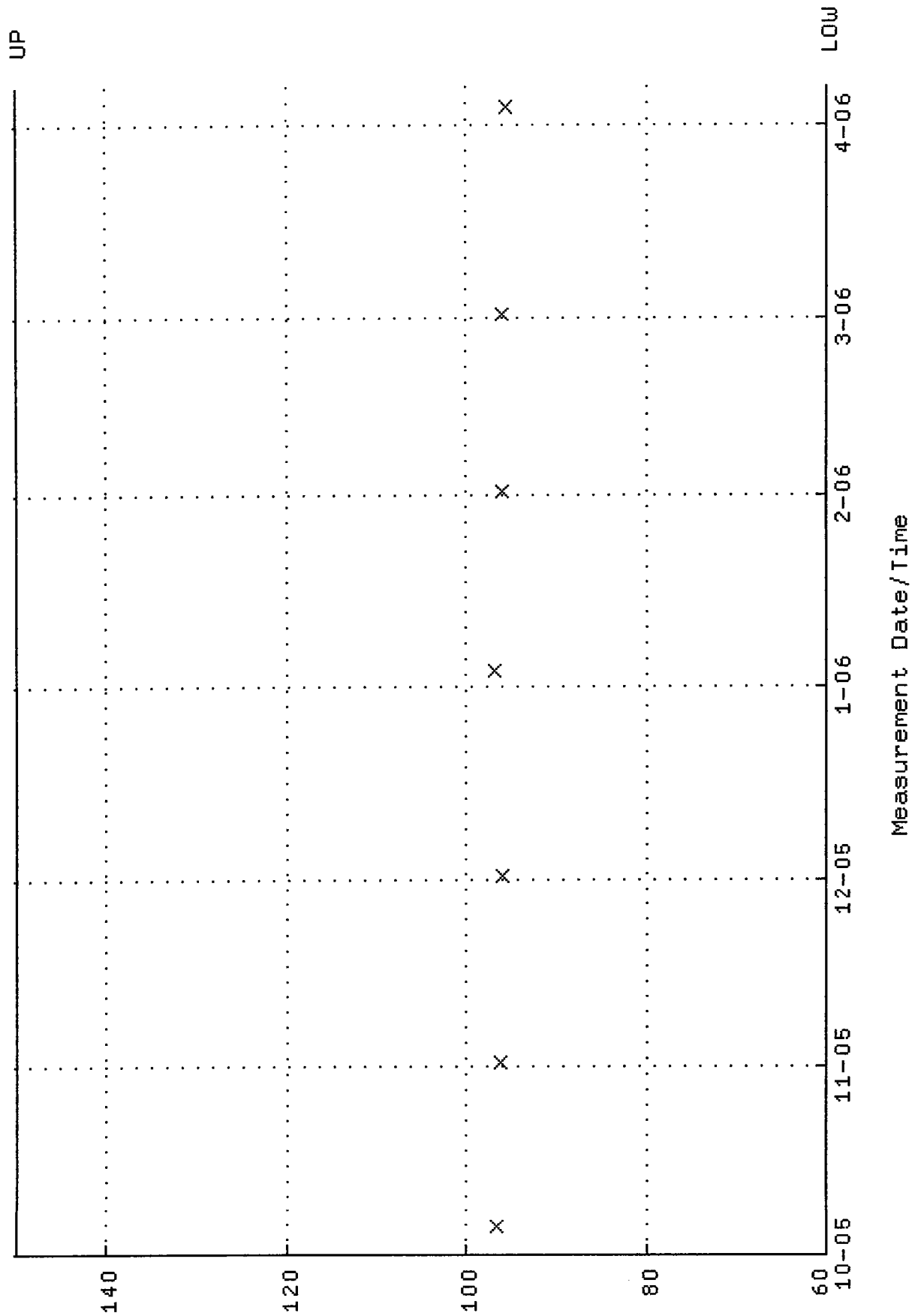
QA filename : DKA100:[ENV_ALPHA.QA.B]B085.QAF;2
 Parameter Name : BACKRATE (Background Rate)
 Start/End Dates : 2-OCT-2005 13:57:19 through 6-APR-2006 12:00:00
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



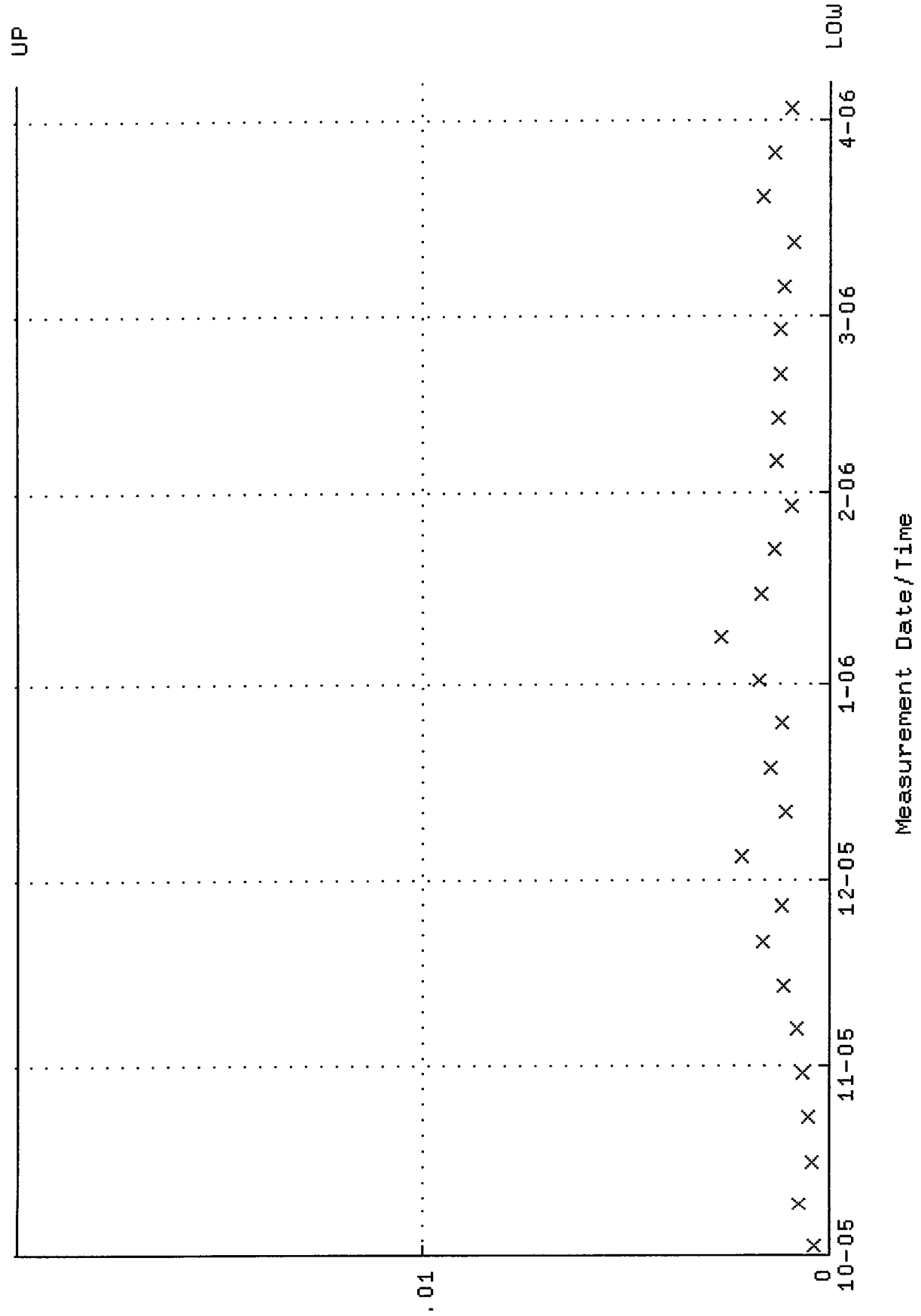
QA filename : DKA100:[ENVY_ALPHA.QA.W]W086.QAF;4
 Parameter Name : AVRGEFF (Average Efficiency)
 Start/End Dates : 5-OCT-2005 12:08:55 through 6-APR-2006 12:00:00
 Lower/Upper Lmts: 0.240000 through 0.280000



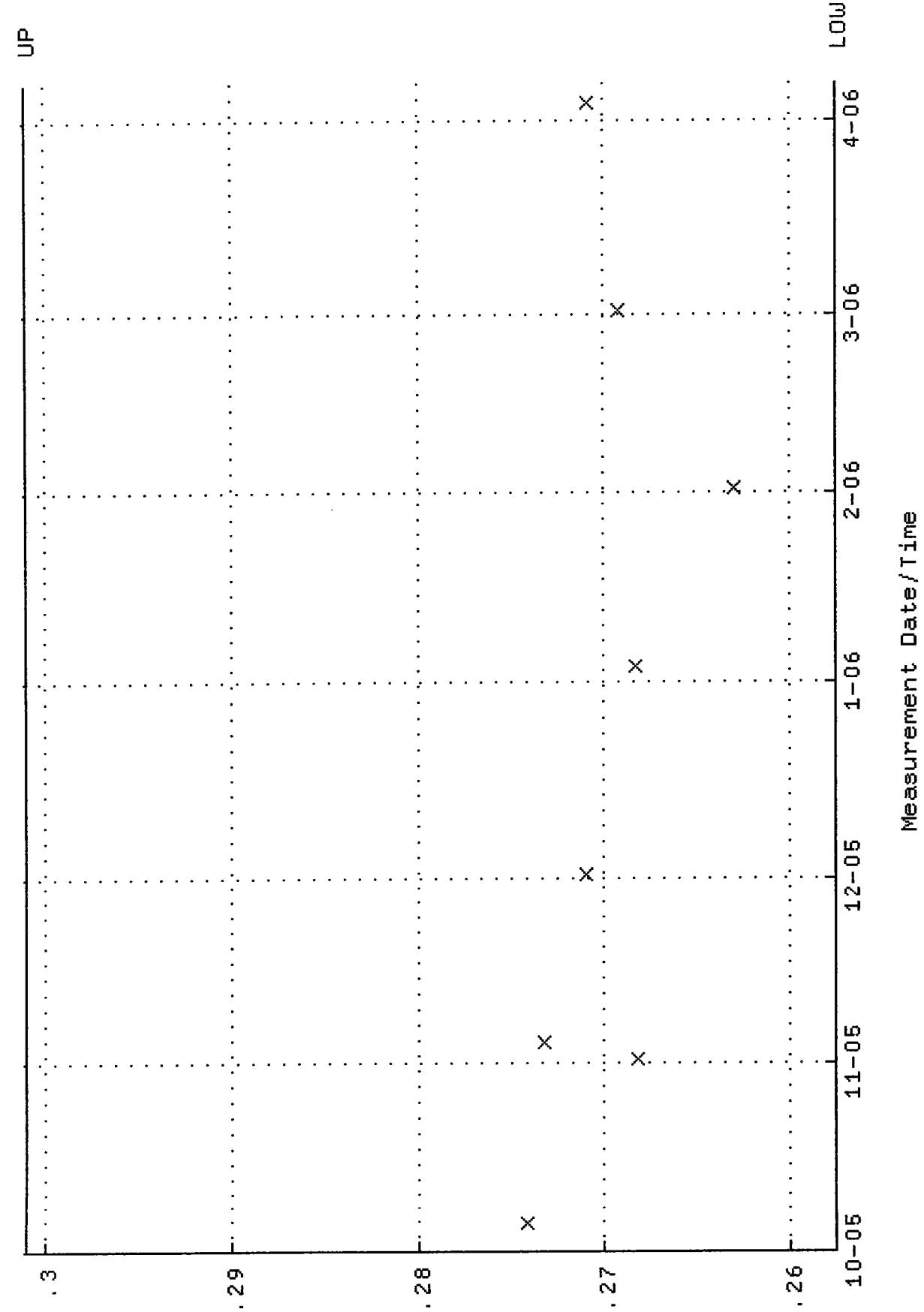
QA filename : DKA100:[ENV_ALPHA.QA.W]W086.QAF;4
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)
 Start/End Dates : 5-OCT-2005 12:08:55 through 6-APR-2006 12:00:00
 Lower/Upper Lmts: 60.0000 through 150.000



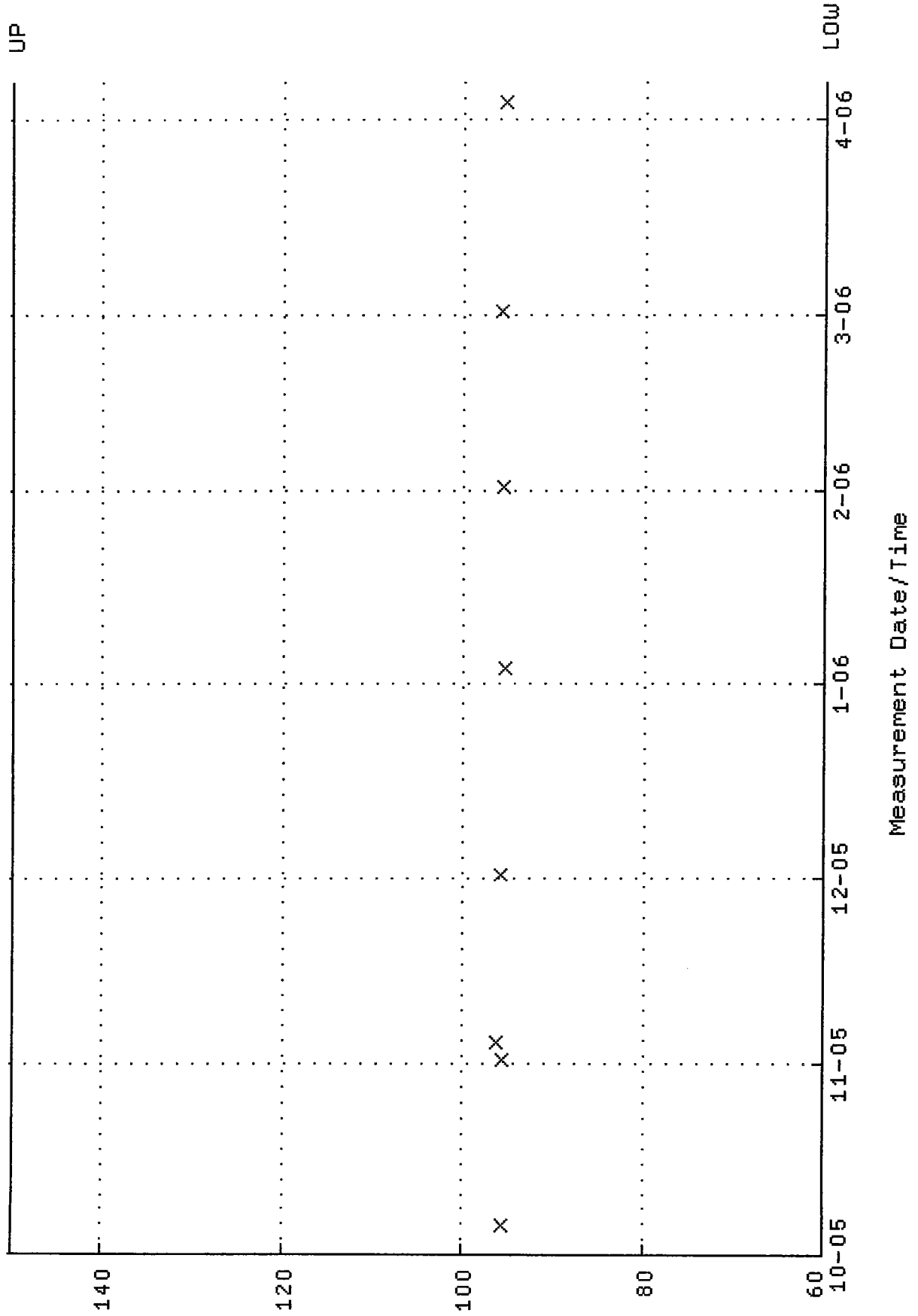
QA filename : DKA100:[ENV_ALPHA.QA.B]B086.QAF;1
 Parameter Name : BACKRATE (Background Rate)
 Start/End Dates : 2-OCT-2005 13:57:19 through 6-APR-2006 12:00:00
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



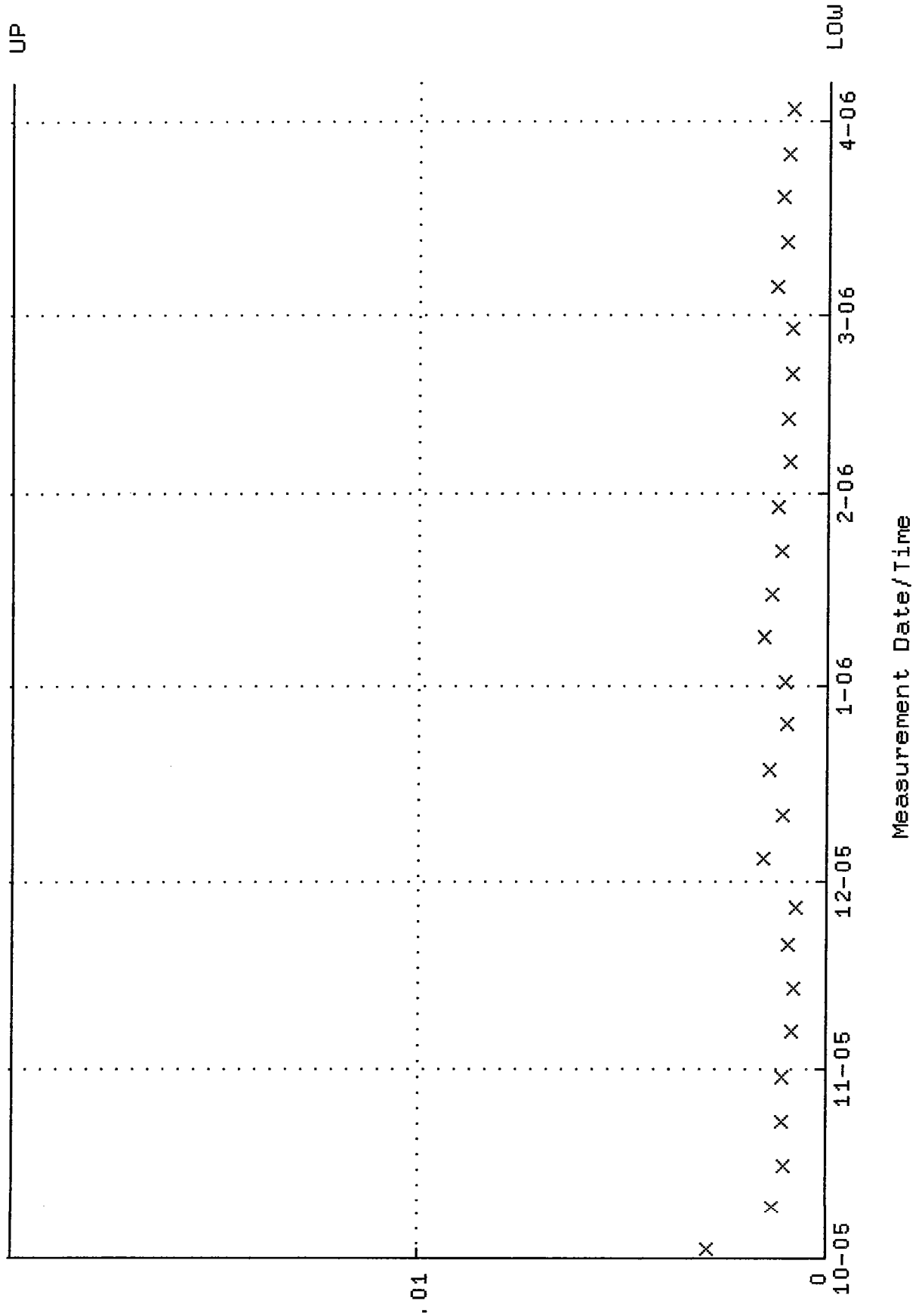
QA filename : DKA100:[ENV_ALPHA.QA.W]W088.QAF;4
 Parameter Name : AVRGEFF (Average Efficiency)
 Start/End Dates : 5-OCT-2005 12:08:55 through 6-APR-2006 12:00:00
 Lower/Upper Lmts: 0.257580 through 0.301020



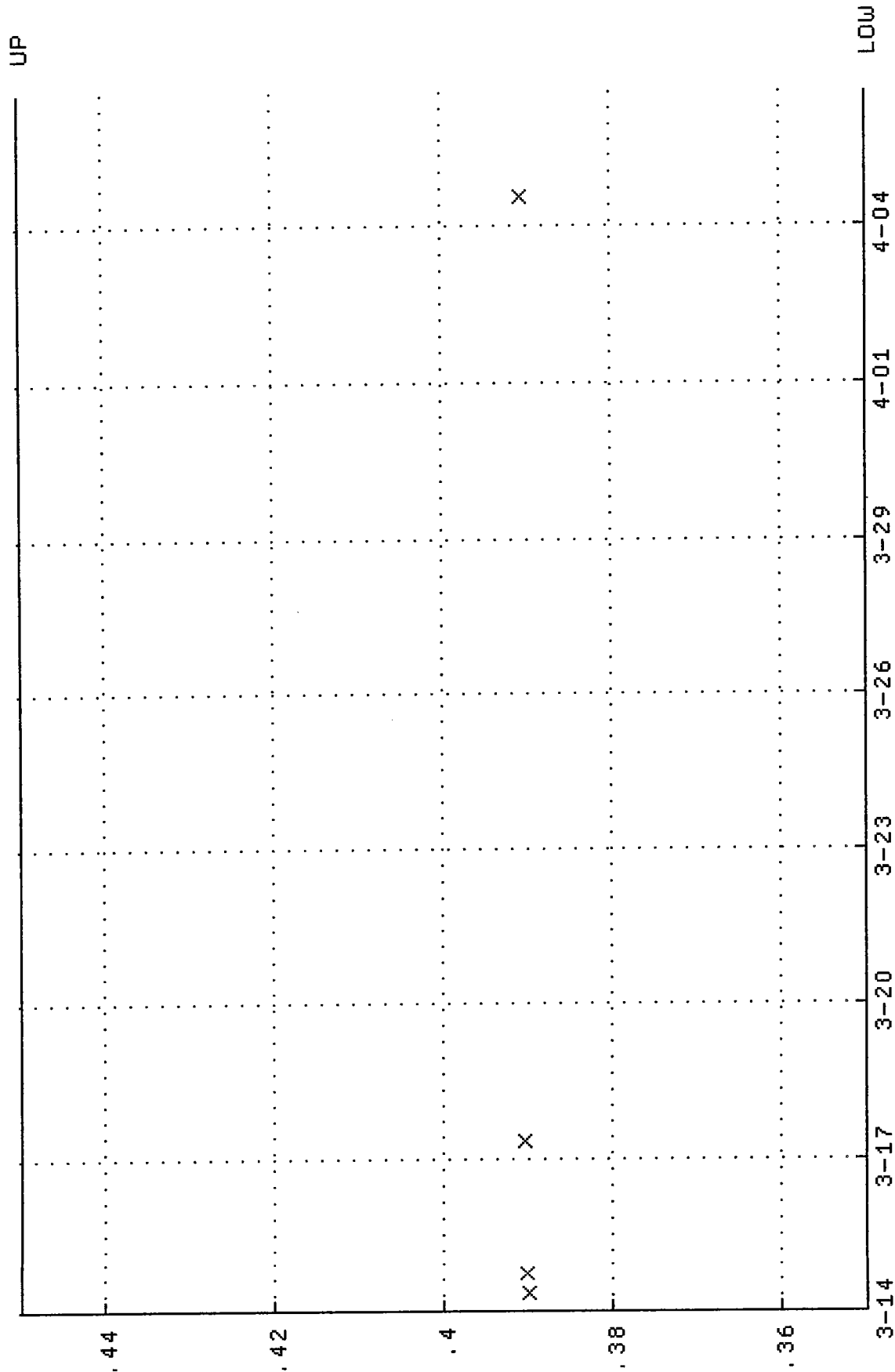
QA filename : DKA100:[ENV_ALPHA,QA,W]W088.QAF;4
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)
 Start/End Dates : 5-OCT-2005 12:08:55 through 6-APR-2006 12:00:00
 Lower/Upper Lmts: 60.0000 through 150.0000



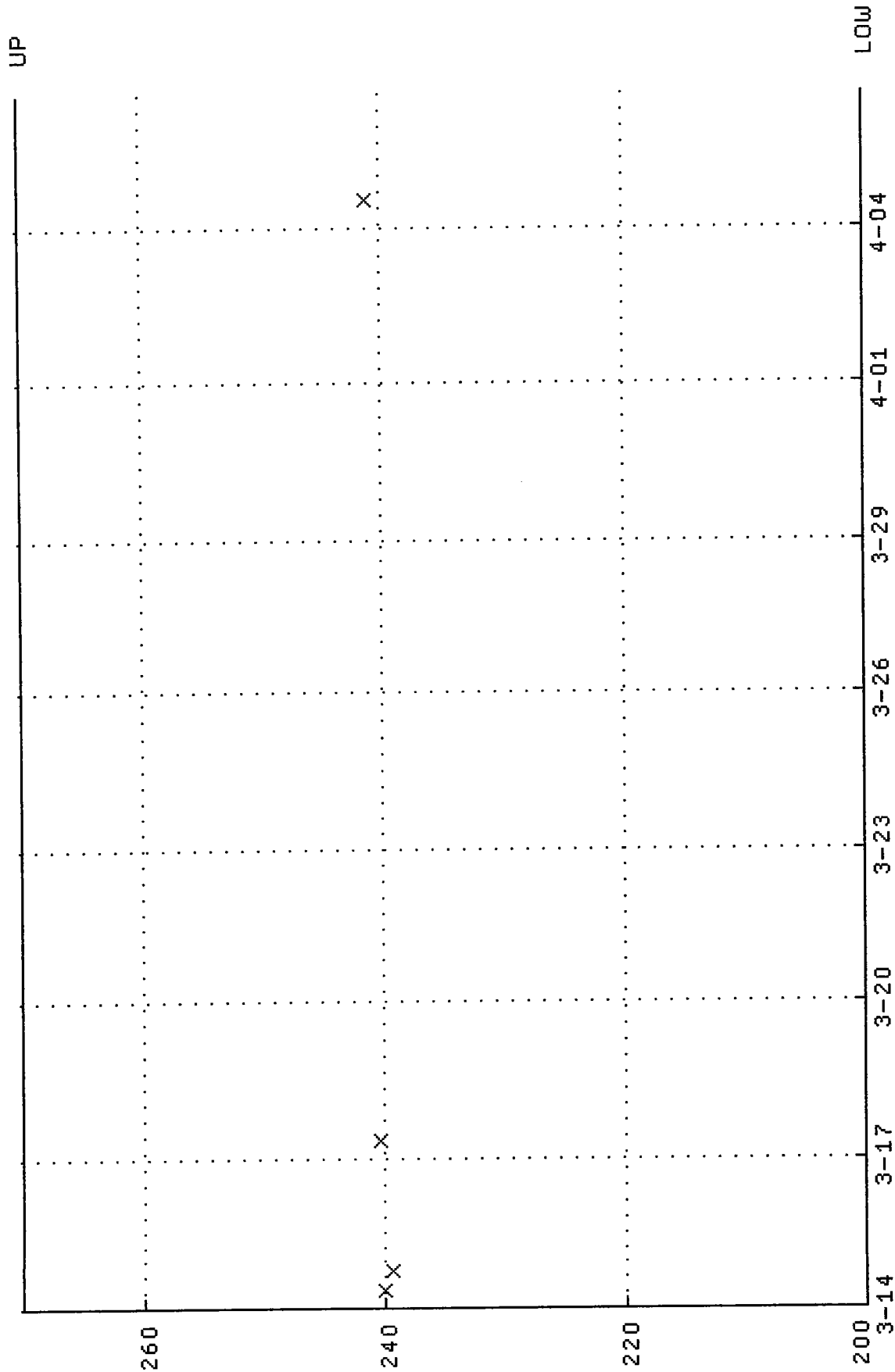
QA filename : DKA100:[ENV_ALPHA.QA.B]B088.QAF;1
 Parameter Name : BACKRATE (Background Rate)
 Start/End Dates : 2-OCT-2005 13:57:19 through 6-APR-2006 12:00:00
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



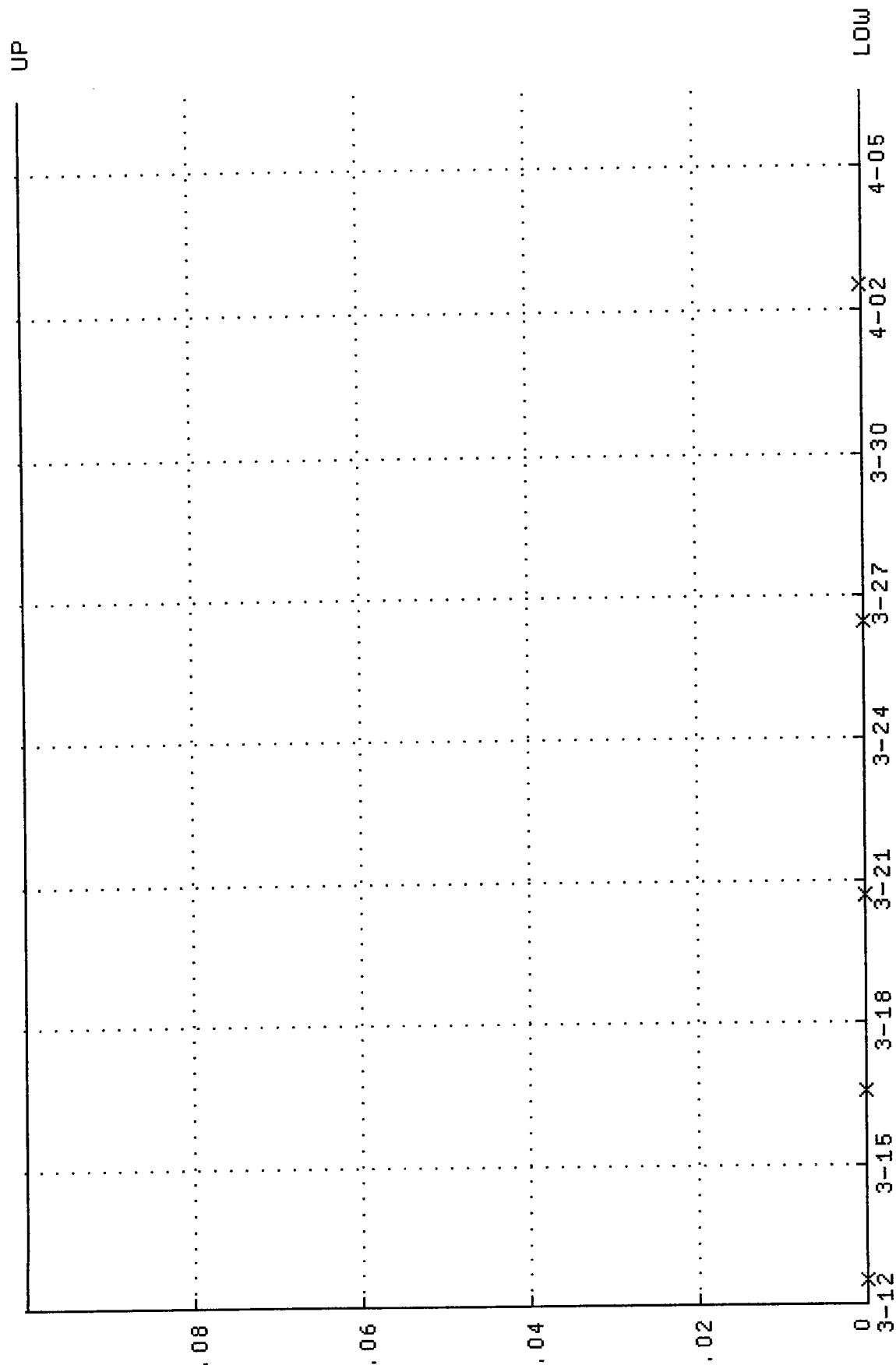
QA filename : DKA100:[ENV_ALPHA.QA.W]W116.QAF;1
 Parameter Name : AVRGEFF (Average Efficiency)
 Start/End Dates : 14-MAR-2006 08:48:31 through 6-APR-2006 12:00:00
 Lower/Upper Lmts: 0.350000 through 0.450000



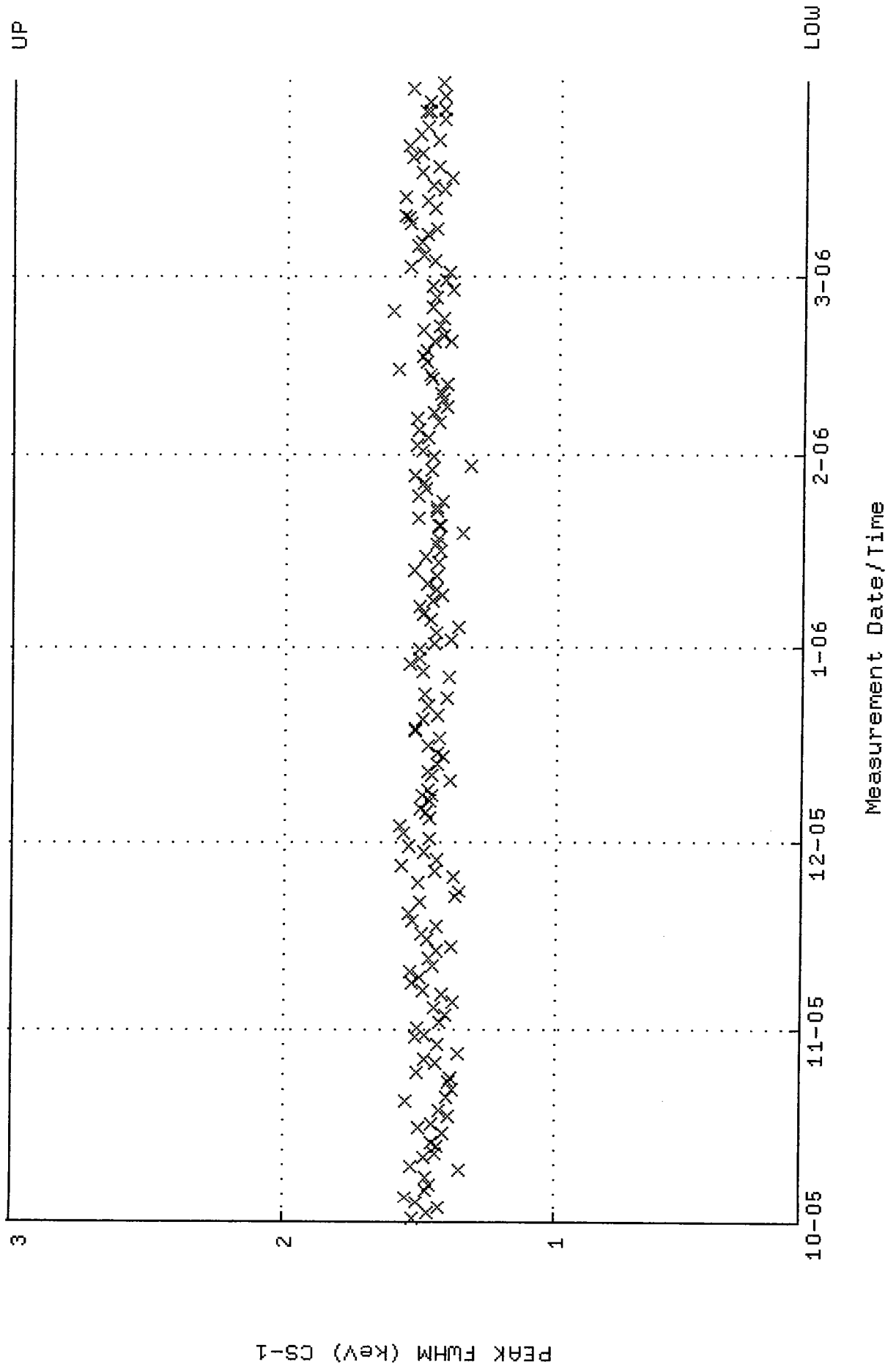
QA filename : DKA100:[ENV_ALPHA.QA.W]W116.QAF;1
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)
 Start/End Dates : 14-MAR-2006 08:48:31 through 6-APR-2006 12:00:00
 Lower/Upper Lmts: 200.000 through 270.000



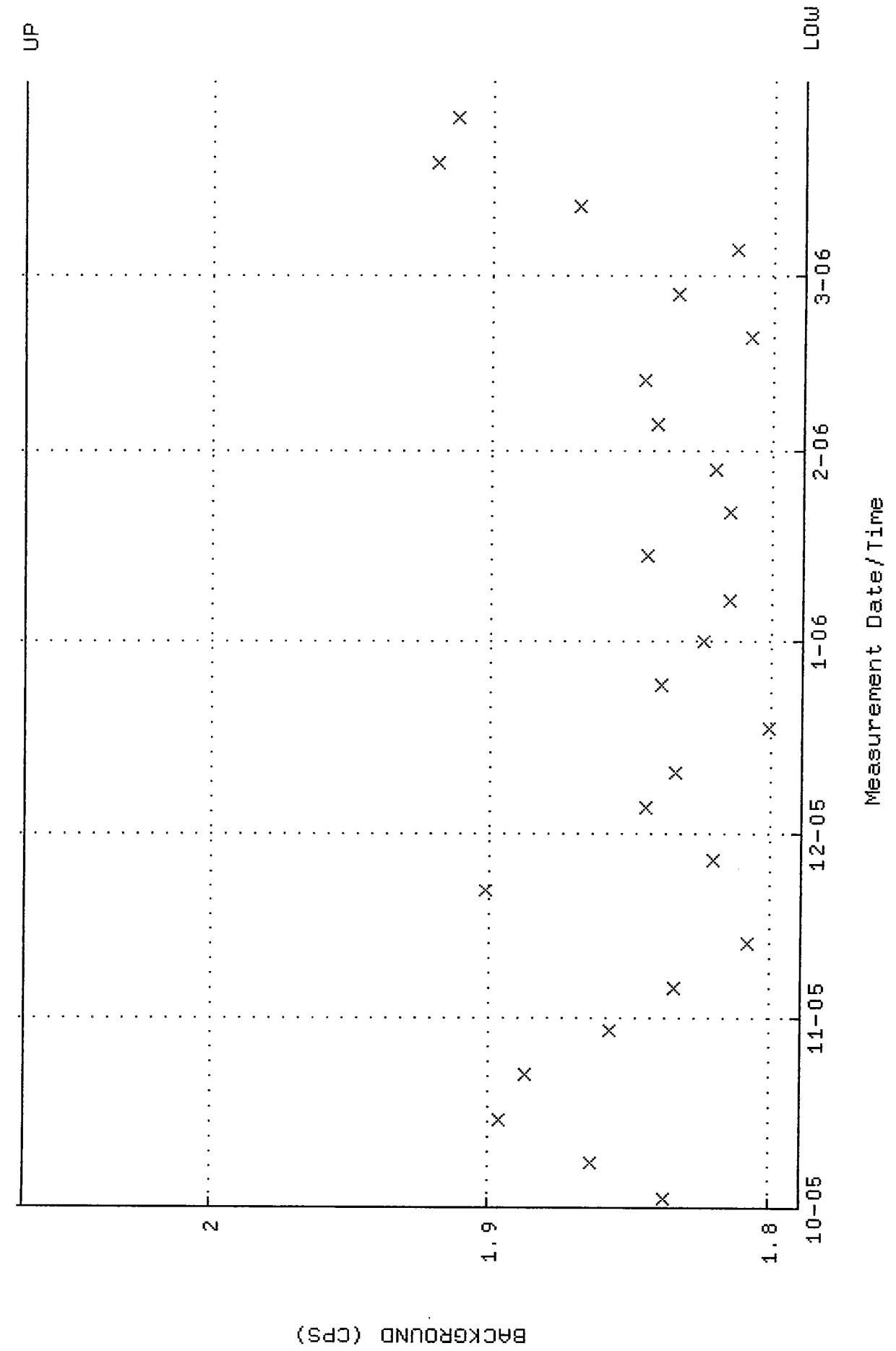
QA filename : DKA100:[ENV_ALPHA.QA.B]B116.QAF;1
 Parameter Name : BACKRATE (Background Rate)
 Start/End Dates : 12-MAR-2006 12:14:13 through 6-APR-2006 12:00:00
 Lower/Upper Lmts: 0.000000E+00 through 0.100000

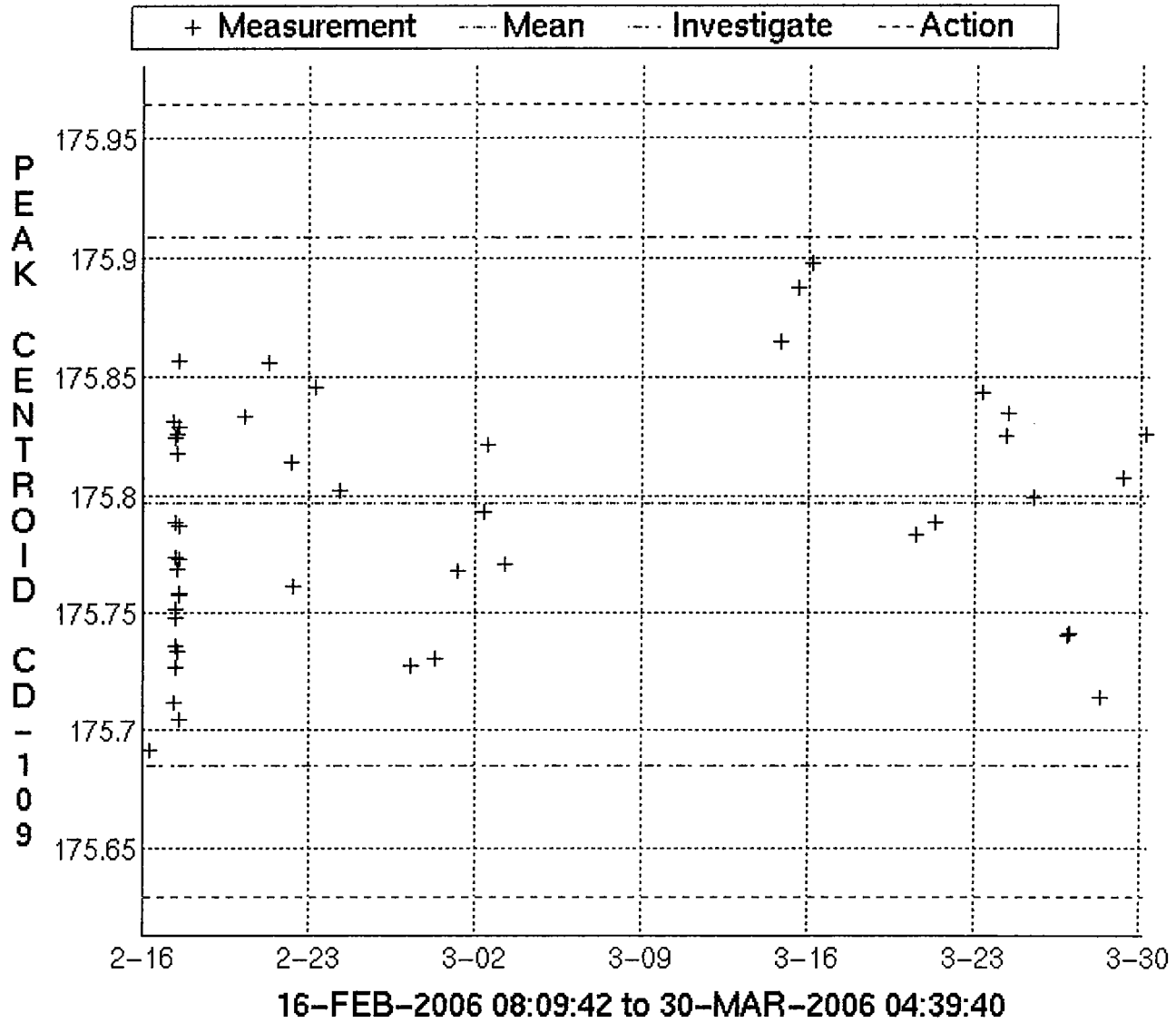


QA filename : DKA100:[ENV_ALPHA]QC_GAMMA6.QAF;5
Parameter Name : PSFUHM-661 (PEAK FUHM (keV) CS-137)
Start/End Dates : 1-OCT-2005 17:40:28 through 31-MAR-2006 12:00:00
Lower/Upper Lmts: 0.100000 through 3.000000

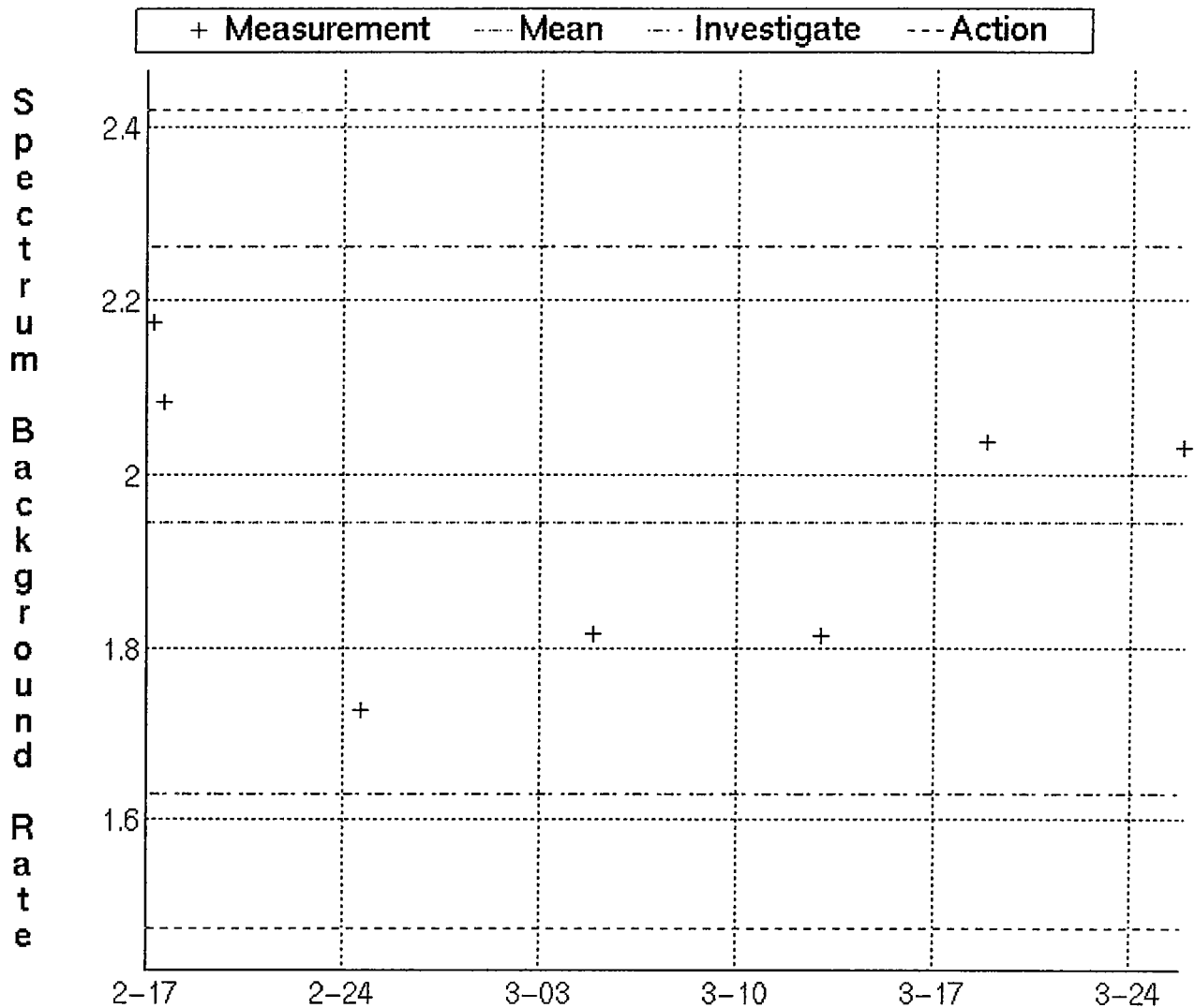


QA filename : DKA100:[ENV_ALPHA]QC_BKG_GAMMA6.QAF;2
 Parameter Name : BACKRATE (BACKGROUND (CPS))
 Start/End Dates : 2-OCT-2005 11:51:15 through 31-MAR-2006 12:00:00
 Lower/Upper Lmts: 1.78850 through 2.06800





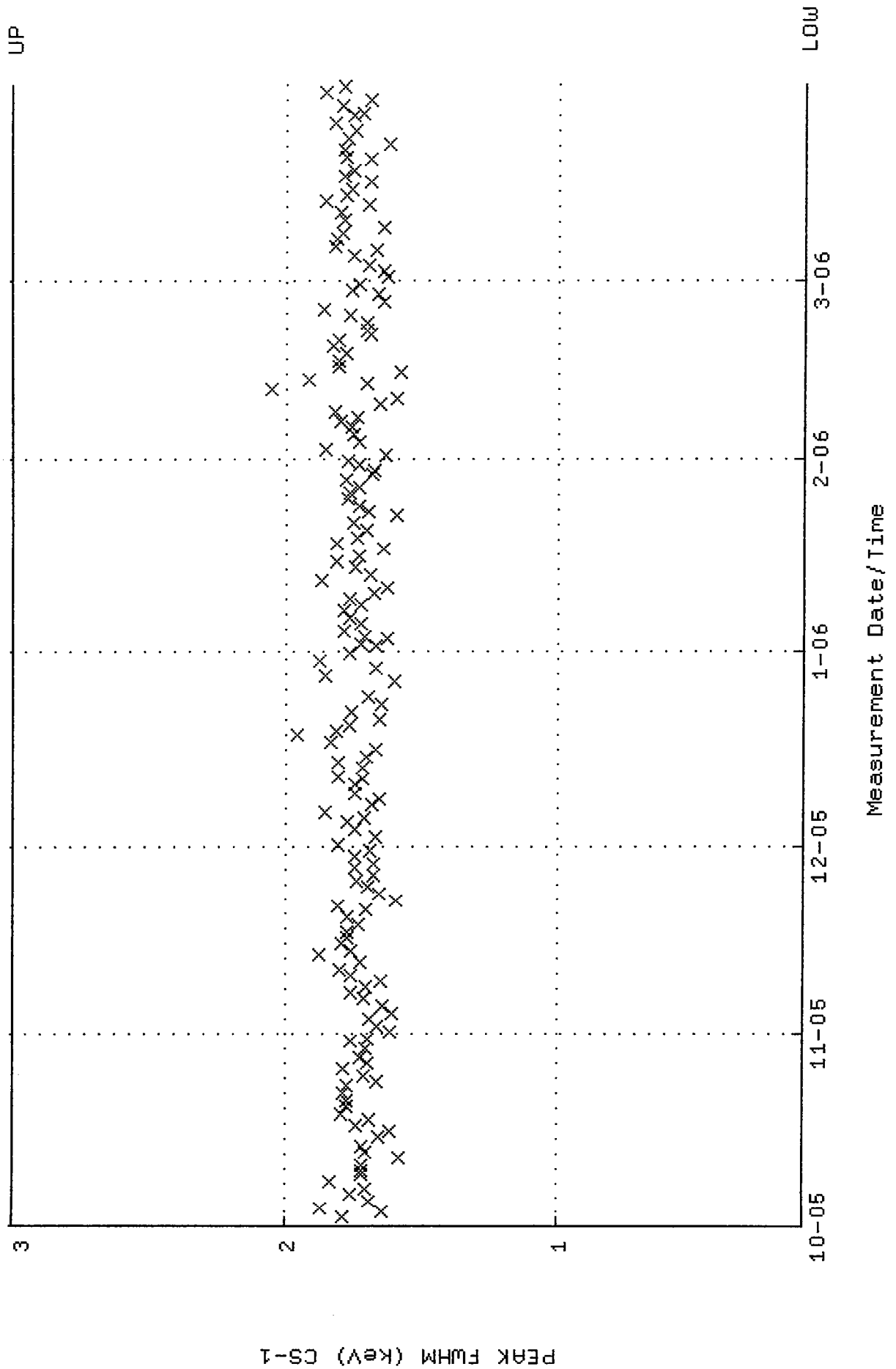
QA Filename: DKA0:[CANBERRA.GAMMA.SCUSR.QA]QCC_GAM19_CAN
 Parameter Name: PSCENTRD-88 (PEAK CENTROID CD-109)
 Statistics Start/End Dates: First data point through Last data point
 Mean +/- Std Dev: 175.797 ± 0.0558654 (0.03 %)



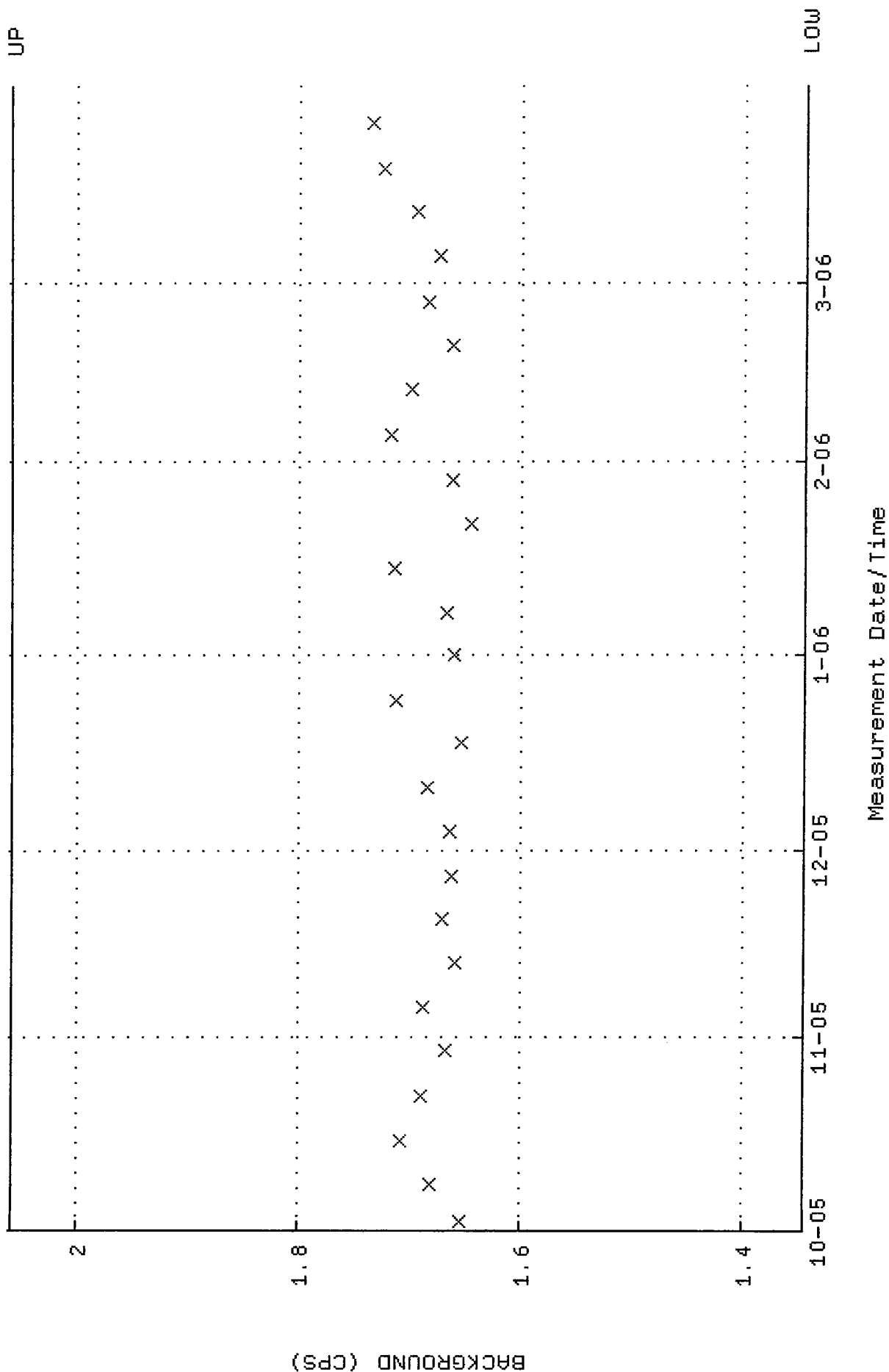
17-FEB-2006 07:20:41 to 25-MAR-2006 19:32:16

QA Filename: DKA0:[CANBERRA.GAMMA.SCUSR.QA]LBC_GAM19.QAF;1
 Parameter Name: BACKRATE (Spectrum Background Rate)
 Statistics Start/End Dates: First data point through Last data point
 Mean +/- Std Dev: 1.9459 ± 0.157399 (8.09 %)

QA filename : DKA100:[ENV_ALPHA]QC_WELL.QAF;4
Parameter Name : PSFWHM-661 (PEAK FWHM (keV) CS-137)
Start/End Dates : 2-OCT-2005 11:34:54 through 31-MAR-2006 12:00:00
Lower/Upper Lmts: 0.100000 through 3.000000



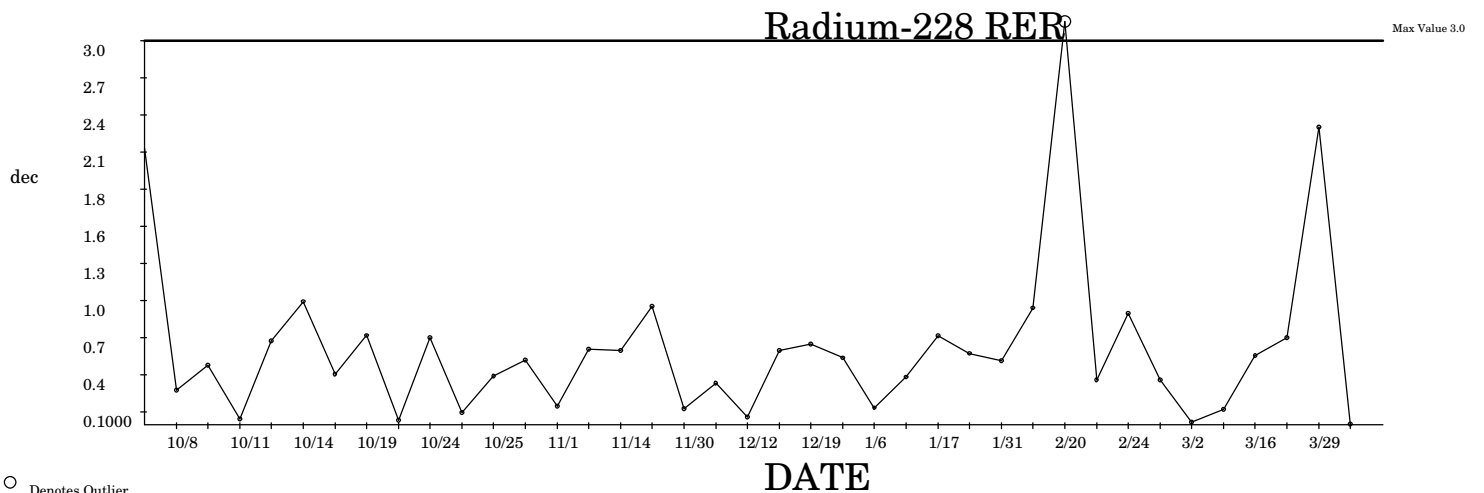
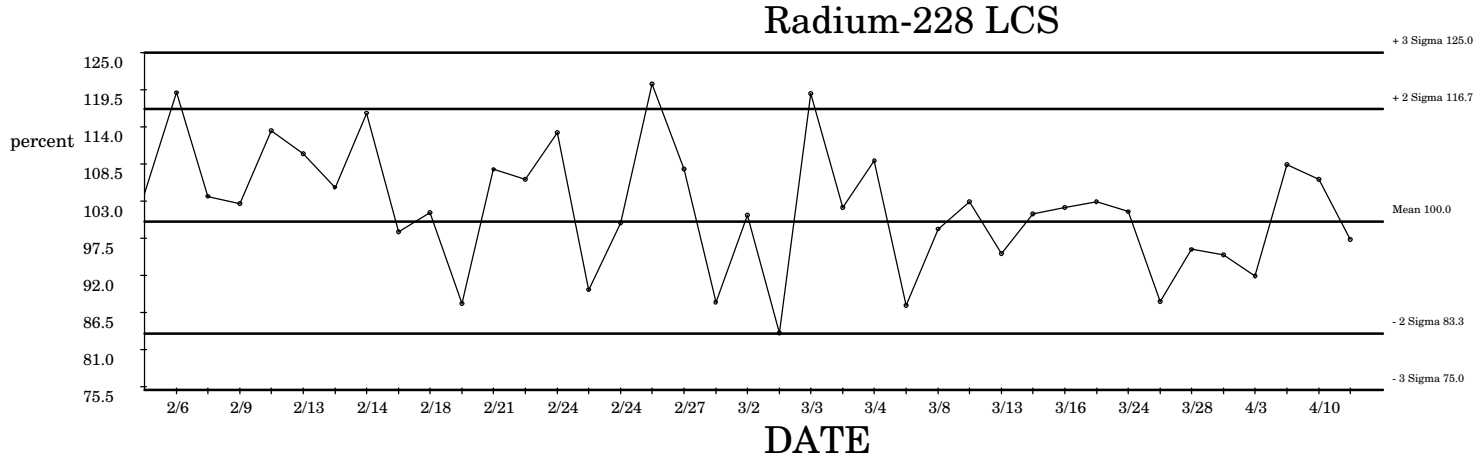
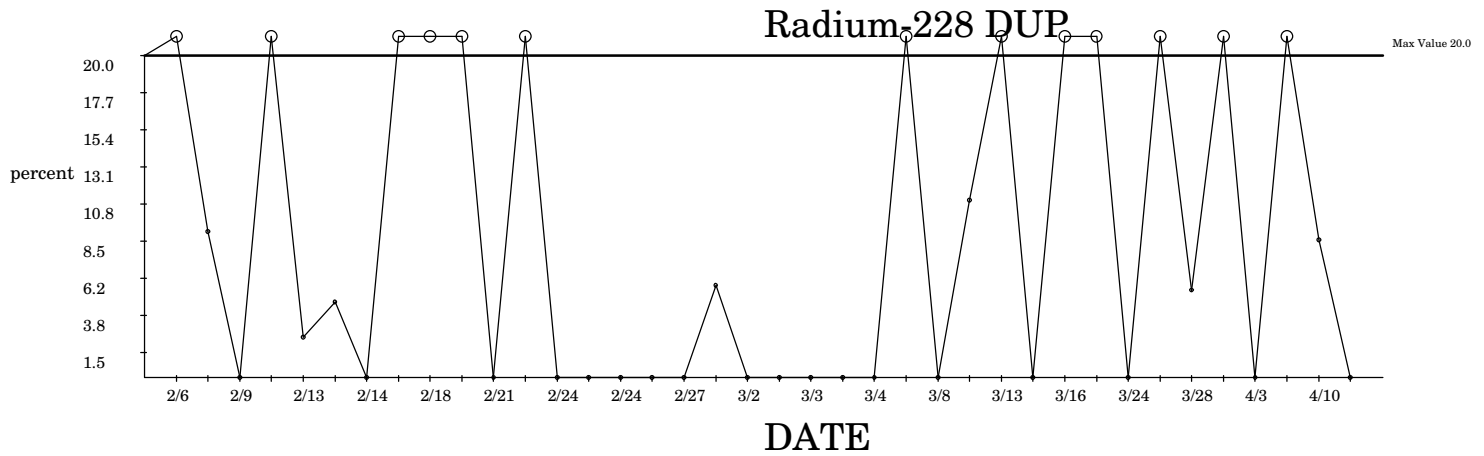
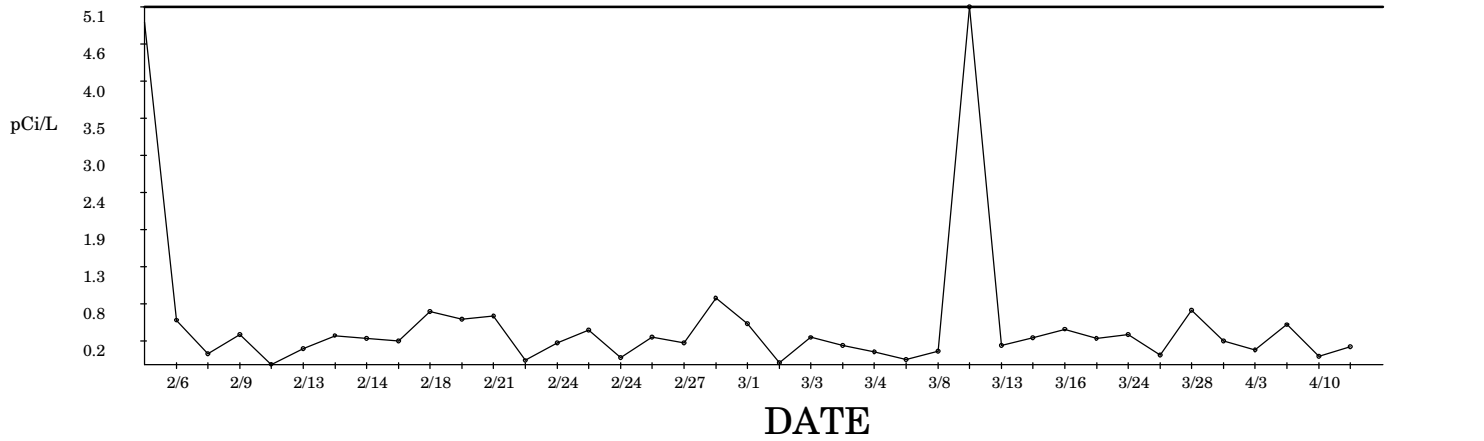
QA filename : DKA100:[ENV_ALPHA]QC_BKG_WELL.QAF;2
 Parameter Name : BACKRATE (BACKGROUND (CPS))
 Start/End Dates : 2-OCT-2005 11:46:24 through 31-MAR-2006 12:00:00
 Lower/Upper Lmts: 1.34470 through 2.05930



QUALITY CONTROL CHARTS

SPC Graph for Gas Flow Radium 228 in Liquids 4/10/2006

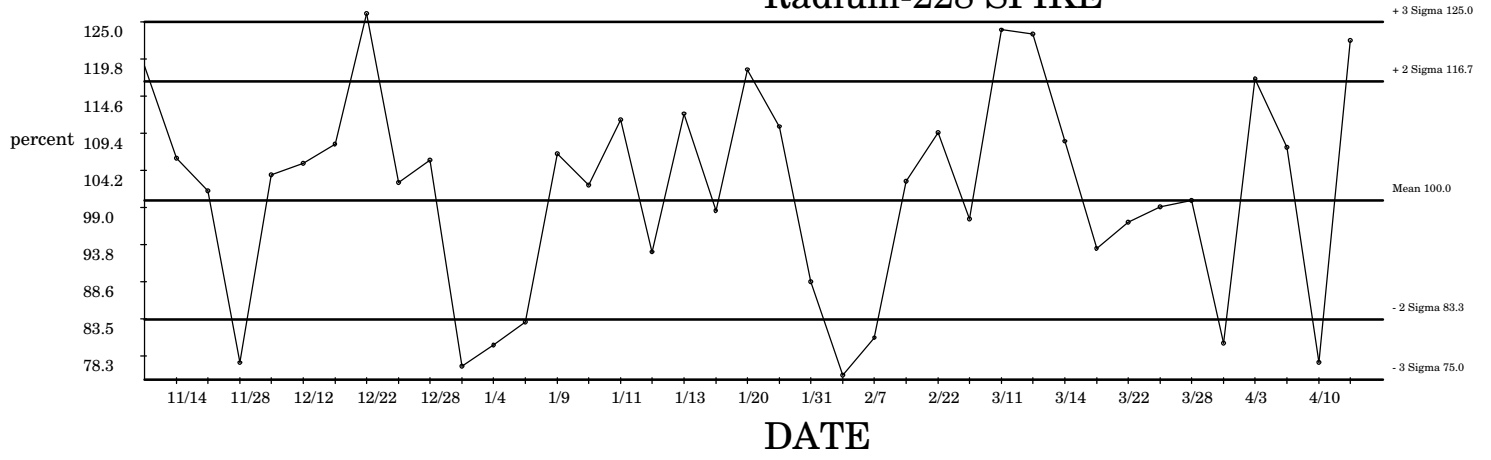
Radium-228 BLANK



○ Denotes Outlier

SPC Graph for Gas Flow Radium 228 in Liquids 4/10/2006

Radium-228 SPIKE



Data used for Gas Flow Radium 228 in Liquids 11-APR-2006

Radium-228 BLANK: Limits LCL = -2.1 UCL = 2.8

| Batch ID | Samp ID | Run Date | Status | Value | Deviation | Units | Mean | LCL | LWL | UWL | UCL | Stdev |
|----------|------------|-------------------|--------|-------|-----------|-------|------|------|------|------|------|-------|
| 496468 | 1201015686 | 01-FEB-2006 14:45 | DONE | 0 | -0.32 | pCi/L | 0.39 | -2.1 | -1.2 | 2.01 | 2.83 | 0.81 |
| 492836 | 1201007540 | 06-FEB-2006 11:47 | DONE | 1 | 0.19 | pCi/L | 0.39 | -2.1 | -1.2 | 2.01 | 2.83 | 0.81 |
| 500099 | 1201024109 | 08-FEB-2006 23:04 | DONE | 0 | -0.41 | pCi/L | 0.39 | -2.1 | -1.2 | 2.01 | 2.83 | 0.81 |
| 500100 | 1201024112 | 09-FEB-2006 13:43 | DONE | 0 | -0.07 | pCi/L | 0.39 | -2.1 | -1.2 | 2.01 | 2.83 | 0.81 |
| 500101 | 1201024115 | 10-FEB-2006 13:25 | DONE | 0 | -0.6 | pCi/L | 0.39 | -2.1 | -1.2 | 2.01 | 2.83 | 0.81 |
| 500104 | 1201024129 | 13-FEB-2006 14:44 | DONE | 0 | -0.32 | pCi/L | 0.39 | -2.1 | -1.2 | 2.01 | 2.83 | 0.81 |
| 500102 | 1201024122 | 13-FEB-2006 22:54 | DONE | 0 | -0.08 | pCi/L | 0.39 | -2.1 | -1.2 | 2.01 | 2.83 | 0.81 |
| 500103 | 1201024126 | 14-FEB-2006 12:33 | DONE | 0 | -0.14 | pCi/L | 0.39 | -2.1 | -1.2 | 2.01 | 2.83 | 0.81 |
| 500107 | 1201024135 | 17-FEB-2006 19:06 | DONE | 0 | -0.18 | pCi/L | 0.39 | -2.1 | -1.2 | 2.01 | 2.83 | 0.81 |
| 500106 | 1201024132 | 18-FEB-2006 20:37 | DONE | 1 | 0.35 | pCi/L | 0.39 | -2.1 | -1.2 | 2.01 | 2.83 | 0.81 |
| 500108 | 1201024138 | 20-FEB-2006 13:18 | DONE | 1 | 0.21 | pCi/L | 0.39 | -2.1 | -1.2 | 2.01 | 2.83 | 0.81 |
| 500109 | 1201024141 | 21-FEB-2006 21:51 | DONE | 1 | 0.27 | pCi/L | 0.39 | -2.1 | -1.2 | 2.01 | 2.83 | 0.81 |
| 503553 | 1201031967 | 22-FEB-2006 23:15 | DONE | 0 | -0.53 | pCi/L | 0.39 | -2.1 | -1.2 | 2.01 | 2.83 | 0.81 |
| 500111 | 1201024147 | 24-FEB-2006 13:04 | DONE | 0 | -0.21 | pCi/L | 0.39 | -2.1 | -1.2 | 2.01 | 2.83 | 0.81 |
| 504736 | 1201034726 | 24-FEB-2006 19:27 | DONE | 0 | 0.02 | pCi/L | 0.39 | -2.1 | -1.2 | 2.01 | 2.83 | 0.81 |
| 505206 | 1201035921 | 24-FEB-2006 23:05 | DONE | 0 | -0.48 | pCi/L | 0.39 | -2.1 | -1.2 | 2.01 | 2.83 | 0.81 |
| 502697 | 1201030163 | 27-FEB-2006 20:34 | DONE | 0 | -0.11 | pCi/L | 0.39 | -2.1 | -1.2 | 2.01 | 2.83 | 0.81 |
| 505945 | 1201037656 | 27-FEB-2006 21:44 | DONE | 0 | -0.21 | pCi/L | 0.39 | -2.1 | -1.2 | 2.01 | 2.83 | 0.81 |
| 500110 | 1201024144 | 28-FEB-2006 11:44 | DONE | 1 | 0.59 | pCi/L | 0.39 | -2.1 | -1.2 | 2.01 | 2.83 | 0.81 |
| 505426 | 1201036460 | 01-MAR-2006 23:28 | DONE | 0 | 0.13 | pCi/L | 0.39 | -2.1 | -1.2 | 2.01 | 2.83 | 0.81 |
| 505422 | 1201036449 | 02-MAR-2006 20:45 | DONE | 0 | -0.57 | pCi/L | 0.39 | -2.1 | -1.2 | 2.01 | 2.83 | 0.81 |
| 507266 | 1201040783 | 03-MAR-2006 12:51 | DONE | 0 | -0.12 | pCi/L | 0.39 | -2.1 | -1.2 | 2.01 | 2.83 | 0.81 |
| 507261 | 1201040773 | 03-MAR-2006 19:46 | DONE | 0 | -0.26 | pCi/L | 0.39 | -2.1 | -1.2 | 2.01 | 2.83 | 0.81 |
| 507469 | 1201041345 | 04-MAR-2006 14:23 | DONE | 0 | -0.38 | pCi/L | 0.39 | -2.1 | -1.2 | 2.01 | 2.83 | 0.81 |
| 507481 | 1201041382 | 06-MAR-2006 15:43 | DONE | 0 | -0.52 | pCi/L | 0.39 | -2.1 | -1.2 | 2.01 | 2.83 | 0.81 |
| 507501 | 1201041440 | 08-MAR-2006 11:56 | DONE | 0 | -0.36 | pCi/L | 0.39 | -2.1 | -1.2 | 2.01 | 2.83 | 0.81 |
| 507516 | 1201041476 | 11-MAR-2006 15:32 | DONE | 5 | 5.8 | pCi/L | 0.39 | -2.1 | -1.2 | 2.01 | 2.83 | 0.81 |
| 508232 | 1201043146 | 13-MAR-2006 12:33 | DONE | 0 | -0.26 | pCi/L | 0.39 | -2.1 | -1.2 | 2.01 | 2.83 | 0.81 |
| 510236 | 1201047754 | 14-MAR-2006 13:30 | DONE | 0 | -0.13 | pCi/L | 0.39 | -2.1 | -1.2 | 2.01 | 2.83 | 0.81 |
| 510245 | 1201047773 | 16-MAR-2006 14:08 | DONE | 0 | 0.03 | pCi/L | 0.39 | -2.1 | -1.2 | 2.01 | 2.83 | 0.81 |
| 513331 | 1201054714 | 22-MAR-2006 15:10 | DONE | 0 | -0.13 | pCi/L | 0.39 | -2.1 | -1.2 | 2.01 | 2.83 | 0.81 |
| 510589 | 1201048485 | 24-MAR-2006 11:47 | DONE | 0 | -0.06 | pCi/L | 0.39 | -2.1 | -1.2 | 2.01 | 2.83 | 0.81 |
| 508234 | 1201043153 | 27-MAR-2006 12:04 | DONE | 0 | -0.43 | pCi/L | 0.39 | -2.1 | -1.2 | 2.01 | 2.83 | 0.81 |
| 510590 | 1201048488 | 28-MAR-2006 12:34 | DONE | 1 | 0.38 | pCi/L | 0.39 | -2.1 | -1.2 | 2.01 | 2.83 | 0.81 |
| 513290 | 1201054636 | 29-MAR-2006 15:21 | DONE | 0 | -0.18 | pCi/L | 0.39 | -2.1 | -1.2 | 2.01 | 2.83 | 0.81 |
| 513295 | 1201054648 | 03-APR-2006 23:15 | DONE | 0 | -0.34 | pCi/L | 0.39 | -2.1 | -1.2 | 2.01 | 2.83 | 0.81 |
| 517809 | 1201064414 | 06-APR-2006 22:35 | DONE | 0 | 0.12 | pCi/L | 0.39 | -2.1 | -1.2 | 2.01 | 2.83 | 0.81 |
| 513299 | 1201054652 | 10-APR-2006 13:30 | DONE | 0 | -0.45 | pCi/L | 0.39 | -2.1 | -1.2 | 2.01 | 2.83 | 0.81 |
| 515325 | 1201058924 | 10-APR-2006 18:53 | DONE | 0 | -0.28 | pCi/L | 0.39 | -2.1 | -1.2 | 2.01 | 2.83 | 0.81 |

Radium-228 DUP: Limits LCL = 0 UCL = 20

| Batch ID | Samp ID | Run Date | Status | Value | Deviation | Units | Mean | LCL | LWL | UWL | UCL | Stdev |
|----------|------------|-------------------|--------|-------|-----------|---------|------|-----|-----|------|------|-------|
| 496468 | 1201015687 | 01-FEB-2006 14:45 | DONE | 0 | -0.66 | percent | 19.6 | 0 | -40 | 78.7 | 20.0 | 29.6 |
| 492836 | 1201007541 | 06-FEB-2006 11:47 | DONE | 29 | 0.32 | percent | 19.6 | 0 | -40 | 78.7 | 20.0 | 29.6 |
| 500099 | 1201024110 | 08-FEB-2006 23:04 | DONE | 9 | -0.35 | percent | 19.6 | 0 | -40 | 78.7 | 20.0 | 29.6 |
| 500100 | 1201024113 | 09-FEB-2006 15:17 | DONE | 0 | -0.66 | percent | 19.6 | 0 | -40 | 78.7 | 20.0 | 29.6 |

| | | | | | | | | | | | | |
|--------|------------|-------------------|------|-----|-------|---------|------|---|-----|------|------|------|
| 500101 | 1201024116 | 10-FEB-2006 13:25 | DONE | 62 | 1.4 | percent | 19.6 | 0 | -40 | 78.7 | 20.0 | 29.6 |
| 500104 | 1201024130 | 13-FEB-2006 12:41 | DONE | 3 | -0.58 | percent | 19.6 | 0 | -40 | 78.7 | 20.0 | 29.6 |
| 500102 | 1201024123 | 13-FEB-2006 22:54 | DONE | 5 | -0.5 | percent | 19.6 | 0 | -40 | 78.7 | 20.0 | 29.6 |
| 500103 | 1201024127 | 14-FEB-2006 12:34 | DONE | 0 | -0.66 | percent | 19.6 | 0 | -40 | 78.7 | 20.0 | 29.6 |
| 500107 | 1201024136 | 17-FEB-2006 19:06 | DONE | 23 | 0.12 | percent | 19.6 | 0 | -40 | 78.7 | 20.0 | 29.6 |
| 500106 | 1201024133 | 18-FEB-2006 19:01 | DONE | 83 | 2.1 | percent | 19.6 | 0 | -40 | 78.7 | 20.0 | 29.6 |
| 500108 | 1201024139 | 20-FEB-2006 12:19 | DONE | 27 | 0.24 | percent | 19.6 | 0 | -40 | 78.7 | 20.0 | 29.6 |
| 500109 | 1201024142 | 21-FEB-2006 21:51 | DONE | 0 | -0.66 | percent | 19.6 | 0 | -40 | 78.7 | 20.0 | 29.6 |
| 503553 | 1201031968 | 22-FEB-2006 23:14 | DONE | 64 | 1.5 | percent | 19.6 | 0 | -40 | 78.7 | 20.0 | 29.6 |
| 500111 | 1201024148 | 24-FEB-2006 13:04 | DONE | 0 | -0.66 | percent | 19.6 | 0 | -40 | 78.7 | 20.0 | 29.6 |
| 504736 | 1201034727 | 24-FEB-2006 19:27 | DONE | 0 | -0.66 | percent | 19.6 | 0 | -40 | 78.7 | 20.0 | 29.6 |
| 505206 | 1201035922 | 24-FEB-2006 21:57 | DONE | 0 | -0.66 | percent | 19.6 | 0 | -40 | 78.7 | 20.0 | 29.6 |
| 502697 | 1201030164 | 27-FEB-2006 20:34 | DONE | 0 | -0.66 | percent | 19.6 | 0 | -40 | 78.7 | 20.0 | 29.6 |
| 505945 | 1201037657 | 27-FEB-2006 21:45 | DONE | 0 | -0.66 | percent | 19.6 | 0 | -40 | 78.7 | 20.0 | 29.6 |
| 500110 | 1201024145 | 28-FEB-2006 11:44 | DONE | 6 | -0.47 | percent | 19.6 | 0 | -40 | 78.7 | 20.0 | 29.6 |
| 505426 | 1201036461 | 02-MAR-2006 00:22 | DONE | 0 | -0.66 | percent | 19.6 | 0 | -40 | 78.7 | 20.0 | 29.6 |
| 505422 | 1201036450 | 02-MAR-2006 20:45 | DONE | 0 | -0.66 | percent | 19.6 | 0 | -40 | 78.7 | 20.0 | 29.6 |
| 507266 | 1201040784 | 03-MAR-2006 12:51 | DONE | 0 | -0.66 | percent | 19.6 | 0 | -40 | 78.7 | 20.0 | 29.6 |
| 507261 | 1201040774 | 03-MAR-2006 19:46 | DONE | 0 | -0.66 | percent | 19.6 | 0 | -40 | 78.7 | 20.0 | 29.6 |
| 507469 | 1201041346 | 04-MAR-2006 13:18 | DONE | 0 | -0.66 | percent | 19.6 | 0 | -40 | 78.7 | 20.0 | 29.6 |
| 507481 | 1201041383 | 06-MAR-2006 15:43 | DONE | 58 | 1.3 | percent | 19.6 | 0 | -40 | 78.7 | 20.0 | 29.6 |
| 507501 | 1201041441 | 08-MAR-2006 13:57 | DONE | 0 | -0.66 | percent | 19.6 | 0 | -40 | 78.7 | 20.0 | 29.6 |
| 507516 | 1201041477 | 11-MAR-2006 15:32 | DONE | 11 | -0.29 | percent | 19.6 | 0 | -40 | 78.7 | 20.0 | 29.6 |
| 508232 | 1201043147 | 13-MAR-2006 12:33 | DONE | 29 | 0.33 | percent | 19.6 | 0 | -40 | 78.7 | 20.0 | 29.6 |
| 510236 | 1201047755 | 14-MAR-2006 12:29 | DONE | 0 | -0.66 | percent | 19.6 | 0 | -40 | 78.7 | 20.0 | 29.6 |
| 510245 | 1201047774 | 16-MAR-2006 14:08 | DONE | 69 | 1.7 | percent | 19.6 | 0 | -40 | 78.7 | 20.0 | 29.6 |
| 513331 | 1201054715 | 22-MAR-2006 15:10 | DONE | 68 | 1.6 | percent | 19.6 | 0 | -40 | 78.7 | 20.0 | 29.6 |
| 510589 | 1201048486 | 24-MAR-2006 11:47 | DONE | 0 | -0.66 | percent | 19.6 | 0 | -40 | 78.7 | 20.0 | 29.6 |
| 508234 | 1201043154 | 27-MAR-2006 12:04 | DONE | 42 | 0.75 | percent | 19.6 | 0 | -40 | 78.7 | 20.0 | 29.6 |
| 510590 | 1201048489 | 28-MAR-2006 12:34 | DONE | 5 | -0.48 | percent | 19.6 | 0 | -40 | 78.7 | 20.0 | 29.6 |
| 513290 | 1201054637 | 29-MAR-2006 15:21 | DONE | 116 | 3.3 | percent | 19.6 | 0 | -40 | 78.7 | 20.0 | 29.6 |
| 513295 | 1201054649 | 03-APR-2006 23:15 | DONE | 0 | -0.66 | percent | 19.6 | 0 | -40 | 78.7 | 20.0 | 29.6 |
| 517809 | 1201064415 | 06-APR-2006 22:35 | DONE | 47 | 0.92 | percent | 19.6 | 0 | -40 | 78.7 | 20.0 | 29.6 |
| 513299 | 1201054653 | 10-APR-2006 13:28 | DONE | 9 | -0.37 | percent | 19.6 | 0 | -40 | 78.7 | 20.0 | 29.6 |
| 515325 | 1201058925 | 10-APR-2006 18:53 | DONE | 0 | -0.66 | percent | 19.6 | 0 | -40 | 78.7 | 20.0 | 29.6 |

Radium-228 LCS: Limits LCL = 75 UCL = 125

| Batch ID | Samp ID | Run Date | Status | Value | Deviation | Units | Mean | LCL | LWL | UWL | UCL | Stdev |
|----------|------------|-------------------|--------|-------|-----------|---------|------|------|------|-----|-----|-------|
| 496468 | 1201015688 | 01-FEB-2006 14:45 | DONE | 96 | -0.5 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 492836 | 1201007543 | 06-FEB-2006 11:47 | DONE | 119 | 2.3 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 500099 | 1201024111 | 08-FEB-2006 22:02 | DONE | 104 | 0.45 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 500100 | 1201024114 | 09-FEB-2006 15:17 | DONE | 103 | 0.31 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 500101 | 1201024117 | 10-FEB-2006 13:25 | DONE | 113 | 1.6 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 500104 | 1201024131 | 13-FEB-2006 15:47 | DONE | 110 | 1.2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 500102 | 1201024125 | 13-FEB-2006 22:54 | DONE | 105 | 0.6 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 500103 | 1201024128 | 14-FEB-2006 14:36 | DONE | 116 | 1.9 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 500107 | 1201024137 | 17-FEB-2006 17:26 | DONE | 98 | -0.19 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 500106 | 1201024134 | 18-FEB-2006 17:56 | DONE | 101 | 0.16 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 500108 | 1201024140 | 20-FEB-2006 13:22 | DONE | 88 | -1 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 500109 | 1201024143 | 21-FEB-2006 22:53 | DONE | 108 | 0.92 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |

| | | | | | | | | | | | | |
|--------|------------|-------------------|------|-----|-------|---------|-----|------|------|-----|-----|------|
| 503553 | 1201031970 | 23-FEB-2006 11:45 | DONE | 106 | 0.75 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 500111 | 1201024149 | 24-FEB-2006 13:04 | DONE | 113 | 1.6 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 504736 | 1201034728 | 24-FEB-2006 19:27 | DONE | 90 | -1 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 505206 | 1201035923 | 24-FEB-2006 23:05 | DONE | 100 | -0.03 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 502697 | 1201030165 | 27-FEB-2006 20:34 | DONE | 120 | 2.4 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 505945 | 1201037659 | 27-FEB-2006 22:08 | DONE | 108 | 0.93 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 500110 | 1201024146 | 28-FEB-2006 16:07 | DONE | 88 | -1 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 505426 | 1201036462 | 02-MAR-2006 00:22 | DONE | 101 | 0.11 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 505422 | 1201036451 | 02-MAR-2006 22:34 | DONE | 83 | -2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 507266 | 1201040785 | 03-MAR-2006 13:59 | DONE | 119 | 2.3 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 507261 | 1201040775 | 03-MAR-2006 19:46 | DONE | 102 | 0.25 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 507469 | 1201041347 | 04-MAR-2006 13:19 | DONE | 109 | 1.1 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 507481 | 1201041384 | 06-MAR-2006 15:43 | DONE | 88 | -1 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 507501 | 1201041442 | 08-MAR-2006 13:57 | DONE | 99 | -0.14 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 507516 | 1201041479 | 11-MAR-2006 15:32 | DONE | 103 | 0.35 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 508232 | 1201043149 | 13-MAR-2006 12:33 | DONE | 95 | -0.58 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 510236 | 1201047757 | 14-MAR-2006 13:30 | DONE | 101 | 0.13 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 510245 | 1201047776 | 16-MAR-2006 14:09 | DONE | 102 | 0.24 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 513331 | 1201054717 | 22-MAR-2006 15:10 | DONE | 103 | 0.35 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 510589 | 1201048487 | 24-MAR-2006 11:47 | DONE | 101 | 0.17 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 508234 | 1201043156 | 27-MAR-2006 18:15 | DONE | 88 | -1 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 510590 | 1201048491 | 28-MAR-2006 12:34 | DONE | 96 | -0.5 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 513290 | 1201054639 | 29-MAR-2006 15:22 | DONE | 95 | -0.59 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 513295 | 1201054651 | 03-APR-2006 21:58 | DONE | 92 | -0.98 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 517809 | 1201064417 | 06-APR-2006 22:35 | DONE | 108 | 1 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 513299 | 1201054655 | 10-APR-2006 13:28 | DONE | 106 | 0.75 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 515325 | 1201058927 | 10-APR-2006 18:53 | DONE | 97 | -0.32 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |

Radium-228 RER: Limits LCL = 0 UCL = 3

| Batch ID | Samp ID | Run Date | Status | Value | Deviation | Units | Mean | LCL | LWL | UWL | UCL | Stdev |
|----------|------------|-------------------|--------|-------|-----------|-------|------|-----|-----|------|------|-------|
| 463468 | 1200937833 | 05-OCT-2005 22:41 | DONE | 0.84 | 0.28 | dec | 0.61 | 0 | -1 | 2.24 | 3.00 | 0.81 |
| 465675 | 1200943225 | 08-OCT-2005 10:52 | DONE | 0.27 | -0.42 | dec | 0.61 | 0 | -1 | 2.24 | 3.00 | 0.81 |
| 467327 | 1200947063 | 08-OCT-2005 11:05 | DONE | 0.47 | -0.18 | dec | 0.61 | 0 | -1 | 2.24 | 3.00 | 0.81 |
| 469671 | 1200952476 | 11-OCT-2005 15:48 | DONE | 0.05 | -0.69 | dec | 0.61 | 0 | -1 | 2.24 | 3.00 | 0.81 |
| 467329 | 1200947073 | 13-OCT-2005 12:07 | DONE | 0.66 | 0.06 | dec | 0.61 | 0 | -1 | 2.24 | 3.00 | 0.81 |
| 470537 | 1200954570 | 14-OCT-2005 11:01 | DONE | 0.96 | 0.43 | dec | 0.61 | 0 | -1 | 2.24 | 3.00 | 0.81 |
| 467333 | 1200947087 | 17-OCT-2005 12:10 | DONE | 0.39 | -0.27 | dec | 0.61 | 0 | -1 | 2.24 | 3.00 | 0.81 |
| 472059 | 1200958291 | 19-OCT-2005 13:47 | DONE | 0.7 | 0.11 | dec | 0.61 | 0 | -1 | 2.24 | 3.00 | 0.81 |
| 472636 | 1200959672 | 20-OCT-2005 11:10 | DONE | 0.03 | -0.71 | dec | 0.61 | 0 | -1 | 2.24 | 3.00 | 0.81 |
| 473145 | 1200960959 | 24-OCT-2005 16:07 | DUSE | 0.68 | 0.09 | dec | 0.61 | 0 | -1 | 2.24 | 3.00 | 0.81 |
| 474248 | 1200963592 | 24-OCT-2005 17:21 | DONE | 0.1 | -0.63 | dec | 0.61 | 0 | -1 | 2.24 | 3.00 | 0.81 |
| 471617 | 1200961158 | 25-OCT-2005 12:00 | DONE | 0.38 | -0.29 | dec | 0.61 | 0 | -1 | 2.24 | 3.00 | 0.81 |
| 473716 | 1200962428 | 25-OCT-2005 17:59 | DONE | 0.5 | -0.13 | dec | 0.61 | 0 | -1 | 2.24 | 3.00 | 0.81 |
| 473230 | 1200961166 | 01-NOV-2005 11:28 | DONE | 0.15 | -0.57 | dec | 0.61 | 0 | -1 | 2.24 | 3.00 | 0.81 |
| 476181 | 1200968154 | 01-NOV-2005 15:51 | DONE | 0.59 | -0.02 | dec | 0.61 | 0 | -1 | 2.24 | 3.00 | 0.81 |
| 480012 | 1200977648 | 14-NOV-2005 20:22 | DONE | 0.58 | -0.04 | dec | 0.61 | 0 | -1 | 2.24 | 3.00 | 0.81 |
| 479062 | 1200975199 | 21-NOV-2005 12:41 | DONE | 0.92 | 0.38 | dec | 0.61 | 0 | -1 | 2.24 | 3.00 | 0.81 |
| 481985 | 1200982102 | 30-NOV-2005 23:53 | DONE | 0.13 | -0.59 | dec | 0.61 | 0 | -1 | 2.24 | 3.00 | 0.81 |
| 483514 | 1200985776 | 01-DEC-2005 12:05 | DONE | 0.33 | -0.35 | dec | 0.61 | 0 | -1 | 2.24 | 3.00 | 0.81 |
| 484248 | 1200987654 | 12-DEC-2005 12:09 | DONE | 0.06 | -0.68 | dec | 0.61 | 0 | -1 | 2.24 | 3.00 | 0.81 |

| | | | | | | | | | | | | |
|--------|------------|-------------------|------|------|-------|-----|------|---|----|------|------|------|
| 486611 | 1200993396 | 14-DEC-2005 22:44 | DONE | 0.58 | -0.04 | dec | 0.61 | 0 | -1 | 2.24 | 3.00 | 0.81 |
| 487788 | 1200996153 | 19-DEC-2005 14:38 | DONE | 0.63 | 0.02 | dec | 0.61 | 0 | -1 | 2.24 | 3.00 | 0.81 |
| 488990 | 1200998922 | 22-DEC-2005 13:45 | DONE | 0.52 | -0.11 | dec | 0.61 | 0 | -1 | 2.24 | 3.00 | 0.81 |
| 490300 | 1201001796 | 06-JAN-2006 11:10 | DONE | 0.13 | -0.59 | dec | 0.61 | 0 | -1 | 2.24 | 3.00 | 0.81 |
| 491608 | 1201004824 | 12-JAN-2006 16:38 | DONE | 0.37 | -0.29 | dec | 0.61 | 0 | -1 | 2.24 | 3.00 | 0.81 |
| 493731 | 1201009556 | 17-JAN-2006 17:54 | DONE | 0.69 | 0.1 | dec | 0.61 | 0 | -1 | 2.24 | 3.00 | 0.81 |
| 494613 | 1201011524 | 20-JAN-2006 21:32 | DONE | 0.56 | -0.07 | dec | 0.61 | 0 | -1 | 2.24 | 3.00 | 0.81 |
| 498305 | 1201019873 | 31-JAN-2006 18:16 | DONE | 0.5 | -0.13 | dec | 0.61 | 0 | -1 | 2.24 | 3.00 | 0.81 |
| 496468 | 1201015687 | 01-FEB-2006 14:45 | DONE | 0.91 | 0.37 | dec | 0.61 | 0 | -1 | 2.24 | 3.00 | 0.81 |
| 500108 | 1201024139 | 20-FEB-2006 12:19 | DONE | 4.89 | 5.3 | dec | 0.61 | 0 | -1 | 2.24 | 3.00 | 0.81 |
| 503553 | 1201031968 | 22-FEB-2006 23:14 | DONE | 0.35 | -0.32 | dec | 0.61 | 0 | -1 | 2.24 | 3.00 | 0.81 |
| 504736 | 1201034727 | 24-FEB-2006 19:27 | DONE | 0.87 | 0.32 | dec | 0.61 | 0 | -1 | 2.24 | 3.00 | 0.81 |
| 505945 | 1201037657 | 27-FEB-2006 21:45 | DONE | 0.35 | -0.32 | dec | 0.61 | 0 | -1 | 2.24 | 3.00 | 0.81 |
| 505422 | 1201036450 | 02-MAR-2006 20:45 | DONE | 0.02 | -0.73 | dec | 0.61 | 0 | -1 | 2.24 | 3.00 | 0.81 |
| 507501 | 1201041441 | 08-MAR-2006 13:57 | DONE | 0.12 | -0.6 | dec | 0.61 | 0 | -1 | 2.24 | 3.00 | 0.81 |
| 510245 | 1201047774 | 16-MAR-2006 14:08 | DONE | 0.54 | -0.09 | dec | 0.61 | 0 | -1 | 2.24 | 3.00 | 0.81 |
| 513331 | 1201054715 | 22-MAR-2006 15:10 | DONE | 0.68 | 0.08 | dec | 0.61 | 0 | -1 | 2.24 | 3.00 | 0.81 |
| 513290 | 1201054637 | 29-MAR-2006 15:21 | DONE | 2.32 | 2.1 | dec | 0.61 | 0 | -1 | 2.24 | 3.00 | 0.81 |
| 513295 | 1201054649 | 03-APR-2006 23:15 | DONE | 00 | -0.75 | dec | 0.61 | 0 | -1 | 2.24 | 3.00 | 0.81 |

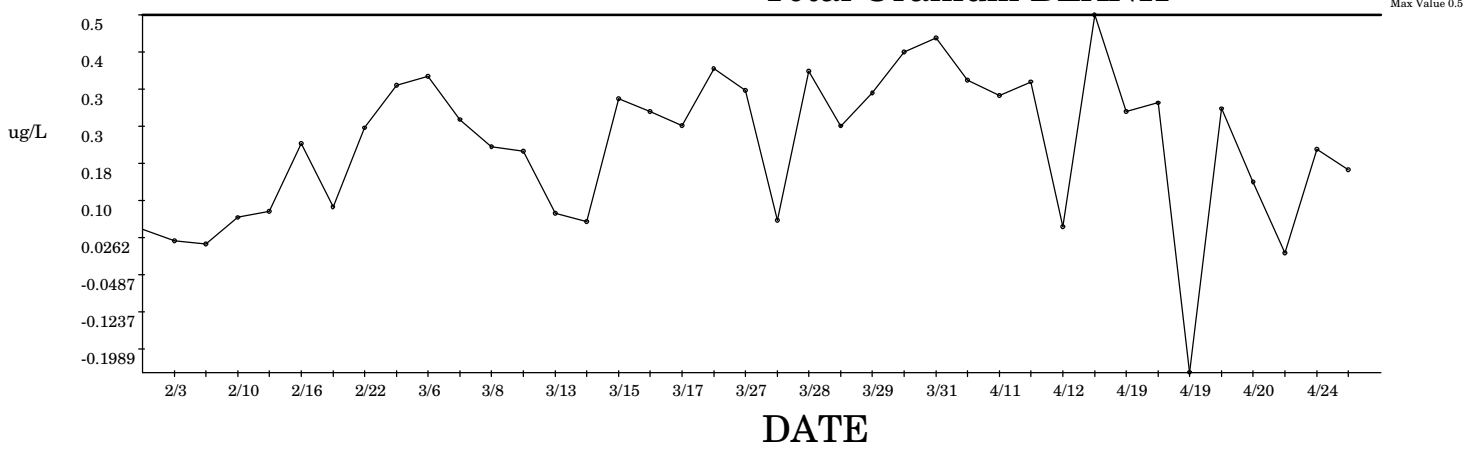
Radium-228 SPIKE: Limits LCL = 75 UCL = 125

| Batch ID | Samp ID | Run Date | Status | Value | Deviation | Units | Mean | LCL | LWL | UWL | UCL | Stdev |
|----------|------------|-------------------|--------|-------|-----------|---------|------|------|------|-----|-----|-------|
| 478180 | 1200973098 | 10-NOV-2005 12:21 | DONE | 81 | -2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 480012 | 1200977649 | 14-NOV-2005 20:22 | DONE | 106 | 0.71 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 479064 | 1200975207 | 18-NOV-2005 10:41 | DONE | 101 | 0.16 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 478891 | 1200974811 | 28-NOV-2005 18:07 | DONE | 77 | -3 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 484226 | 1200987599 | 05-DEC-2005 12:48 | DONE | 104 | 0.43 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 484248 | 1200987655 | 12-DEC-2005 12:10 | DONE | 105 | 0.62 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 486633 | 1200993447 | 16-DEC-2005 13:32 | DONE | 108 | 0.95 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 488990 | 1200998923 | 22-DEC-2005 13:45 | DONE | 126 | 3.1 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 485415 | 1200990577 | 22-DEC-2005 18:38 | DONE | 103 | 0.31 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 487960 | 1200996652 | 28-DEC-2005 22:36 | DONE | 106 | 0.68 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 486030 | 1200992037 | 29-DEC-2005 20:57 | DONE | 77 | -3 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 490306 | 1201001825 | 04-JAN-2006 23:08 | DONE | 80 | -2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 488686 | 1200998269 | 06-JAN-2006 15:12 | DONE | 83 | -2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 487814 | 1200996255 | 09-JAN-2006 13:54 | DONE | 107 | 0.79 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 491352 | 1201004143 | 10-JAN-2006 13:01 | DONE | 102 | 0.26 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 486289 | 1200992718 | 11-JAN-2006 17:36 | DONE | 111 | 1.4 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 491608 | 1201004825 | 12-JAN-2006 16:38 | DONE | 93 | -0.86 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 492834 | 1201007534 | 13-JAN-2006 12:48 | DONE | 112 | 1.5 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 493731 | 1201009557 | 17-JAN-2006 17:54 | DONE | 99 | -0.17 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 494613 | 1201011525 | 20-JAN-2006 21:33 | DONE | 118 | 2.2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 496446 | 1201015668 | 24-JAN-2006 23:12 | DONE | 110 | 1.2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 495884 | 1201014389 | 31-JAN-2006 14:37 | DONE | 89 | -1 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 498305 | 1201019874 | 31-JAN-2006 18:16 | DONE | 76 | -3 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 492836 | 1201007542 | 07-FEB-2006 10:39 | DONE | 81 | -2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 500102 | 1201024124 | 13-FEB-2006 22:54 | DONE | 103 | 0.32 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 503553 | 1201031969 | 22-FEB-2006 23:15 | DONE | 109 | 1.1 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 505945 | 1201037658 | 27-FEB-2006 22:09 | DONE | 97 | -0.31 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 507516 | 1201041478 | 11-MAR-2006 15:32 | DONE | 124 | 2.9 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |

| | | | | | | | | | | | | |
|--------|------------|-------------------|------|-----|-------|---------|-----|------|------|-----|-----|------|
| 508232 | 1201043148 | 13-MAR-2006 12:33 | DONE | 123 | 2.8 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 510236 | 1201047756 | 14-MAR-2006 13:30 | DONE | 108 | 01 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 510245 | 1201047775 | 16-MAR-2006 14:09 | DONE | 93 | -0.81 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 513331 | 1201054716 | 22-MAR-2006 15:10 | DONE | 97 | -0.36 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 508234 | 1201043155 | 27-MAR-2006 18:14 | DONE | 99 | -0.11 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 510590 | 1201048490 | 28-MAR-2006 12:34 | DONE | 100 | 00 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 513290 | 1201054638 | 29-MAR-2006 15:22 | DONE | 80 | -2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 513295 | 1201054650 | 03-APR-2006 21:58 | DONE | 117 | 2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 517809 | 1201064416 | 06-APR-2006 22:35 | DONE | 107 | 0.9 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 513299 | 1201054654 | 10-APR-2006 14:51 | DONE | 77 | -3 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 515325 | 1201058926 | 10-APR-2006 18:53 | DONE | 122 | 2.7 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |

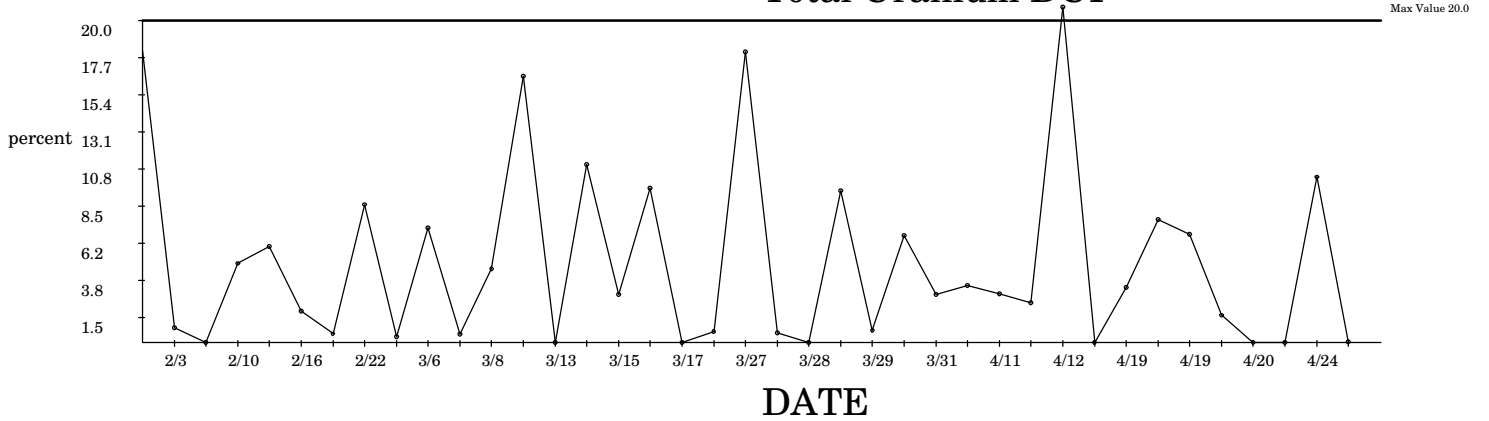
SPC Graph for Total Uranium KPA in Liquids 4/25/2006

Total Uranium BLANK



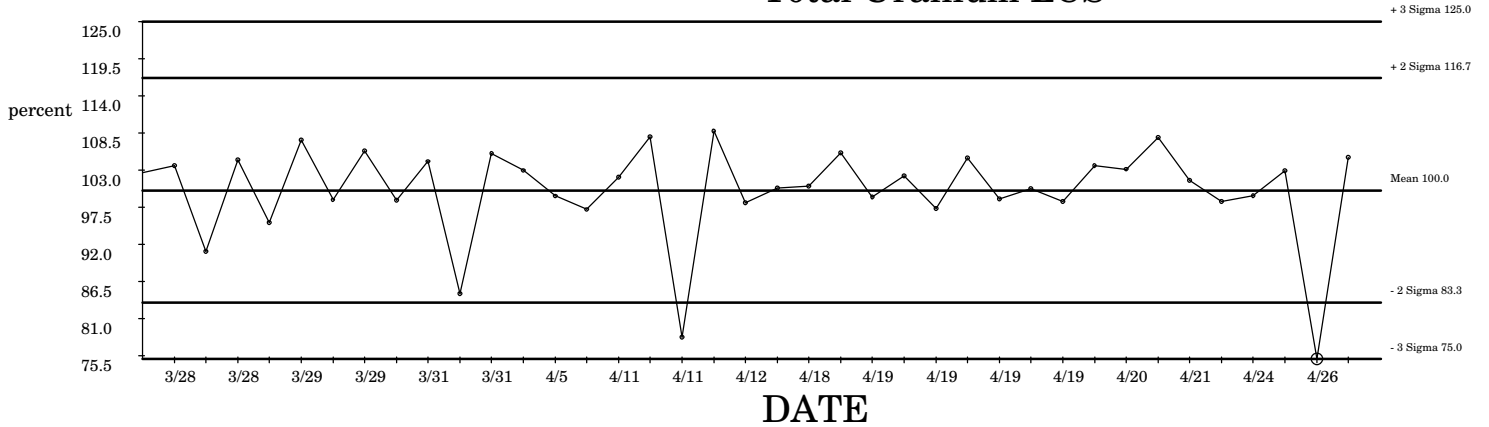
DATE

Total Uranium DUP



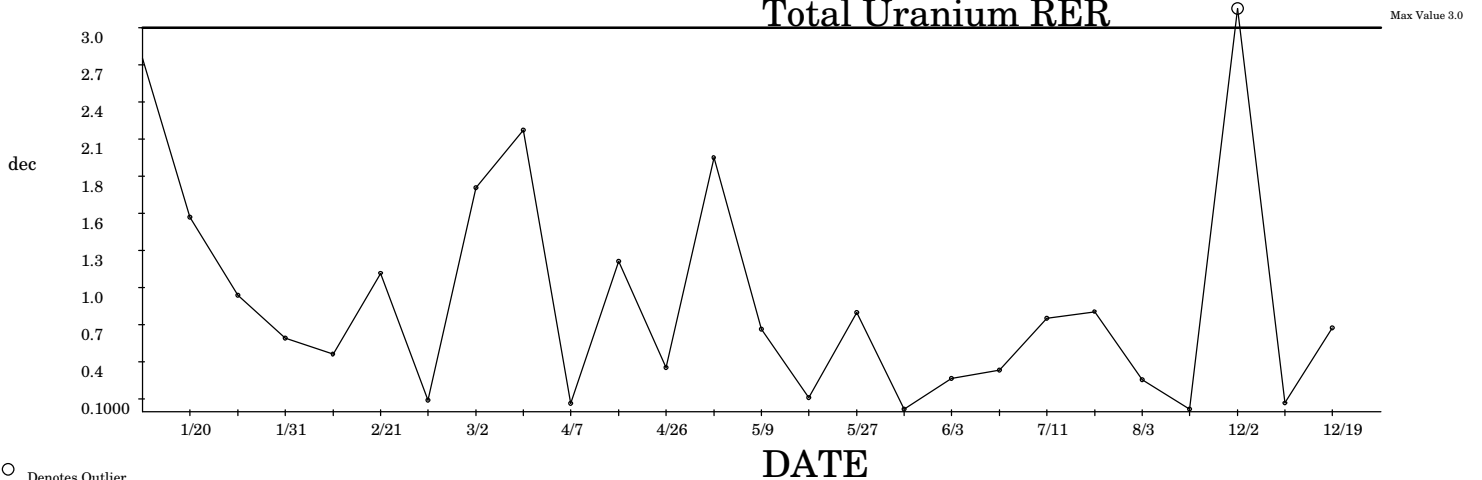
DATE

Total Uranium LCS



DATE

Total Uranium RER

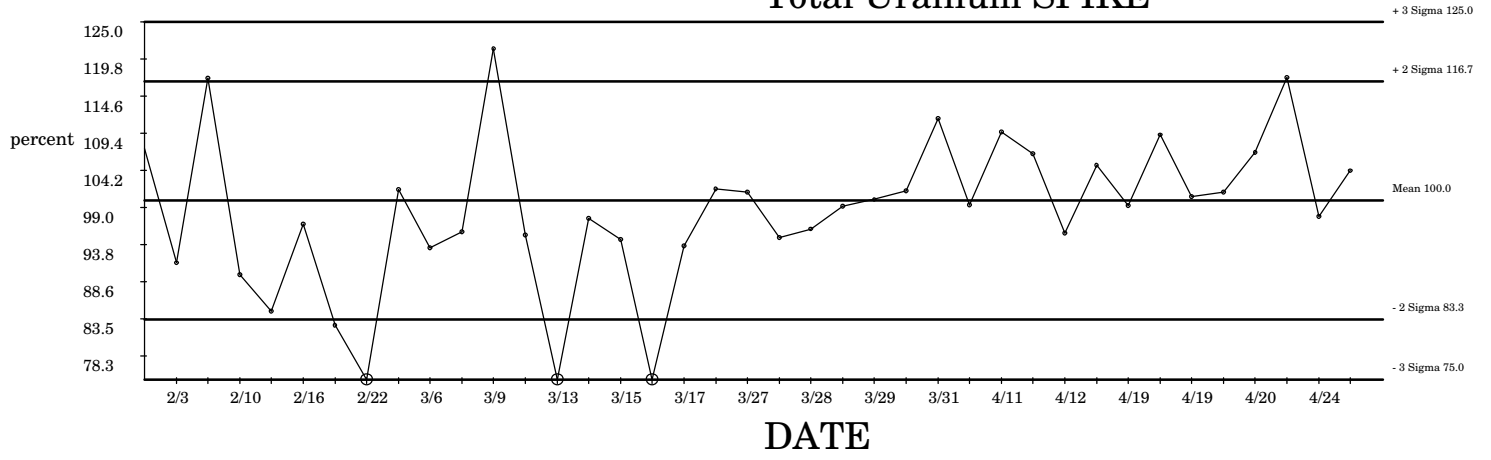


DATE

○ Denotes Outlier

SPC Graph for Total Uranium KPA in Liquids 4/25/2006

Total Uranium SPIKE



○ Denotes Outlier

Data used for Total Uranium KPA in Liquids 26-APR-2006

Total Uranium BLANK: Limits LCL = -1.2 UCL = 1.7

| Batch ID | Samp ID | Run Date | Status | Value | Deviation | Units | Mean | LCL | LWL | UWL | UCL | Stdev |
|----------|------------|-------------------|--------|-------|-----------|-------|------|------|--------|------|------|-------|
| 497797 | 1201018820 | 30-JAN-2006 10:02 | DONE | 3 | 5.8 | ug/L | 0.29 | -1.2 | -0.678 | 1.26 | 1.74 | 0.48 |
| 496182 | 1201015020 | 31-JAN-2006 10:03 | DONE | 0 | -0.28 | ug/L | 0.29 | -1.2 | -0.678 | 1.26 | 1.74 | 0.48 |
| 499318 | 1201022161 | 01-FEB-2006 10:19 | DONE | 0 | -0.21 | ug/L | 0.28 | -1.1 | -0.659 | 1.23 | 1.7 | 0.47 |
| 499606 | 1201022799 | 03-FEB-2006 15:14 | DONE | 0 | -0.56 | ug/L | 0.28 | -1.1 | -0.659 | 1.23 | 1.7 | 0.47 |
| 495499 | 1201013559 | 09-FEB-2006 11:32 | DONE | 0 | -0.57 | ug/L | 0.28 | -1.1 | -0.659 | 1.23 | 1.7 | 0.47 |
| 499607 | 1201022804 | 10-FEB-2006 14:09 | DONE | 0 | -0.46 | ug/L | 0.28 | -1.1 | -0.659 | 1.23 | 1.7 | 0.47 |
| 502226 | 1201029167 | 14-FEB-2006 13:21 | DONE | 0 | -0.44 | ug/L | 0.28 | -1.1 | -0.659 | 1.23 | 1.7 | 0.47 |
| 502227 | 1201029172 | 16-FEB-2006 15:06 | DONE | 0 | -0.14 | ug/L | 0.28 | -1.1 | -0.659 | 1.23 | 1.7 | 0.47 |
| 503735 | 1201032418 | 17-FEB-2006 14:35 | DONE | 0 | -0.42 | ug/L | 0.28 | -1.1 | -0.659 | 1.23 | 1.7 | 0.47 |
| 505123 | 1201035708 | 22-FEB-2006 14:58 | DONE | 0 | -0.08 | ug/L | 0.28 | -1.1 | -0.659 | 1.23 | 1.7 | 0.47 |
| 505124 | 1201035713 | 23-FEB-2006 16:00 | DONE | 0 | 0.1 | ug/L | 0.28 | -1.1 | -0.659 | 1.23 | 1.7 | 0.47 |
| 507732 | 1201041932 | 06-MAR-2006 14:19 | DONE | 0 | 0.14 | ug/L | 0.28 | -1.1 | -0.659 | 1.23 | 1.7 | 0.47 |
| 509089 | 1201045163 | 08-MAR-2006 11:11 | DONE | 0 | -0.04 | ug/L | 0.28 | -1.1 | -0.659 | 1.23 | 1.7 | 0.47 |
| 509091 | 1201045172 | 08-MAR-2006 13:41 | DONE | 0 | -0.16 | ug/L | 0.28 | -1.1 | -0.659 | 1.23 | 1.7 | 0.47 |
| 509093 | 1201045181 | 10-MAR-2006 10:26 | DONE | 0 | -0.18 | ug/L | 0.28 | -1.1 | -0.659 | 1.23 | 1.7 | 0.47 |
| 510519 | 1201048339 | 13-MAR-2006 13:18 | DONE | 0 | -0.44 | ug/L | 0.28 | -1.1 | -0.659 | 1.23 | 1.7 | 0.47 |
| 510315 | 1201048003 | 13-MAR-2006 15:02 | DONE | 0 | -0.48 | ug/L | 0.28 | -1.1 | -0.659 | 1.23 | 1.7 | 0.47 |
| 510361 | 1201048009 | 15-MAR-2006 10:13 | DONE | 0 | 0.05 | ug/L | 0.28 | -1.1 | -0.659 | 1.23 | 1.7 | 0.47 |
| 512099 | 1201051952 | 17-MAR-2006 09:23 | DONE | 0 | -0.01 | ug/L | 0.28 | -1.1 | -0.659 | 1.23 | 1.7 | 0.47 |
| 511794 | 1201051265 | 17-MAR-2006 10:39 | DONE | 0 | -0.07 | ug/L | 0.28 | -1.1 | -0.659 | 1.23 | 1.7 | 0.47 |
| 513427 | 1201054892 | 23-MAR-2006 09:42 | DONE | 0 | 0.18 | ug/L | 0.28 | -1.1 | -0.659 | 1.23 | 1.7 | 0.47 |
| 514308 | 1201056608 | 27-MAR-2006 10:53 | DONE | 0 | 0.08 | ug/L | 0.28 | -1.1 | -0.659 | 1.23 | 1.7 | 0.47 |
| 514304 | 1201056593 | 28-MAR-2006 11:58 | DONE | 0 | -0.47 | ug/L | 0.28 | -1.1 | -0.659 | 1.23 | 1.7 | 0.47 |
| 514306 | 1201056599 | 28-MAR-2006 15:01 | DONE | 0 | 0.16 | ug/L | 0.28 | -1.1 | -0.659 | 1.23 | 1.7 | 0.47 |
| 514311 | 1201056621 | 29-MAR-2006 10:40 | DONE | 0 | -0.07 | ug/L | 0.28 | -1.1 | -0.659 | 1.23 | 1.7 | 0.47 |
| 514314 | 1201056626 | 29-MAR-2006 11:19 | DONE | 0 | 0.07 | ug/L | 0.28 | -1.1 | -0.659 | 1.23 | 1.7 | 0.47 |
| 515691 | 1201059799 | 31-MAR-2006 09:48 | DONE | 0 | 0.25 | ug/L | 0.28 | -1.1 | -0.659 | 1.23 | 1.7 | 0.47 |
| 515693 | 1201059808 | 31-MAR-2006 10:42 | DONE | 0 | 0.31 | ug/L | 0.28 | -1.1 | -0.659 | 1.23 | 1.7 | 0.47 |
| 515695 | 1201059813 | 05-APR-2006 10:15 | DONE | 0 | 0.13 | ug/L | 0.28 | -1.1 | -0.659 | 1.23 | 1.7 | 0.47 |
| 518894 | 1201066876 | 11-APR-2006 10:02 | DONE | 0 | 0.06 | ug/L | 0.28 | -1.1 | -0.659 | 1.23 | 1.7 | 0.47 |
| 518888 | 1201066855 | 11-APR-2006 11:40 | DONE | 0 | 0.12 | ug/L | 0.28 | -1.1 | -0.659 | 1.23 | 1.7 | 0.47 |
| 518891 | 1201066864 | 12-APR-2006 10:57 | DUSE | 0 | -0.5 | ug/L | 0.28 | -1.1 | -0.659 | 1.23 | 1.7 | 0.47 |
| 519925 | 1201069158 | 18-APR-2006 11:22 | DONE | 0 | 0.41 | ug/L | 0.28 | -1.1 | -0.659 | 1.23 | 1.7 | 0.47 |
| 519934 | 1201069195 | 19-APR-2006 10:39 | DONE | 0 | -0.01 | ug/L | 0.28 | -1.1 | -0.659 | 1.23 | 1.7 | 0.47 |
| 519938 | 1201069200 | 19-APR-2006 12:45 | DONE | 0 | 0.03 | ug/L | 0.28 | -1.1 | -0.659 | 1.23 | 1.7 | 0.47 |
| 519939 | 1201069206 | 19-APR-2006 13:28 | DONE | 0 | -1 | ug/L | 0.28 | -1.1 | -0.659 | 1.23 | 1.7 | 0.47 |
| 519940 | 1201069211 | 19-APR-2006 15:31 | DONE | 0 | 0.01 | ug/L | 0.28 | -1.1 | -0.659 | 1.23 | 1.7 | 0.47 |
| 519941 | 1201069216 | 20-APR-2006 11:50 | DONE | 0 | -0.31 | ug/L | 0.28 | -1.1 | -0.659 | 1.23 | 1.7 | 0.47 |
| 519942 | 1201069226 | 21-APR-2006 11:45 | DUSE | 0 | -0.61 | ug/L | 0.28 | -1.1 | -0.659 | 1.23 | 1.7 | 0.47 |
| 522696 | 1201075707 | 24-APR-2006 10:06 | DONE | 0 | -0.17 | ug/L | 0.28 | -1.1 | -0.659 | 1.23 | 1.7 | 0.47 |
| 523680 | 1201077880 | 26-APR-2006 10:15 | DONE | 0 | -0.26 | ug/L | 0.28 | -1.1 | -0.659 | 1.23 | 1.7 | 0.47 |

Total Uranium DUP: Limits LCL = 0 UCL = 20

| Batch ID | Samp ID | Run Date | Status | Value | Deviation | Units | Mean | LCL | LWL | UWL | UCL | Stdev |
|----------|------------|-------------------|--------|-------|-----------|---------|------|-----|-----|------|------|-------|
| 495497 | 1201013546 | 20-JAN-2006 10:32 | DONE | 1 | -0.73 | percent | 4.41 | 0 | -6 | 14.8 | 20.0 | 5.21 |
| 497797 | 1201018821 | 30-JAN-2006 10:05 | DONE | 6 | 0.23 | percent | 4.41 | 0 | -6 | 14.8 | 20.0 | 5.21 |

| | | | | | | | | | | | | |
|--------|------------|-------------------|------|----|-------|---------|------|---|----|------|------|------|
| 496182 | 1201015021 | 31-JAN-2006 10:06 | DONE | 2 | -0.5 | percent | 4.45 | 0 | -6 | 14.9 | 20.0 | 5.21 |
| 499606 | 1201022800 | 03-FEB-2006 15:19 | DONE | 1 | -0.68 | percent | 4.45 | 0 | -6 | 14.9 | 20.0 | 5.21 |
| 495499 | 1201013560 | 09-FEB-2006 11:34 | DONE | 0 | -0.85 | percent | 4.45 | 0 | -6 | 14.9 | 20.0 | 5.21 |
| 499607 | 1201022805 | 10-FEB-2006 14:12 | DONE | 5 | 0.09 | percent | 4.45 | 0 | -6 | 14.9 | 20.0 | 5.21 |
| 502226 | 1201029168 | 14-FEB-2006 13:25 | DONE | 6 | 0.29 | percent | 4.45 | 0 | -6 | 14.9 | 20.0 | 5.21 |
| 502227 | 1201029173 | 16-FEB-2006 15:09 | DONE | 2 | -0.48 | percent | 4.45 | 0 | -6 | 14.9 | 20.0 | 5.21 |
| 503735 | 1201032419 | 17-FEB-2006 14:40 | DONE | 1 | -0.75 | percent | 4.45 | 0 | -6 | 14.9 | 20.0 | 5.21 |
| 505123 | 1201035709 | 22-FEB-2006 15:03 | DONE | 9 | 0.79 | percent | 4.45 | 0 | -6 | 14.9 | 20.0 | 5.21 |
| 505124 | 1201035714 | 23-FEB-2006 16:03 | DONE | 0 | -0.79 | percent | 4.45 | 0 | -6 | 14.9 | 20.0 | 5.21 |
| 507732 | 1201041933 | 06-MAR-2006 14:22 | DONE | 7 | 0.51 | percent | 4.45 | 0 | -6 | 14.9 | 20.0 | 5.21 |
| 509089 | 1201045164 | 08-MAR-2006 11:14 | DONE | 0 | -0.76 | percent | 4.45 | 0 | -6 | 14.9 | 20.0 | 5.21 |
| 509091 | 1201045173 | 08-MAR-2006 13:47 | DONE | 5 | 0.02 | percent | 4.45 | 0 | -6 | 14.9 | 20.0 | 5.21 |
| 509093 | 1201045182 | 10-MAR-2006 10:29 | DONE | 17 | 2.3 | percent | 4.45 | 0 | -6 | 14.9 | 20.0 | 5.21 |
| 510519 | 1201048340 | 13-MAR-2006 13:21 | DONE | 0 | -0.85 | percent | 4.45 | 0 | -6 | 14.9 | 20.0 | 5.21 |
| 510315 | 1201048004 | 13-MAR-2006 15:05 | DONE | 11 | 1.3 | percent | 4.45 | 0 | -6 | 14.9 | 20.0 | 5.21 |
| 510361 | 1201048010 | 15-MAR-2006 10:16 | DONE | 3 | -0.28 | percent | 4.45 | 0 | -6 | 14.9 | 20.0 | 5.21 |
| 512099 | 1201051953 | 17-MAR-2006 09:27 | DONE | 10 | 0.99 | percent | 4.45 | 0 | -6 | 14.9 | 20.0 | 5.21 |
| 511794 | 1201051266 | 17-MAR-2006 10:43 | DONE | 0 | -0.85 | percent | 4.45 | 0 | -6 | 14.9 | 20.0 | 5.21 |
| 513427 | 1201054893 | 23-MAR-2006 09:47 | DONE | 1 | -0.72 | percent | 4.45 | 0 | -6 | 14.9 | 20.0 | 5.21 |
| 514308 | 1201056609 | 27-MAR-2006 10:56 | DONE | 18 | 2.6 | percent | 4.45 | 0 | -6 | 14.9 | 20.0 | 5.21 |
| 514304 | 1201056594 | 28-MAR-2006 12:03 | DONE | 1 | -0.74 | percent | 4.45 | 0 | -6 | 14.9 | 20.0 | 5.21 |
| 514306 | 1201056600 | 28-MAR-2006 15:04 | DONE | 0 | -0.85 | percent | 4.45 | 0 | -6 | 14.9 | 20.0 | 5.21 |
| 514311 | 1201056622 | 29-MAR-2006 10:01 | DONE | 9 | 0.96 | percent | 4.45 | 0 | -6 | 14.9 | 20.0 | 5.21 |
| 514314 | 1201056627 | 29-MAR-2006 11:22 | DONE | 1 | -0.71 | percent | 4.45 | 0 | -6 | 14.9 | 20.0 | 5.21 |
| 515691 | 1201059800 | 31-MAR-2006 09:51 | DONE | 7 | 0.42 | percent | 4.45 | 0 | -6 | 14.9 | 20.0 | 5.21 |
| 515693 | 1201059809 | 31-MAR-2006 10:47 | DONE | 3 | -0.28 | percent | 4.45 | 0 | -6 | 14.9 | 20.0 | 5.21 |
| 515695 | 1201059814 | 05-APR-2006 10:18 | DONE | 4 | -0.18 | percent | 4.45 | 0 | -6 | 14.9 | 20.0 | 5.21 |
| 518894 | 1201066877 | 11-APR-2006 10:07 | DONE | 3 | -0.28 | percent | 4.45 | 0 | -6 | 14.9 | 20.0 | 5.21 |
| 518888 | 1201066856 | 11-APR-2006 11:45 | DONE | 2 | -0.38 | percent | 4.45 | 0 | -6 | 14.9 | 20.0 | 5.21 |
| 518891 | 1201066865 | 12-APR-2006 13:12 | DUSE | 21 | 3.1 | percent | 4.45 | 0 | -6 | 14.9 | 20.0 | 5.21 |
| 519925 | 1201069159 | 18-APR-2006 11:24 | DONE | 0 | -0.85 | percent | 4.45 | 0 | -6 | 14.9 | 20.0 | 5.21 |
| 519934 | 1201069196 | 19-APR-2006 10:41 | DONE | 3 | -0.2 | percent | 4.45 | 0 | -6 | 14.9 | 20.0 | 5.21 |
| 519938 | 1201069201 | 19-APR-2006 12:49 | DONE | 8 | 0.61 | percent | 4.45 | 0 | -6 | 14.9 | 20.0 | 5.21 |
| 519939 | 1201069207 | 19-APR-2006 13:30 | DONE | 7 | 0.44 | percent | 4.45 | 0 | -6 | 14.9 | 20.0 | 5.21 |
| 519940 | 1201069212 | 19-APR-2006 15:34 | DONE | 2 | -0.53 | percent | 4.45 | 0 | -6 | 14.9 | 20.0 | 5.21 |
| 519941 | 1201069217 | 20-APR-2006 11:53 | DONE | 0 | -0.85 | percent | 4.45 | 0 | -6 | 14.9 | 20.0 | 5.21 |
| 519942 | 1201069227 | 21-APR-2006 11:48 | DUSE | 0 | -0.85 | percent | 4.45 | 0 | -6 | 14.9 | 20.0 | 5.21 |
| 522696 | 1201075708 | 24-APR-2006 10:09 | DONE | 10 | 1.1 | percent | 4.45 | 0 | -6 | 14.9 | 20.0 | 5.21 |
| 523680 | 1201077881 | 26-APR-2006 10:18 | DONE | 0 | -0.85 | percent | 4.45 | 0 | -6 | 14.9 | 20.0 | 5.21 |

Total Uranium LCS: Limits LCL = 75 UCL = 125

| Batch ID | Samp ID | Run Date | Status | Value | Deviation | Units | Mean | LCL | LWL | UWL | UCL | Stdev |
|----------|------------|-------------------|--------|-------|-----------|---------|------|------|------|-----|-----|-------|
| 511794 | 1201051269 | 17-MAR-2006 10:52 | DONE | 102 | 0.25 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 513427 | 1201054896 | 23-MAR-2006 09:54 | DONE | 99 | -0.13 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 513427 | 1201054895 | 23-MAR-2006 09:56 | DONE | 106 | 0.71 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 514308 | 1201056611 | 27-MAR-2006 11:02 | DONE | 103 | 0.3 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 514308 | 1201056612 | 27-MAR-2006 11:06 | DONE | 97 | -0.31 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 514304 | 1201056597 | 28-MAR-2006 12:08 | DONE | 104 | 0.44 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 514304 | 1201056596 | 28-MAR-2006 12:13 | DONE | 91 | -1 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 514306 | 1201056602 | 28-MAR-2006 15:10 | DONE | 105 | 0.55 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |

| | | | | | | | | | | | | |
|--------|------------|-------------------|------|-----|-------|---------|-----|------|------|-----|-----|------|
| 514306 | 1201056603 | 28-MAR-2006 15:15 | DONE | 95 | -0.57 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 514311 | 1201056625 | 29-MAR-2006 10:07 | DONE | 107 | 0.89 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 514311 | 1201056624 | 29-MAR-2006 10:11 | DONE | 99 | -0.17 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 514314 | 1201056630 | 29-MAR-2006 11:28 | DONE | 106 | 0.71 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 514314 | 1201056629 | 29-MAR-2006 11:32 | DONE | 99 | -0.18 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 515691 | 1201059803 | 31-MAR-2006 09:57 | DONE | 104 | 0.51 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 515691 | 1201059802 | 31-MAR-2006 10:02 | DONE | 85 | -2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 515693 | 1201059812 | 31-MAR-2006 10:52 | DONE | 105 | 0.65 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 515693 | 1201059811 | 31-MAR-2006 10:56 | DONE | 103 | 0.35 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 515695 | 1201059817 | 05-APR-2006 10:24 | DONE | 99 | -0.1 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 515695 | 1201059816 | 05-APR-2006 10:28 | DONE | 97 | -0.34 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 518894 | 1201066879 | 11-APR-2006 10:14 | DONE | 102 | 0.24 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 518894 | 1201066880 | 11-APR-2006 10:16 | DONE | 108 | 0.95 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 518888 | 1201066858 | 11-APR-2006 11:52 | DONE | 78 | -3 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 518888 | 1201066859 | 11-APR-2006 11:54 | DONE | 109 | 1.1 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 518891 | 1201066867 | 12-APR-2006 11:08 | DUSE | 98 | -0.22 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 518891 | 1201066868 | 12-APR-2006 11:09 | DUSE | 100 | 0.04 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 519925 | 1201069161 | 18-APR-2006 11:33 | DONE | 101 | 0.08 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 519925 | 1201069162 | 18-APR-2006 11:34 | DONE | 106 | 0.67 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 519934 | 1201069198 | 19-APR-2006 10:50 | DONE | 99 | -0.12 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 519934 | 1201069199 | 19-APR-2006 10:51 | DONE | 102 | 0.25 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 519938 | 1201069203 | 19-APR-2006 12:54 | DONE | 97 | -0.32 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 519938 | 1201069204 | 19-APR-2006 12:57 | DONE | 105 | 0.58 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 519939 | 1201069209 | 19-APR-2006 13:36 | DONE | 99 | -0.15 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 519939 | 1201069210 | 19-APR-2006 13:38 | DONE | 100 | 0.03 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 519940 | 1201069214 | 19-APR-2006 15:42 | DONE | 98 | -0.2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 519940 | 1201069215 | 19-APR-2006 15:43 | DONE | 104 | 0.44 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 519941 | 1201069219 | 20-APR-2006 11:59 | DONE | 103 | 0.38 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 519941 | 1201069220 | 20-APR-2006 12:02 | DONE | 108 | 0.94 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 519942 | 1201069229 | 21-APR-2006 11:56 | DUSE | 101 | 0.17 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 519942 | 1201069230 | 21-APR-2006 11:58 | DUSE | 98 | -0.2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 522696 | 1201075710 | 24-APR-2006 10:15 | DONE | 99 | -0.1 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 522696 | 1201075711 | 24-APR-2006 10:18 | DONE | 103 | 0.35 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 523680 | 1201077883 | 26-APR-2006 10:26 | DONE | 75 | -3 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 523680 | 1201077884 | 26-APR-2006 10:27 | DONE | 105 | 0.59 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |

Total Uranium RER: Limits LCL = 0 UCL = 3

| Batch ID | Samp ID | Run Date | Status | Value | Deviation | Units | Mean | LCL | LWL | UWL | UCL | Stdev |
|----------|------------|-------------------|--------|-------|-----------|-------|------|-----|------|-----|------|-------|
| 392624 | 1200767846 | 10-JAN-2005 18:44 | DONE | 0.24 | -0.55 | dec | 0.87 | 0 | -1.4 | 3.2 | 3.00 | 1.16 |
| 395311 | 1200774051 | 20-JAN-2005 21:49 | DONE | 1.52 | 0.56 | dec | 0.87 | 0 | -1.4 | 3.2 | 3.00 | 1.16 |
| 395311 | 1200774052 | 20-JAN-2005 21:52 | DONE | 0.91 | 0.03 | dec | 0.87 | 0 | -1.4 | 3.2 | 3.00 | 1.16 |
| 397297 | 1200778619 | 31-JAN-2005 22:54 | DONE | 0.57 | -0.26 | dec | 0.87 | 0 | -1.4 | 3.2 | 3.00 | 1.16 |
| 399308 | 1200783560 | 10-FEB-2005 16:19 | DONE | 0.45 | -0.37 | dec | 0.87 | 0 | -1.4 | 3.2 | 3.00 | 1.16 |
| 403160 | 1200792687 | 21-FEB-2005 21:08 | DONE | 1.08 | 0.18 | dec | 0.87 | 0 | -1.4 | 3.2 | 3.00 | 1.16 |
| 403533 | 1200793661 | 23-FEB-2005 14:20 | DONE | 0.09 | -0.67 | dec | 0.87 | 0 | -1.4 | 3.2 | 3.00 | 1.16 |
| 405087 | 1200797348 | 02-MAR-2005 18:20 | DONE | 1.75 | 0.75 | dec | 0.87 | 0 | -1.4 | 3.2 | 3.00 | 1.16 |
| 410228 | 1200809516 | 25-MAR-2005 16:27 | DONE | 2.2 | 1.1 | dec | 0.87 | 0 | -1.4 | 3.2 | 3.00 | 1.16 |
| 412929 | 1200815959 | 07-APR-2005 17:04 | DONE | 0.07 | -0.7 | dec | 0.87 | 0 | -1.4 | 3.2 | 3.00 | 1.16 |
| 413613 | 1200817441 | 11-APR-2005 16:50 | DONE | 1.18 | 0.26 | dec | 0.87 | 0 | -1.4 | 3.2 | 3.00 | 1.16 |
| 419672 | 1200832042 | 26-APR-2005 16:51 | DONE | 0.35 | -0.45 | dec | 0.87 | 0 | -1.4 | 3.2 | 3.00 | 1.16 |

| | | | | | | | | | | | | |
|--------|------------|-------------------|------|------|-------|-----|------|---|------|-----|------|------|
| 421104 | 1200835563 | 06-MAY-2005 16:48 | DONE | 1.98 | 0.96 | dec | 0.87 | 0 | -1.4 | 3.2 | 3.00 | 1.16 |
| 423658 | 1200842019 | 09-MAY-2005 13:16 | DONE | 0.64 | -0.2 | dec | 0.87 | 0 | -1.4 | 3.2 | 3.00 | 1.16 |
| 425652 | 1200846824 | 21-MAY-2005 01:38 | DONE | 0.11 | -0.66 | dec | 0.87 | 0 | -1.4 | 3.2 | 3.00 | 1.16 |
| 429170 | 1200855475 | 27-MAY-2005 21:41 | DONE | 0.78 | -0.08 | dec | 0.87 | 0 | -1.4 | 3.2 | 3.00 | 1.16 |
| 428525 | 1200853979 | 28-MAY-2005 02:24 | DONE | 0.02 | -0.74 | dec | 0.87 | 0 | -1.4 | 3.2 | 3.00 | 1.16 |
| 430767 | 1200859375 | 03-JUN-2005 14:38 | DONE | 0.26 | -0.53 | dec | 0.87 | 0 | -1.4 | 3.2 | 3.00 | 1.16 |
| 439503 | 1200880211 | 05-JUL-2005 22:09 | DONE | 0.33 | -0.47 | dec | 0.87 | 0 | -1.4 | 3.2 | 3.00 | 1.16 |
| 437544 | 1200875750 | 11-JUL-2005 11:14 | DONE | 0.73 | -0.12 | dec | 0.87 | 0 | -1.4 | 3.2 | 3.00 | 1.16 |
| 439502 | 1200880206 | 11-JUL-2005 17:17 | DONE | 0.78 | -0.08 | dec | 0.87 | 0 | -1.4 | 3.2 | 3.00 | 1.16 |
| 447932 | 1200900828 | 03-AUG-2005 16:59 | DONE | 0.25 | -0.54 | dec | 0.87 | 0 | -1.4 | 3.2 | 3.00 | 1.16 |
| 473187 | 1200961069 | 25-OCT-2005 08:47 | DONE | 0.02 | -0.73 | dec | 0.87 | 0 | -1.4 | 3.2 | 3.00 | 1.16 |
| 483935 | 1200986716 | 02-DEC-2005 16:03 | DONE | 5.7 | 4.2 | dec | 0.87 | 0 | -1.4 | 3.2 | 3.00 | 1.16 |
| 486185 | 1200992391 | 12-DEC-2005 11:32 | DONE | 0.07 | -0.69 | dec | 0.87 | 0 | -1.4 | 3.2 | 3.00 | 1.16 |
| 486203 | 1200992443 | 19-DEC-2005 11:48 | DONE | 0.65 | -0.19 | dec | 0.87 | 0 | -1.4 | 3.2 | 3.00 | 1.16 |

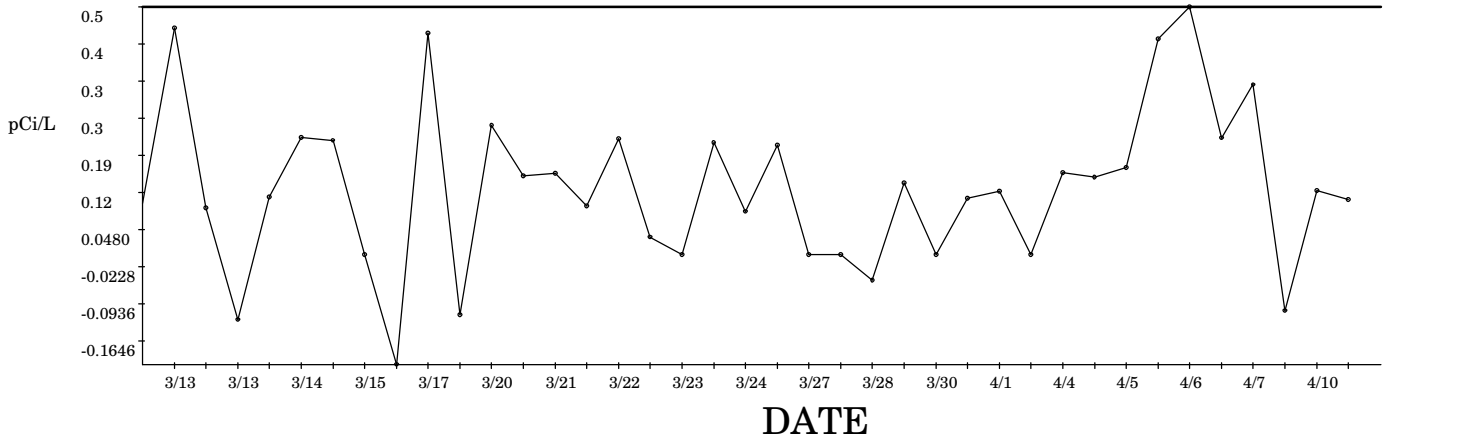
Total Uranium SPIKE: Limits LCL = 75 UCL = 125

| Batch ID | Samp ID | Run Date | Status | Value | Deviation | Units | Mean | LCL | LWL | UWL | UCL | Stdev |
|----------|------------|-------------------|--------|-------|-----------|---------|------|------|------|-----|-----|-------|
| 496182 | 1201015022 | 31-JAN-2006 10:09 | DONE | 93 | -0.79 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 499318 | 1201022162 | 01-FEB-2006 10:24 | DONE | 89 | -1 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 499318 | 1201022163 | 01-FEB-2006 10:27 | DONE | 93 | -0.87 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 499606 | 1201022801 | 03-FEB-2006 15:22 | DONE | 91 | -1 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 495499 | 1201013561 | 09-FEB-2006 11:38 | DONE | 117 | 2.1 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 499607 | 1201022806 | 10-FEB-2006 14:16 | DONE | 90 | -1 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 502226 | 1201029169 | 14-FEB-2006 13:29 | DONE | 85 | -2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 502227 | 1201029174 | 16-FEB-2006 15:13 | DONE | 97 | -0.4 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 503735 | 1201032420 | 17-FEB-2006 14:43 | DONE | 83 | -2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 505123 | 1201035710 | 22-FEB-2006 15:06 | DONE | 75 | -3 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 505124 | 1201035715 | 23-FEB-2006 16:07 | DONE | 102 | 0.18 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 507732 | 1201041934 | 06-MAR-2006 14:26 | DONE | 93 | -0.8 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 509089 | 1201045165 | 08-MAR-2006 11:18 | DONE | 96 | -0.53 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 509091 | 1201045174 | 09-MAR-2006 11:10 | DONE | 121 | 2.5 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 509093 | 1201045183 | 10-MAR-2006 10:33 | DONE | 95 | -0.58 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 510519 | 1201048341 | 13-MAR-2006 13:25 | DONE | 71 | -4 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 510315 | 1201048005 | 13-MAR-2006 15:09 | DONE | 97 | -0.3 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 510361 | 1201048011 | 15-MAR-2006 10:21 | DONE | 95 | -0.65 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 512099 | 1201051954 | 17-MAR-2006 09:31 | DONE | 63 | -4 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 511794 | 1201051267 | 17-MAR-2006 10:47 | DONE | 94 | -0.76 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 513427 | 1201054894 | 23-MAR-2006 09:50 | DONE | 102 | 0.19 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 514308 | 1201056610 | 27-MAR-2006 11:00 | DONE | 101 | 0.15 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 514304 | 1201056595 | 28-MAR-2006 12:06 | DONE | 95 | -0.62 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 514306 | 1201056601 | 28-MAR-2006 15:08 | DONE | 96 | -0.48 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 514311 | 1201056623 | 29-MAR-2006 10:05 | DONE | 99 | -0.1 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 514314 | 1201056628 | 29-MAR-2006 11:26 | DONE | 100 | 0.02 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 515691 | 1201059801 | 31-MAR-2006 09:55 | DONE | 101 | 0.17 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 515693 | 1201059810 | 31-MAR-2006 10:50 | DONE | 111 | 1.4 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 515695 | 1201059815 | 05-APR-2006 10:22 | DONE | 99 | -0.07 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 518894 | 1201066878 | 11-APR-2006 10:11 | DONE | 110 | 1.2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 518888 | 1201066857 | 11-APR-2006 11:49 | DONE | 107 | 0.78 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 518891 | 1201066866 | 12-APR-2006 11:04 | DUSE | 95 | -0.54 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 519925 | 1201069160 | 18-APR-2006 11:29 | DONE | 105 | 0.59 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |

| | | | | | | | | | | | | |
|--------|------------|-------------------|------|-----|-------|---------|-----|------|------|-----|-----|------|
| 519934 | 1201069197 | 19-APR-2006 10:46 | DONE | 99 | -0.08 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 519938 | 1201069202 | 19-APR-2006 12:51 | DONE | 109 | 1.1 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 519939 | 1201069208 | 19-APR-2006 13:35 | DONE | 101 | 0.07 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 519940 | 1201069213 | 19-APR-2006 15:39 | DONE | 101 | 0.14 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 519941 | 1201069218 | 20-APR-2006 11:56 | DONE | 107 | 0.81 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 519942 | 1201069228 | 21-APR-2006 11:53 | DUSE | 117 | 2.1 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 522696 | 1201075709 | 24-APR-2006 10:12 | DONE | 98 | -0.27 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 523680 | 1201077882 | 26-APR-2006 10:22 | DONE | 104 | 0.5 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |

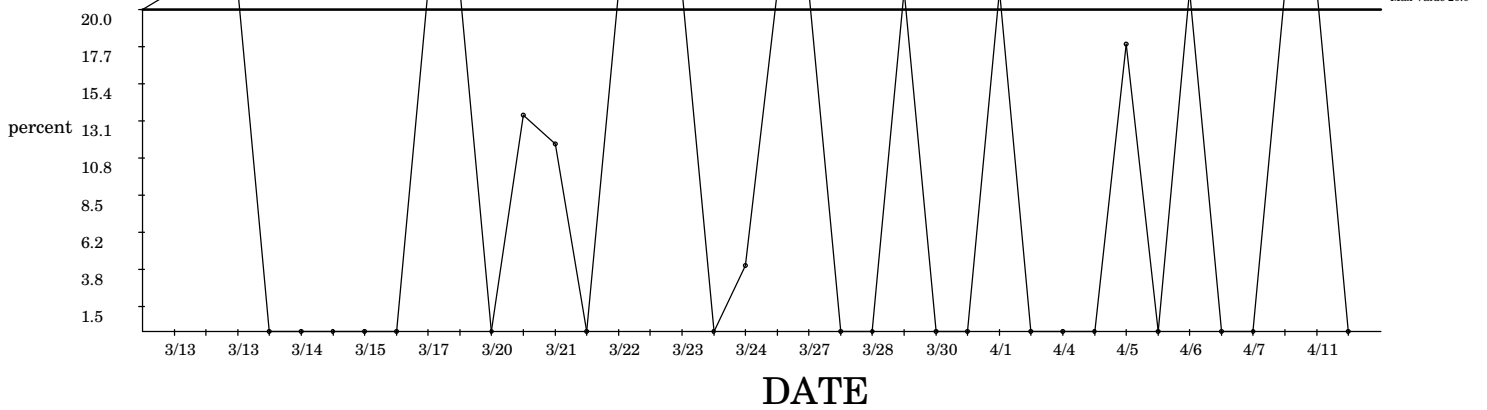
SPC Graph for Lucas Cell Radium 226 in Liquids 4/11/2006

Radium-226 BLANK



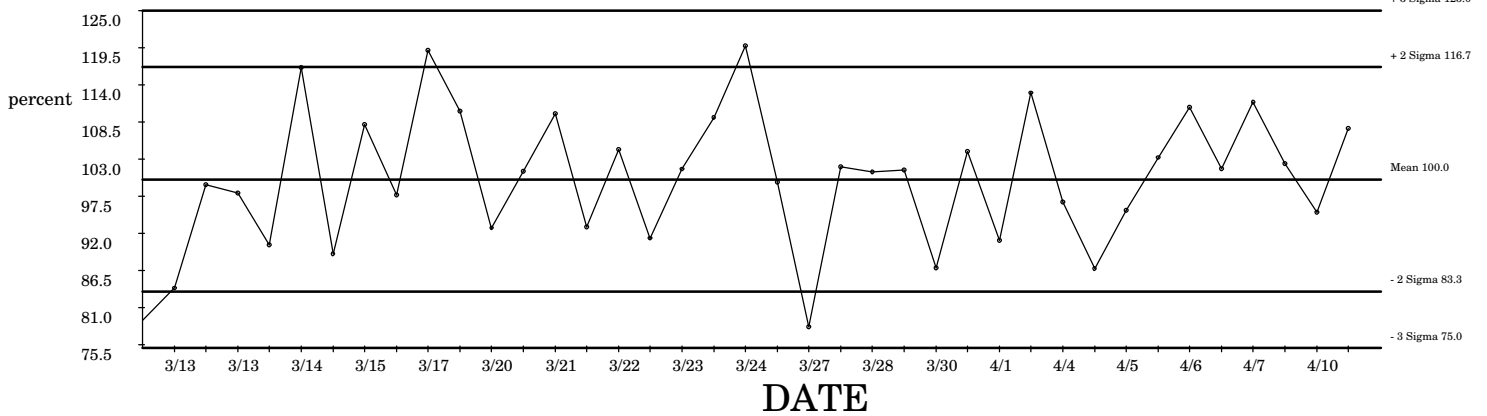
DATE

Radium-226 DUP



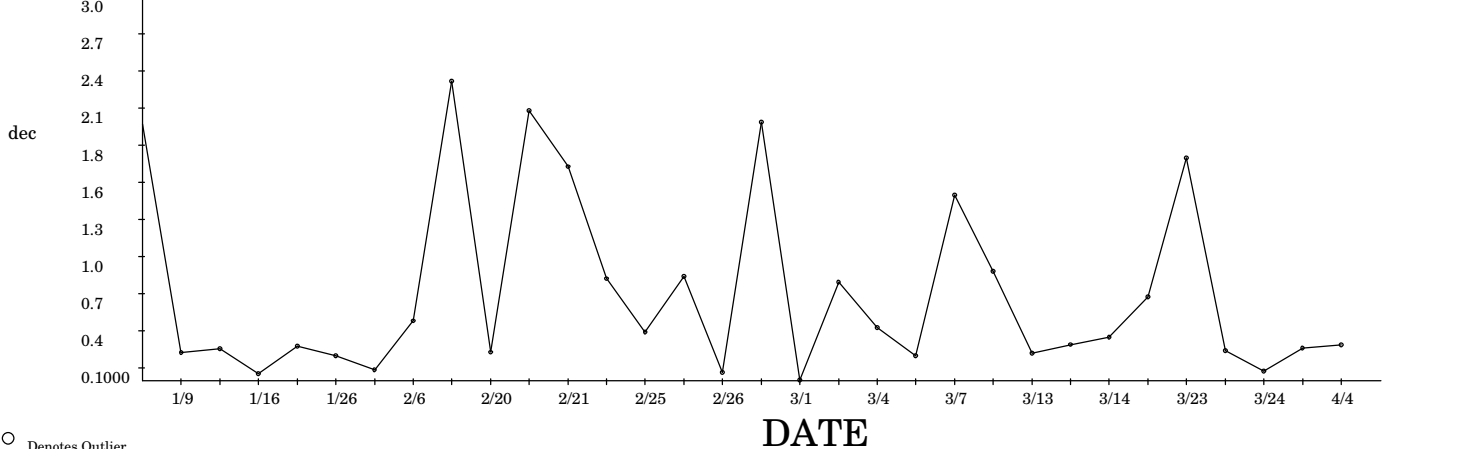
DATE

Radium-226 LCS



DATE

Radium-226 RER

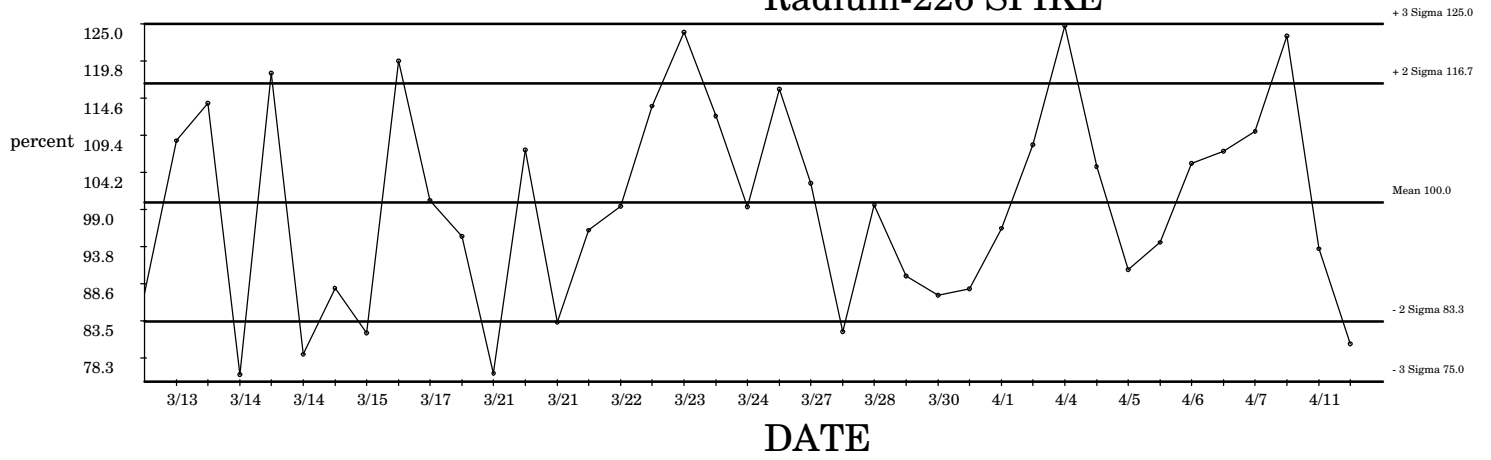


DATE

○ Denotes Outlier

SPC Graph for Lucas Cell Radium 226 in Liquids 4/11/2006

Radium-226 SPIKE



○ Denotes Outlier

Data used for Lucas Cell Radium 226 in Liquids 12-APR-2006

Radium-226 BLANK: Limits LCL = -.3 UCL = .6

| Batch ID | Samp ID | Run Date | Status | Value | Deviation | Units | Mean | LCL | LWL | UWL | UCL | Stdev |
|----------|------------|-------------------|--------|-------|-----------|-------|------|-------|--------|------|-----|-------|
| 508193 | 1201043049 | 11-MAR-2006 18:30 | DONE | 0 | 0.25 | pCi/L | 0.13 | -0.34 | -0.184 | 0.44 | 0.6 | 0.16 |
| 510096 | 1201047336 | 13-MAR-2006 07:55 | DONE | 0 | 2 | pCi/L | 0.13 | -0.34 | -0.184 | 0.44 | 0.6 | 0.16 |
| 508847 | 1201044642 | 13-MAR-2006 09:00 | DONE | 0 | -0.24 | pCi/L | 0.13 | -0.34 | -0.184 | 0.44 | 0.6 | 0.16 |
| 507422 | 1201041266 | 13-MAR-2006 23:05 | DONE | 0 | -2 | pCi/L | 0.13 | -0.34 | -0.184 | 0.44 | 0.6 | 0.16 |
| 510100 | 1201047353 | 13-MAR-2006 23:05 | DONE | 0 | -0.11 | pCi/L | 0.13 | -0.34 | -0.184 | 0.44 | 0.6 | 0.16 |
| 508848 | 1201044646 | 14-MAR-2006 10:35 | DONE | 0 | 0.62 | pCi/L | 0.13 | -0.34 | -0.184 | 0.44 | 0.6 | 0.16 |
| 508845 | 1201044630 | 14-MAR-2006 14:00 | DONE | 0 | 0.58 | pCi/L | 0.13 | -0.34 | -0.184 | 0.44 | 0.6 | 0.16 |
| 510098 | 1201047344 | 15-MAR-2006 21:20 | DONE | 0 | -0.82 | pCi/L | 0.13 | -0.34 | -0.184 | 0.44 | 0.6 | 0.16 |
| 508846 | 1201044634 | 16-MAR-2006 15:05 | DONE | 0 | -2 | pCi/L | 0.13 | -0.34 | -0.184 | 0.44 | 0.6 | 0.16 |
| 510099 | 1201047349 | 17-MAR-2006 09:45 | DONE | 0 | 1.9 | pCi/L | 0.13 | -0.34 | -0.184 | 0.44 | 0.6 | 0.16 |
| 510646 | 1201048626 | 17-MAR-2006 17:40 | DONE | 0 | -2 | pCi/L | 0.13 | -0.34 | -0.184 | 0.44 | 0.6 | 0.16 |
| 510094 | 1201047328 | 20-MAR-2006 20:50 | DONE | 0 | 0.77 | pCi/L | 0.13 | -0.34 | -0.184 | 0.44 | 0.6 | 0.16 |
| 508851 | 1201044655 | 21-MAR-2006 09:30 | DONE | 0 | 0.15 | pCi/L | 0.13 | -0.34 | -0.184 | 0.44 | 0.6 | 0.16 |
| 511412 | 1201050383 | 21-MAR-2006 13:45 | DONE | 0 | 0.18 | pCi/L | 0.13 | -0.34 | -0.184 | 0.44 | 0.6 | 0.16 |
| 510095 | 1201047332 | 21-MAR-2006 15:30 | DONE | 0 | -0.22 | pCi/L | 0.13 | -0.34 | -0.184 | 0.44 | 0.6 | 0.16 |
| 510101 | 1201047357 | 22-MAR-2006 09:20 | DONE | 0 | 0.6 | pCi/L | 0.13 | -0.34 | -0.184 | 0.44 | 0.6 | 0.16 |
| 511384 | 1201050305 | 23-MAR-2006 11:50 | DONE | 0 | -0.6 | pCi/L | 0.13 | -0.34 | -0.184 | 0.44 | 0.6 | 0.16 |
| 511905 | 1201051483 | 23-MAR-2006 20:10 | DONE | 0 | -0.82 | pCi/L | 0.13 | -0.34 | -0.184 | 0.44 | 0.6 | 0.16 |
| 513423 | 1201054876 | 24-MAR-2006 07:50 | DONE | 0 | 0.55 | pCi/L | 0.13 | -0.34 | -0.184 | 0.44 | 0.6 | 0.16 |
| 512638 | 1201053208 | 24-MAR-2006 08:30 | DONE | 0 | -0.29 | pCi/L | 0.13 | -0.34 | -0.184 | 0.44 | 0.6 | 0.16 |
| 510097 | 1201047340 | 27-MAR-2006 12:05 | DONE | 0 | 0.53 | pCi/L | 0.13 | -0.34 | -0.184 | 0.44 | 0.6 | 0.16 |
| 508195 | 1201043053 | 27-MAR-2006 15:00 | DONE | 0 | -0.82 | pCi/L | 0.13 | -0.34 | -0.184 | 0.44 | 0.6 | 0.16 |
| 512753 | 1201053461 | 27-MAR-2006 20:00 | DONE | 0 | -0.82 | pCi/L | 0.13 | -0.34 | -0.184 | 0.44 | 0.6 | 0.16 |
| 513367 | 1201054753 | 28-MAR-2006 22:50 | DONE | 0 | -1 | pCi/L | 0.13 | -0.34 | -0.184 | 0.44 | 0.6 | 0.16 |
| 512637 | 1201053204 | 29-MAR-2006 21:50 | DONE | 0 | 0.06 | pCi/L | 0.13 | -0.34 | -0.184 | 0.44 | 0.6 | 0.16 |
| 514680 | 1201057530 | 30-MAR-2006 20:04 | DONE | 0 | -0.82 | pCi/L | 0.13 | -0.34 | -0.184 | 0.44 | 0.6 | 0.16 |
| 514682 | 1201057534 | 31-MAR-2006 23:18 | DONE | 0 | -0.13 | pCi/L | 0.13 | -0.34 | -0.184 | 0.44 | 0.6 | 0.16 |
| 512635 | 1201053196 | 01-APR-2006 13:00 | DONE | 0 | -0.04 | pCi/L | 0.13 | -0.34 | -0.184 | 0.44 | 0.6 | 0.16 |
| 512634 | 1201053192 | 03-APR-2006 12:50 | DONE | 0 | -0.82 | pCi/L | 0.13 | -0.34 | -0.184 | 0.44 | 0.6 | 0.16 |
| 516190 | 1201060833 | 04-APR-2006 05:15 | DONE | 0 | 0.19 | pCi/L | 0.13 | -0.34 | -0.184 | 0.44 | 0.6 | 0.16 |
| 511410 | 1201050375 | 04-APR-2006 10:50 | DONE | 0 | 0.13 | pCi/L | 0.13 | -0.34 | -0.184 | 0.44 | 0.6 | 0.16 |
| 511411 | 1201050379 | 05-APR-2006 11:40 | DONE | 0 | 0.25 | pCi/L | 0.13 | -0.34 | -0.184 | 0.44 | 0.6 | 0.16 |
| 514686 | 1201057554 | 05-APR-2006 12:40 | DONE | 0 | 1.8 | pCi/L | 0.13 | -0.34 | -0.184 | 0.44 | 0.6 | 0.16 |
| 514684 | 1201057546 | 06-APR-2006 11:30 | DONE | 0 | 2.2 | pCi/L | 0.13 | -0.34 | -0.184 | 0.44 | 0.6 | 0.16 |
| 516172 | 1201060797 | 07-APR-2006 09:15 | DONE | 0 | 0.61 | pCi/L | 0.13 | -0.34 | -0.184 | 0.44 | 0.6 | 0.16 |
| 516170 | 1201060793 | 07-APR-2006 09:55 | DONE | 0 | 1.3 | pCi/L | 0.13 | -0.34 | -0.184 | 0.44 | 0.6 | 0.16 |
| 516189 | 1201060829 | 07-APR-2006 23:50 | DONE | 0 | -2 | pCi/L | 0.13 | -0.34 | -0.184 | 0.44 | 0.6 | 0.16 |
| 515528 | 1201059359 | 10-APR-2006 23:50 | DONE | 0 | -0.03 | pCi/L | 0.13 | -0.34 | -0.184 | 0.44 | 0.6 | 0.16 |
| 517605 | 1201063978 | 11-APR-2006 11:25 | DONE | 0 | -0.14 | pCi/L | 0.13 | -0.34 | -0.184 | 0.44 | 0.6 | 0.16 |

Radium-226 DUP: Limits LCL = 0 UCL = 20

| Batch ID | Samp ID | Run Date | Status | Value | Deviation | Units | Mean | LCL | LWL | UWL | UCL | Stdev |
|----------|------------|-------------------|--------|-------|-----------|---------|------|-----|-----|------|------|-------|
| 508193 | 1201043050 | 11-MAR-2006 18:30 | DONE | 0 | -0.73 | percent | 18.1 | 0 | -32 | 67.9 | 20.0 | 24.9 |
| 510096 | 1201047337 | 13-MAR-2006 07:55 | DONE | 43 | 0.98 | percent | 18.1 | 0 | -32 | 67.9 | 20.0 | 24.9 |
| 508847 | 1201044643 | 13-MAR-2006 09:00 | DONE | 21 | 0.12 | percent | 18.1 | 0 | -32 | 67.9 | 20.0 | 24.9 |
| 510100 | 1201047354 | 13-MAR-2006 10:40 | DONE | 44 | 1 | percent | 18.1 | 0 | -32 | 67.9 | 20.0 | 24.9 |

| | | | | | | | | | | | | |
|--------|------------|-------------------|------|-----|-------|---------|------|---|-----|------|------|------|
| 507422 | 1201041267 | 13-MAR-2006 23:05 | DONE | 0 | -0.73 | percent | 18.1 | 0 | -32 | 67.9 | 20.0 | 24.9 |
| 508848 | 1201044647 | 14-MAR-2006 10:35 | DONE | 0 | -0.73 | percent | 18.1 | 0 | -32 | 67.9 | 20.0 | 24.9 |
| 508845 | 1201044631 | 14-MAR-2006 14:00 | DONE | 0 | -0.73 | percent | 18.1 | 0 | -32 | 67.9 | 20.0 | 24.9 |
| 510098 | 1201047345 | 15-MAR-2006 10:30 | DONE | 0 | -0.73 | percent | 18.1 | 0 | -32 | 67.9 | 20.0 | 24.9 |
| 508846 | 1201044635 | 16-MAR-2006 13:15 | DONE | 0 | -0.73 | percent | 18.1 | 0 | -32 | 67.9 | 20.0 | 24.9 |
| 510099 | 1201047350 | 17-MAR-2006 09:45 | DONE | 22 | 0.18 | percent | 18.1 | 0 | -32 | 67.9 | 20.0 | 24.9 |
| 510646 | 1201048627 | 17-MAR-2006 17:40 | DONE | 40 | 0.87 | percent | 18.1 | 0 | -32 | 67.9 | 20.0 | 24.9 |
| 510094 | 1201047329 | 20-MAR-2006 21:24 | DONE | 0 | -0.73 | percent | 18.1 | 0 | -32 | 67.9 | 20.0 | 24.9 |
| 508851 | 1201044656 | 21-MAR-2006 11:30 | DONE | 13 | -0.19 | percent | 18.1 | 0 | -32 | 67.9 | 20.0 | 24.9 |
| 511412 | 1201050384 | 21-MAR-2006 13:45 | DONE | 12 | -0.26 | percent | 18.1 | 0 | -32 | 67.9 | 20.0 | 24.9 |
| 510095 | 1201047333 | 21-MAR-2006 16:10 | DONE | 0 | -0.73 | percent | 18.1 | 0 | -32 | 67.9 | 20.0 | 24.9 |
| 510101 | 1201047358 | 22-MAR-2006 10:00 | DONE | 29 | 0.45 | percent | 18.1 | 0 | -32 | 67.9 | 20.0 | 24.9 |
| 511384 | 1201050306 | 23-MAR-2006 11:50 | DONE | 50 | 1.3 | percent | 18.1 | 0 | -32 | 67.9 | 20.0 | 24.9 |
| 511905 | 1201051484 | 23-MAR-2006 20:10 | DONE | 100 | 3.3 | percent | 18.1 | 0 | -32 | 67.9 | 20.0 | 24.9 |
| 513423 | 1201054877 | 24-MAR-2006 07:50 | DONE | 0 | -0.73 | percent | 18.1 | 0 | -32 | 67.9 | 20.0 | 24.9 |
| 512638 | 1201053209 | 24-MAR-2006 08:30 | DONE | 4 | -0.56 | percent | 18.1 | 0 | -32 | 67.9 | 20.0 | 24.9 |
| 508195 | 1201043054 | 25-MAR-2006 14:20 | DONE | 43 | 1 | percent | 18.1 | 0 | -32 | 67.9 | 20.0 | 24.9 |
| 510097 | 1201047341 | 27-MAR-2006 12:05 | DONE | 36 | 0.73 | percent | 18.1 | 0 | -32 | 67.9 | 20.0 | 24.9 |
| 512753 | 1201053462 | 27-MAR-2006 20:00 | DONE | 0 | -0.73 | percent | 18.1 | 0 | -32 | 67.9 | 20.0 | 24.9 |
| 513367 | 1201054754 | 28-MAR-2006 22:50 | DONE | 0 | -0.73 | percent | 18.1 | 0 | -32 | 67.9 | 20.0 | 24.9 |
| 512637 | 1201053205 | 29-MAR-2006 22:25 | DONE | 29 | 0.43 | percent | 18.1 | 0 | -32 | 67.9 | 20.0 | 24.9 |
| 514680 | 1201057531 | 30-MAR-2006 20:04 | DONE | 0 | -0.73 | percent | 18.1 | 0 | -32 | 67.9 | 20.0 | 24.9 |
| 514682 | 1201057535 | 31-MAR-2006 23:58 | DONE | 0 | -0.73 | percent | 18.1 | 0 | -32 | 67.9 | 20.0 | 24.9 |
| 512635 | 1201053197 | 01-APR-2006 13:00 | DONE | 23 | 0.21 | percent | 18.1 | 0 | -32 | 67.9 | 20.0 | 24.9 |
| 512634 | 1201053193 | 03-APR-2006 12:50 | DONE | 0 | -0.73 | percent | 18.1 | 0 | -32 | 67.9 | 20.0 | 24.9 |
| 516190 | 1201060834 | 04-APR-2006 05:15 | DONE | 0 | -0.73 | percent | 18.1 | 0 | -32 | 67.9 | 20.0 | 24.9 |
| 511410 | 1201050376 | 04-APR-2006 10:50 | DONE | 0 | -0.73 | percent | 18.1 | 0 | -32 | 67.9 | 20.0 | 24.9 |
| 511411 | 1201050380 | 05-APR-2006 11:40 | DONE | 18 | -0.01 | percent | 18.1 | 0 | -32 | 67.9 | 20.0 | 24.9 |
| 514686 | 1201057555 | 05-APR-2006 14:55 | DONE | 0 | -0.73 | percent | 18.1 | 0 | -32 | 67.9 | 20.0 | 24.9 |
| 514684 | 1201057547 | 06-APR-2006 12:05 | DONE | 48 | 1.2 | percent | 18.1 | 0 | -32 | 67.9 | 20.0 | 24.9 |
| 516172 | 1201060798 | 07-APR-2006 09:15 | DONE | 0 | -0.73 | percent | 18.1 | 0 | -32 | 67.9 | 20.0 | 24.9 |
| 516170 | 1201060794 | 07-APR-2006 09:55 | DONE | 0 | -0.73 | percent | 18.1 | 0 | -32 | 67.9 | 20.0 | 24.9 |
| 516189 | 1201060830 | 07-APR-2006 23:19 | DONE | 83 | 2.6 | percent | 18.1 | 0 | -32 | 67.9 | 20.0 | 24.9 |
| 515528 | 1201059360 | 11-APR-2006 00:25 | DONE | 48 | 1.2 | percent | 18.1 | 0 | -32 | 67.9 | 20.0 | 24.9 |
| 517605 | 1201063982 | 11-APR-2006 09:15 | DONE | 0 | -0.73 | percent | 18.1 | 0 | -32 | 67.9 | 20.0 | 24.9 |

Radium-226 LCS: Limits LCL = 75 UCL = 125

| Batch ID | Samp ID | Run Date | Status | Value | Deviation | Units | Mean | LCL | LWL | UWL | UCL | Stdev |
|----------|------------|-------------------|--------|-------|-----------|---------|------|------|------|-----|-----|-------|
| 508193 | 1201043052 | 13-MAR-2006 08:30 | DONE | 121 | 2.5 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 510096 | 1201047339 | 13-MAR-2006 08:30 | DONE | 84 | -2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 508847 | 1201044645 | 13-MAR-2006 09:00 | DONE | 99 | -0.1 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 510100 | 1201047356 | 13-MAR-2006 11:45 | DONE | 98 | -0.25 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 507422 | 1201041269 | 13-MAR-2006 23:40 | DONE | 90 | -1 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 508848 | 1201044649 | 14-MAR-2006 10:35 | DONE | 117 | 2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 508845 | 1201044633 | 14-MAR-2006 14:40 | DONE | 89 | -1 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 510098 | 1201047348 | 15-MAR-2006 10:30 | DONE | 108 | 0.97 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 510099 | 1201047352 | 17-MAR-2006 10:20 | DONE | 98 | -0.28 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 508846 | 1201044637 | 17-MAR-2006 11:30 | DONE | 119 | 2.3 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 510646 | 1201048629 | 17-MAR-2006 18:12 | DONE | 110 | 1.2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 510094 | 1201047331 | 20-MAR-2006 20:50 | DONE | 93 | -0.86 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |

| | | | | | | | | | | | | |
|--------|------------|-------------------|------|-----|-------|---------|-----|------|------|-----|-----|------|
| 508851 | 1201044658 | 21-MAR-2006 11:30 | DONE | 101 | 0.15 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 511412 | 1201050386 | 21-MAR-2006 14:15 | DONE | 110 | 1.2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 510095 | 1201047335 | 21-MAR-2006 16:50 | DONE | 93 | -0.85 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 510101 | 1201047360 | 22-MAR-2006 10:00 | DONE | 104 | 0.53 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 511384 | 1201050308 | 23-MAR-2006 12:35 | DONE | 91 | -1 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 511905 | 1201051486 | 23-MAR-2006 20:10 | DONE | 102 | 0.18 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 512638 | 1201053211 | 24-MAR-2006 08:30 | DONE | 109 | 1.1 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 513423 | 1201054879 | 24-MAR-2006 09:05 | DONE | 120 | 2.4 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 508195 | 1201043056 | 25-MAR-2006 14:20 | DONE | 100 | -0.05 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 510097 | 1201047343 | 27-MAR-2006 12:45 | DONE | 78 | -3 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 512753 | 1201053464 | 27-MAR-2006 20:00 | DONE | 102 | 0.22 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 513367 | 1201054756 | 28-MAR-2006 23:30 | DONE | 101 | 0.14 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 512637 | 1201053207 | 29-MAR-2006 12:20 | DONE | 101 | 0.16 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 514680 | 1201057533 | 30-MAR-2006 20:04 | DONE | 87 | -2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 514682 | 1201057537 | 31-MAR-2006 23:58 | DONE | 104 | 0.49 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 512635 | 1201053199 | 01-APR-2006 13:35 | DONE | 91 | -1 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 512634 | 1201053195 | 03-APR-2006 13:20 | DONE | 113 | 1.5 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 516190 | 1201060836 | 04-APR-2006 05:45 | DONE | 97 | -0.4 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 511410 | 1201050378 | 04-APR-2006 11:25 | DONE | 87 | -2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 511411 | 1201050382 | 05-APR-2006 11:40 | DONE | 95 | -0.55 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 514686 | 1201057557 | 05-APR-2006 14:55 | DONE | 103 | 0.39 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 514684 | 1201057549 | 06-APR-2006 12:05 | DONE | 111 | 1.3 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 516172 | 1201060800 | 07-APR-2006 09:15 | DONE | 102 | 0.19 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 516170 | 1201060796 | 07-APR-2006 09:55 | DONE | 111 | 1.4 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 516189 | 1201060832 | 07-APR-2006 23:19 | DONE | 102 | 0.28 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 515528 | 1201059362 | 10-APR-2006 23:50 | DONE | 95 | -0.58 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 517605 | 1201063981 | 11-APR-2006 09:15 | DONE | 108 | 0.91 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |

Radium-226 RER: Limits LCL = 0 UCL = 3

| Batch ID | Samp ID | Run Date | Status | Value | Deviation | Units | Mean | LCL | LWL | UWL | UCL | Stdev |
|----------|------------|-------------------|--------|-------|-----------|-------|------|-----|--------|------|------|-------|
| 491123 | 1201003602 | 06-JAN-2006 08:30 | DONE | 01 | 0.52 | dec | 0.65 | 0 | -0.689 | 1.99 | 3.00 | 0.67 |
| 492281 | 1201006340 | 09-JAN-2006 14:10 | DONE | 0.22 | -0.64 | dec | 0.65 | 0 | -0.689 | 1.99 | 3.00 | 0.67 |
| 493744 | 1201009613 | 16-JAN-2006 12:35 | DONE | 0.25 | -0.59 | dec | 0.65 | 0 | -0.689 | 1.99 | 3.00 | 0.67 |
| 491603 | 1201004809 | 16-JAN-2006 17:40 | DONE | 0.05 | -0.89 | dec | 0.65 | 0 | -0.689 | 1.99 | 3.00 | 0.67 |
| 496175 | 1201015002 | 24-JAN-2006 12:30 | DONE | 0.27 | -0.56 | dec | 0.65 | 0 | -0.689 | 1.99 | 3.00 | 0.67 |
| 494116 | 1201010400 | 26-JAN-2006 11:30 | DONE | 0.19 | -0.68 | dec | 0.65 | 0 | -0.689 | 1.99 | 3.00 | 0.67 |
| 498307 | 1201019879 | 31-JAN-2006 11:50 | DONE | 0.09 | -0.84 | dec | 0.65 | 0 | -0.689 | 1.99 | 3.00 | 0.67 |
| 494113 | 1201010392 | 06-FEB-2006 12:23 | DONE | 0.47 | -0.27 | dec | 0.65 | 0 | -0.689 | 1.99 | 3.00 | 0.67 |
| 498877 | 1201021133 | 09-FEB-2006 14:10 | DONE | 2.34 | 2.5 | dec | 0.65 | 0 | -0.689 | 1.99 | 3.00 | 0.67 |
| 502800 | 1201030385 | 20-FEB-2006 12:05 | DONE | 0.22 | -0.64 | dec | 0.65 | 0 | -0.689 | 1.99 | 3.00 | 0.67 |
| 502788 | 1201030379 | 20-FEB-2006 21:00 | DONE | 2.11 | 2.2 | dec | 0.65 | 0 | -0.689 | 1.99 | 3.00 | 0.67 |
| 501470 | 1201027422 | 21-FEB-2006 12:05 | DONE | 1.67 | 1.5 | dec | 0.65 | 0 | -0.689 | 1.99 | 3.00 | 0.67 |
| 504420 | 1201034005 | 22-FEB-2006 10:35 | DONE | 0.8 | 0.22 | dec | 0.65 | 0 | -0.689 | 1.99 | 3.00 | 0.67 |
| 505540 | 1201036745 | 25-FEB-2006 12:15 | DONE | 0.38 | -0.4 | dec | 0.65 | 0 | -0.689 | 1.99 | 3.00 | 0.67 |
| 504418 | 1201033997 | 25-FEB-2006 13:50 | DONE | 0.81 | 0.25 | dec | 0.65 | 0 | -0.689 | 1.99 | 3.00 | 0.67 |
| 505537 | 1201036733 | 26-FEB-2006 12:30 | DONE | 0.07 | -0.87 | dec | 0.65 | 0 | -0.689 | 1.99 | 3.00 | 0.67 |
| 504916 | 1201035200 | 28-FEB-2006 11:20 | DONE | 2.02 | 2.1 | dec | 0.65 | 0 | -0.689 | 1.99 | 3.00 | 0.67 |
| 505541 | 1201036749 | 01-MAR-2006 11:00 | DONE | 00 | -0.96 | dec | 0.65 | 0 | -0.689 | 1.99 | 3.00 | 0.67 |
| 506091 | 1201038002 | 03-MAR-2006 11:15 | DONE | 0.77 | 0.18 | dec | 0.65 | 0 | -0.689 | 1.99 | 3.00 | 0.67 |
| 506887 | 1201039889 | 04-MAR-2006 20:29 | DONE | 0.42 | -0.35 | dec | 0.65 | 0 | -0.689 | 1.99 | 3.00 | 0.67 |

| | | | | | | | | | | | | |
|--------|------------|-------------------|------|------|-------|-----|------|---|--------|------|------|------|
| 506889 | 1201039897 | 06-MAR-2006 09:00 | DONE | 0.19 | -0.68 | dec | 0.65 | 0 | -0.689 | 1.99 | 3.00 | 0.67 |
| 506097 | 1201038018 | 07-MAR-2006 09:30 | DONE | 1.45 | 1.2 | dec | 0.65 | 0 | -0.689 | 1.99 | 3.00 | 0.67 |
| 506099 | 1201038022 | 08-MAR-2006 09:55 | DONE | 0.85 | 0.31 | dec | 0.65 | 0 | -0.689 | 1.99 | 3.00 | 0.67 |
| 508847 | 1201044643 | 13-MAR-2006 09:00 | DONE | 0.21 | -0.65 | dec | 0.65 | 0 | -0.689 | 1.99 | 3.00 | 0.67 |
| 510100 | 1201047354 | 13-MAR-2006 10:40 | DONE | 0.28 | -0.55 | dec | 0.65 | 0 | -0.689 | 1.99 | 3.00 | 0.67 |
| 508848 | 1201044647 | 14-MAR-2006 10:35 | DONE | 0.34 | -0.46 | dec | 0.65 | 0 | -0.689 | 1.99 | 3.00 | 0.67 |
| 510098 | 1201047345 | 15-MAR-2006 10:30 | DONE | 0.66 | 0.01 | dec | 0.65 | 0 | -0.689 | 1.99 | 3.00 | 0.67 |
| 511905 | 1201051484 | 23-MAR-2006 20:10 | DONE | 1.74 | 1.6 | dec | 0.65 | 0 | -0.689 | 1.99 | 3.00 | 0.67 |
| 513423 | 1201054877 | 24-MAR-2006 07:50 | DONE | 0.23 | -0.62 | dec | 0.65 | 0 | -0.689 | 1.99 | 3.00 | 0.67 |
| 512638 | 1201053209 | 24-MAR-2006 08:30 | DONE | 0.08 | -0.85 | dec | 0.65 | 0 | -0.689 | 1.99 | 3.00 | 0.67 |
| 510097 | 1201047341 | 27-MAR-2006 12:05 | DONE | 0.25 | -0.59 | dec | 0.65 | 0 | -0.689 | 1.99 | 3.00 | 0.67 |
| 511410 | 1201050376 | 04-APR-2006 10:50 | DONE | 0.28 | -0.55 | dec | 0.65 | 0 | -0.689 | 1.99 | 3.00 | 0.67 |

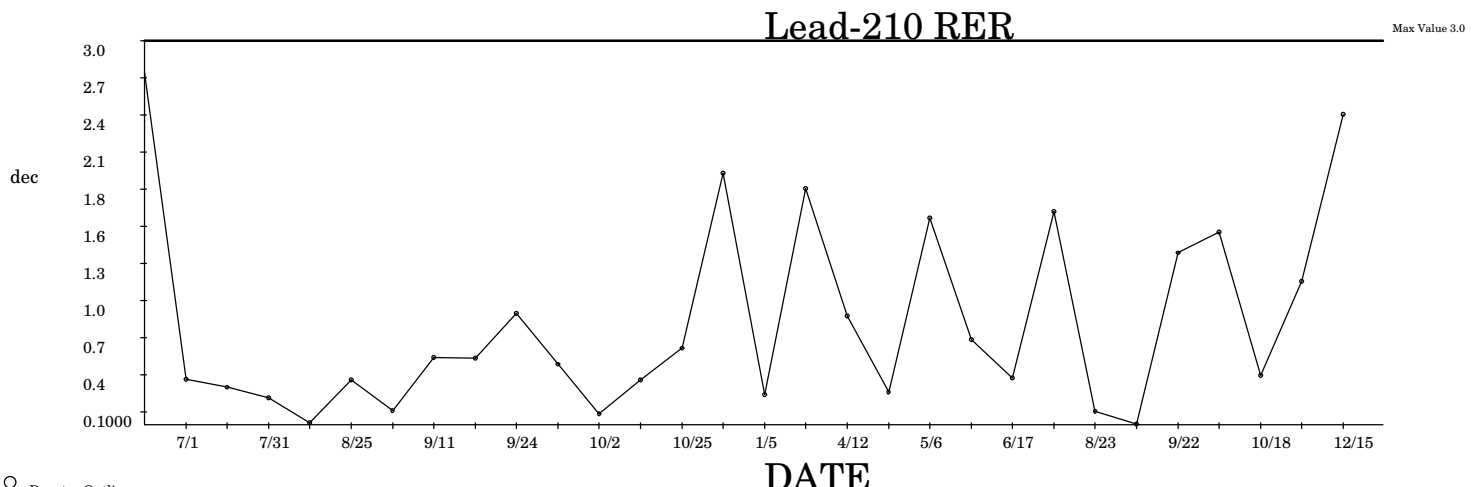
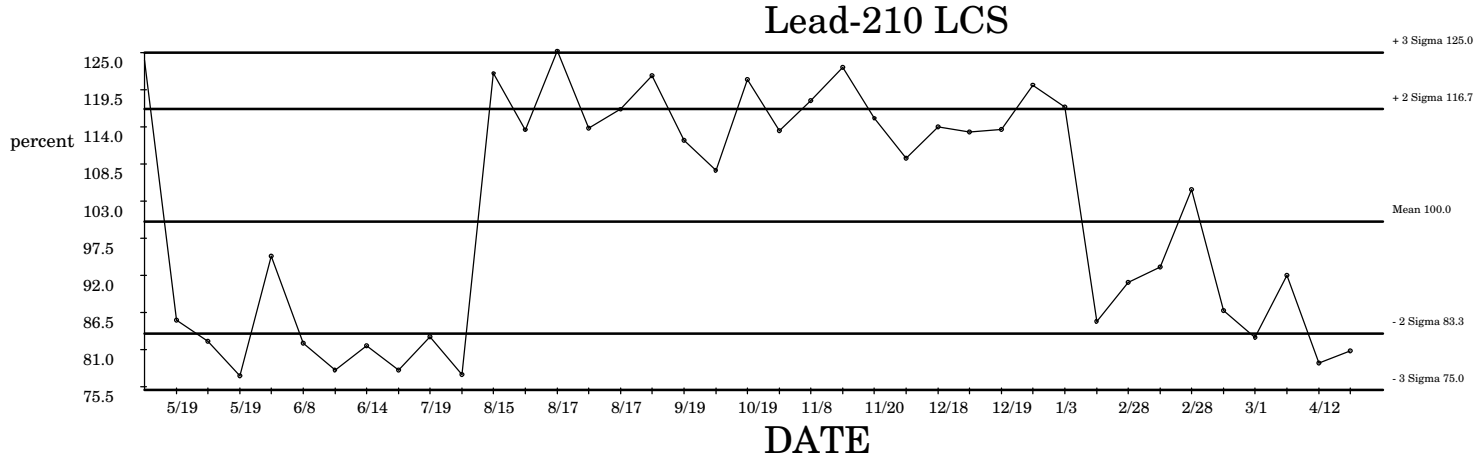
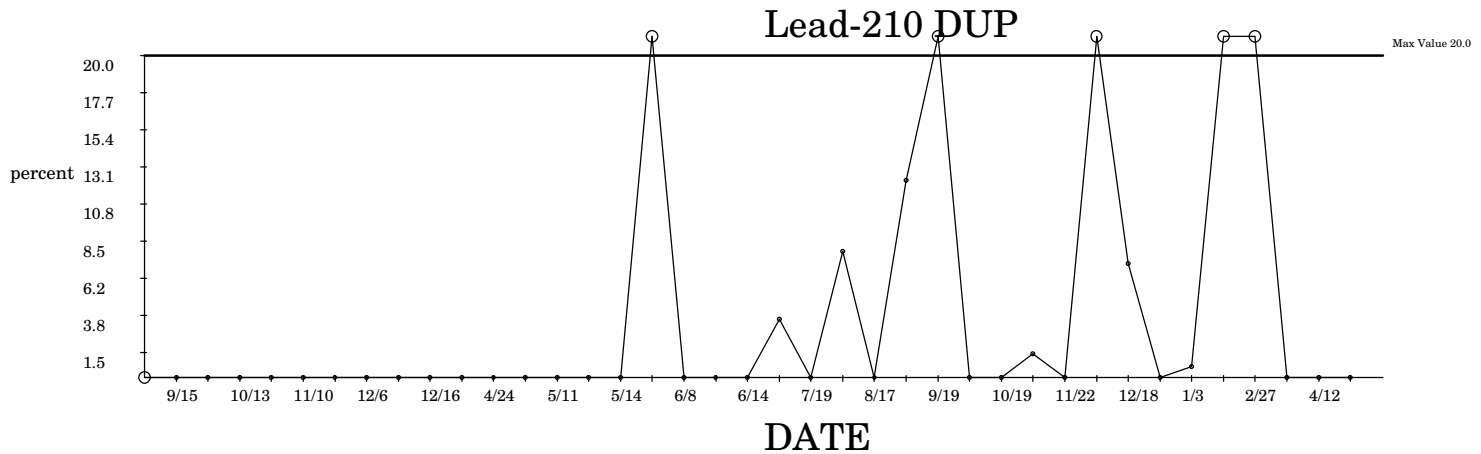
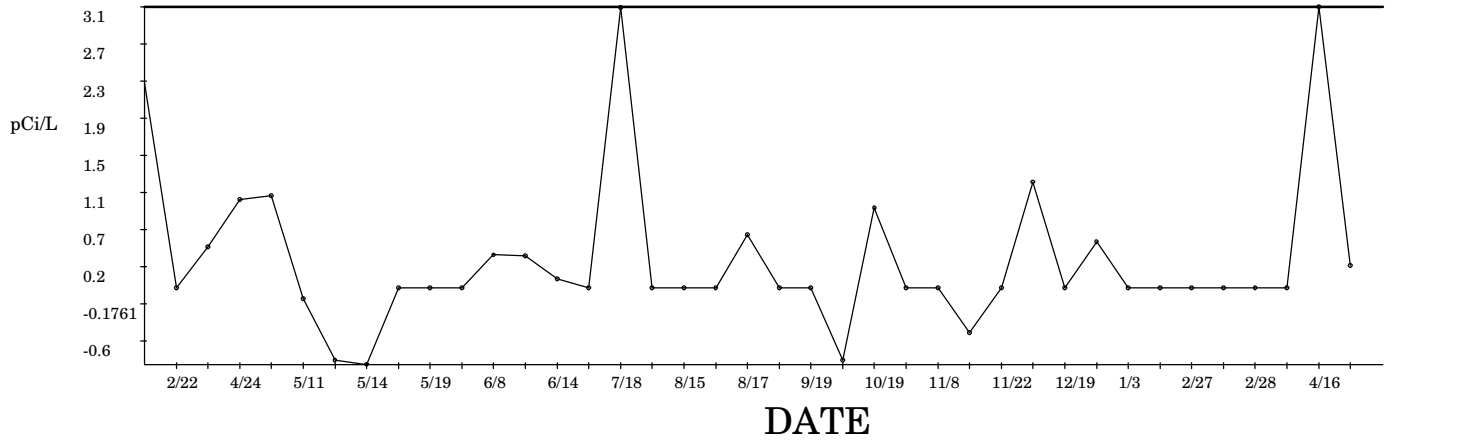
Radium-226 SPIKE: Limits LCL = 75 UCL = 125

| Batch ID | Samp ID | Run Date | Status | Value | Deviation | Units | Mean | LCL | LWL | UWL | UCL | Stdev |
|----------|------------|-------------------|--------|-------|-----------|---------|------|------|------|-----|-----|-------|
| 510096 | 1201047338 | 13-MAR-2006 07:55 | DONE | 113 | 1.5 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 508847 | 1201044644 | 13-MAR-2006 09:00 | DONE | 109 | 1 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 510100 | 1201047355 | 13-MAR-2006 11:45 | DONE | 114 | 1.7 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 507422 | 1201041268 | 14-MAR-2006 07:25 | DONE | 76 | -3 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 508848 | 1201044648 | 14-MAR-2006 10:35 | DONE | 118 | 2.2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 508845 | 1201044632 | 14-MAR-2006 16:00 | DONE | 79 | -3 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 510098 | 1201047346 | 15-MAR-2006 10:30 | DONE | 88 | -1 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 510098 | 1201047347 | 15-MAR-2006 10:30 | DONE | 82 | -2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 508846 | 1201044636 | 16-MAR-2006 13:15 | DONE | 120 | 2.4 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 510099 | 1201047351 | 17-MAR-2006 09:45 | DONE | 100 | 0.04 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 510646 | 1201048628 | 17-MAR-2006 18:12 | DONE | 95 | -0.57 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 510094 | 1201047330 | 21-MAR-2006 11:10 | DONE | 76 | -3 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 508851 | 1201044657 | 21-MAR-2006 11:30 | DONE | 107 | 0.88 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 511412 | 1201050385 | 21-MAR-2006 14:15 | DONE | 83 | -2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 510101 | 1201047359 | 22-MAR-2006 10:00 | DONE | 96 | -0.46 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 510095 | 1201047334 | 22-MAR-2006 11:05 | DONE | 99 | -0.06 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 511384 | 1201050307 | 23-MAR-2006 12:35 | DONE | 113 | 1.6 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 511905 | 1201051485 | 23-MAR-2006 20:10 | DONE | 124 | 2.9 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 513423 | 1201054878 | 24-MAR-2006 07:50 | DONE | 112 | 1.5 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 512638 | 1201053210 | 24-MAR-2006 08:30 | DONE | 99 | -0.07 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 508195 | 1201043055 | 25-MAR-2006 14:20 | DONE | 116 | 1.9 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 510097 | 1201047342 | 27-MAR-2006 12:05 | DONE | 103 | 0.33 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 512753 | 1201053463 | 27-MAR-2006 20:30 | DONE | 82 | -2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 513367 | 1201054755 | 28-MAR-2006 22:50 | DONE | 100 | -0.04 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 512637 | 1201053206 | 29-MAR-2006 12:20 | DONE | 90 | -1 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 514680 | 1201057532 | 30-MAR-2006 20:04 | DONE | 87 | -2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 514682 | 1201057536 | 31-MAR-2006 23:18 | DONE | 88 | -1 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 512635 | 1201053198 | 01-APR-2006 13:00 | DONE | 96 | -0.43 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 512634 | 1201053194 | 03-APR-2006 12:50 | DONE | 108 | 0.97 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 516190 | 1201060835 | 04-APR-2006 05:45 | DONE | 125 | 3 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 511410 | 1201050377 | 04-APR-2006 11:25 | DONE | 105 | 0.6 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 511411 | 1201050381 | 05-APR-2006 11:40 | DONE | 91 | -1 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 514686 | 1201057556 | 05-APR-2006 14:55 | DONE | 94 | -0.67 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 514684 | 1201057548 | 06-APR-2006 12:05 | DONE | 105 | 0.65 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 516172 | 1201060799 | 07-APR-2006 09:15 | DONE | 107 | 0.86 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |

| | | | | | | | | | | | | |
|--------|------------|-------------------|------|-----|-------|---------|-----|------|------|-----|-----|------|
| 516170 | 1201060795 | 07-APR-2006 09:55 | DONE | 110 | 1.2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 516189 | 1201060831 | 08-APR-2006 15:20 | DONE | 123 | 2.8 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 517605 | 1201063983 | 11-APR-2006 09:15 | DONE | 94 | -0.78 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 515528 | 1201059361 | 11-APR-2006 09:50 | DONE | 80 | -2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |

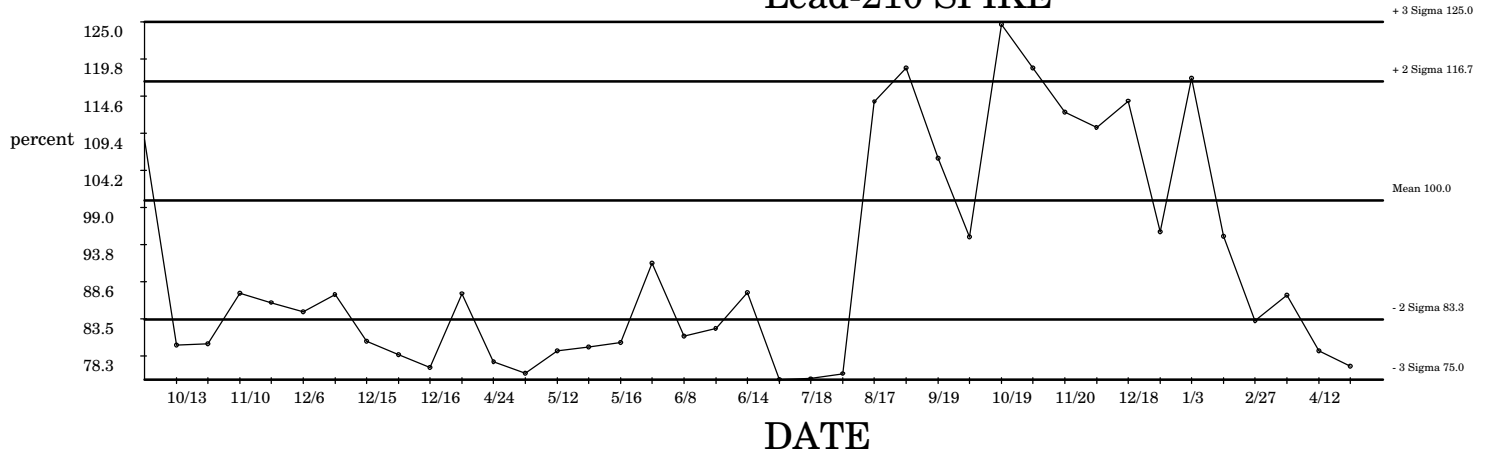
SPC Graph for Gas Flow Lead-210 in Liquids 4/25/2006

Lead-210 BLANK



○ Denotes Outlier

SPC Graph for Gas Flow Lead-210 in Liquids 4/25/2006 Lead-210 SPIKE



○ Denotes Outlier

Data used for Gas Flow Lead-210 in Liquids 26-APR-2006

Lead-210 BLANK: Limits LCL = -2.2 UCL = 2.7

| Batch ID | Samp ID | Run Date | Status | Value | Deviation | Units | Mean | LCL | LWL | UWL | UCL | Stdev |
|----------|------------|-------------------|--------|-------|-----------|-------|------|------|------|------|------|-------|
| 400110 | 1200785595 | 21-FEB-2005 16:38 | DONE | 0 | -0.32 | pCi/L | 0.25 | -2.2 | -1.4 | 1.87 | 2.68 | 0.81 |
| 400109 | 1200785591 | 22-FEB-2005 07:24 | DONE | 0 | -0.32 | pCi/L | 0.25 | -2.2 | -1.4 | 1.87 | 2.68 | 0.81 |
| 415571 | 1200822191 | 18-APR-2005 00:50 | DONE | 0 | 0.25 | pCi/L | 0.25 | -2.2 | -1.4 | 1.87 | 2.68 | 0.81 |
| 417543 | 1200827004 | 24-APR-2005 19:55 | DONE | 1 | 0.91 | pCi/L | 0.25 | -2.2 | -1.4 | 1.87 | 2.68 | 0.81 |
| 419557 | 1200831804 | 30-APR-2005 15:21 | DONE | 1 | 0.96 | pCi/L | 0.25 | -2.2 | -1.4 | 1.87 | 2.68 | 0.81 |
| 422332 | 1200838732 | 11-MAY-2005 07:18 | DONE | 0 | -0.46 | pCi/L | 0.25 | -2.2 | -1.4 | 1.87 | 2.68 | 0.81 |
| 419558 | 1200831808 | 14-MAY-2005 20:57 | DONE | -1 | -1 | pCi/L | 0.25 | -2.2 | -1.4 | 1.87 | 2.68 | 0.81 |
| 422819 | 1200839939 | 14-MAY-2005 21:00 | DONE | -1 | -1 | pCi/L | 0.25 | -2.2 | -1.4 | 1.87 | 2.68 | 0.81 |
| 419559 | 1200831812 | 19-MAY-2005 08:43 | DONE | 0 | -0.32 | pCi/L | 0.25 | -2.2 | -1.4 | 1.87 | 2.68 | 0.81 |
| 419560 | 1200831815 | 19-MAY-2005 10:21 | DONE | 0 | -0.32 | pCi/L | 0.25 | -2.2 | -1.4 | 1.87 | 2.68 | 0.81 |
| 421692 | 1200836959 | 25-MAY-2005 08:55 | DONE | 0 | -0.32 | pCi/L | 0.25 | -2.2 | -1.4 | 1.87 | 2.68 | 0.81 |
| 430106 | 1200857690 | 08-JUN-2005 09:03 | DONE | 0 | 0.14 | pCi/L | 0.25 | -2.2 | -1.4 | 1.87 | 2.68 | 0.81 |
| 430764 | 1200859365 | 13-JUN-2005 11:29 | DONE | 0 | 0.13 | pCi/L | 0.25 | -2.2 | -1.4 | 1.87 | 2.68 | 0.81 |
| 431616 | 1200861663 | 14-JUN-2005 06:26 | DONE | 0 | -0.19 | pCi/L | 0.25 | -2.2 | -1.4 | 1.87 | 2.68 | 0.81 |
| 430541 | 1200858801 | 26-JUN-2005 18:15 | DONE | 0 | -0.32 | pCi/L | 0.25 | -2.2 | -1.4 | 1.87 | 2.68 | 0.81 |
| 441104 | 1200884260 | 18-JUL-2005 19:15 | DONE | 3 | 3.6 | pCi/L | 0.25 | -2.2 | -1.4 | 1.87 | 2.68 | 0.81 |
| 437246 | 1200875105 | 21-JUL-2005 22:20 | DONE | 0 | -0.32 | pCi/L | 0.25 | -2.2 | -1.4 | 1.87 | 2.68 | 0.81 |
| 450347 | 1200906423 | 15-AUG-2005 21:26 | DONE | 0 | -0.32 | pCi/L | 0.25 | -2.2 | -1.4 | 1.87 | 2.68 | 0.81 |
| 450351 | 1200906426 | 17-AUG-2005 11:33 | DONE | 0 | -0.32 | pCi/L | 0.25 | -2.2 | -1.4 | 1.87 | 2.68 | 0.81 |
| 450354 | 1200906438 | 17-AUG-2005 14:19 | DONE | 1 | 0.42 | pCi/L | 0.25 | -2.2 | -1.4 | 1.87 | 2.68 | 0.81 |
| 450352 | 1200906430 | 18-AUG-2005 14:14 | DONE | 0 | -0.32 | pCi/L | 0.25 | -2.2 | -1.4 | 1.87 | 2.68 | 0.81 |
| 461613 | 1200933183 | 19-SEP-2005 13:53 | DONE | 0 | -0.32 | pCi/L | 0.25 | -2.2 | -1.4 | 1.87 | 2.68 | 0.81 |
| 461895 | 1200933942 | 22-SEP-2005 10:16 | DONE | -1 | -1 | pCi/L | 0.25 | -2.2 | -1.4 | 1.87 | 2.68 | 0.81 |
| 471295 | 1200956478 | 19-OCT-2005 10:39 | DONE | 1 | 0.79 | pCi/L | 0.25 | -2.2 | -1.4 | 1.87 | 2.68 | 0.81 |
| 470692 | 1200954937 | 19-OCT-2005 16:56 | DONE | 0 | -0.32 | pCi/L | 0.25 | -2.2 | -1.4 | 1.87 | 2.68 | 0.81 |
| 475222 | 1200965926 | 08-NOV-2005 10:52 | DONE | 0 | -0.32 | pCi/L | 0.25 | -2.2 | -1.4 | 1.87 | 2.68 | 0.81 |
| 481294 | 1200980553 | 22-NOV-2005 09:21 | DONE | 0 | -0.93 | pCi/L | 0.25 | -2.2 | -1.4 | 1.87 | 2.68 | 0.81 |
| 479208 | 1200975628 | 22-NOV-2005 14:07 | DONE | 0 | -0.32 | pCi/L | 0.25 | -2.2 | -1.4 | 1.87 | 2.68 | 0.81 |
| 486637 | 1200993457 | 18-DEC-2005 21:40 | DONE | 1 | 1.1 | pCi/L | 0.25 | -2.2 | -1.4 | 1.87 | 2.68 | 0.81 |
| 485399 | 1200990514 | 19-DEC-2005 12:14 | DONE | 0 | -0.32 | pCi/L | 0.25 | -2.2 | -1.4 | 1.87 | 2.68 | 0.81 |
| 489016 | 1200998991 | 25-DEC-2005 19:10 | DONE | 1 | 0.32 | pCi/L | 0.25 | -2.2 | -1.4 | 1.87 | 2.68 | 0.81 |
| 487146 | 1200994636 | 03-JAN-2006 10:19 | DONE | 0 | -0.32 | pCi/L | 0.25 | -2.2 | -1.4 | 1.87 | 2.68 | 0.81 |
| 495993 | 1201014597 | 05-FEB-2006 14:34 | DONE | 0 | -0.32 | pCi/L | 0.25 | -2.2 | -1.4 | 1.87 | 2.68 | 0.81 |
| 504804 | 1201034958 | 27-FEB-2006 11:25 | DONE | 0 | -0.32 | pCi/L | 0.25 | -2.2 | -1.4 | 1.87 | 2.68 | 0.81 |
| 503558 | 1201031984 | 28-FEB-2006 10:50 | DONE | 0 | -0.32 | pCi/L | 0.25 | -2.2 | -1.4 | 1.87 | 2.68 | 0.81 |
| 503559 | 1201031987 | 28-FEB-2006 23:10 | DONE | 0 | -0.32 | pCi/L | 0.25 | -2.2 | -1.4 | 1.87 | 2.68 | 0.81 |
| 512214 | 1201052258 | 21-MAR-2006 11:45 | DONE | 0 | -0.32 | pCi/L | 0.25 | -2.2 | -1.4 | 1.87 | 2.68 | 0.81 |
| 517808 | 1201064410 | 16-APR-2006 23:19 | DONE | 3 | 3.6 | pCi/L | 0.25 | -2.2 | -1.4 | 1.87 | 2.68 | 0.81 |
| 520607 | 1201070733 | 25-APR-2006 14:15 | DONE | 0 | -0 | pCi/L | 0.25 | -2.2 | -1.4 | 1.87 | 2.68 | 0.81 |

Lead-210 DUP: Limits LCL = 0 UCL = 20

| Batch ID | Samp ID | Run Date | Status | Value | Deviation | Units | Mean | LCL | LWL | UWL | UCL | Stdev |
|----------|------------|-------------------|--------|-------|-----------|---------|------|-----|-----|------|------|-------|
| 356233 | 1200680261 | 17-AUG-2004 11:19 | DONE | 28 | 1.4 | percent | 6.62 | 0 | -25 | 38.6 | 20.0 | 16 |
| 364294 | 1200699138 | 15-SEP-2004 09:13 | DONE | 0 | -0.41 | percent | 6.62 | 0 | -25 | 38.6 | 20.0 | 16 |
| 364295 | 1200699143 | 15-SEP-2004 10:11 | DONE | 0 | -0.41 | percent | 6.62 | 0 | -25 | 38.6 | 20.0 | 16 |
| 371366 | 1200716015 | 13-OCT-2004 08:24 | DONE | 0 | -0.41 | percent | 6.62 | 0 | -25 | 38.6 | 20.0 | 16 |

| | | | | | | | | | | | | |
|--------|------------|-------------------|------|----|-------|---------|------|---|-----|------|------|----|
| 371367 | 1200716019 | 18-OCT-2004 07:44 | DONE | 0 | -0.41 | percent | 6.62 | 0 | -25 | 38.6 | 20.0 | 16 |
| 378642 | 1200734036 | 10-NOV-2004 09:46 | DONE | 0 | -0.41 | percent | 6.62 | 0 | -25 | 38.6 | 20.0 | 16 |
| 378641 | 1200734032 | 15-NOV-2004 09:35 | DONE | 0 | -0.41 | percent | 6.62 | 0 | -25 | 38.6 | 20.0 | 16 |
| 383936 | 1200746759 | 06-DEC-2004 09:02 | DONE | 0 | -0.41 | percent | 6.62 | 0 | -25 | 38.6 | 20.0 | 16 |
| 383918 | 1200746688 | 06-DEC-2004 10:34 | DONE | 0 | -0.41 | percent | 6.62 | 0 | -25 | 38.6 | 20.0 | 16 |
| 385729 | 1200751075 | 16-DEC-2004 04:06 | DONE | 0 | -0.41 | percent | 6.62 | 0 | -25 | 38.6 | 20.0 | 16 |
| 415571 | 1200822192 | 18-APR-2005 00:50 | DONE | 0 | -0.41 | percent | 6.62 | 0 | -25 | 38.6 | 20.0 | 16 |
| 417543 | 1200827005 | 24-APR-2005 19:55 | DONE | 0 | -0.41 | percent | 6.62 | 0 | -25 | 38.6 | 20.0 | 16 |
| 419557 | 1200831805 | 30-APR-2005 15:21 | DONE | 0 | -0.41 | percent | 6.62 | 0 | -25 | 38.6 | 20.0 | 16 |
| 422332 | 1200838733 | 11-MAY-2005 07:18 | DONE | 0 | -0.41 | percent | 6.62 | 0 | -25 | 38.6 | 20.0 | 16 |
| 419558 | 1200831809 | 14-MAY-2005 20:57 | DONE | 0 | -0.41 | percent | 6.62 | 0 | -25 | 38.6 | 20.0 | 16 |
| 422819 | 1200839940 | 14-MAY-2005 21:01 | DONE | 0 | -0.41 | percent | 6.62 | 0 | -25 | 38.6 | 20.0 | 16 |
| 421692 | 1200836960 | 25-MAY-2005 10:35 | DONE | 22 | 0.93 | percent | 6.62 | 0 | -25 | 38.6 | 20.0 | 16 |
| 430106 | 1200857691 | 08-JUN-2005 09:03 | DONE | 0 | -0.41 | percent | 6.62 | 0 | -25 | 38.6 | 20.0 | 16 |
| 430764 | 1200859366 | 13-JUN-2005 11:29 | DONE | 0 | -0.41 | percent | 6.62 | 0 | -25 | 38.6 | 20.0 | 16 |
| 431616 | 1200861664 | 14-JUN-2005 06:26 | DONE | 0 | -0.41 | percent | 6.62 | 0 | -25 | 38.6 | 20.0 | 16 |
| 430541 | 1200858802 | 26-JUN-2005 18:15 | DONE | 4 | -0.19 | percent | 6.62 | 0 | -25 | 38.6 | 20.0 | 16 |
| 441104 | 1200884261 | 19-JUL-2005 15:04 | DONE | 0 | -0.41 | percent | 6.62 | 0 | -25 | 38.6 | 20.0 | 16 |
| 437246 | 1200875106 | 21-JUL-2005 22:20 | DONE | 8 | 0.08 | percent | 6.62 | 0 | -25 | 38.6 | 20.0 | 16 |
| 450354 | 1200906439 | 17-AUG-2005 14:19 | DONE | 0 | -0.41 | percent | 6.62 | 0 | -25 | 38.6 | 20.0 | 16 |
| 450352 | 1200906431 | 18-AUG-2005 14:14 | DONE | 12 | 0.35 | percent | 6.62 | 0 | -25 | 38.6 | 20.0 | 16 |
| 461613 | 1200933184 | 19-SEP-2005 13:52 | DONE | 28 | 1.3 | percent | 6.62 | 0 | -25 | 38.6 | 20.0 | 16 |
| 461895 | 1200933943 | 22-SEP-2005 10:16 | DONE | 0 | -0.41 | percent | 6.62 | 0 | -25 | 38.6 | 20.0 | 16 |
| 471295 | 1200956479 | 19-OCT-2005 11:41 | DONE | 0 | -0.41 | percent | 6.62 | 0 | -25 | 38.6 | 20.0 | 16 |
| 470692 | 1200954938 | 19-OCT-2005 16:56 | DONE | 1 | -0.32 | percent | 6.62 | 0 | -25 | 38.6 | 20.0 | 16 |
| 481294 | 1200980554 | 22-NOV-2005 09:21 | DONE | 0 | -0.41 | percent | 6.62 | 0 | -25 | 38.6 | 20.0 | 16 |
| 479208 | 1200975629 | 22-NOV-2005 14:07 | DONE | 34 | 1.7 | percent | 6.62 | 0 | -25 | 38.6 | 20.0 | 16 |
| 486637 | 1200993458 | 18-DEC-2005 21:39 | DONE | 7 | 0.03 | percent | 6.62 | 0 | -25 | 38.6 | 20.0 | 16 |
| 489016 | 1200998992 | 25-DEC-2005 19:10 | DONE | 0 | -0.41 | percent | 6.62 | 0 | -25 | 38.6 | 20.0 | 16 |
| 487146 | 1200994637 | 03-JAN-2006 10:19 | DONE | 1 | -0.37 | percent | 6.62 | 0 | -25 | 38.6 | 20.0 | 16 |
| 495993 | 1201014598 | 05-FEB-2006 14:34 | DONE | 84 | 4.8 | percent | 6.62 | 0 | -25 | 38.6 | 20.0 | 16 |
| 504804 | 1201034959 | 27-FEB-2006 11:25 | DONE | 30 | 1.4 | percent | 6.62 | 0 | -25 | 38.6 | 20.0 | 16 |
| 512214 | 1201052259 | 21-MAR-2006 11:45 | DONE | 0 | -0.41 | percent | 6.62 | 0 | -25 | 38.6 | 20.0 | 16 |
| 517808 | 1201064411 | 12-APR-2006 10:37 | DONE | 0 | -0.41 | percent | 6.62 | 0 | -25 | 38.6 | 20.0 | 16 |
| 520607 | 1201070734 | 25-APR-2006 14:15 | DONE | 0 | -0.41 | percent | 6.62 | 0 | -25 | 38.6 | 20.0 | 16 |

Lead-210 LCS: Limits LCL = 75 UCL = 125

| Batch ID | Samp ID | Run Date | Status | Value | Deviation | Units | Mean | LCL | LWL | UWL | UCL | Stdev |
|----------|------------|-------------------|--------|-------|-----------|---------|------|------|------|-----|-----|-------|
| 419559 | 1200831813 | 19-MAY-2005 08:42 | DONE | 76 | -3 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 419559 | 1200831814 | 19-MAY-2005 08:42 | DONE | 85 | -2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 419560 | 1200831817 | 19-MAY-2005 10:20 | DONE | 82 | -2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 419560 | 1200831816 | 19-MAY-2005 10:21 | DONE | 77 | -3 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 421692 | 1200836962 | 25-MAY-2005 10:35 | DONE | 95 | -0.62 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 430106 | 1200857693 | 08-JUN-2005 09:03 | DONE | 82 | -2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 430764 | 1200859368 | 13-JUN-2005 11:29 | DONE | 78 | -3 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 431616 | 1200861666 | 14-JUN-2005 06:26 | DONE | 82 | -2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 430541 | 1200858804 | 27-JUN-2005 11:34 | DONE | 78 | -3 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 441104 | 1200884263 | 19-JUL-2005 15:04 | DONE | 83 | -2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 437246 | 1200875108 | 21-JUL-2005 13:20 | DONE | 77 | -3 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 450347 | 1200906424 | 15-AUG-2005 21:26 | DONE | 122 | 2.6 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |

| | | | | | | | | | | | | |
|--------|------------|-------------------|------|-----|-------|---------|-----|------|------|-----|-----|------|
| 450347 | 1200906425 | 15-AUG-2005 22:29 | DONE | 114 | 1.6 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 450351 | 1200906427 | 17-AUG-2005 11:33 | DONE | 125 | 3 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 450351 | 1200906428 | 17-AUG-2005 11:33 | DONE | 114 | 1.7 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 450354 | 1200906441 | 17-AUG-2005 14:19 | DONE | 117 | 2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 450352 | 1200906433 | 18-AUG-2005 14:14 | DONE | 122 | 2.6 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 461613 | 1200933186 | 19-SEP-2005 14:56 | DONE | 112 | 1.4 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 461895 | 1200933945 | 22-SEP-2005 10:16 | DONE | 108 | 0.9 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 471295 | 1200956481 | 19-OCT-2005 10:40 | DONE | 121 | 2.5 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 470692 | 1200954940 | 19-OCT-2005 17:59 | DONE | 113 | 1.6 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 475222 | 1200965928 | 08-NOV-2005 10:52 | DONE | 118 | 2.1 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 475222 | 1200965927 | 08-NOV-2005 10:52 | DONE | 123 | 2.7 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 479208 | 1200975631 | 20-NOV-2005 23:00 | DONE | 115 | 1.8 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 481294 | 1200980556 | 22-NOV-2005 09:21 | DONE | 109 | 1.1 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 486637 | 1200993460 | 18-DEC-2005 21:40 | DONE | 114 | 1.7 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 485399 | 1200990515 | 19-DEC-2005 12:14 | DONE | 113 | 1.6 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 485399 | 1200990516 | 19-DEC-2005 12:14 | DONE | 114 | 1.6 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 489016 | 1200998994 | 25-DEC-2005 19:10 | DONE | 120 | 2.4 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 487146 | 1200994639 | 03-JAN-2006 10:19 | DONE | 117 | 2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 495993 | 1201014600 | 04-FEB-2006 17:44 | DONE | 85 | -2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 503558 | 1201031985 | 28-FEB-2006 15:18 | DONE | 91 | -1 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 503558 | 1201031986 | 28-FEB-2006 15:19 | DONE | 93 | -0.82 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 503559 | 1201031988 | 28-FEB-2006 23:10 | DONE | 105 | 0.57 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 503559 | 1201031989 | 28-FEB-2006 23:10 | DONE | 87 | -2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 504804 | 1201034961 | 01-MAR-2006 21:40 | DONE | 83 | -2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 512214 | 1201052261 | 21-MAR-2006 11:45 | DONE | 92 | -0.96 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 517808 | 1201064413 | 12-APR-2006 10:37 | DONE | 79 | -3 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 520607 | 1201070736 | 25-APR-2006 14:15 | DONE | 81 | -2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |

Lead-210 RER: Limits LCL = 0 UCL = 3

| Batch ID | Samp ID | Run Date | Status | Value | Deviation | Units | Mean | LCL | LWL | UWL | UCL | Stdev |
|----------|------------|-------------------|--------|-------|-----------|-------|------|-----|--------|------|------|-------|
| 259157 | 1200444733 | 01-JUL-2003 03:49 | DONE | 0.25 | -0.69 | dec | 0.71 | 0 | -0.612 | 2.04 | 3.00 | 0.66 |
| 259156 | 1200444730 | 01-JUL-2003 13:35 | DONE | 0.35 | -0.54 | dec | 0.71 | 0 | -0.612 | 2.04 | 3.00 | 0.66 |
| 260891 | 1200449200 | 08-JUL-2003 03:35 | DONE | 0.29 | -0.63 | dec | 0.71 | 0 | -0.612 | 2.04 | 3.00 | 0.66 |
| 263853 | 1200456689 | 31-JUL-2003 12:42 | DONE | 0.21 | -0.76 | dec | 0.71 | 0 | -0.612 | 2.04 | 3.00 | 0.66 |
| 268208 | 1200467300 | 05-AUG-2003 20:11 | DONE | 0.02 | -1 | dec | 0.71 | 0 | -0.612 | 2.04 | 3.00 | 0.66 |
| 270119 | 1200472396 | 25-AUG-2003 17:29 | DONE | 0.35 | -0.55 | dec | 0.71 | 0 | -0.612 | 2.04 | 3.00 | 0.66 |
| 273714 | 1200481578 | 09-SEP-2003 12:10 | DONE | 0.11 | -0.91 | dec | 0.71 | 0 | -0.612 | 2.04 | 3.00 | 0.66 |
| 274534 | 1200483528 | 11-SEP-2003 03:42 | DONE | 0.52 | -0.28 | dec | 0.71 | 0 | -0.612 | 2.04 | 3.00 | 0.66 |
| 276187 | 1200487560 | 18-SEP-2003 16:35 | DONE | 0.52 | -0.29 | dec | 0.71 | 0 | -0.612 | 2.04 | 3.00 | 0.66 |
| 277706 | 1200491283 | 24-SEP-2003 14:13 | DONE | 0.87 | 0.24 | dec | 0.71 | 0 | -0.612 | 2.04 | 3.00 | 0.66 |
| 277704 | 1200491269 | 29-SEP-2003 09:58 | DONE | 0.47 | -0.36 | dec | 0.71 | 0 | -0.612 | 2.04 | 3.00 | 0.66 |
| 278927 | 1200494421 | 02-OCT-2003 05:44 | DONE | 0.09 | -0.95 | dec | 0.71 | 0 | -0.612 | 2.04 | 3.00 | 0.66 |
| 280680 | 1200498873 | 13-OCT-2003 19:59 | DONE | 0.35 | -0.55 | dec | 0.71 | 0 | -0.612 | 2.04 | 3.00 | 0.66 |
| 284404 | 1200508164 | 25-OCT-2003 10:17 | DONE | 0.6 | -0.17 | dec | 0.71 | 0 | -0.612 | 2.04 | 3.00 | 0.66 |
| 290245 | 1200523078 | 17-NOV-2003 18:45 | DONE | 1.96 | 1.9 | dec | 0.71 | 0 | -0.612 | 2.04 | 3.00 | 0.66 |
| 299278 | 1200545020 | 05-JAN-2004 20:33 | DONE | 0.23 | -0.72 | dec | 0.71 | 0 | -0.612 | 2.04 | 3.00 | 0.66 |
| 301230 | 1200549730 | 13-JAN-2004 05:57 | DONE | 1.84 | 1.7 | dec | 0.71 | 0 | -0.612 | 2.04 | 3.00 | 0.66 |
| 322627 | 1200600723 | 12-APR-2004 12:50 | DONE | 0.85 | 0.21 | dec | 0.71 | 0 | -0.612 | 2.04 | 3.00 | 0.66 |
| 323105 | 1200601878 | 14-APR-2004 14:15 | DONE | 0.25 | -0.69 | dec | 0.71 | 0 | -0.612 | 2.04 | 3.00 | 0.66 |
| 328142 | 1200613508 | 06-MAY-2004 19:34 | DONE | 1.62 | 1.4 | dec | 0.71 | 0 | -0.612 | 2.04 | 3.00 | 0.66 |

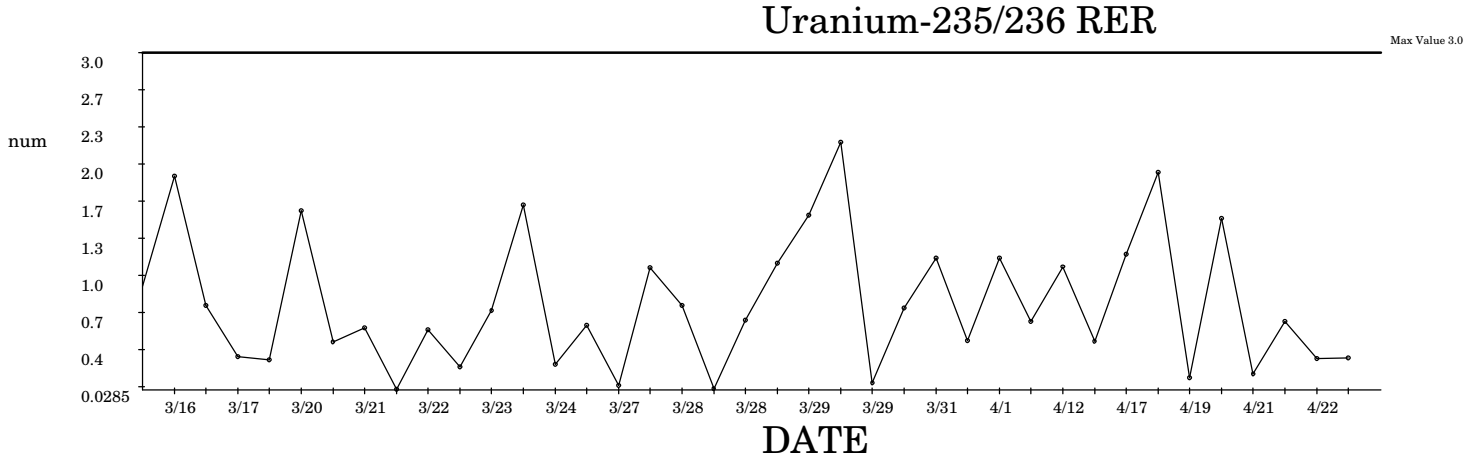
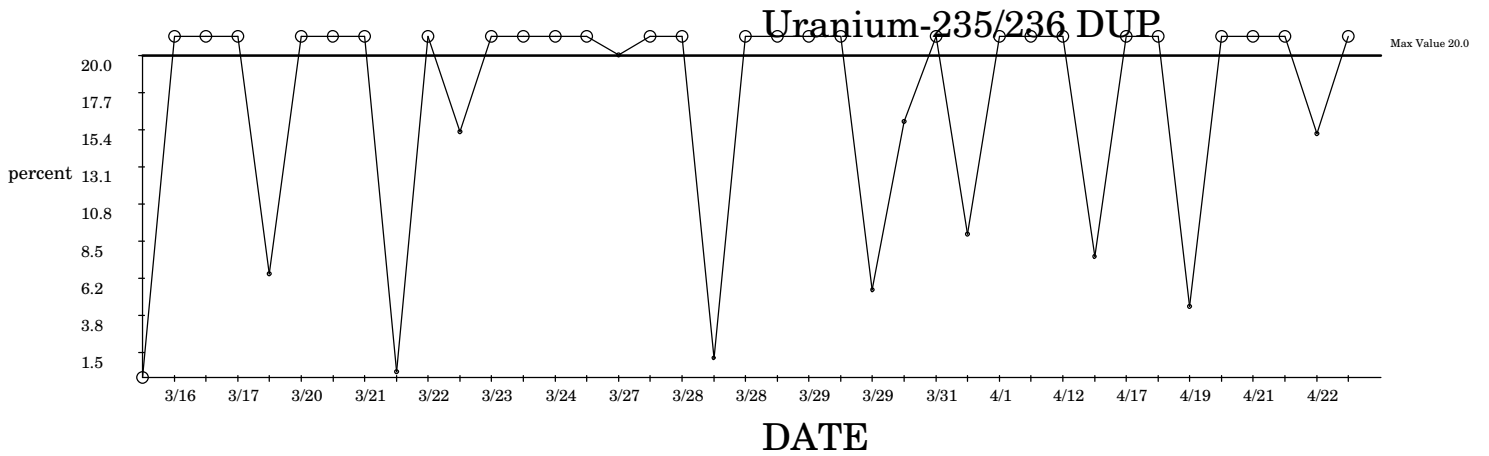
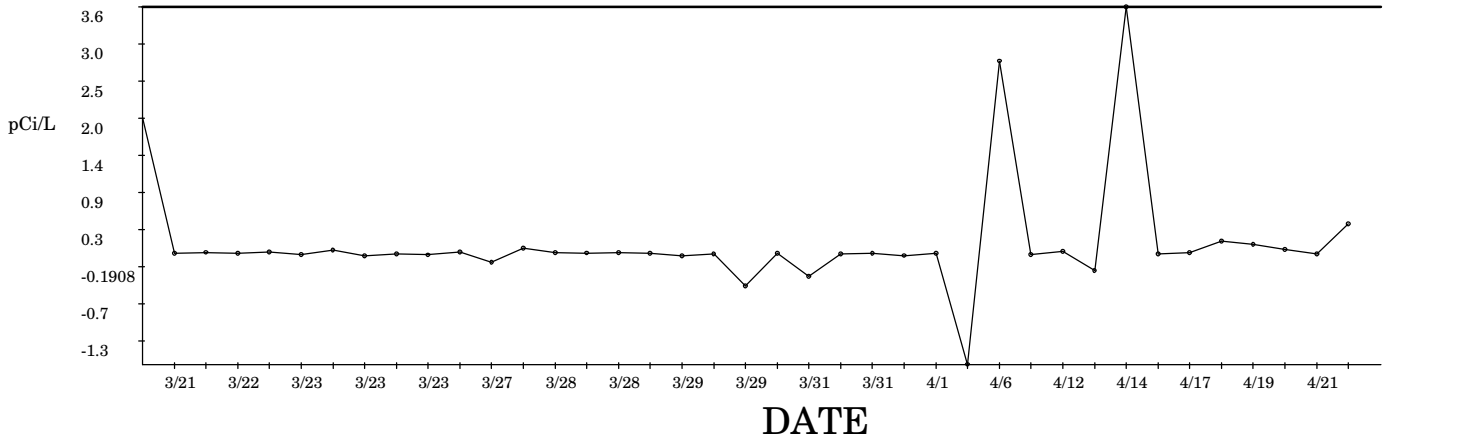
| | | | | | | | | | | | | |
|--------|------------|-------------------|------|------|-------|-----|------|---|--------|------|------|------|
| 332226 | 1200623069 | 18-MAY-2004 21:56 | DONE | 0.67 | -0.07 | dec | 0.71 | 0 | -0.612 | 2.04 | 3.00 | 0.66 |
| 339666 | 1200640332 | 17-JUN-2004 20:36 | DONE | 0.36 | -0.53 | dec | 0.71 | 0 | -0.612 | 2.04 | 3.00 | 0.66 |
| 344859 | 1200653027 | 14-JUL-2004 01:14 | DONE | 1.67 | 1.4 | dec | 0.71 | 0 | -0.612 | 2.04 | 3.00 | 0.66 |
| 355308 | 1200678102 | 23-AUG-2004 04:40 | DONE | 0.11 | -0.91 | dec | 0.71 | 0 | -0.612 | 2.04 | 3.00 | 0.66 |
| 356146 | 1200680029 | 25-AUG-2004 15:24 | DONE | 00 | -1 | dec | 0.71 | 0 | -0.612 | 2.04 | 3.00 | 0.66 |
| 365746 | 1200702829 | 22-SEP-2004 05:21 | DONE | 1.34 | 0.95 | dec | 0.71 | 0 | -0.612 | 2.04 | 3.00 | 0.66 |
| 365744 | 1200702821 | 22-SEP-2004 06:27 | DONE | 1.51 | 1.2 | dec | 0.71 | 0 | -0.612 | 2.04 | 3.00 | 0.66 |
| 372794 | 1200719620 | 18-OCT-2004 14:02 | DONE | 0.39 | -0.49 | dec | 0.71 | 0 | -0.612 | 2.04 | 3.00 | 0.66 |
| 385730 | 1200751079 | 15-DEC-2004 06:46 | DONE | 1.12 | 0.62 | dec | 0.71 | 0 | -0.612 | 2.04 | 3.00 | 0.66 |
| 382363 | 1200742867 | 15-DEC-2004 13:22 | DONE | 2.42 | 2.6 | dec | 0.71 | 0 | -0.612 | 2.04 | 3.00 | 0.66 |

Lead-210 SPIKE: Limits LCL = 75 UCL = 125

| Batch ID | Samp ID | Run Date | Status | Value | Deviation | Units | Mean | LCL | LWL | UWL | UCL | Stdev |
|----------|------------|-------------------|--------|-------|-----------|---------|------|------|------|-----|-----|-------|
| 365744 | 1200702822 | 22-SEP-2004 06:27 | DONE | 91 | -1 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 371366 | 1200716016 | 13-OCT-2004 08:24 | DONE | 80 | -2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 371367 | 1200716020 | 18-OCT-2004 07:44 | DONE | 80 | -2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 378642 | 1200734037 | 10-NOV-2004 08:46 | DONE | 87 | -2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 378641 | 1200734033 | 16-NOV-2004 18:49 | DONE | 86 | -2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 383918 | 1200746689 | 06-DEC-2004 18:46 | DONE | 84 | -2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 383936 | 1200746760 | 06-DEC-2004 19:50 | DONE | 87 | -2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 385730 | 1200751080 | 15-DEC-2004 07:21 | DONE | 80 | -2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 382363 | 1200742868 | 15-DEC-2004 13:22 | DONE | 78 | -3 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 385729 | 1200751076 | 16-DEC-2004 04:06 | DONE | 77 | -3 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 415571 | 1200822193 | 17-APR-2005 23:35 | DONE | 87 | -2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 417543 | 1200827006 | 24-APR-2005 19:56 | DONE | 77 | -3 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 419557 | 1200831806 | 30-APR-2005 15:21 | DONE | 76 | -3 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 422332 | 1200838734 | 12-MAY-2005 10:27 | DONE | 79 | -3 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 422819 | 1200839941 | 14-MAY-2005 21:00 | DONE | 80 | -2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 419558 | 1200831810 | 16-MAY-2005 13:46 | DONE | 80 | -2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 421692 | 1200836961 | 25-MAY-2005 10:35 | DONE | 91 | -1 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 430106 | 1200857692 | 08-JUN-2005 09:03 | DONE | 81 | -2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 430764 | 1200859367 | 13-JUN-2005 20:45 | DONE | 82 | -2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 431616 | 1200861665 | 14-JUN-2005 06:26 | DONE | 87 | -2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 430541 | 1200858803 | 27-JUN-2005 11:34 | DONE | 75 | -3 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 441104 | 1200884262 | 18-JUL-2005 19:44 | DONE | 75 | -3 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 437246 | 1200875107 | 21-JUL-2005 13:20 | DONE | 76 | -3 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 450354 | 1200906440 | 17-AUG-2005 14:19 | DONE | 114 | 1.7 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 450352 | 1200906432 | 18-AUG-2005 14:14 | DONE | 119 | 2.2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 461613 | 1200933185 | 19-SEP-2005 13:52 | DONE | 106 | 0.71 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 461895 | 1200933944 | 22-SEP-2005 10:16 | DONE | 95 | -0.61 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 471295 | 1200956480 | 19-OCT-2005 10:39 | DONE | 125 | 3 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 470692 | 1200954939 | 19-OCT-2005 16:56 | DONE | 119 | 2.2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 479208 | 1200975630 | 20-NOV-2005 23:00 | DONE | 112 | 1.5 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 481294 | 1200980555 | 22-NOV-2005 09:21 | DONE | 110 | 1.2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 486637 | 1200993459 | 18-DEC-2005 21:39 | DONE | 114 | 1.7 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 489016 | 1200998993 | 25-DEC-2005 19:10 | DONE | 96 | -0.52 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 487146 | 1200994638 | 03-JAN-2006 10:19 | DONE | 117 | 2.1 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 495993 | 1201014599 | 04-FEB-2006 17:44 | DONE | 95 | -0.6 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 504804 | 1201034960 | 27-FEB-2006 11:26 | DONE | 83 | -2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 512214 | 1201052260 | 21-MAR-2006 11:45 | DONE | 87 | -2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |

| | | | | | | | | | | | | |
|--------|------------|-------------------|------|----|----|---------|-----|------|------|-----|-----|------|
| 517808 | 1201064412 | 12-APR-2006 10:37 | DONE | 79 | -3 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 520607 | 1201070735 | 25-APR-2006 14:15 | DONE | 77 | -3 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |

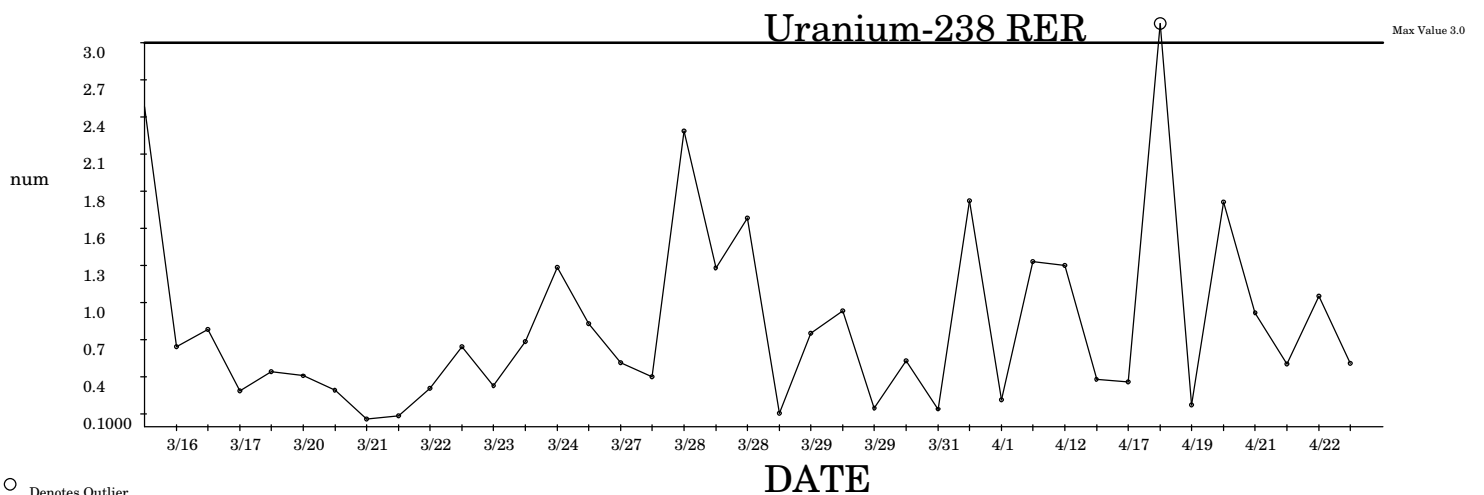
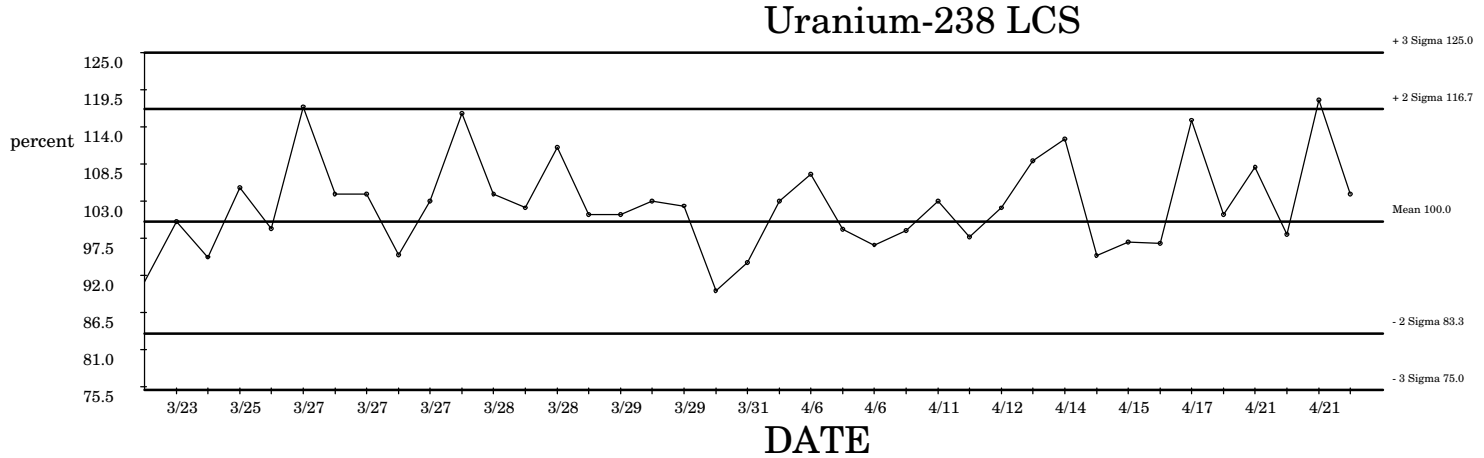
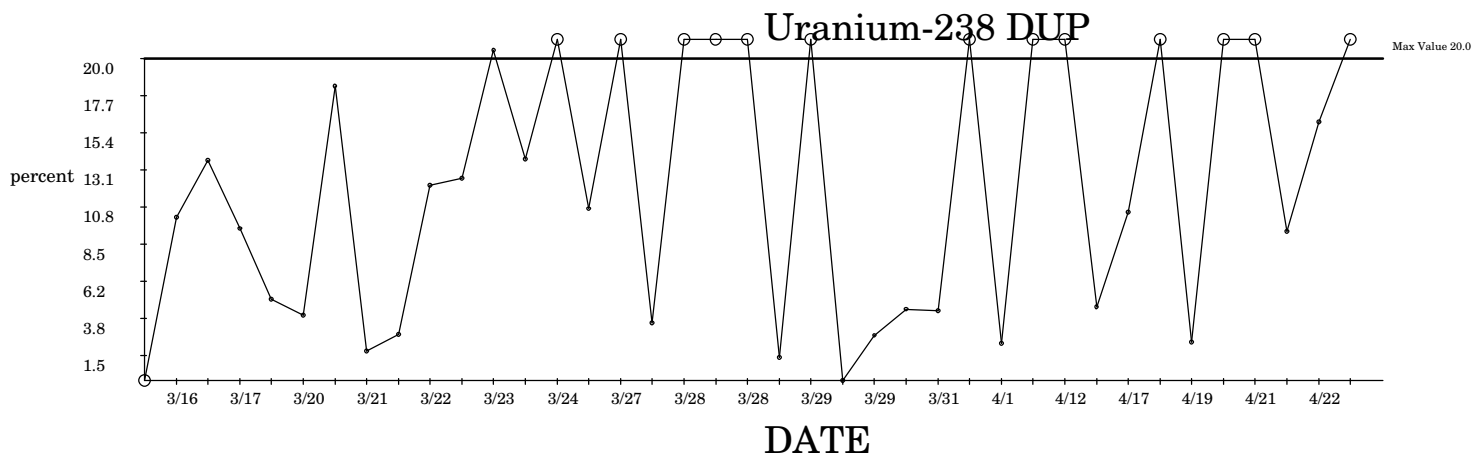
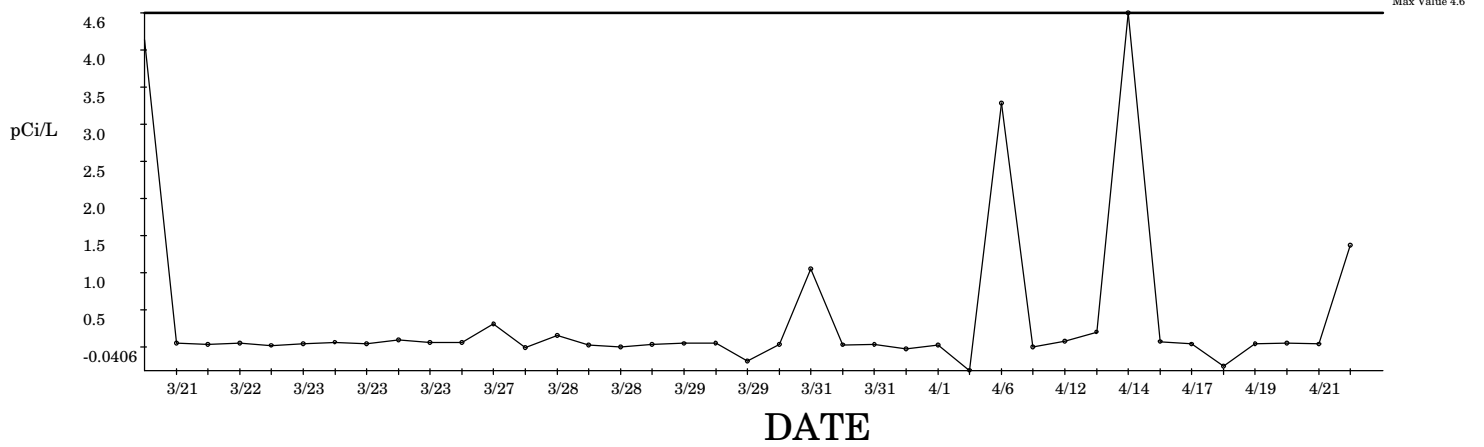
SPC Graph for Alpha SpecUranium in Liquids 4/24/2006 Uranium-235/236 BLANK



○ Denotes Outlier

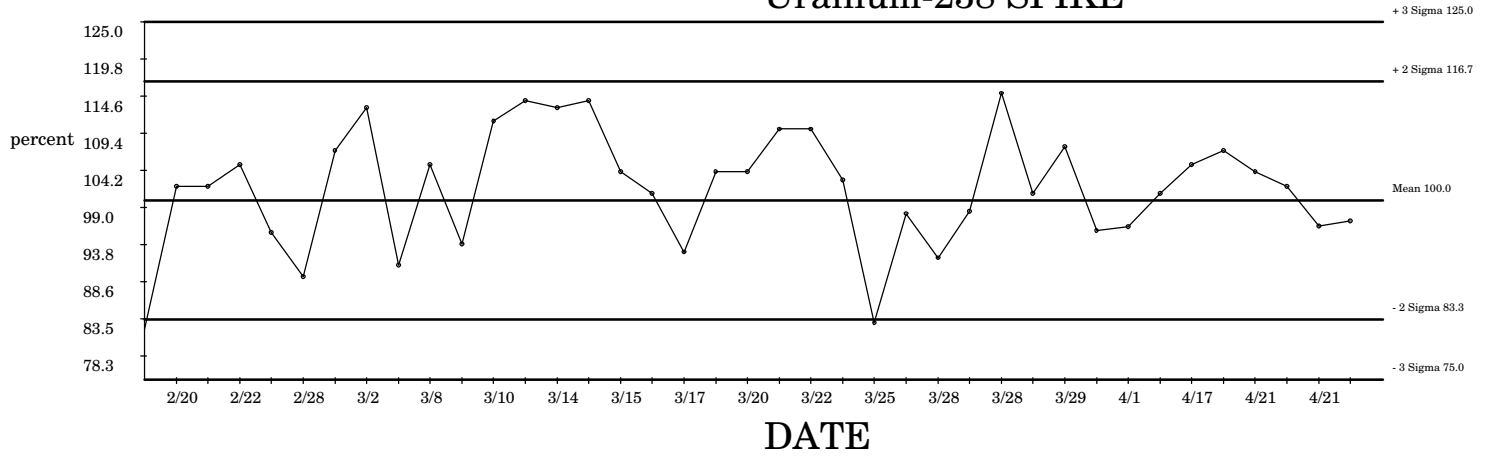
SPC Graph for Alpha SpecUranium in Liquids 4/24/2006

Uranium-238 BLANK



○ Denotes Outlier

SPC Graph for Alpha SpecUranium in Liquids 4/24/2006 Uranium-238 SPIKE



○ Denotes Outlier

Data used for Alpha Spec Uranium in Liquids 25-APR-2006

Uranium-233/234 BLANK: Limits LCL = -5.2 UCL = 6.4

| Batch ID | Samp ID | Run Date | Status | Value | Deviation | Units | Mean | LCL | LWL | UWL | UCL | Stdev |
|----------|------------|-------------------|--------|-------|-----------|-------|------|------|------|------|------|-------|
| 510723 | 1201048836 | 20-MAR-2006 16:57 | DONE | 0 | -0.29 | pCi/L | 0.59 | -5.2 | -3.3 | 4.48 | 6.43 | 1.95 |
| 510734 | 1201048867 | 21-MAR-2006 16:38 | DONE | 0 | -0.3 | pCi/L | 0.59 | -5.2 | -3.3 | 4.48 | 6.43 | 1.95 |
| 511648 | 1201050949 | 21-MAR-2006 16:38 | DONE | 0 | -0.3 | pCi/L | 0.59 | -5.2 | -3.3 | 4.48 | 6.43 | 1.95 |
| 511653 | 1201050964 | 22-MAR-2006 12:29 | DONE | 0 | -0.3 | pCi/L | 0.59 | -5.2 | -3.3 | 4.48 | 6.43 | 1.95 |
| 512077 | 1201051899 | 22-MAR-2006 14:23 | DONE | 0 | -0.31 | pCi/L | 0.59 | -5.2 | -3.3 | 4.48 | 6.43 | 1.95 |
| 511616 | 1201050865 | 23-MAR-2006 08:32 | DONE | 0 | -0.29 | pCi/L | 0.59 | -5.2 | -3.3 | 4.48 | 6.43 | 1.95 |
| 511988 | 1201051682 | 23-MAR-2006 13:27 | DONE | 0 | -0.26 | pCi/L | 0.59 | -5.2 | -3.3 | 4.48 | 6.43 | 1.95 |
| 510728 | 1201048852 | 23-MAR-2006 13:27 | DONE | 0 | -0.38 | pCi/L | 0.59 | -5.2 | -3.3 | 4.48 | 6.43 | 1.95 |
| 511552 | 1201050721 | 23-MAR-2006 16:14 | DONE | 1 | -0.02 | pCi/L | 0.59 | -5.2 | -3.3 | 4.48 | 6.43 | 1.95 |
| 511560 | 1201050747 | 23-MAR-2006 18:20 | DONE | 0 | -0.33 | pCi/L | 0.59 | -5.2 | -3.3 | 4.48 | 6.43 | 1.95 |
| 511709 | 1201051079 | 25-MAR-2006 15:09 | DONE | 0 | -0.29 | pCi/L | 0.59 | -5.2 | -3.3 | 4.48 | 6.43 | 1.95 |
| 511201 | 1201049856 | 27-MAR-2006 08:14 | DONE | 0 | -0.06 | pCi/L | 0.59 | -5.2 | -3.3 | 4.48 | 6.43 | 1.95 |
| 514936 | 1201057981 | 27-MAR-2006 14:43 | DONE | 0 | -0.4 | pCi/L | 0.59 | -5.2 | -3.3 | 4.48 | 6.43 | 1.95 |
| 512777 | 1201053518 | 28-MAR-2006 07:34 | DONE | 0 | -0.24 | pCi/L | 0.59 | -5.2 | -3.3 | 4.48 | 6.43 | 1.95 |
| 512076 | 1201051895 | 28-MAR-2006 07:39 | DONE | 0 | -0.31 | pCi/L | 0.59 | -5.2 | -3.3 | 4.48 | 6.43 | 1.95 |
| 515153 | 1201058496 | 28-MAR-2006 12:29 | DONE | 0 | -0.21 | pCi/L | 0.59 | -5.2 | -3.3 | 4.48 | 6.43 | 1.95 |
| 514141 | 1201056267 | 28-MAR-2006 16:43 | DONE | 0 | -0.29 | pCi/L | 0.59 | -5.2 | -3.3 | 4.48 | 6.43 | 1.95 |
| 514267 | 1201056533 | 29-MAR-2006 07:59 | DONE | 0 | -0.33 | pCi/L | 0.59 | -5.2 | -3.3 | 4.48 | 6.43 | 1.95 |
| 511652 | 1201050960 | 29-MAR-2006 16:04 | DONE | 0 | -0.3 | pCi/L | 0.59 | -5.2 | -3.3 | 4.48 | 6.43 | 1.95 |
| 511564 | 1201050754 | 29-MAR-2006 19:53 | DONE | 0 | -0.25 | pCi/L | 0.59 | -5.2 | -3.3 | 4.48 | 6.43 | 1.95 |
| 514277 | 1201056551 | 29-MAR-2006 22:27 | DONE | 0 | -0.3 | pCi/L | 0.59 | -5.2 | -3.3 | 4.48 | 6.43 | 1.95 |
| 514320 | 1201056638 | 31-MAR-2006 08:29 | DONE | 1 | 0.37 | pCi/L | 0.59 | -5.2 | -3.3 | 4.48 | 6.43 | 1.95 |
| 512070 | 1201051881 | 31-MAR-2006 15:55 | DONE | 0 | -0.28 | pCi/L | 0.59 | -5.2 | -3.3 | 4.48 | 6.43 | 1.95 |
| 515540 | 1201059382 | 31-MAR-2006 19:27 | DONE | 0 | -0.31 | pCi/L | 0.59 | -5.2 | -3.3 | 4.48 | 6.43 | 1.95 |
| 514261 | 1201056520 | 01-APR-2006 09:22 | DONE | 0 | -0.21 | pCi/L | 0.59 | -5.2 | -3.3 | 4.48 | 6.43 | 1.95 |
| 516131 | 1201060706 | 01-APR-2006 16:30 | DONE | 0 | -0.3 | pCi/L | 0.59 | -5.2 | -3.3 | 4.48 | 6.43 | 1.95 |
| 516497 | 1201061514 | 06-APR-2006 08:42 | DONE | 4 | 1.6 | pCi/L | 0.59 | -5.2 | -3.3 | 4.48 | 6.43 | 1.95 |
| 516532 | 1201061530 | 06-APR-2006 13:23 | DONE | -1 | -0.72 | pCi/L | 0.59 | -5.2 | -3.3 | 4.48 | 6.43 | 1.95 |
| 518879 | 1201066818 | 11-APR-2006 16:43 | DONE | 0 | -0.28 | pCi/L | 0.59 | -5.2 | -3.3 | 4.48 | 6.43 | 1.95 |
| 518911 | 1201066929 | 12-APR-2006 14:20 | DONE | 0 | -0.24 | pCi/L | 0.59 | -5.2 | -3.3 | 4.48 | 6.43 | 1.95 |
| 517717 | 1201064212 | 12-APR-2006 17:24 | DONE | 0 | -0.26 | pCi/L | 0.59 | -5.2 | -3.3 | 4.48 | 6.43 | 1.95 |
| 519218 | 1201067494 | 14-APR-2006 09:06 | DONE | 5 | 2.5 | pCi/L | 0.59 | -5.2 | -3.3 | 4.48 | 6.43 | 1.95 |
| 520706 | 1201070943 | 15-APR-2006 09:12 | DONE | 0 | -0.23 | pCi/L | 0.59 | -5.2 | -3.3 | 4.48 | 6.43 | 1.95 |
| 518916 | 1201066938 | 17-APR-2006 07:52 | DUSE | 0 | -0.3 | pCi/L | 0.59 | -5.2 | -3.3 | 4.48 | 6.43 | 1.95 |
| 519428 | 1201067985 | 17-APR-2006 16:05 | DONE | 1 | 0.1 | pCi/L | 0.59 | -5.2 | -3.3 | 4.48 | 6.43 | 1.95 |
| 521040 | 1201071729 | 19-APR-2006 14:49 | DONE | 0 | -0.22 | pCi/L | 0.59 | -5.2 | -3.3 | 4.48 | 6.43 | 1.95 |
| 520799 | 1201071144 | 21-APR-2006 07:38 | DONE | 0 | -0.27 | pCi/L | 0.59 | -5.2 | -3.3 | 4.48 | 6.43 | 1.95 |
| 521962 | 1201074073 | 21-APR-2006 10:18 | DONE | 0 | -0.3 | pCi/L | 0.59 | -5.2 | -3.3 | 4.48 | 6.43 | 1.95 |
| 520373 | 1201070134 | 21-APR-2006 19:20 | DUSE | 11 | 5.1 | pCi/L | 0.59 | -5.2 | -3.3 | 4.48 | 6.43 | 1.95 |

Uranium-233/234 DUP: Limits LCL = 0 UCL = 20

| Batch ID | Samp ID | Run Date | Status | Value | Deviation | Units | Mean | LCL | LWL | UWL | UCL | Stdev |
|----------|------------|-------------------|--------|-------|-----------|---------|------|-----|------|-----|------|-------|
| 510661 | 1201048686 | 15-MAR-2006 10:56 | DONE | 15 | -0.32 | percent | 41.6 | 0 | -120 | 207 | 20.0 | 82.5 |
| 511878 | 1201051444 | 16-MAR-2006 12:58 | DONE | 13 | -0.35 | percent | 41.6 | 0 | -120 | 207 | 20.0 | 82.5 |
| 510654 | 1201048653 | 17-MAR-2006 13:41 | DONE | 27 | -0.18 | percent | 41.6 | 0 | -120 | 207 | 20.0 | 82.5 |
| 510724 | 1201048841 | 17-MAR-2006 13:41 | DONE | 4 | -0.46 | percent | 41.6 | 0 | -120 | 207 | 20.0 | 82.5 |

| | | | | | | | | | | | | |
|--------|------------|-------------------|------|-----|-------|---------|------|---|------|-----|------|------|
| 510738 | 1201048878 | 20-MAR-2006 07:42 | DONE | 23 | -0.22 | percent | 41.6 | 0 | -120 | 207 | 20.0 | 82.5 |
| 510723 | 1201048837 | 20-MAR-2006 16:57 | DONE | 5 | -0.44 | percent | 41.6 | 0 | -120 | 207 | 20.0 | 82.5 |
| 510734 | 1201048868 | 21-MAR-2006 16:38 | DONE | 5 | -0.44 | percent | 41.6 | 0 | -120 | 207 | 20.0 | 82.5 |
| 511648 | 1201050950 | 21-MAR-2006 16:38 | DONE | 2 | -0.48 | percent | 41.6 | 0 | -120 | 207 | 20.0 | 82.5 |
| 511653 | 1201050965 | 22-MAR-2006 12:29 | DONE | 2 | -0.48 | percent | 41.6 | 0 | -120 | 207 | 20.0 | 82.5 |
| 512077 | 1201051900 | 22-MAR-2006 14:23 | DONE | 40 | -0.02 | percent | 41.6 | 0 | -120 | 207 | 20.0 | 82.5 |
| 511988 | 1201051683 | 23-MAR-2006 13:27 | DONE | 10 | -0.38 | percent | 41.6 | 0 | -120 | 207 | 20.0 | 82.5 |
| 511552 | 1201050722 | 23-MAR-2006 16:14 | DONE | 74 | 0.39 | percent | 41.6 | 0 | -120 | 207 | 20.0 | 82.5 |
| 511560 | 1201050748 | 23-MAR-2006 18:20 | DONE | 0 | -0.5 | percent | 41.6 | 0 | -120 | 207 | 20.0 | 82.5 |
| 511616 | 1201050866 | 24-MAR-2006 14:52 | DONE | 7 | -0.42 | percent | 41.6 | 0 | -120 | 207 | 20.0 | 82.5 |
| 511709 | 1201051080 | 25-MAR-2006 15:09 | DONE | 2 | -0.49 | percent | 41.6 | 0 | -120 | 207 | 20.0 | 82.5 |
| 514141 | 1201056268 | 27-MAR-2006 16:25 | DONE | 84 | 0.51 | percent | 41.6 | 0 | -120 | 207 | 20.0 | 82.5 |
| 511652 | 1201050961 | 27-MAR-2006 16:59 | DONE | 1 | -0.49 | percent | 41.6 | 0 | -120 | 207 | 20.0 | 82.5 |
| 512777 | 1201053519 | 28-MAR-2006 07:34 | DONE | 35 | -0.08 | percent | 41.6 | 0 | -120 | 207 | 20.0 | 82.5 |
| 514320 | 1201056639 | 28-MAR-2006 07:34 | DONE | 3 | -0.46 | percent | 41.6 | 0 | -120 | 207 | 20.0 | 82.5 |
| 512076 | 1201051896 | 28-MAR-2006 07:39 | DONE | 33 | -0.11 | percent | 41.6 | 0 | -120 | 207 | 20.0 | 82.5 |
| 515153 | 1201058497 | 28-MAR-2006 12:29 | DONE | 7 | -0.42 | percent | 41.6 | 0 | -120 | 207 | 20.0 | 82.5 |
| 514267 | 1201056534 | 29-MAR-2006 07:59 | DONE | 90 | 0.59 | percent | 41.6 | 0 | -120 | 207 | 20.0 | 82.5 |
| 514261 | 1201056521 | 29-MAR-2006 07:59 | DONE | 363 | 3.9 | percent | 41.6 | 0 | -120 | 207 | 20.0 | 82.5 |
| 511564 | 1201050755 | 29-MAR-2006 19:53 | DONE | 35 | -0.08 | percent | 41.6 | 0 | -120 | 207 | 20.0 | 82.5 |
| 514277 | 1201056552 | 29-MAR-2006 22:27 | DONE | 0 | -0.5 | percent | 41.6 | 0 | -120 | 207 | 20.0 | 82.5 |
| 512070 | 1201051882 | 31-MAR-2006 15:55 | DONE | 2 | -0.48 | percent | 41.6 | 0 | -120 | 207 | 20.0 | 82.5 |
| 515540 | 1201059383 | 31-MAR-2006 19:27 | DONE | 4 | -0.45 | percent | 41.6 | 0 | -120 | 207 | 20.0 | 82.5 |
| 516131 | 1201060707 | 01-APR-2006 16:30 | DONE | 1 | -0.49 | percent | 41.6 | 0 | -120 | 207 | 20.0 | 82.5 |
| 518879 | 1201066819 | 11-APR-2006 16:43 | DONE | 74 | 0.39 | percent | 41.6 | 0 | -120 | 207 | 20.0 | 82.5 |
| 518911 | 1201066930 | 12-APR-2006 14:20 | DONE | 4 | -0.45 | percent | 41.6 | 0 | -120 | 207 | 20.0 | 82.5 |
| 520706 | 1201070944 | 15-APR-2006 09:12 | DONE | 10 | -0.38 | percent | 41.6 | 0 | -120 | 207 | 20.0 | 82.5 |
| 519428 | 1201067986 | 17-APR-2006 07:52 | DONE | 67 | 0.31 | percent | 41.6 | 0 | -120 | 207 | 20.0 | 82.5 |
| 518916 | 1201066939 | 18-APR-2006 14:03 | DUSE | 103 | 0.74 | percent | 41.6 | 0 | -120 | 207 | 20.0 | 82.5 |
| 521040 | 1201071730 | 19-APR-2006 14:49 | DONE | 15 | -0.32 | percent | 41.6 | 0 | -120 | 207 | 20.0 | 82.5 |
| 521962 | 1201074074 | 21-APR-2006 10:18 | DONE | 378 | 4.1 | percent | 41.6 | 0 | -120 | 207 | 20.0 | 82.5 |
| 521962 | 1201074159 | 21-APR-2006 10:18 | DONE | 1 | -0.49 | percent | 41.6 | 0 | -120 | 207 | 20.0 | 82.5 |
| 520373 | 1201070135 | 21-APR-2006 19:20 | DUSE | 29 | -0.15 | percent | 41.6 | 0 | -120 | 207 | 20.0 | 82.5 |
| 520799 | 1201071145 | 22-APR-2006 07:38 | DONE | 9 | -0.4 | percent | 41.6 | 0 | -120 | 207 | 20.0 | 82.5 |
| 521962 | 1201074160 | 22-APR-2006 09:26 | DONE | 43 | 0.01 | percent | 41.6 | 0 | -120 | 207 | 20.0 | 82.5 |

Uranium-233/234 RER: Limits LCL = 0 UCL = 3

| Batch ID | Samp ID | Run Date | Status | Value | Deviation | Units | Mean | LCL | LWL | UWL | UCL | Stdev |
|----------|------------|-------------------|--------|-------|-----------|-------|------|-----|------|------|------|-------|
| 510661 | 1201048686 | 15-MAR-2006 10:56 | DONE | 0.58 | -0.25 | num | 0.89 | 0 | -1.6 | 3.41 | 3.00 | 1.26 |
| 511878 | 1201051444 | 16-MAR-2006 12:58 | DONE | 0.91 | 0.02 | num | 0.89 | 0 | -1.6 | 3.41 | 3.00 | 1.26 |
| 510654 | 1201048653 | 17-MAR-2006 13:41 | DONE | 1.6 | 0.56 | num | 0.89 | 0 | -1.6 | 3.41 | 3.00 | 1.26 |
| 510724 | 1201048841 | 17-MAR-2006 13:41 | DONE | 0.14 | -0.59 | num | 0.89 | 0 | -1.6 | 3.41 | 3.00 | 1.26 |
| 510738 | 1201048878 | 20-MAR-2006 07:42 | DONE | 2.02 | 0.9 | num | 0.89 | 0 | -1.6 | 3.41 | 3.00 | 1.26 |
| 510723 | 1201048837 | 20-MAR-2006 16:57 | DONE | 0.53 | -0.28 | num | 0.89 | 0 | -1.6 | 3.41 | 3.00 | 1.26 |
| 510734 | 1201048868 | 21-MAR-2006 16:38 | DONE | 0.12 | -0.61 | num | 0.89 | 0 | -1.6 | 3.41 | 3.00 | 1.26 |
| 511648 | 1201050950 | 21-MAR-2006 16:38 | DONE | 0.07 | -0.64 | num | 0.89 | 0 | -1.6 | 3.41 | 3.00 | 1.26 |
| 511653 | 1201050965 | 22-MAR-2006 12:29 | DONE | 0.08 | -0.64 | num | 0.89 | 0 | -1.6 | 3.41 | 3.00 | 1.26 |
| 512077 | 1201051900 | 22-MAR-2006 14:23 | DONE | 1.17 | 0.23 | num | 0.89 | 0 | -1.6 | 3.41 | 3.00 | 1.26 |
| 511988 | 1201051683 | 23-MAR-2006 13:27 | DONE | 0.65 | -0.18 | num | 0.89 | 0 | -1.6 | 3.41 | 3.00 | 1.26 |
| 511552 | 1201050722 | 23-MAR-2006 16:14 | DONE | 1.63 | 0.59 | num | 0.89 | 0 | -1.6 | 3.41 | 3.00 | 1.26 |

| | | | | | | | | | | | | |
|--------|------------|-------------------|------|------|-------|-----|------|---|------|------|------|------|
| 511560 | 1201050748 | 23-MAR-2006 18:20 | DONE | 0.03 | -0.68 | num | 0.89 | 0 | -1.6 | 3.41 | 3.00 | 1.26 |
| 511616 | 1201050866 | 24-MAR-2006 14:52 | DONE | 0.47 | -0.33 | num | 0.89 | 0 | -1.6 | 3.41 | 3.00 | 1.26 |
| 511709 | 1201051080 | 25-MAR-2006 15:09 | DONE | 0.12 | -0.6 | num | 0.89 | 0 | -1.6 | 3.41 | 3.00 | 1.26 |
| 514141 | 1201056268 | 27-MAR-2006 16:25 | DONE | 0.21 | -0.53 | num | 0.89 | 0 | -1.6 | 3.41 | 3.00 | 1.26 |
| 511652 | 1201050961 | 27-MAR-2006 16:59 | DONE | 0.12 | -0.6 | num | 0.89 | 0 | -1.6 | 3.41 | 3.00 | 1.26 |
| 512777 | 1201053519 | 28-MAR-2006 07:34 | DONE | 0.59 | -0.24 | num | 0.89 | 0 | -1.6 | 3.41 | 3.00 | 1.26 |
| 514320 | 1201056639 | 28-MAR-2006 07:34 | DONE | 0.07 | -0.65 | num | 0.89 | 0 | -1.6 | 3.41 | 3.00 | 1.26 |
| 512076 | 1201051896 | 28-MAR-2006 07:39 | DONE | 0.68 | -0.16 | num | 0.89 | 0 | -1.6 | 3.41 | 3.00 | 1.26 |
| 515153 | 1201058497 | 28-MAR-2006 12:29 | DONE | 0.57 | -0.25 | num | 0.89 | 0 | -1.6 | 3.41 | 3.00 | 1.26 |
| 514267 | 1201056534 | 29-MAR-2006 07:59 | DONE | 0.39 | -0.4 | num | 0.89 | 0 | -1.6 | 3.41 | 3.00 | 1.26 |
| 514261 | 1201056521 | 29-MAR-2006 07:59 | DONE | 2.78 | 1.5 | num | 0.89 | 0 | -1.6 | 3.41 | 3.00 | 1.26 |
| 511564 | 1201050755 | 29-MAR-2006 19:53 | DONE | 1.68 | 0.63 | num | 0.89 | 0 | -1.6 | 3.41 | 3.00 | 1.26 |
| 514277 | 1201056552 | 29-MAR-2006 22:27 | DONE | 0.04 | -0.67 | num | 0.89 | 0 | -1.6 | 3.41 | 3.00 | 1.26 |
| 512070 | 1201051882 | 31-MAR-2006 15:55 | DONE | 0.07 | -0.65 | num | 0.89 | 0 | -1.6 | 3.41 | 3.00 | 1.26 |
| 515540 | 1201059383 | 31-MAR-2006 19:27 | DONE | 0.43 | -0.36 | num | 0.89 | 0 | -1.6 | 3.41 | 3.00 | 1.26 |
| 516131 | 1201060707 | 01-APR-2006 16:30 | DONE | 0.13 | -0.6 | num | 0.89 | 0 | -1.6 | 3.41 | 3.00 | 1.26 |
| 518879 | 1201066819 | 11-APR-2006 16:43 | DONE | 1.61 | 0.58 | num | 0.89 | 0 | -1.6 | 3.41 | 3.00 | 1.26 |
| 518911 | 1201066930 | 12-APR-2006 14:20 | DONE | 0.23 | -0.52 | num | 0.89 | 0 | -1.6 | 3.41 | 3.00 | 1.26 |
| 520706 | 1201070944 | 15-APR-2006 09:12 | DONE | 0.96 | 0.06 | num | 0.89 | 0 | -1.6 | 3.41 | 3.00 | 1.26 |
| 519428 | 1201067986 | 17-APR-2006 07:52 | DONE | 2.36 | 1.2 | num | 0.89 | 0 | -1.6 | 3.41 | 3.00 | 1.26 |
| 518916 | 1201066939 | 18-APR-2006 14:03 | DUSE | 7.25 | 5 | num | 0.89 | 0 | -1.6 | 3.41 | 3.00 | 1.26 |
| 521040 | 1201071730 | 19-APR-2006 14:49 | DONE | 1.12 | 0.18 | num | 0.89 | 0 | -1.6 | 3.41 | 3.00 | 1.26 |
| 521962 | 1201074074 | 21-APR-2006 10:18 | DONE | 1.37 | 0.39 | num | 0.89 | 0 | -1.6 | 3.41 | 3.00 | 1.26 |
| 521962 | 1201074159 | 21-APR-2006 10:18 | DONE | 0.01 | -0.7 | num | 0.89 | 0 | -1.6 | 3.41 | 3.00 | 1.26 |
| 520373 | 1201070135 | 21-APR-2006 19:20 | DUSE | 0.91 | 0.02 | num | 0.89 | 0 | -1.6 | 3.41 | 3.00 | 1.26 |
| 520799 | 1201071145 | 22-APR-2006 07:38 | DONE | 0.63 | -0.2 | num | 0.89 | 0 | -1.6 | 3.41 | 3.00 | 1.26 |
| 521962 | 1201074160 | 22-APR-2006 09:26 | DONE | 0.2 | -0.54 | num | 0.89 | 0 | -1.6 | 3.41 | 3.00 | 1.26 |

Uranium-235/236 BLANK: Limits LCL = -2.2 UCL = 2.5

| Batch ID | Samp ID | Run Date | Status | Value | Deviation | Units | Mean | LCL | LWL | UWL | UCL | Stdev |
|----------|------------|-------------------|--------|-------|-----------|-------|------|------|------|------|------|-------|
| 510723 | 1201048836 | 20-MAR-2006 16:57 | DONE | 0 | -0.14 | pCi/L | 0.12 | -2.2 | -1.5 | 1.69 | 2.47 | 0.79 |
| 510734 | 1201048867 | 21-MAR-2006 16:38 | DONE | 0 | -0.15 | pCi/L | 0.12 | -2.2 | -1.5 | 1.69 | 2.47 | 0.79 |
| 511648 | 1201050949 | 21-MAR-2006 16:38 | DONE | 0 | -0.12 | pCi/L | 0.12 | -2.2 | -1.5 | 1.69 | 2.47 | 0.79 |
| 511653 | 1201050964 | 22-MAR-2006 12:29 | DONE | 0 | -0.14 | pCi/L | 0.12 | -2.2 | -1.5 | 1.69 | 2.47 | 0.79 |
| 512077 | 1201051899 | 22-MAR-2006 14:23 | DONE | 0 | -0.12 | pCi/L | 0.12 | -2.2 | -1.5 | 1.69 | 2.47 | 0.79 |
| 511616 | 1201050865 | 23-MAR-2006 08:32 | DONE | 0 | -0.17 | pCi/L | 0.12 | -2.2 | -1.5 | 1.69 | 2.47 | 0.79 |
| 511988 | 1201051682 | 23-MAR-2006 13:27 | DONE | 0 | -0.08 | pCi/L | 0.12 | -2.2 | -1.5 | 1.69 | 2.47 | 0.79 |
| 510728 | 1201048852 | 23-MAR-2006 13:27 | DONE | 0 | -0.19 | pCi/L | 0.12 | -2.2 | -1.5 | 1.69 | 2.47 | 0.79 |
| 511552 | 1201050721 | 23-MAR-2006 16:14 | DONE | 0 | -0.15 | pCi/L | 0.12 | -2.2 | -1.5 | 1.69 | 2.47 | 0.79 |
| 511560 | 1201050747 | 23-MAR-2006 18:20 | DONE | 0 | -0.17 | pCi/L | 0.12 | -2.2 | -1.5 | 1.69 | 2.47 | 0.79 |
| 511709 | 1201051079 | 25-MAR-2006 15:09 | DONE | 0 | -0.12 | pCi/L | 0.12 | -2.2 | -1.5 | 1.69 | 2.47 | 0.79 |
| 511201 | 1201049856 | 27-MAR-2006 08:14 | DONE | 0 | -0.3 | pCi/L | 0.12 | -2.2 | -1.5 | 1.69 | 2.47 | 0.79 |
| 514936 | 1201057981 | 27-MAR-2006 14:43 | DONE | 0 | -0.05 | pCi/L | 0.12 | -2.2 | -1.5 | 1.69 | 2.47 | 0.79 |
| 512777 | 1201053518 | 28-MAR-2006 07:34 | DONE | 0 | -0.13 | pCi/L | 0.12 | -2.2 | -1.5 | 1.69 | 2.47 | 0.79 |
| 512076 | 1201051895 | 28-MAR-2006 07:39 | DONE | 0 | -0.14 | pCi/L | 0.12 | -2.2 | -1.5 | 1.69 | 2.47 | 0.79 |
| 515153 | 1201058496 | 28-MAR-2006 12:29 | DONE | 0 | -0.14 | pCi/L | 0.12 | -2.2 | -1.5 | 1.69 | 2.47 | 0.79 |
| 514141 | 1201056267 | 28-MAR-2006 16:43 | DONE | 0 | -0.15 | pCi/L | 0.12 | -2.2 | -1.5 | 1.69 | 2.47 | 0.79 |
| 514267 | 1201056533 | 29-MAR-2006 07:59 | DONE | 0 | -0.19 | pCi/L | 0.12 | -2.2 | -1.5 | 1.69 | 2.47 | 0.79 |
| 511652 | 1201050960 | 29-MAR-2006 16:04 | DONE | 0 | -0.16 | pCi/L | 0.12 | -2.2 | -1.5 | 1.69 | 2.47 | 0.79 |
| 511564 | 1201050754 | 29-MAR-2006 19:53 | DONE | 0 | -0.75 | pCi/L | 0.12 | -2.2 | -1.5 | 1.69 | 2.47 | 0.79 |

| | | | | | | | | | | | | |
|--------|------------|-------------------|------|----|-------|-------|------|------|------|------|------|------|
| 514277 | 1201056551 | 29-MAR-2006 22:27 | DONE | 0 | -0.15 | pCi/L | 0.12 | -2.2 | -1.5 | 1.69 | 2.47 | 0.79 |
| 514320 | 1201056638 | 31-MAR-2006 08:29 | DONE | 0 | -0.57 | pCi/L | 0.12 | -2.2 | -1.5 | 1.69 | 2.47 | 0.79 |
| 512070 | 1201051881 | 31-MAR-2006 15:55 | DONE | 0 | -0.16 | pCi/L | 0.12 | -2.2 | -1.5 | 1.69 | 2.47 | 0.79 |
| 515540 | 1201059382 | 31-MAR-2006 19:27 | DONE | 0 | -0.15 | pCi/L | 0.12 | -2.2 | -1.5 | 1.69 | 2.47 | 0.79 |
| 514261 | 1201056520 | 01-APR-2006 09:22 | DONE | 0 | -0.18 | pCi/L | 0.12 | -2.2 | -1.5 | 1.69 | 2.47 | 0.79 |
| 516131 | 1201060706 | 01-APR-2006 16:30 | DONE | 0 | -0.15 | pCi/L | 0.12 | -2.2 | -1.5 | 1.69 | 2.47 | 0.79 |
| 516497 | 1201061514 | 06-APR-2006 08:42 | DONE | -2 | -2 | pCi/L | 0.12 | -2.2 | -1.5 | 1.69 | 2.47 | 0.79 |
| 516532 | 1201061530 | 06-APR-2006 13:23 | DONE | 3 | 3.4 | pCi/L | 0.12 | -2.2 | -1.5 | 1.69 | 2.47 | 0.79 |
| 518879 | 1201066818 | 11-APR-2006 16:43 | DONE | 0 | -0.16 | pCi/L | 0.12 | -2.2 | -1.5 | 1.69 | 2.47 | 0.79 |
| 518911 | 1201066929 | 12-APR-2006 14:20 | DONE | 0 | -0.11 | pCi/L | 0.12 | -2.2 | -1.5 | 1.69 | 2.47 | 0.79 |
| 517717 | 1201064212 | 12-APR-2006 17:24 | DONE | 0 | -0.47 | pCi/L | 0.12 | -2.2 | -1.5 | 1.69 | 2.47 | 0.79 |
| 519218 | 1201067494 | 14-APR-2006 09:06 | DONE | 4 | 4.4 | pCi/L | 0.12 | -2.2 | -1.5 | 1.69 | 2.47 | 0.79 |
| 520706 | 1201070943 | 15-APR-2006 09:12 | DONE | 0 | -0.15 | pCi/L | 0.12 | -2.2 | -1.5 | 1.69 | 2.47 | 0.79 |
| 518916 | 1201066938 | 17-APR-2006 07:52 | DUSE | 0 | -0.14 | pCi/L | 0.12 | -2.2 | -1.5 | 1.69 | 2.47 | 0.79 |
| 519428 | 1201067985 | 17-APR-2006 16:05 | DONE | 0 | 0.09 | pCi/L | 0.12 | -2.2 | -1.5 | 1.69 | 2.47 | 0.79 |
| 521040 | 1201071729 | 19-APR-2006 14:49 | DONE | 0 | 0.02 | pCi/L | 0.12 | -2.2 | -1.5 | 1.69 | 2.47 | 0.79 |
| 520799 | 1201071144 | 21-APR-2006 07:38 | DONE | 0 | -0.08 | pCi/L | 0.12 | -2.2 | -1.5 | 1.69 | 2.47 | 0.79 |
| 521962 | 1201074073 | 21-APR-2006 10:18 | DONE | 0 | -0.15 | pCi/L | 0.12 | -2.2 | -1.5 | 1.69 | 2.47 | 0.79 |
| 520373 | 1201070134 | 21-APR-2006 19:20 | DUSE | 0 | 0.41 | pCi/L | 0.12 | -2.2 | -1.5 | 1.69 | 2.47 | 0.79 |

Uranium-235/236 DUP: Limits LCL = 0 UCL = 20

| Batch ID | Samp ID | Run Date | Status | Value | Deviation | Units | Mean | LCL | LWL | UWL | UCL | Stdev |
|----------|------------|-------------------|--------|-------|-----------|---------|------|-----|------|-----|------|-------|
| 510661 | 1201048686 | 15-MAR-2006 10:56 | DONE | 1226 | 3.4 | percent | 150 | 0 | -490 | 790 | 20.0 | 320 |
| 511878 | 1201051444 | 16-MAR-2006 12:58 | DONE | 88 | -0.19 | percent | 150 | 0 | -490 | 790 | 20.0 | 320 |
| 510654 | 1201048653 | 17-MAR-2006 13:41 | DONE | 56 | -0.29 | percent | 150 | 0 | -490 | 790 | 20.0 | 320 |
| 510724 | 1201048841 | 17-MAR-2006 13:41 | DONE | 23 | -0.4 | percent | 150 | 0 | -490 | 790 | 20.0 | 320 |
| 510738 | 1201048878 | 20-MAR-2006 07:42 | DONE | 6 | -0.45 | percent | 150 | 0 | -490 | 790 | 20.0 | 320 |
| 510723 | 1201048837 | 20-MAR-2006 16:57 | DONE | 44 | -0.33 | percent | 150 | 0 | -490 | 790 | 20.0 | 320 |
| 510734 | 1201048868 | 21-MAR-2006 16:38 | DONE | 142 | -0.02 | percent | 150 | 0 | -490 | 790 | 20.0 | 320 |
| 511648 | 1201050950 | 21-MAR-2006 16:38 | DONE | 56 | -0.29 | percent | 150 | 0 | -490 | 790 | 20.0 | 320 |
| 511653 | 1201050965 | 22-MAR-2006 12:29 | DONE | 0 | -0.47 | percent | 150 | 0 | -490 | 790 | 20.0 | 320 |
| 512077 | 1201051900 | 22-MAR-2006 14:23 | DONE | 56 | -0.29 | percent | 150 | 0 | -490 | 790 | 20.0 | 320 |
| 511988 | 1201051683 | 23-MAR-2006 13:27 | DONE | 15 | -0.42 | percent | 150 | 0 | -490 | 790 | 20.0 | 320 |
| 511552 | 1201050722 | 23-MAR-2006 16:14 | DONE | 48 | -0.32 | percent | 150 | 0 | -490 | 790 | 20.0 | 320 |
| 511560 | 1201050748 | 23-MAR-2006 18:20 | DONE | 125 | -0.08 | percent | 150 | 0 | -490 | 790 | 20.0 | 320 |
| 511616 | 1201050866 | 24-MAR-2006 14:52 | DONE | 28 | -0.38 | percent | 150 | 0 | -490 | 790 | 20.0 | 320 |
| 511709 | 1201051080 | 25-MAR-2006 15:09 | DONE | 22 | -0.4 | percent | 150 | 0 | -490 | 790 | 20.0 | 320 |
| 514141 | 1201056268 | 27-MAR-2006 16:25 | DONE | 20 | -0.41 | percent | 150 | 0 | -490 | 790 | 20.0 | 320 |
| 511652 | 1201050961 | 27-MAR-2006 16:59 | DONE | 26 | -0.39 | percent | 150 | 0 | -490 | 790 | 20.0 | 320 |
| 512777 | 1201053519 | 28-MAR-2006 07:34 | DONE | 780 | 2 | percent | 150 | 0 | -490 | 790 | 20.0 | 320 |
| 514320 | 1201056639 | 28-MAR-2006 07:34 | DONE | 1 | -0.46 | percent | 150 | 0 | -490 | 790 | 20.0 | 320 |
| 512076 | 1201051896 | 28-MAR-2006 07:39 | DONE | 190 | 0.13 | percent | 150 | 0 | -490 | 790 | 20.0 | 320 |
| 515153 | 1201058497 | 28-MAR-2006 12:29 | DONE | 59 | -0.28 | percent | 150 | 0 | -490 | 790 | 20.0 | 320 |
| 514267 | 1201056534 | 29-MAR-2006 07:59 | DONE | 254 | 0.32 | percent | 150 | 0 | -490 | 790 | 20.0 | 320 |
| 514261 | 1201056521 | 29-MAR-2006 07:59 | DONE | 1526 | 4.3 | percent | 150 | 0 | -490 | 790 | 20.0 | 320 |
| 511564 | 1201050755 | 29-MAR-2006 19:53 | DONE | 5 | -0.45 | percent | 150 | 0 | -490 | 790 | 20.0 | 320 |
| 514277 | 1201056552 | 29-MAR-2006 22:27 | DONE | 16 | -0.42 | percent | 150 | 0 | -490 | 790 | 20.0 | 320 |
| 512070 | 1201051882 | 31-MAR-2006 15:55 | DONE | 44 | -0.33 | percent | 150 | 0 | -490 | 790 | 20.0 | 320 |
| 515540 | 1201059383 | 31-MAR-2006 19:27 | DONE | 9 | -0.44 | percent | 150 | 0 | -490 | 790 | 20.0 | 320 |
| 516131 | 1201060707 | 01-APR-2006 16:30 | DONE | 43 | -0.33 | percent | 150 | 0 | -490 | 790 | 20.0 | 320 |

| | | | | | | | | | | | | |
|--------|------------|-------------------|------|-----|-------|---------|-----|---|------|-----|------|-----|
| 518879 | 1201066819 | 11-APR-2006 16:43 | DONE | 200 | 0.16 | percent | 150 | 0 | -490 | 790 | 20.0 | 320 |
| 518911 | 1201066930 | 12-APR-2006 14:20 | DONE | 108 | -0.13 | percent | 150 | 0 | -490 | 790 | 20.0 | 320 |
| 520706 | 1201070944 | 15-APR-2006 09:12 | DONE | 8 | -0.44 | percent | 150 | 0 | -490 | 790 | 20.0 | 320 |
| 519428 | 1201067986 | 17-APR-2006 07:52 | DONE | 68 | -0.25 | percent | 150 | 0 | -490 | 790 | 20.0 | 320 |
| 518916 | 1201066939 | 18-APR-2006 14:03 | DUSE | 77 | -0.23 | percent | 150 | 0 | -490 | 790 | 20.0 | 320 |
| 521040 | 1201071730 | 19-APR-2006 14:49 | DONE | 4 | -0.45 | percent | 150 | 0 | -490 | 790 | 20.0 | 320 |
| 521962 | 1201074074 | 21-APR-2006 10:18 | DONE | 301 | 0.47 | percent | 150 | 0 | -490 | 790 | 20.0 | 320 |
| 521962 | 1201074159 | 21-APR-2006 10:18 | DONE | 29 | -0.38 | percent | 150 | 0 | -490 | 790 | 20.0 | 320 |
| 520373 | 1201070135 | 21-APR-2006 19:20 | DUSE | 56 | -0.29 | percent | 150 | 0 | -490 | 790 | 20.0 | 320 |
| 520799 | 1201071145 | 22-APR-2006 07:38 | DONE | 15 | -0.42 | percent | 150 | 0 | -490 | 790 | 20.0 | 320 |
| 521962 | 1201074160 | 22-APR-2006 09:26 | DONE | 63 | -0.27 | percent | 150 | 0 | -490 | 790 | 20.0 | 320 |

Uranium-235/236 RER: Limits LCL = 0 UCL = 3

| Batch ID | Samp ID | Run Date | Status | Value | Deviation | Units | Mean | LCL | LWL | UWL | UCL | Stddev |
|----------|------------|-------------------|--------|-------|-----------|-------|------|-----|--------|------|------|--------|
| 510661 | 1201048686 | 15-MAR-2006 10:56 | DONE | 2.08 | 2 | num | 0.79 | 0 | -0.463 | 2.05 | 3.00 | 0.63 |
| 511878 | 1201051444 | 16-MAR-2006 12:58 | DONE | 1.9 | 1.8 | num | 0.79 | 0 | -0.463 | 2.05 | 3.00 | 0.63 |
| 510654 | 1201048653 | 17-MAR-2006 13:41 | DONE | 0.75 | -0.07 | num | 0.79 | 0 | -0.463 | 2.05 | 3.00 | 0.63 |
| 510724 | 1201048841 | 17-MAR-2006 13:41 | DONE | 0.29 | -0.79 | num | 0.79 | 0 | -0.463 | 2.05 | 3.00 | 0.63 |
| 510738 | 1201048878 | 20-MAR-2006 07:42 | DONE | 0.27 | -0.84 | num | 0.79 | 0 | -0.463 | 2.05 | 3.00 | 0.63 |
| 510723 | 1201048837 | 20-MAR-2006 16:57 | DONE | 1.59 | 1.3 | num | 0.79 | 0 | -0.463 | 2.05 | 3.00 | 0.63 |
| 510734 | 1201048868 | 21-MAR-2006 16:38 | DONE | 0.43 | -0.58 | num | 0.79 | 0 | -0.463 | 2.05 | 3.00 | 0.63 |
| 511648 | 1201050950 | 21-MAR-2006 16:38 | DONE | 0.55 | -0.38 | num | 0.79 | 0 | -0.463 | 2.05 | 3.00 | 0.63 |
| 511653 | 1201050965 | 22-MAR-2006 12:29 | DONE | 00 | -1 | num | 0.79 | 0 | -0.463 | 2.05 | 3.00 | 0.63 |
| 512077 | 1201051900 | 22-MAR-2006 14:23 | DONE | 0.53 | -0.41 | num | 0.79 | 0 | -0.463 | 2.05 | 3.00 | 0.63 |
| 511988 | 1201051683 | 23-MAR-2006 13:27 | DONE | 0.21 | -0.94 | num | 0.79 | 0 | -0.463 | 2.05 | 3.00 | 0.63 |
| 511552 | 1201050722 | 23-MAR-2006 16:14 | DONE | 0.7 | -0.14 | num | 0.79 | 0 | -0.463 | 2.05 | 3.00 | 0.63 |
| 511560 | 1201050748 | 23-MAR-2006 18:20 | DONE | 1.64 | 1.4 | num | 0.79 | 0 | -0.463 | 2.05 | 3.00 | 0.63 |
| 511616 | 1201050866 | 24-MAR-2006 14:52 | DONE | 0.23 | -0.9 | num | 0.79 | 0 | -0.463 | 2.05 | 3.00 | 0.63 |
| 511709 | 1201051080 | 25-MAR-2006 15:09 | DONE | 0.58 | -0.35 | num | 0.79 | 0 | -0.463 | 2.05 | 3.00 | 0.63 |
| 514141 | 1201056268 | 27-MAR-2006 16:25 | DONE | 0.04 | -1 | num | 0.79 | 0 | -0.463 | 2.05 | 3.00 | 0.63 |
| 511652 | 1201050961 | 27-MAR-2006 16:59 | DONE | 1.09 | 0.47 | num | 0.79 | 0 | -0.463 | 2.05 | 3.00 | 0.63 |
| 512777 | 1201053519 | 28-MAR-2006 07:34 | DONE | 0.75 | -0.07 | num | 0.79 | 0 | -0.463 | 2.05 | 3.00 | 0.63 |
| 514320 | 1201056639 | 28-MAR-2006 07:34 | DONE | 0.01 | -1 | num | 0.79 | 0 | -0.463 | 2.05 | 3.00 | 0.63 |
| 512076 | 1201051896 | 28-MAR-2006 07:39 | DONE | 0.62 | -0.27 | num | 0.79 | 0 | -0.463 | 2.05 | 3.00 | 0.63 |
| 515153 | 1201058497 | 28-MAR-2006 12:29 | DONE | 1.13 | 0.53 | num | 0.79 | 0 | -0.463 | 2.05 | 3.00 | 0.63 |
| 514267 | 1201056534 | 29-MAR-2006 07:59 | DONE | 1.55 | 1.2 | num | 0.79 | 0 | -0.463 | 2.05 | 3.00 | 0.63 |
| 514261 | 1201056521 | 29-MAR-2006 07:59 | DONE | 2.2 | 2.2 | num | 0.79 | 0 | -0.463 | 2.05 | 3.00 | 0.63 |
| 511564 | 1201050755 | 29-MAR-2006 19:53 | DONE | 0.06 | -1 | num | 0.79 | 0 | -0.463 | 2.05 | 3.00 | 0.63 |
| 514277 | 1201056552 | 29-MAR-2006 22:27 | DONE | 0.73 | -0.11 | num | 0.79 | 0 | -0.463 | 2.05 | 3.00 | 0.63 |
| 512070 | 1201051882 | 31-MAR-2006 15:55 | DONE | 1.17 | 0.6 | num | 0.79 | 0 | -0.463 | 2.05 | 3.00 | 0.63 |
| 515540 | 1201059383 | 31-MAR-2006 19:27 | DONE | 0.44 | -0.56 | num | 0.79 | 0 | -0.463 | 2.05 | 3.00 | 0.63 |
| 516131 | 1201060707 | 01-APR-2006 16:30 | DONE | 1.17 | 0.6 | num | 0.79 | 0 | -0.463 | 2.05 | 3.00 | 0.63 |
| 518879 | 1201066819 | 11-APR-2006 16:43 | DONE | 0.61 | -0.29 | num | 0.79 | 0 | -0.463 | 2.05 | 3.00 | 0.63 |
| 518911 | 1201066930 | 12-APR-2006 14:20 | DONE | 1.1 | 0.48 | num | 0.79 | 0 | -0.463 | 2.05 | 3.00 | 0.63 |
| 520706 | 1201070944 | 15-APR-2006 09:12 | DONE | 0.43 | -0.58 | num | 0.79 | 0 | -0.463 | 2.05 | 3.00 | 0.63 |
| 519428 | 1201067986 | 17-APR-2006 07:52 | DONE | 1.21 | 0.65 | num | 0.79 | 0 | -0.463 | 2.05 | 3.00 | 0.63 |
| 518916 | 1201066939 | 18-APR-2006 14:03 | DUSE | 1.94 | 1.8 | num | 0.79 | 0 | -0.463 | 2.05 | 3.00 | 0.63 |
| 521040 | 1201071730 | 19-APR-2006 14:49 | DONE | 0.11 | -1 | num | 0.79 | 0 | -0.463 | 2.05 | 3.00 | 0.63 |
| 521962 | 1201074074 | 21-APR-2006 10:18 | DONE | 1.53 | 1.2 | num | 0.79 | 0 | -0.463 | 2.05 | 3.00 | 0.63 |
| 521962 | 1201074159 | 21-APR-2006 10:18 | DONE | 0.14 | -1 | num | 0.79 | 0 | -0.463 | 2.05 | 3.00 | 0.63 |

| | | | | | | | | | | | | |
|--------|------------|-------------------|------|------|-------|-----|------|---|--------|------|------|------|
| 520373 | 1201070135 | 21-APR-2006 19:20 | DUSE | 0.61 | -0.29 | num | 0.79 | 0 | -0.463 | 2.05 | 3.00 | 0.63 |
| 520799 | 1201071145 | 22-APR-2006 07:38 | DONE | 0.28 | -0.82 | num | 0.79 | 0 | -0.463 | 2.05 | 3.00 | 0.63 |
| 521962 | 1201074160 | 22-APR-2006 09:26 | DONE | 0.29 | -0.81 | num | 0.79 | 0 | -0.463 | 2.05 | 3.00 | 0.63 |

Uranium-238 BLANK: Limits LCL = -2.5 UCL = 3

| Batch ID | Samp ID | Run Date | Status | Value | Deviation | Units | Mean | LCL | LWL | UWL | UCL | Stdev |
|----------|------------|-------------------|--------|-------|-----------|-------|------|------|------|-----|------|-------|
| 510723 | 1201048836 | 20-MAR-2006 16:57 | DONE | 0 | -0.26 | pCi/L | 0.25 | -2.5 | -1.6 | 2.1 | 3.03 | 0.92 |
| 510734 | 1201048867 | 21-MAR-2006 16:38 | DONE | 0 | -0.26 | pCi/L | 0.25 | -2.5 | -1.6 | 2.1 | 3.03 | 0.92 |
| 511648 | 1201050949 | 21-MAR-2006 16:38 | DONE | 0 | -0.28 | pCi/L | 0.25 | -2.5 | -1.6 | 2.1 | 3.03 | 0.92 |
| 511653 | 1201050964 | 22-MAR-2006 12:29 | DONE | 0 | -0.26 | pCi/L | 0.25 | -2.5 | -1.6 | 2.1 | 3.03 | 0.92 |
| 512077 | 1201051899 | 22-MAR-2006 14:23 | DONE | 0 | -0.29 | pCi/L | 0.25 | -2.5 | -1.6 | 2.1 | 3.03 | 0.92 |
| 511616 | 1201050865 | 23-MAR-2006 08:32 | DONE | 0 | -0.27 | pCi/L | 0.25 | -2.5 | -1.6 | 2.1 | 3.03 | 0.92 |
| 511988 | 1201051682 | 23-MAR-2006 13:27 | DONE | 0 | -0.25 | pCi/L | 0.25 | -2.5 | -1.6 | 2.1 | 3.03 | 0.92 |
| 510728 | 1201048852 | 23-MAR-2006 13:27 | DONE | 0 | -0.27 | pCi/L | 0.25 | -2.5 | -1.6 | 2.1 | 3.03 | 0.92 |
| 511552 | 1201050721 | 23-MAR-2006 16:14 | DONE | 0 | -0.22 | pCi/L | 0.25 | -2.5 | -1.6 | 2.1 | 3.03 | 0.92 |
| 511560 | 1201050747 | 23-MAR-2006 18:20 | DONE | 0 | -0.25 | pCi/L | 0.25 | -2.5 | -1.6 | 2.1 | 3.03 | 0.92 |
| 511709 | 1201051079 | 25-MAR-2006 15:09 | DONE | 0 | -0.25 | pCi/L | 0.25 | -2.5 | -1.6 | 2.1 | 3.03 | 0.92 |
| 511201 | 1201049856 | 27-MAR-2006 08:14 | DONE | 0 | 0.02 | pCi/L | 0.25 | -2.5 | -1.6 | 2.1 | 3.03 | 0.92 |
| 514936 | 1201057981 | 27-MAR-2006 14:43 | DONE | 0 | -0.33 | pCi/L | 0.25 | -2.5 | -1.6 | 2.1 | 3.03 | 0.92 |
| 512777 | 1201053518 | 28-MAR-2006 07:34 | DONE | 0 | -0.15 | pCi/L | 0.25 | -2.5 | -1.6 | 2.1 | 3.03 | 0.92 |
| 512076 | 1201051895 | 28-MAR-2006 07:39 | DONE | 0 | -0.29 | pCi/L | 0.25 | -2.5 | -1.6 | 2.1 | 3.03 | 0.92 |
| 515153 | 1201058496 | 28-MAR-2006 12:29 | DONE | 0 | -0.31 | pCi/L | 0.25 | -2.5 | -1.6 | 2.1 | 3.03 | 0.92 |
| 514141 | 1201056267 | 28-MAR-2006 16:43 | DONE | 0 | -0.28 | pCi/L | 0.25 | -2.5 | -1.6 | 2.1 | 3.03 | 0.92 |
| 514267 | 1201056533 | 29-MAR-2006 07:59 | DONE | 0 | -0.27 | pCi/L | 0.25 | -2.5 | -1.6 | 2.1 | 3.03 | 0.92 |
| 511652 | 1201050960 | 29-MAR-2006 16:04 | DONE | 0 | -0.26 | pCi/L | 0.25 | -2.5 | -1.6 | 2.1 | 3.03 | 0.92 |
| 511564 | 1201050754 | 29-MAR-2006 19:53 | DONE | 0 | -0.53 | pCi/L | 0.25 | -2.5 | -1.6 | 2.1 | 3.03 | 0.92 |
| 514277 | 1201056551 | 29-MAR-2006 22:27 | DONE | 0 | -0.28 | pCi/L | 0.25 | -2.5 | -1.6 | 2.1 | 3.03 | 0.92 |
| 514320 | 1201056638 | 31-MAR-2006 08:29 | DONE | 1 | 0.84 | pCi/L | 0.25 | -2.5 | -1.6 | 2.1 | 3.03 | 0.92 |
| 512070 | 1201051881 | 31-MAR-2006 15:55 | DONE | 0 | -0.29 | pCi/L | 0.25 | -2.5 | -1.6 | 2.1 | 3.03 | 0.92 |
| 515540 | 1201059382 | 31-MAR-2006 19:27 | DONE | 0 | -0.28 | pCi/L | 0.25 | -2.5 | -1.6 | 2.1 | 3.03 | 0.92 |
| 514261 | 1201056520 | 01-APR-2006 09:22 | DONE | 0 | -0.35 | pCi/L | 0.25 | -2.5 | -1.6 | 2.1 | 3.03 | 0.92 |
| 516131 | 1201060706 | 01-APR-2006 16:30 | DONE | 0 | -0.29 | pCi/L | 0.25 | -2.5 | -1.6 | 2.1 | 3.03 | 0.92 |
| 516497 | 1201061514 | 06-APR-2006 08:42 | DONE | 0 | -0.67 | pCi/L | 0.25 | -2.5 | -1.6 | 2.1 | 3.03 | 0.92 |
| 516532 | 1201061530 | 06-APR-2006 13:23 | DONE | 3 | 3.3 | pCi/L | 0.25 | -2.5 | -1.6 | 2.1 | 3.03 | 0.92 |
| 518879 | 1201066818 | 11-APR-2006 16:43 | DONE | 0 | -0.32 | pCi/L | 0.25 | -2.5 | -1.6 | 2.1 | 3.03 | 0.92 |
| 518911 | 1201066929 | 12-APR-2006 14:20 | DONE | 0 | -0.23 | pCi/L | 0.25 | -2.5 | -1.6 | 2.1 | 3.03 | 0.92 |
| 517717 | 1201064212 | 12-APR-2006 17:24 | DONE | 0 | -0.09 | pCi/L | 0.25 | -2.5 | -1.6 | 2.1 | 3.03 | 0.92 |
| 519218 | 1201067494 | 14-APR-2006 09:06 | DONE | 5 | 4.6 | pCi/L | 0.25 | -2.5 | -1.6 | 2.1 | 3.03 | 0.92 |
| 520706 | 1201070943 | 15-APR-2006 09:12 | DONE | 0 | -0.24 | pCi/L | 0.25 | -2.5 | -1.6 | 2.1 | 3.03 | 0.92 |
| 518916 | 1201066938 | 17-APR-2006 07:52 | DUSE | 0 | -0.28 | pCi/L | 0.25 | -2.5 | -1.6 | 2.1 | 3.03 | 0.92 |
| 519428 | 1201067985 | 17-APR-2006 16:05 | DONE | 0 | -0.6 | pCi/L | 0.25 | -2.5 | -1.6 | 2.1 | 3.03 | 0.92 |
| 521040 | 1201071729 | 19-APR-2006 14:49 | DONE | 0 | -0.27 | pCi/L | 0.25 | -2.5 | -1.6 | 2.1 | 3.03 | 0.92 |
| 520799 | 1201071144 | 21-APR-2006 07:38 | DONE | 0 | -0.26 | pCi/L | 0.25 | -2.5 | -1.6 | 2.1 | 3.03 | 0.92 |
| 521962 | 1201074073 | 21-APR-2006 10:18 | DONE | 0 | -0.28 | pCi/L | 0.25 | -2.5 | -1.6 | 2.1 | 3.03 | 0.92 |
| 520373 | 1201070134 | 21-APR-2006 19:20 | DUSE | 1 | 1.2 | pCi/L | 0.25 | -2.5 | -1.6 | 2.1 | 3.03 | 0.92 |

Uranium-238 DUP: Limits LCL = 0 UCL = 20

| Batch ID | Samp ID | Run Date | Status | Value | Deviation | Units | Mean | LCL | LWL | UWL | UCL | Stdev |
|----------|------------|-------------------|--------|-------|-----------|---------|------|-----|------|-----|------|-------|
| 510661 | 1201048686 | 15-MAR-2006 10:56 | DONE | 23 | -0.23 | percent | 82.3 | 0 | -430 | 592 | 20.0 | 255 |
| 511878 | 1201051444 | 16-MAR-2006 12:58 | DONE | 10 | -0.28 | percent | 82.3 | 0 | -430 | 592 | 20.0 | 255 |

| | | | | | | | | | | | | |
|--------|------------|-------------------|------|------|-------|---------|------|---|------|-----|------|-----|
| 510654 | 1201048653 | 17-MAR-2006 13:41 | DONE | 14 | -0.27 | percent | 82.3 | 0 | -430 | 592 | 20.0 | 255 |
| 510724 | 1201048841 | 17-MAR-2006 13:41 | DONE | 9 | -0.29 | percent | 82.3 | 0 | -430 | 592 | 20.0 | 255 |
| 510738 | 1201048878 | 20-MAR-2006 07:42 | DONE | 5 | -0.3 | percent | 82.3 | 0 | -430 | 592 | 20.0 | 255 |
| 510723 | 1201048837 | 20-MAR-2006 16:57 | DONE | 4 | -0.31 | percent | 82.3 | 0 | -430 | 592 | 20.0 | 255 |
| 510734 | 1201048868 | 21-MAR-2006 16:38 | DONE | 18 | -0.25 | percent | 82.3 | 0 | -430 | 592 | 20.0 | 255 |
| 511648 | 1201050950 | 21-MAR-2006 16:38 | DONE | 2 | -0.32 | percent | 82.3 | 0 | -430 | 592 | 20.0 | 255 |
| 511653 | 1201050965 | 22-MAR-2006 12:29 | DONE | 3 | -0.31 | percent | 82.3 | 0 | -430 | 592 | 20.0 | 255 |
| 512077 | 1201051900 | 22-MAR-2006 14:23 | DONE | 12 | -0.28 | percent | 82.3 | 0 | -430 | 592 | 20.0 | 255 |
| 511988 | 1201051683 | 23-MAR-2006 13:27 | DONE | 13 | -0.27 | percent | 82.3 | 0 | -430 | 592 | 20.0 | 255 |
| 511552 | 1201050722 | 23-MAR-2006 16:14 | DONE | 21 | -0.24 | percent | 82.3 | 0 | -430 | 592 | 20.0 | 255 |
| 511560 | 1201050748 | 23-MAR-2006 18:20 | DONE | 14 | -0.27 | percent | 82.3 | 0 | -430 | 592 | 20.0 | 255 |
| 511616 | 1201050866 | 24-MAR-2006 14:52 | DONE | 24 | -0.23 | percent | 82.3 | 0 | -430 | 592 | 20.0 | 255 |
| 511709 | 1201051080 | 25-MAR-2006 15:09 | DONE | 11 | -0.28 | percent | 82.3 | 0 | -430 | 592 | 20.0 | 255 |
| 514141 | 1201056268 | 27-MAR-2006 16:25 | DONE | 124 | 0.16 | percent | 82.3 | 0 | -430 | 592 | 20.0 | 255 |
| 511652 | 1201050961 | 27-MAR-2006 16:59 | DONE | 4 | -0.31 | percent | 82.3 | 0 | -430 | 592 | 20.0 | 255 |
| 512777 | 1201053519 | 28-MAR-2006 07:34 | DONE | 162 | 0.31 | percent | 82.3 | 0 | -430 | 592 | 20.0 | 255 |
| 514320 | 1201056639 | 28-MAR-2006 07:34 | DONE | 126 | 0.17 | percent | 82.3 | 0 | -430 | 592 | 20.0 | 255 |
| 512076 | 1201051896 | 28-MAR-2006 07:39 | DONE | 147 | 0.25 | percent | 82.3 | 0 | -430 | 592 | 20.0 | 255 |
| 515153 | 1201058497 | 28-MAR-2006 12:29 | DONE | 1 | -0.32 | percent | 82.3 | 0 | -430 | 592 | 20.0 | 255 |
| 514267 | 1201056534 | 29-MAR-2006 07:59 | DONE | 1593 | 5.9 | percent | 82.3 | 0 | -430 | 592 | 20.0 | 255 |
| 514261 | 1201056521 | 29-MAR-2006 07:59 | DONE | 0 | -0.32 | percent | 82.3 | 0 | -430 | 592 | 20.0 | 255 |
| 511564 | 1201050755 | 29-MAR-2006 19:53 | DONE | 3 | -0.31 | percent | 82.3 | 0 | -430 | 592 | 20.0 | 255 |
| 514277 | 1201056552 | 29-MAR-2006 22:27 | DONE | 4 | -0.31 | percent | 82.3 | 0 | -430 | 592 | 20.0 | 255 |
| 512070 | 1201051882 | 31-MAR-2006 15:55 | DONE | 4 | -0.31 | percent | 82.3 | 0 | -430 | 592 | 20.0 | 255 |
| 515540 | 1201059383 | 31-MAR-2006 19:27 | DONE | 82 | -0 | percent | 82.3 | 0 | -430 | 592 | 20.0 | 255 |
| 516131 | 1201060707 | 01-APR-2006 16:30 | DONE | 2 | -0.31 | percent | 82.3 | 0 | -430 | 592 | 20.0 | 255 |
| 518879 | 1201066819 | 11-APR-2006 16:43 | DONE | 101 | 0.07 | percent | 82.3 | 0 | -430 | 592 | 20.0 | 255 |
| 518911 | 1201066930 | 12-APR-2006 14:20 | DONE | 45 | -0.15 | percent | 82.3 | 0 | -430 | 592 | 20.0 | 255 |
| 520706 | 1201070944 | 15-APR-2006 09:12 | DONE | 5 | -0.3 | percent | 82.3 | 0 | -430 | 592 | 20.0 | 255 |
| 519428 | 1201067986 | 17-APR-2006 07:52 | DONE | 10 | -0.28 | percent | 82.3 | 0 | -430 | 592 | 20.0 | 255 |
| 518916 | 1201066939 | 18-APR-2006 14:03 | DUSE | 140 | 0.23 | percent | 82.3 | 0 | -430 | 592 | 20.0 | 255 |
| 521040 | 1201071730 | 19-APR-2006 14:49 | DONE | 2 | -0.31 | percent | 82.3 | 0 | -430 | 592 | 20.0 | 255 |
| 521962 | 1201074074 | 21-APR-2006 10:18 | DONE | 201 | 0.47 | percent | 82.3 | 0 | -430 | 592 | 20.0 | 255 |
| 521962 | 1201074159 | 21-APR-2006 10:18 | DONE | 104 | 0.09 | percent | 82.3 | 0 | -430 | 592 | 20.0 | 255 |
| 520373 | 1201070135 | 21-APR-2006 19:20 | DUSE | 9 | -0.29 | percent | 82.3 | 0 | -430 | 592 | 20.0 | 255 |
| 520799 | 1201071145 | 22-APR-2006 07:38 | DONE | 16 | -0.26 | percent | 82.3 | 0 | -430 | 592 | 20.0 | 255 |
| 521962 | 1201074160 | 22-APR-2006 09:26 | DONE | 140 | 0.23 | percent | 82.3 | 0 | -430 | 592 | 20.0 | 255 |

Uranium-238 LCS: Limits LCL = 75 UCL = 125

| Batch ID | Samp ID | Run Date | Status | Value | Deviation | Units | Mean | LCL | LWL | UWL | UCL | Stdev |
|----------|------------|-------------------|--------|-------|-----------|---------|------|------|------|-----|-----|-------|
| 510728 | 1201048853 | 23-MAR-2006 13:27 | DONE | 109 | 1.1 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 510728 | 1201048854 | 23-MAR-2006 13:27 | DONE | 100 | 0 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 511560 | 1201050749 | 23-MAR-2006 18:20 | DONE | 95 | -0.64 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 511709 | 1201051082 | 25-MAR-2006 15:09 | DONE | 105 | 0.6 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 514936 | 1201057982 | 27-MAR-2006 08:13 | DONE | 99 | -0.13 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 514936 | 1201057983 | 27-MAR-2006 08:13 | DONE | 117 | 2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 511201 | 1201049858 | 27-MAR-2006 08:14 | DONE | 104 | 0.48 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 511201 | 1201049857 | 27-MAR-2006 08:14 | DONE | 104 | 0.48 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 514141 | 1201056269 | 27-MAR-2006 16:25 | DONE | 95 | -0.59 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 511652 | 1201050963 | 27-MAR-2006 16:59 | DONE | 103 | 0.37 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |

| | | | | | | | | | | | | |
|--------|------------|-------------------|------|-----|-------|---------|-----|------|------|-----|-----|------|
| 512777 | 1201053521 | 28-MAR-2006 07:34 | DONE | 116 | 1.9 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 514320 | 1201056641 | 28-MAR-2006 07:34 | DONE | 104 | 0.48 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 512076 | 1201051898 | 28-MAR-2006 07:44 | DONE | 102 | 0.24 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 515153 | 1201058498 | 28-MAR-2006 12:29 | DONE | 111 | 1.3 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 514267 | 1201056535 | 29-MAR-2006 07:59 | DONE | 101 | 0.12 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 514261 | 1201056522 | 29-MAR-2006 07:59 | DONE | 101 | 0.12 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 511564 | 1201050757 | 29-MAR-2006 19:53 | DONE | 103 | 0.36 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 514277 | 1201056554 | 29-MAR-2006 22:27 | DONE | 102 | 0.27 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 512070 | 1201051883 | 31-MAR-2006 15:55 | DONE | 90 | -1 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 515540 | 1201059385 | 31-MAR-2006 19:27 | DONE | 94 | -0.73 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 516131 | 1201060709 | 01-APR-2006 16:30 | DONE | 103 | 0.36 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 516497 | 1201061515 | 06-APR-2006 08:42 | DONE | 107 | 0.84 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 516497 | 1201061516 | 06-APR-2006 08:42 | DONE | 99 | -0.14 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 516532 | 1201061531 | 06-APR-2006 13:23 | DONE | 97 | -0.42 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 516532 | 1201061532 | 06-APR-2006 13:23 | DONE | 99 | -0.17 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 518879 | 1201066820 | 11-APR-2006 16:43 | DONE | 103 | 0.36 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 518911 | 1201066931 | 12-APR-2006 14:20 | DONE | 98 | -0.28 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 517717 | 1201064213 | 12-APR-2006 17:24 | DONE | 102 | 0.24 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 517717 | 1201064214 | 12-APR-2006 17:24 | DONE | 109 | 1.1 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 519218 | 1201067495 | 14-APR-2006 09:06 | DONE | 112 | 1.5 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 519218 | 1201067496 | 14-APR-2006 09:06 | DONE | 95 | -0.61 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 520706 | 1201070946 | 15-APR-2006 09:12 | DONE | 97 | -0.37 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 518916 | 1201066940 | 17-APR-2006 07:52 | DUSE | 97 | -0.4 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 519428 | 1201067988 | 17-APR-2006 07:52 | DONE | 115 | 1.8 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 521040 | 1201071732 | 19-APR-2006 14:49 | DONE | 101 | 0.12 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 520799 | 1201071147 | 21-APR-2006 07:38 | DONE | 108 | 0.96 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 521962 | 1201074076 | 21-APR-2006 10:18 | DONE | 98 | -0.23 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 520373 | 1201070136 | 21-APR-2006 19:20 | DUSE | 118 | 2.2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 522160 | 1201074581 | 22-APR-2006 12:03 | DONE | 104 | 0.48 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |

Uranium-238 RER: Limits LCL = 0 UCL = 3

| Batch ID | Samp ID | Run Date | Status | Value | Deviation | Units | Mean | LCL | LWL | UWL | UCL | Stdev |
|----------|------------|-------------------|--------|-------|-----------|-------|------|-----|------|------|------|-------|
| 510661 | 1201048686 | 15-MAR-2006 10:56 | DONE | 0.5 | -0.28 | num | 0.9 | 0 | -1.9 | 3.73 | 3.00 | 1.42 |
| 511878 | 1201051444 | 16-MAR-2006 12:58 | DONE | 0.63 | -0.19 | num | 0.9 | 0 | -1.9 | 3.73 | 3.00 | 1.42 |
| 510654 | 1201048653 | 17-MAR-2006 13:41 | DONE | 0.76 | -0.1 | num | 0.9 | 0 | -1.9 | 3.73 | 3.00 | 1.42 |
| 510724 | 1201048841 | 17-MAR-2006 13:41 | DONE | 0.28 | -0.44 | num | 0.9 | 0 | -1.9 | 3.73 | 3.00 | 1.42 |
| 510738 | 1201048878 | 20-MAR-2006 07:42 | DONE | 0.43 | -0.33 | num | 0.9 | 0 | -1.9 | 3.73 | 3.00 | 1.42 |
| 510723 | 1201048837 | 20-MAR-2006 16:57 | DONE | 0.4 | -0.35 | num | 0.9 | 0 | -1.9 | 3.73 | 3.00 | 1.42 |
| 510734 | 1201048868 | 21-MAR-2006 16:38 | DONE | 0.29 | -0.43 | num | 0.9 | 0 | -1.9 | 3.73 | 3.00 | 1.42 |
| 511648 | 1201050950 | 21-MAR-2006 16:38 | DONE | 0.06 | -0.59 | num | 0.9 | 0 | -1.9 | 3.73 | 3.00 | 1.42 |
| 511653 | 1201050965 | 22-MAR-2006 12:29 | DONE | 0.08 | -0.57 | num | 0.9 | 0 | -1.9 | 3.73 | 3.00 | 1.42 |
| 512077 | 1201051900 | 22-MAR-2006 14:23 | DONE | 0.3 | -0.42 | num | 0.9 | 0 | -1.9 | 3.73 | 3.00 | 1.42 |
| 511988 | 1201051683 | 23-MAR-2006 13:27 | DONE | 0.63 | -0.19 | num | 0.9 | 0 | -1.9 | 3.73 | 3.00 | 1.42 |
| 511552 | 1201050722 | 23-MAR-2006 16:14 | DONE | 0.32 | -0.41 | num | 0.9 | 0 | -1.9 | 3.73 | 3.00 | 1.42 |
| 511560 | 1201050748 | 23-MAR-2006 18:20 | DONE | 0.67 | -0.16 | num | 0.9 | 0 | -1.9 | 3.73 | 3.00 | 1.42 |
| 511616 | 1201050866 | 24-MAR-2006 14:52 | DONE | 1.25 | 0.25 | num | 0.9 | 0 | -1.9 | 3.73 | 3.00 | 1.42 |
| 511709 | 1201051080 | 25-MAR-2006 15:09 | DONE | 0.8 | -0.07 | num | 0.9 | 0 | -1.9 | 3.73 | 3.00 | 1.42 |
| 514141 | 1201056268 | 27-MAR-2006 16:25 | DONE | 0.5 | -0.28 | num | 0.9 | 0 | -1.9 | 3.73 | 3.00 | 1.42 |
| 511652 | 1201050961 | 27-MAR-2006 16:59 | DONE | 0.39 | -0.36 | num | 0.9 | 0 | -1.9 | 3.73 | 3.00 | 1.42 |
| 512777 | 1201053519 | 28-MAR-2006 07:34 | DONE | 2.31 | 01 | num | 0.9 | 0 | -1.9 | 3.73 | 3.00 | 1.42 |

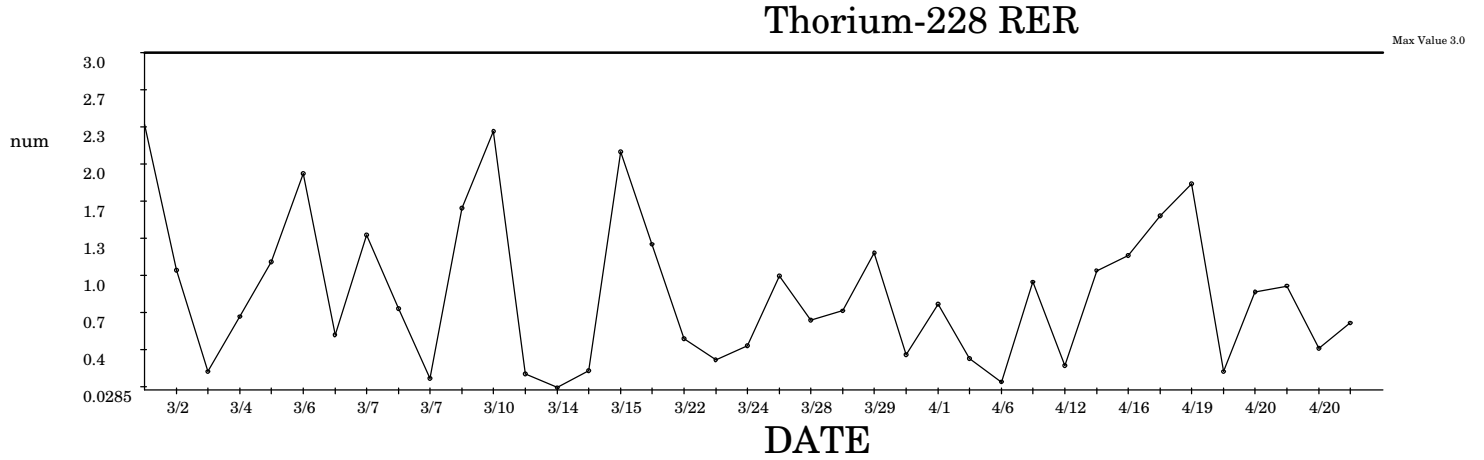
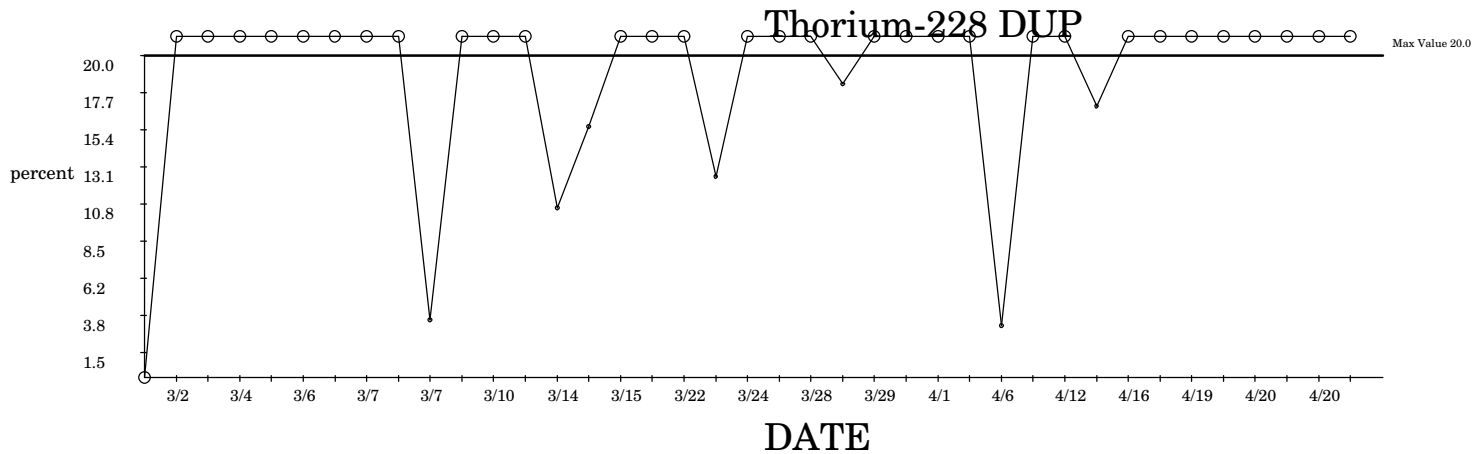
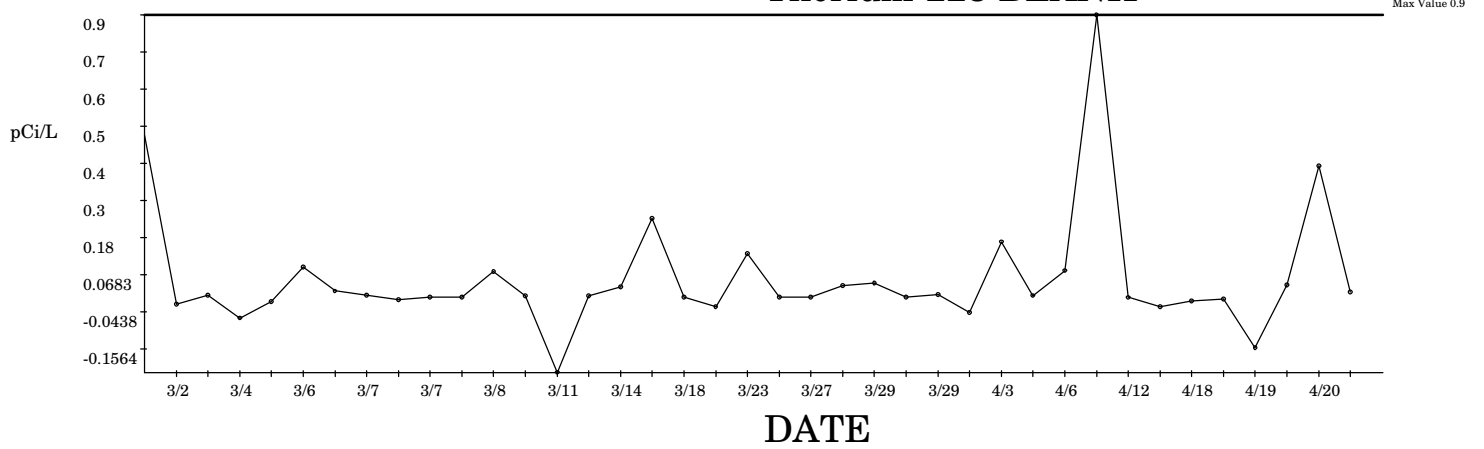
| | | | | | | | | | | | | |
|--------|------------|-------------------|------|------|-------|-----|-----|---|------|------|------|------|
| 514320 | 1201056639 | 28-MAR-2006 07:34 | DONE | 1.24 | 0.24 | num | 0.9 | 0 | -1.9 | 3.73 | 3.00 | 1.42 |
| 512076 | 1201051896 | 28-MAR-2006 07:39 | DONE | 1.63 | 0.52 | num | 0.9 | 0 | -1.9 | 3.73 | 3.00 | 1.42 |
| 515153 | 1201058497 | 28-MAR-2006 12:29 | DONE | 0.11 | -0.56 | num | 0.9 | 0 | -1.9 | 3.73 | 3.00 | 1.42 |
| 514267 | 1201056534 | 29-MAR-2006 07:59 | DONE | 0.73 | -0.12 | num | 0.9 | 0 | -1.9 | 3.73 | 3.00 | 1.42 |
| 514261 | 1201056521 | 29-MAR-2006 07:59 | DONE | 0.9 | 0.01 | num | 0.9 | 0 | -1.9 | 3.73 | 3.00 | 1.42 |
| 511564 | 1201050755 | 29-MAR-2006 19:53 | DONE | 0.14 | -0.53 | num | 0.9 | 0 | -1.9 | 3.73 | 3.00 | 1.42 |
| 514277 | 1201056552 | 29-MAR-2006 22:27 | DONE | 0.52 | -0.27 | num | 0.9 | 0 | -1.9 | 3.73 | 3.00 | 1.42 |
| 512070 | 1201051882 | 31-MAR-2006 15:55 | DONE | 0.14 | -0.54 | num | 0.9 | 0 | -1.9 | 3.73 | 3.00 | 1.42 |
| 515540 | 1201059383 | 31-MAR-2006 19:27 | DONE | 1.77 | 0.62 | num | 0.9 | 0 | -1.9 | 3.73 | 3.00 | 1.42 |
| 516131 | 1201060707 | 01-APR-2006 16:30 | DONE | 0.21 | -0.49 | num | 0.9 | 0 | -1.9 | 3.73 | 3.00 | 1.42 |
| 518879 | 1201066819 | 11-APR-2006 16:43 | DONE | 1.29 | 0.28 | num | 0.9 | 0 | -1.9 | 3.73 | 3.00 | 1.42 |
| 518911 | 1201066930 | 12-APR-2006 14:20 | DONE | 1.26 | 0.26 | num | 0.9 | 0 | -1.9 | 3.73 | 3.00 | 1.42 |
| 520706 | 1201070944 | 15-APR-2006 09:12 | DONE | 0.37 | -0.37 | num | 0.9 | 0 | -1.9 | 3.73 | 3.00 | 1.42 |
| 519428 | 1201067986 | 17-APR-2006 07:52 | DONE | 0.35 | -0.39 | num | 0.9 | 0 | -1.9 | 3.73 | 3.00 | 1.42 |
| 518916 | 1201066939 | 18-APR-2006 14:03 | DUSE | 8.87 | 5.6 | num | 0.9 | 0 | -1.9 | 3.73 | 3.00 | 1.42 |
| 521040 | 1201071730 | 19-APR-2006 14:49 | DONE | 0.17 | -0.51 | num | 0.9 | 0 | -1.9 | 3.73 | 3.00 | 1.42 |
| 521962 | 1201074074 | 21-APR-2006 10:18 | DONE | 1.76 | 0.61 | num | 0.9 | 0 | -1.9 | 3.73 | 3.00 | 1.42 |
| 521962 | 1201074159 | 21-APR-2006 10:18 | DONE | 0.89 | -0 | num | 0.9 | 0 | -1.9 | 3.73 | 3.00 | 1.42 |
| 520373 | 1201070135 | 21-APR-2006 19:20 | DUSE | 0.49 | -0.29 | num | 0.9 | 0 | -1.9 | 3.73 | 3.00 | 1.42 |
| 520799 | 1201071145 | 22-APR-2006 07:38 | DONE | 1.02 | 0.09 | num | 0.9 | 0 | -1.9 | 3.73 | 3.00 | 1.42 |
| 521962 | 1201074160 | 22-APR-2006 09:26 | DONE | 0.5 | -0.28 | num | 0.9 | 0 | -1.9 | 3.73 | 3.00 | 1.42 |

Uranium-238 SPIKE: Limits LCL = 75 UCL = 125

| Batch ID | Samp ID | Run Date | Status | Value | Deviation | Units | Mean | LCL | LWL | UWL | UCL | Stdev |
|----------|------------|-------------------|--------|-------|-----------|---------|------|------|------|-----|-----|-------|
| 502573 | 1201029916 | 20-FEB-2006 16:13 | DONE | 118 | 2.2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 504887 | 1201035136 | 20-FEB-2006 16:14 | DONE | 102 | 0.24 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 505235 | 1201036018 | 21-FEB-2006 23:51 | DONE | 102 | 0.24 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 504424 | 1201034014 | 22-FEB-2006 09:56 | DONE | 105 | 0.6 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 504435 | 1201034050 | 24-FEB-2006 20:19 | DONE | 96 | -0.54 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 504458 | 1201034119 | 28-FEB-2006 15:46 | DONE | 89 | -1 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 506041 | 1201037899 | 01-MAR-2006 20:40 | DONE | 107 | 0.84 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 506022 | 1201037840 | 02-MAR-2006 16:44 | DONE | 113 | 1.6 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 507076 | 1201040302 | 07-MAR-2006 10:22 | DONE | 91 | -1 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 507403 | 1201041222 | 08-MAR-2006 06:44 | DONE | 105 | 0.6 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 509051 | 1201045064 | 09-MAR-2006 07:20 | DONE | 94 | -0.73 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 509092 | 1201045179 | 10-MAR-2006 15:56 | DONE | 111 | 1.3 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 509841 | 1201046806 | 10-MAR-2006 23:12 | DONE | 114 | 1.7 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 509802 | 1201046704 | 14-MAR-2006 11:55 | DONE | 113 | 1.6 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 509797 | 1201046682 | 14-MAR-2006 13:07 | DONE | 114 | 1.7 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 510658 | 1201048669 | 15-MAR-2006 09:16 | DONE | 104 | 0.48 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 511878 | 1201051445 | 16-MAR-2006 12:58 | DONE | 101 | 0.12 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 510654 | 1201048654 | 17-MAR-2006 13:41 | DONE | 93 | -0.86 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 510738 | 1201048879 | 20-MAR-2006 07:42 | DONE | 104 | 0.48 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 511552 | 1201050723 | 20-MAR-2006 07:42 | DONE | 104 | 0.48 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 510723 | 1201048838 | 20-MAR-2006 16:57 | DONE | 110 | 1.2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 512077 | 1201051901 | 22-MAR-2006 14:23 | DONE | 110 | 1.2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 511988 | 1201051684 | 23-MAR-2006 13:27 | DONE | 103 | 0.35 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 511709 | 1201051081 | 25-MAR-2006 15:09 | DONE | 83 | -2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 511652 | 1201050962 | 27-MAR-2006 16:59 | DONE | 98 | -0.22 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 512777 | 1201053520 | 28-MAR-2006 07:34 | DONE | 92 | -0.96 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |

| | | | | | | | | | | | | |
|--------|------------|-------------------|------|-----|-------|---------|-----|------|------|-----|-----|------|
| 514320 | 1201056640 | 28-MAR-2006 07:34 | DONE | 99 | -0.18 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 512076 | 1201051897 | 28-MAR-2006 07:44 | DONE | 115 | 1.8 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 511564 | 1201050756 | 29-MAR-2006 19:53 | DONE | 101 | 0.12 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 514277 | 1201056553 | 29-MAR-2006 22:27 | DONE | 108 | 0.91 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 515540 | 1201059384 | 31-MAR-2006 19:27 | DONE | 96 | -0.5 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 516131 | 1201060708 | 01-APR-2006 16:30 | DONE | 96 | -0.44 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 520706 | 1201070945 | 15-APR-2006 09:12 | DONE | 101 | 0.12 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 519428 | 1201067987 | 17-APR-2006 07:52 | DONE | 105 | 0.6 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 521040 | 1201071731 | 19-APR-2006 14:49 | DONE | 107 | 0.84 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 520799 | 1201071146 | 21-APR-2006 07:38 | DONE | 104 | 0.48 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 521962 | 1201074075 | 21-APR-2006 10:18 | DONE | 102 | 0.24 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 521962 | 1201074161 | 21-APR-2006 10:18 | DONE | 96 | -0.43 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 521962 | 1201074162 | 21-APR-2006 10:18 | DONE | 97 | -0.34 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |

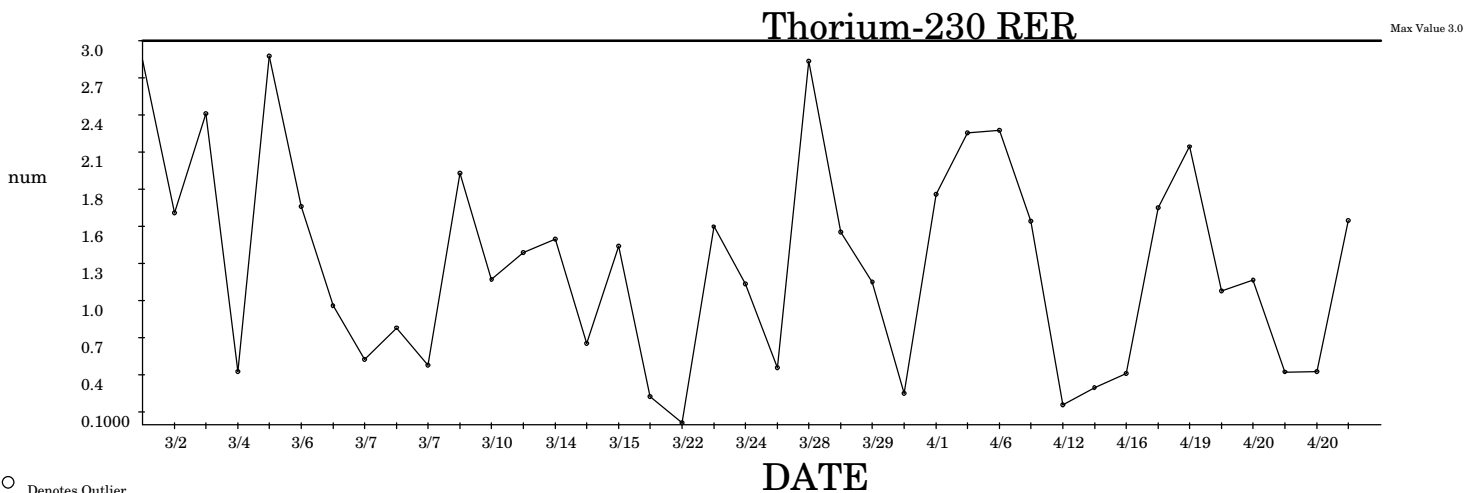
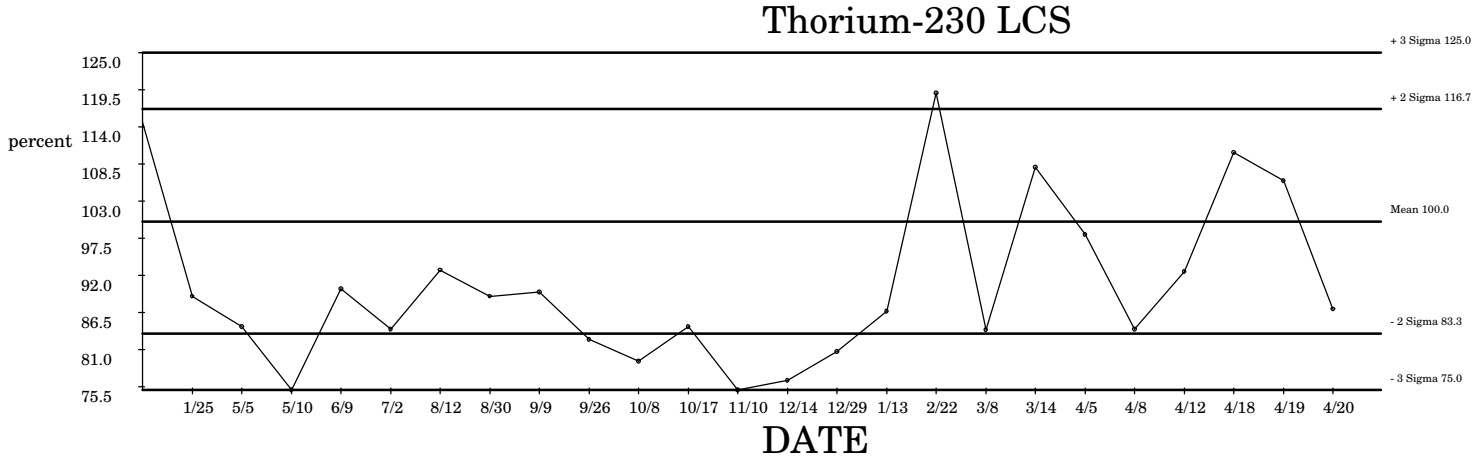
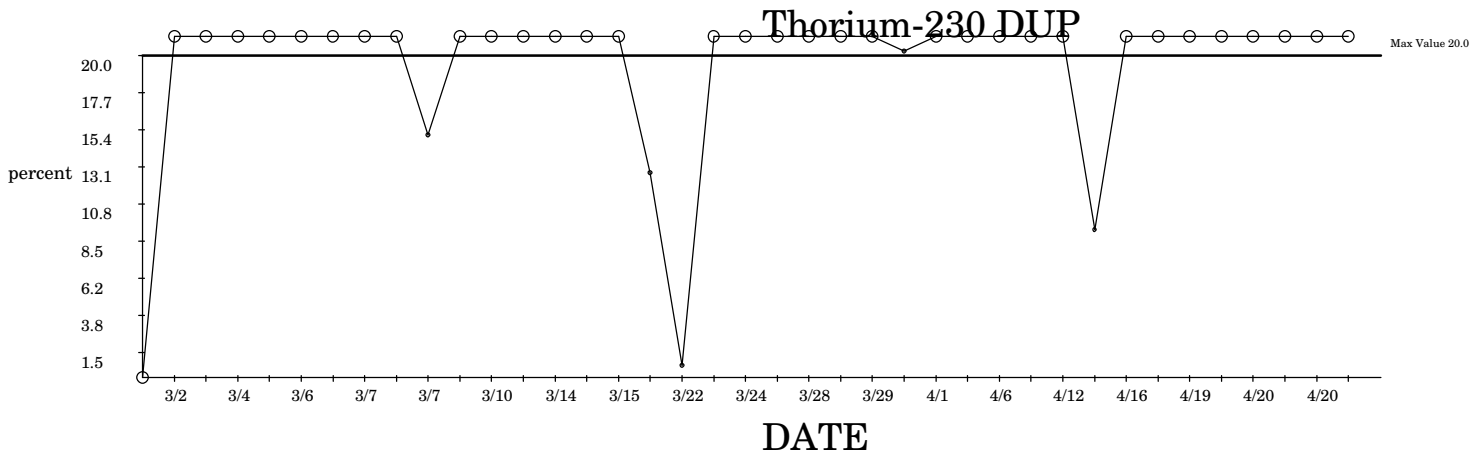
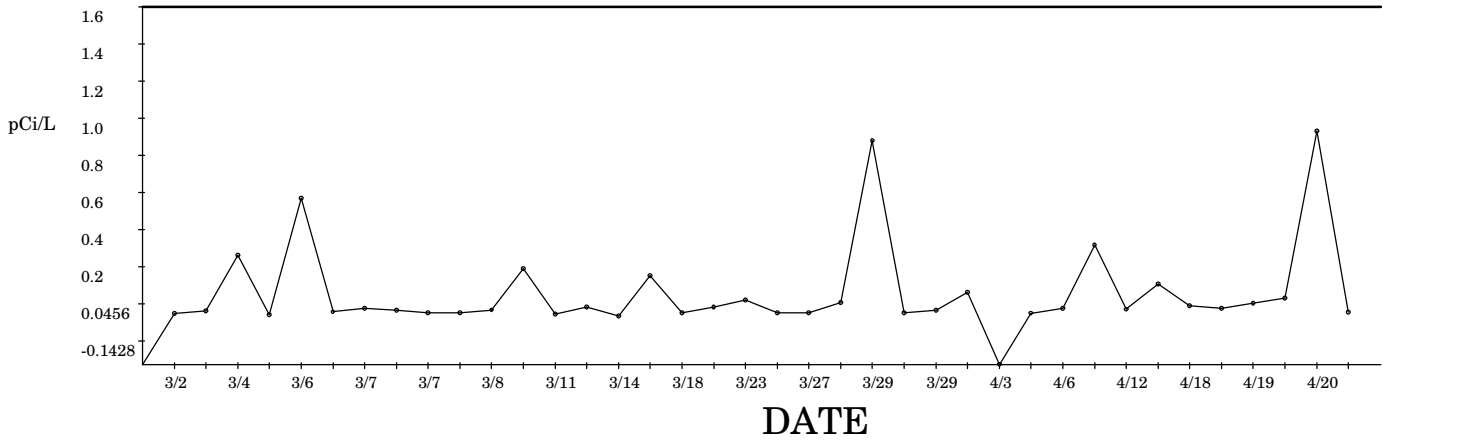
SPC Graph for Alpha SpecThorium in Liquids 4/24/2006 Thorium-228 BLANK



○ Denotes Outlier

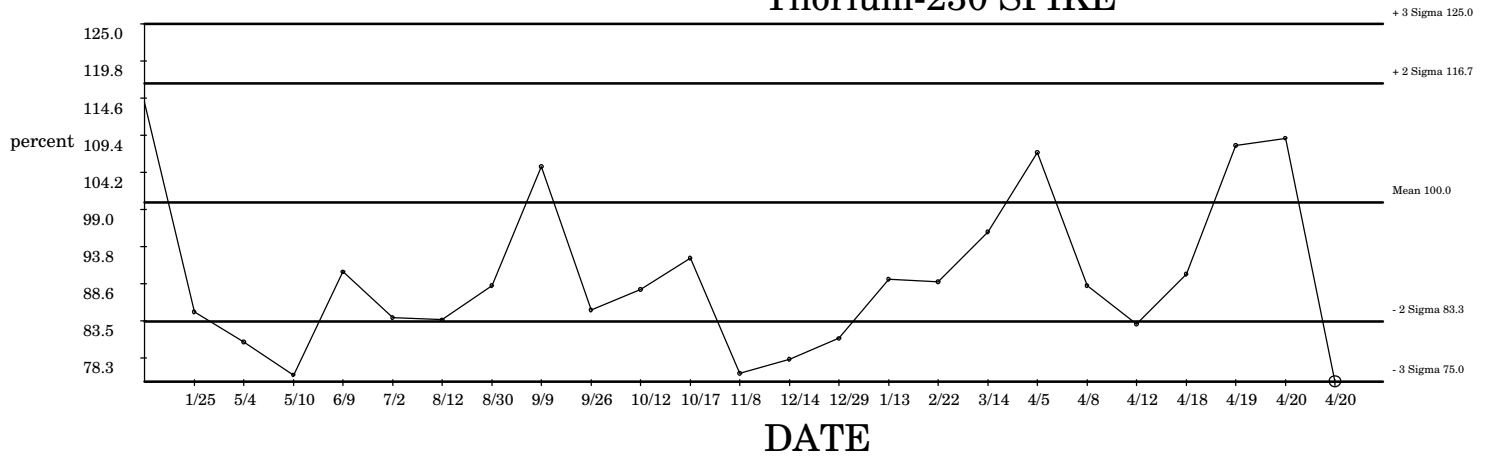
SPC Graph for Alpha SpecThorium in Liquids 4/24/2006

Thorium-230 BLANK



○ Denotes Outlier

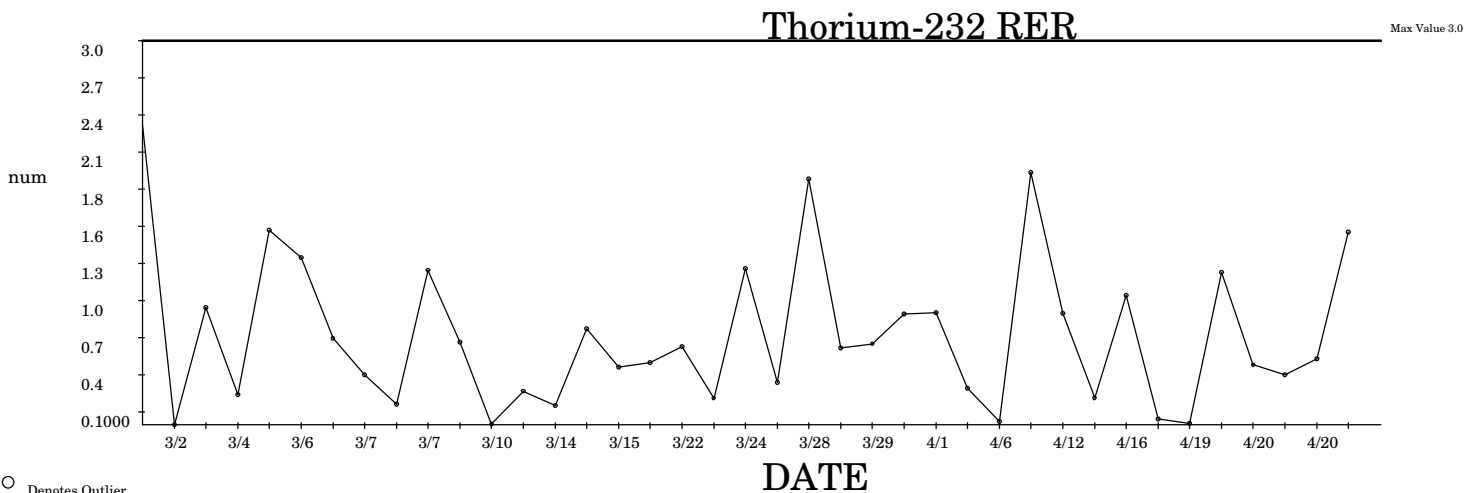
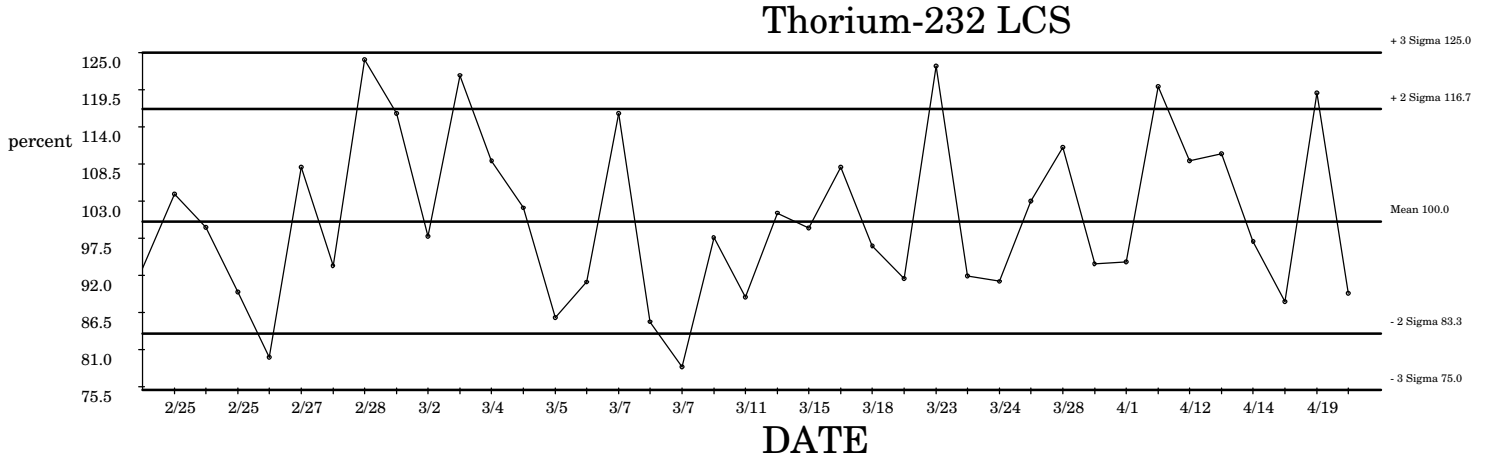
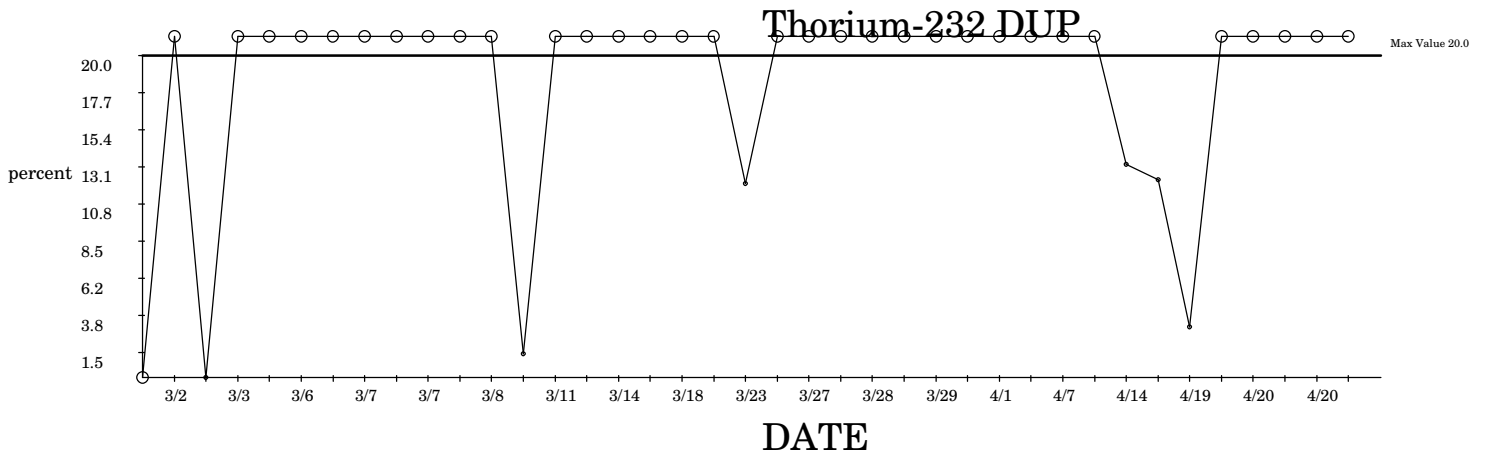
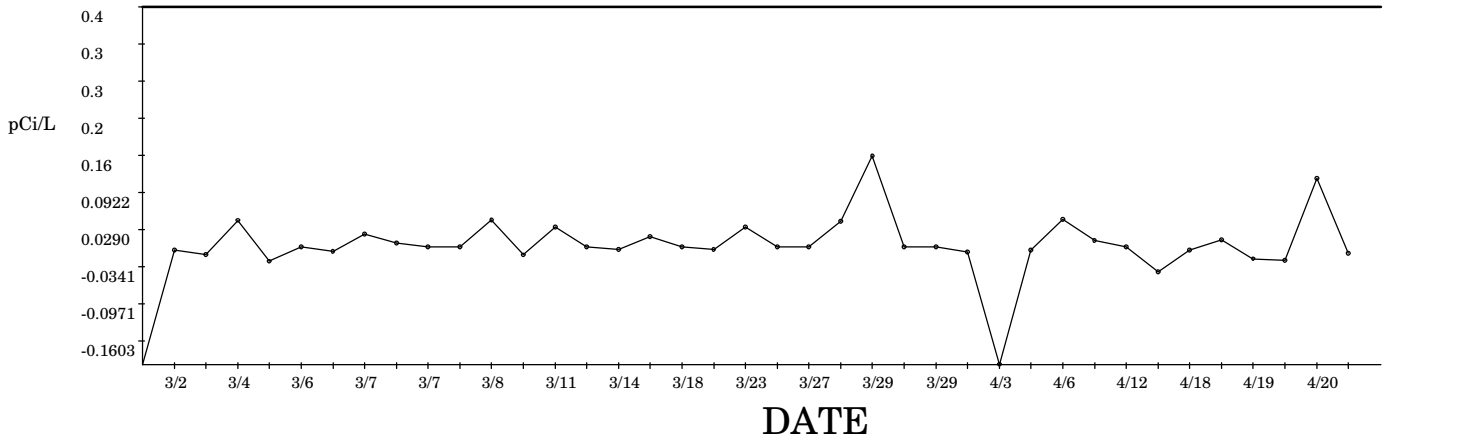
SPC Graph for Alpha SpecThorium in Liquids 4/24/2006 Thorium-230 SPIKE



○ Denotes Outlier

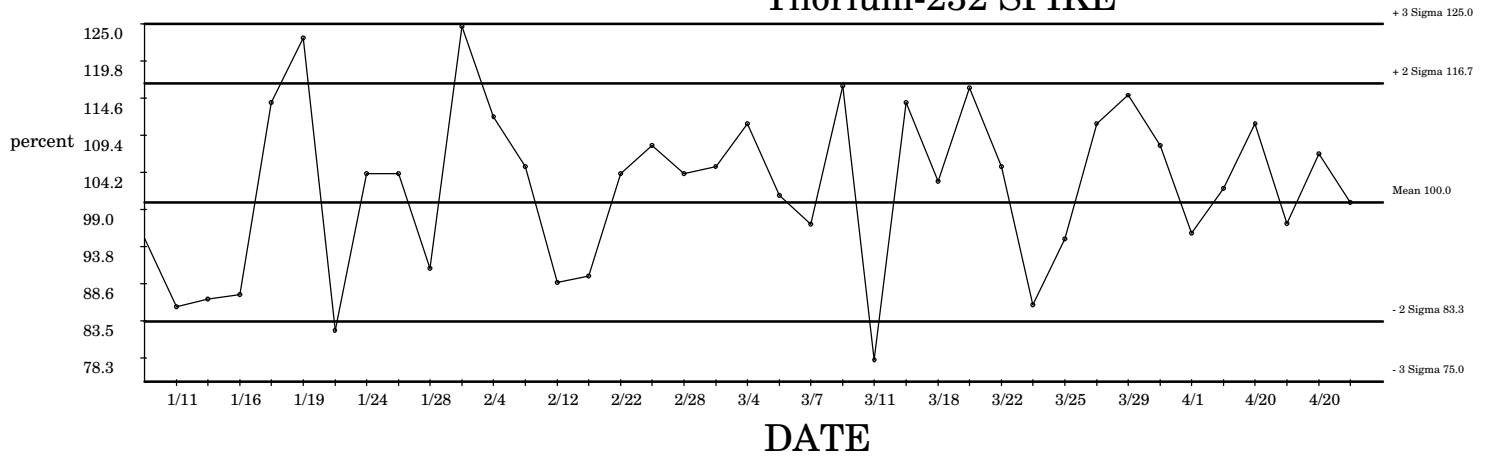
SPC Graph for Alpha SpecThorium in Liquids 4/24/2006

Thorium-232 BLANK



○ Denotes Outlier

SPC Graph for Alpha SpecThorium in Liquids 4/24/2006 Thorium-232 SPIKE



Data used for Alpha SpecThorium in Liquids 25-APR-2006

Thorium-228 BLANK: Limits LCL = -.4 UCL = .5

| Batch ID | Samp ID | Run Date | Status | Value | Deviation | Units | Mean | LCL | LWL | UWL | UCL | Stdev |
|----------|------------|-------------------|--------|-------|-----------|-------|------|-------|--------|------|------|-------|
| 504484 | 1201034197 | 01-MAR-2006 16:22 | DUSE | 0 | 0.56 | pCi/L | 0.05 | -0.45 | -0.284 | 0.38 | 0.54 | 0.17 |
| 506015 | 1201037821 | 02-MAR-2006 07:38 | DONE | 0 | -0.41 | pCi/L | 0.05 | -0.45 | -0.284 | 0.38 | 0.54 | 0.17 |
| 504514 | 1201034271 | 02-MAR-2006 12:09 | DONE | 0 | -0.24 | pCi/L | 0.05 | -0.45 | -0.284 | 0.38 | 0.54 | 0.17 |
| 507079 | 1201040312 | 04-MAR-2006 21:34 | DONE | 0 | -0.66 | pCi/L | 0.05 | -0.45 | -0.284 | 0.38 | 0.54 | 0.17 |
| 506064 | 1201037940 | 06-MAR-2006 08:00 | DONE | 0 | -0.35 | pCi/L | 0.05 | -0.45 | -0.284 | 0.38 | 0.54 | 0.17 |
| 508121 | 1201042933 | 06-MAR-2006 16:33 | DONE | 0 | 0.27 | pCi/L | 0.05 | -0.45 | -0.284 | 0.38 | 0.54 | 0.17 |
| 507094 | 1201040358 | 07-MAR-2006 01:33 | DONE | 0 | -0.16 | pCi/L | 0.05 | -0.45 | -0.284 | 0.38 | 0.54 | 0.17 |
| 506047 | 1201037914 | 07-MAR-2006 10:21 | DONE | 0 | -0.24 | pCi/L | 0.05 | -0.45 | -0.284 | 0.38 | 0.54 | 0.17 |
| 507087 | 1201040340 | 07-MAR-2006 14:56 | DONE | 0 | -0.33 | pCi/L | 0.05 | -0.45 | -0.284 | 0.38 | 0.54 | 0.17 |
| 507398 | 1201041204 | 07-MAR-2006 23:35 | DONE | 0 | -0.28 | pCi/L | 0.05 | -0.45 | -0.284 | 0.38 | 0.54 | 0.17 |
| 507401 | 1201041212 | 07-MAR-2006 23:35 | DONE | 0 | -0.28 | pCi/L | 0.05 | -0.45 | -0.284 | 0.38 | 0.54 | 0.17 |
| 509582 | 1201046244 | 08-MAR-2006 08:59 | DONE | 0 | 0.2 | pCi/L | 0.05 | -0.45 | -0.284 | 0.38 | 0.54 | 0.17 |
| 509840 | 1201046800 | 10-MAR-2006 11:48 | DONE | 0 | -0.25 | pCi/L | 0.05 | -0.45 | -0.284 | 0.38 | 0.54 | 0.17 |
| 509118 | 1201045258 | 11-MAR-2006 09:34 | DONE | 0 | -2 | pCi/L | 0.05 | -0.45 | -0.284 | 0.38 | 0.54 | 0.17 |
| 511062 | 1201049578 | 14-MAR-2006 17:18 | DUSE | 0 | -0.26 | pCi/L | 0.05 | -0.45 | -0.284 | 0.38 | 0.54 | 0.17 |
| 509796 | 1201046675 | 14-MAR-2006 17:43 | DONE | 0 | -0.09 | pCi/L | 0.05 | -0.45 | -0.284 | 0.38 | 0.54 | 0.17 |
| 510660 | 1201048675 | 15-MAR-2006 10:56 | DONE | 0 | 1.2 | pCi/L | 0.05 | -0.45 | -0.284 | 0.38 | 0.54 | 0.17 |
| 511207 | 1201049870 | 18-MAR-2006 12:05 | DONE | 0 | -0.28 | pCi/L | 0.05 | -0.45 | -0.284 | 0.38 | 0.54 | 0.17 |
| 512010 | 1201051735 | 22-MAR-2006 20:59 | DONE | 0 | -0.45 | pCi/L | 0.05 | -0.45 | -0.284 | 0.38 | 0.54 | 0.17 |
| 511986 | 1201051678 | 23-MAR-2006 08:32 | DONE | 0 | 0.53 | pCi/L | 0.05 | -0.45 | -0.284 | 0.38 | 0.54 | 0.17 |
| 512003 | 1201051718 | 25-MAR-2006 10:35 | DONE | 0 | -0.28 | pCi/L | 0.05 | -0.45 | -0.284 | 0.38 | 0.54 | 0.17 |
| 512008 | 1201051727 | 27-MAR-2006 09:42 | DUSE | 0 | -0.28 | pCi/L | 0.05 | -0.45 | -0.284 | 0.38 | 0.54 | 0.17 |
| 512781 | 1201053532 | 28-MAR-2006 07:34 | DONE | 0 | -0.07 | pCi/L | 0.05 | -0.45 | -0.284 | 0.38 | 0.54 | 0.17 |
| 511549 | 1201050713 | 29-MAR-2006 08:24 | DONE | 0 | -0.01 | pCi/L | 0.05 | -0.45 | -0.284 | 0.38 | 0.54 | 0.17 |
| 515678 | 1201059766 | 29-MAR-2006 10:23 | DONE | 0 | -0.28 | pCi/L | 0.05 | -0.45 | -0.284 | 0.38 | 0.54 | 0.17 |
| 514263 | 1201056523 | 29-MAR-2006 22:27 | DUSE | 0 | -0.23 | pCi/L | 0.05 | -0.45 | -0.284 | 0.38 | 0.54 | 0.17 |
| 515544 | 1201059406 | 01-APR-2006 09:22 | DONE | 0 | -0.55 | pCi/L | 0.05 | -0.45 | -0.284 | 0.38 | 0.54 | 0.17 |
| 515266 | 1201058728 | 03-APR-2006 16:59 | DONE | 0 | 0.74 | pCi/L | 0.05 | -0.45 | -0.284 | 0.38 | 0.54 | 0.17 |
| 517136 | 1201062871 | 05-APR-2006 21:54 | DUSE | 0 | -0.25 | pCi/L | 0.05 | -0.45 | -0.284 | 0.38 | 0.54 | 0.17 |
| 517718 | 1201064215 | 06-APR-2006 13:23 | DONE | 0 | 0.21 | pCi/L | 0.05 | -0.45 | -0.284 | 0.38 | 0.54 | 0.17 |
| 517716 | 1201064208 | 12-APR-2006 12:14 | DUSE | 1 | 4.9 | pCi/L | 0.05 | -0.45 | -0.284 | 0.38 | 0.54 | 0.17 |
| 518887 | 1201066848 | 12-APR-2006 19:27 | DUSE | 0 | -0.28 | pCi/L | 0.05 | -0.45 | -0.284 | 0.38 | 0.54 | 0.17 |
| 518909 | 1201066925 | 16-APR-2006 08:06 | DONE | 0 | -0.45 | pCi/L | 0.05 | -0.45 | -0.284 | 0.38 | 0.54 | 0.17 |
| 519439 | 1201068031 | 18-APR-2006 12:58 | DUSE | 0 | -0.35 | pCi/L | 0.05 | -0.45 | -0.284 | 0.38 | 0.54 | 0.17 |
| 520797 | 1201071136 | 19-APR-2006 14:45 | DUSE | 0 | -0.31 | pCi/L | 0.05 | -0.45 | -0.284 | 0.38 | 0.54 | 0.17 |
| 521038 | 1201071719 | 19-APR-2006 14:47 | DONE | 0 | -1 | pCi/L | 0.05 | -0.45 | -0.284 | 0.38 | 0.54 | 0.17 |
| 520798 | 1201071140 | 20-APR-2006 07:49 | DONE | 0 | -0.05 | pCi/L | 0.05 | -0.45 | -0.284 | 0.38 | 0.54 | 0.17 |
| 519427 | 1201067981 | 20-APR-2006 12:32 | DONE | 0 | 2.1 | pCi/L | 0.05 | -0.45 | -0.284 | 0.38 | 0.54 | 0.17 |
| 521959 | 1201074063 | 20-APR-2006 21:36 | DONE | 0 | -0.18 | pCi/L | 0.05 | -0.45 | -0.284 | 0.38 | 0.54 | 0.17 |

Thorium-228 DUP: Limits LCL = 0 UCL = 20

| Batch ID | Samp ID | Run Date | Status | Value | Deviation | Units | Mean | LCL | LWL | UWL | UCL | Stdev |
|----------|------------|-------------------|--------|-------|-----------|---------|------|-----|------|------|------|-------|
| 506015 | 1201037822 | 02-MAR-2006 07:38 | DONE | 107 | -0.27 | percent | 247 | 0 | -790 | 1280 | 20.0 | 516 |
| 504514 | 1201034272 | 02-MAR-2006 12:09 | DONE | 183 | -0.13 | percent | 247 | 0 | -790 | 1280 | 20.0 | 516 |
| 507398 | 1201041205 | 03-MAR-2006 22:26 | DONE | 203 | -0.09 | percent | 247 | 0 | -790 | 1280 | 20.0 | 516 |
| 507079 | 1201040313 | 04-MAR-2006 21:34 | DONE | 62 | -0.36 | percent | 247 | 0 | -790 | 1280 | 20.0 | 516 |

| | | | | | | | | | | | | |
|--------|------------|-------------------|------|------|-------|---------|-----|---|------|------|------|-----|
| 506064 | 1201037941 | 06-MAR-2006 08:00 | DONE | 187 | -0.12 | percent | 247 | 0 | -790 | 1280 | 20.0 | 516 |
| 508121 | 1201042934 | 06-MAR-2006 16:33 | DONE | 418 | 0.33 | percent | 247 | 0 | -790 | 1280 | 20.0 | 516 |
| 506047 | 1201037915 | 07-MAR-2006 01:33 | DONE | 168 | -0.15 | percent | 247 | 0 | -790 | 1280 | 20.0 | 516 |
| 507094 | 1201040359 | 07-MAR-2006 01:33 | DONE | 402 | 0.3 | percent | 247 | 0 | -790 | 1280 | 20.0 | 516 |
| 507087 | 1201040341 | 07-MAR-2006 14:56 | DONE | 93 | -0.3 | percent | 247 | 0 | -790 | 1280 | 20.0 | 516 |
| 507401 | 1201041213 | 07-MAR-2006 23:35 | DONE | 4 | -0.47 | percent | 247 | 0 | -790 | 1280 | 20.0 | 516 |
| 509582 | 1201046245 | 08-MAR-2006 08:59 | DONE | 145 | -0.2 | percent | 247 | 0 | -790 | 1280 | 20.0 | 516 |
| 509840 | 1201046801 | 10-MAR-2006 11:48 | DONE | 589 | 0.66 | percent | 247 | 0 | -790 | 1280 | 20.0 | 516 |
| 509118 | 1201045259 | 11-MAR-2006 09:34 | DONE | 23 | -0.43 | percent | 247 | 0 | -790 | 1280 | 20.0 | 516 |
| 511062 | 1201049579 | 14-MAR-2006 17:18 | DUSE | 11 | -0.46 | percent | 247 | 0 | -790 | 1280 | 20.0 | 516 |
| 509796 | 1201046676 | 14-MAR-2006 17:43 | DONE | 16 | -0.45 | percent | 247 | 0 | -790 | 1280 | 20.0 | 516 |
| 510660 | 1201048676 | 15-MAR-2006 10:56 | DONE | 209 | -0.07 | percent | 247 | 0 | -790 | 1280 | 20.0 | 516 |
| 511207 | 1201049871 | 18-MAR-2006 12:05 | DONE | 61 | -0.36 | percent | 247 | 0 | -790 | 1280 | 20.0 | 516 |
| 512010 | 1201051736 | 22-MAR-2006 20:59 | DONE | 26 | -0.43 | percent | 247 | 0 | -790 | 1280 | 20.0 | 516 |
| 511986 | 1201051679 | 23-MAR-2006 08:32 | DONE | 12 | -0.45 | percent | 247 | 0 | -790 | 1280 | 20.0 | 516 |
| 512003 | 1201051719 | 24-MAR-2006 08:00 | DONE | 293 | 0.09 | percent | 247 | 0 | -790 | 1280 | 20.0 | 516 |
| 512008 | 1201051728 | 27-MAR-2006 18:58 | DUSE | 81 | -0.32 | percent | 247 | 0 | -790 | 1280 | 20.0 | 516 |
| 512781 | 1201053533 | 28-MAR-2006 07:34 | DONE | 394 | 0.29 | percent | 247 | 0 | -790 | 1280 | 20.0 | 516 |
| 511549 | 1201050714 | 28-MAR-2006 11:48 | DONE | 18 | -0.44 | percent | 247 | 0 | -790 | 1280 | 20.0 | 516 |
| 515678 | 1201059767 | 29-MAR-2006 10:23 | DONE | 68 | -0.35 | percent | 247 | 0 | -790 | 1280 | 20.0 | 516 |
| 514263 | 1201056524 | 29-MAR-2006 22:27 | DUSE | 185 | -0.12 | percent | 247 | 0 | -790 | 1280 | 20.0 | 516 |
| 515544 | 1201059407 | 01-APR-2006 09:22 | DONE | 269 | 0.04 | percent | 247 | 0 | -790 | 1280 | 20.0 | 516 |
| 515266 | 1201058729 | 01-APR-2006 11:30 | DONE | 39 | -0.4 | percent | 247 | 0 | -790 | 1280 | 20.0 | 516 |
| 517718 | 1201064216 | 06-APR-2006 13:23 | DONE | 3 | -0.47 | percent | 247 | 0 | -790 | 1280 | 20.0 | 516 |
| 517136 | 1201062872 | 07-APR-2006 07:28 | DUSE | 348 | 0.19 | percent | 247 | 0 | -790 | 1280 | 20.0 | 516 |
| 518887 | 1201066849 | 12-APR-2006 19:27 | DUSE | 230 | -0.03 | percent | 247 | 0 | -790 | 1280 | 20.0 | 516 |
| 519427 | 1201067982 | 14-APR-2006 14:34 | DONE | 17 | -0.45 | percent | 247 | 0 | -790 | 1280 | 20.0 | 516 |
| 518909 | 1201066926 | 16-APR-2006 08:06 | DONE | 748 | 0.97 | percent | 247 | 0 | -790 | 1280 | 20.0 | 516 |
| 519439 | 1201068032 | 18-APR-2006 12:58 | DUSE | 225 | -0.04 | percent | 247 | 0 | -790 | 1280 | 20.0 | 516 |
| 520797 | 1201071137 | 19-APR-2006 14:45 | DUSE | 247 | -0 | percent | 247 | 0 | -790 | 1280 | 20.0 | 516 |
| 521038 | 1201071720 | 19-APR-2006 14:47 | DONE | 45 | -0.39 | percent | 247 | 0 | -790 | 1280 | 20.0 | 516 |
| 520798 | 1201071141 | 20-APR-2006 07:49 | DONE | 56 | -0.37 | percent | 247 | 0 | -790 | 1280 | 20.0 | 516 |
| 521959 | 1201074064 | 20-APR-2006 21:36 | DONE | 3215 | 5.7 | percent | 247 | 0 | -790 | 1280 | 20.0 | 516 |
| 521959 | 1201074155 | 20-APR-2006 21:36 | DONE | 30 | -0.42 | percent | 247 | 0 | -790 | 1280 | 20.0 | 516 |
| 521075 | 1201071845 | 20-APR-2006 21:36 | DUSE | 215 | -0.06 | percent | 247 | 0 | -790 | 1280 | 20.0 | 516 |

Thorium-228 RER: Limits LCL = 0 UCL = 3

| Batch ID | Samp ID | Run Date | Status | Value | Deviation | Units | Mean | LCL | LWL | UWL | UCL | Stdev |
|----------|------------|-------------------|--------|-------|-----------|-------|------|-----|--------|------|------|-------|
| 506015 | 1201037822 | 02-MAR-2006 07:38 | DONE | 0.64 | -0.29 | num | 0.82 | 0 | -0.395 | 2.03 | 3.00 | 0.61 |
| 504514 | 1201034272 | 02-MAR-2006 12:09 | DONE | 1.06 | 0.41 | num | 0.82 | 0 | -0.395 | 2.03 | 3.00 | 0.61 |
| 507398 | 1201041205 | 03-MAR-2006 22:26 | DONE | 0.16 | -1 | num | 0.82 | 0 | -0.395 | 2.03 | 3.00 | 0.61 |
| 507079 | 1201040313 | 04-MAR-2006 21:34 | DONE | 0.65 | -0.27 | num | 0.82 | 0 | -0.395 | 2.03 | 3.00 | 0.61 |
| 506064 | 1201037941 | 06-MAR-2006 08:00 | DONE | 1.14 | 0.54 | num | 0.82 | 0 | -0.395 | 2.03 | 3.00 | 0.61 |
| 508121 | 1201042934 | 06-MAR-2006 16:33 | DONE | 1.92 | 1.8 | num | 0.82 | 0 | -0.395 | 2.03 | 3.00 | 0.61 |
| 506047 | 1201037915 | 07-MAR-2006 01:33 | DONE | 0.49 | -0.54 | num | 0.82 | 0 | -0.395 | 2.03 | 3.00 | 0.61 |
| 507094 | 1201040359 | 07-MAR-2006 01:33 | DONE | 1.38 | 0.93 | num | 0.82 | 0 | -0.395 | 2.03 | 3.00 | 0.61 |
| 507087 | 1201040341 | 07-MAR-2006 14:56 | DONE | 0.72 | -0.15 | num | 0.82 | 0 | -0.395 | 2.03 | 3.00 | 0.61 |
| 507401 | 1201041213 | 07-MAR-2006 23:35 | DONE | 0.1 | -1 | num | 0.82 | 0 | -0.395 | 2.03 | 3.00 | 0.61 |
| 509582 | 1201046245 | 08-MAR-2006 08:59 | DONE | 1.62 | 1.3 | num | 0.82 | 0 | -0.395 | 2.03 | 3.00 | 0.61 |
| 509840 | 1201046801 | 10-MAR-2006 11:48 | DONE | 2.3 | 2.5 | num | 0.82 | 0 | -0.395 | 2.03 | 3.00 | 0.61 |

| | | | | | | | | | | | | |
|--------|------------|-------------------|------|------|-------|-----|------|---|--------|------|------|------|
| 509118 | 1201045259 | 11-MAR-2006 09:34 | DONE | 0.15 | -1 | num | 0.82 | 0 | -0.395 | 2.03 | 3.00 | 0.61 |
| 511062 | 1201049579 | 14-MAR-2006 17:18 | DUSE | 0.02 | -1 | num | 0.82 | 0 | -0.395 | 2.03 | 3.00 | 0.61 |
| 509796 | 1201046676 | 14-MAR-2006 17:43 | DONE | 0.17 | -1 | num | 0.82 | 0 | -0.395 | 2.03 | 3.00 | 0.61 |
| 510660 | 1201048676 | 15-MAR-2006 10:56 | DONE | 2.12 | 2.2 | num | 0.82 | 0 | -0.395 | 2.03 | 3.00 | 0.61 |
| 511207 | 1201049871 | 18-MAR-2006 12:05 | DONE | 1.3 | 0.79 | num | 0.82 | 0 | -0.395 | 2.03 | 3.00 | 0.61 |
| 512010 | 1201051736 | 22-MAR-2006 20:59 | DONE | 0.46 | -0.59 | num | 0.82 | 0 | -0.395 | 2.03 | 3.00 | 0.61 |
| 511986 | 1201051679 | 23-MAR-2006 08:32 | DONE | 0.27 | -0.91 | num | 0.82 | 0 | -0.395 | 2.03 | 3.00 | 0.61 |
| 512003 | 1201051719 | 24-MAR-2006 08:00 | DONE | 0.39 | -0.7 | num | 0.82 | 0 | -0.395 | 2.03 | 3.00 | 0.61 |
| 512008 | 1201051728 | 27-MAR-2006 18:58 | DUSE | 1.02 | 0.33 | num | 0.82 | 0 | -0.395 | 2.03 | 3.00 | 0.61 |
| 512781 | 1201053533 | 28-MAR-2006 07:34 | DONE | 0.62 | -0.32 | num | 0.82 | 0 | -0.395 | 2.03 | 3.00 | 0.61 |
| 511549 | 1201050714 | 28-MAR-2006 11:48 | DONE | 0.7 | -0.18 | num | 0.82 | 0 | -0.395 | 2.03 | 3.00 | 0.61 |
| 515678 | 1201059767 | 29-MAR-2006 10:23 | DONE | 1.22 | 0.67 | num | 0.82 | 0 | -0.395 | 2.03 | 3.00 | 0.61 |
| 514263 | 1201056524 | 29-MAR-2006 22:27 | DUSE | 0.31 | -0.83 | num | 0.82 | 0 | -0.395 | 2.03 | 3.00 | 0.61 |
| 515544 | 1201059407 | 01-APR-2006 09:22 | DONE | 0.76 | -0.09 | num | 0.82 | 0 | -0.395 | 2.03 | 3.00 | 0.61 |
| 515266 | 1201058729 | 01-APR-2006 11:30 | DONE | 0.28 | -0.89 | num | 0.82 | 0 | -0.395 | 2.03 | 3.00 | 0.61 |
| 517718 | 1201064216 | 06-APR-2006 13:23 | DONE | 0.07 | -1 | num | 0.82 | 0 | -0.395 | 2.03 | 3.00 | 0.61 |
| 517136 | 1201062872 | 07-APR-2006 07:28 | DUSE | 0.96 | 0.24 | num | 0.82 | 0 | -0.395 | 2.03 | 3.00 | 0.61 |
| 518887 | 1201066849 | 12-APR-2006 19:27 | DUSE | 0.22 | -0.99 | num | 0.82 | 0 | -0.395 | 2.03 | 3.00 | 0.61 |
| 519427 | 1201067982 | 14-APR-2006 14:34 | DONE | 1.06 | 0.41 | num | 0.82 | 0 | -0.395 | 2.03 | 3.00 | 0.61 |
| 518909 | 1201066926 | 16-APR-2006 08:06 | DONE | 1.2 | 0.63 | num | 0.82 | 0 | -0.395 | 2.03 | 3.00 | 0.61 |
| 519439 | 1201068032 | 18-APR-2006 12:58 | DUSE | 1.55 | 1.2 | num | 0.82 | 0 | -0.395 | 2.03 | 3.00 | 0.61 |
| 520797 | 1201071137 | 19-APR-2006 14:45 | DUSE | 1.83 | 1.7 | num | 0.82 | 0 | -0.395 | 2.03 | 3.00 | 0.61 |
| 521038 | 1201071720 | 19-APR-2006 14:47 | DONE | 0.16 | -1 | num | 0.82 | 0 | -0.395 | 2.03 | 3.00 | 0.61 |
| 520798 | 1201071141 | 20-APR-2006 07:49 | DONE | 0.87 | 0.09 | num | 0.82 | 0 | -0.395 | 2.03 | 3.00 | 0.61 |
| 521959 | 1201074064 | 20-APR-2006 21:36 | DONE | 0.93 | 0.18 | num | 0.82 | 0 | -0.395 | 2.03 | 3.00 | 0.61 |
| 521959 | 1201074155 | 20-APR-2006 21:36 | DONE | 0.37 | -0.74 | num | 0.82 | 0 | -0.395 | 2.03 | 3.00 | 0.61 |
| 521075 | 1201071845 | 20-APR-2006 21:36 | DUSE | 0.6 | -0.36 | num | 0.82 | 0 | -0.395 | 2.03 | 3.00 | 0.61 |

Thorium-230 BLANK: Limits LCL = -8 UCL = 1.1

| Batch ID | Samp ID | Run Date | Status | Value | Deviation | Units | Mean | LCL | LWL | UWL | UCL | Stdev |
|----------|------------|-------------------|--------|-------|-----------|-------|------|--------|--------|------|------|-------|
| 504484 | 1201034197 | 01-MAR-2006 16:22 | DUSE | 2 | 4.3 | pCi/L | 0.14 | -0.836 | -0.511 | 0.79 | 1.11 | 0.32 |
| 506015 | 1201037821 | 02-MAR-2006 07:38 | DONE | 0 | -0.43 | pCi/L | 0.14 | -0.836 | -0.511 | 0.79 | 1.11 | 0.32 |
| 504514 | 1201034271 | 02-MAR-2006 12:09 | DONE | 0 | -0.4 | pCi/L | 0.14 | -0.836 | -0.511 | 0.79 | 1.11 | 0.32 |
| 507079 | 1201040312 | 04-MAR-2006 21:34 | DONE | 0 | 0.48 | pCi/L | 0.14 | -0.836 | -0.511 | 0.79 | 1.11 | 0.32 |
| 506064 | 1201037940 | 06-MAR-2006 08:00 | DONE | 0 | -0.46 | pCi/L | 0.14 | -0.836 | -0.511 | 0.79 | 1.11 | 0.32 |
| 508121 | 1201042933 | 06-MAR-2006 16:33 | DONE | 1 | 1.4 | pCi/L | 0.14 | -0.836 | -0.511 | 0.79 | 1.11 | 0.32 |
| 507094 | 1201040358 | 07-MAR-2006 01:33 | DONE | 0 | -0.41 | pCi/L | 0.14 | -0.836 | -0.511 | 0.79 | 1.11 | 0.32 |
| 506047 | 1201037914 | 07-MAR-2006 10:21 | DONE | 0 | -0.35 | pCi/L | 0.14 | -0.836 | -0.511 | 0.79 | 1.11 | 0.32 |
| 507087 | 1201040340 | 07-MAR-2006 14:56 | DONE | 0 | -0.39 | pCi/L | 0.14 | -0.836 | -0.511 | 0.79 | 1.11 | 0.32 |
| 507398 | 1201041204 | 07-MAR-2006 23:35 | DONE | 0 | -0.43 | pCi/L | 0.14 | -0.836 | -0.511 | 0.79 | 1.11 | 0.32 |
| 507401 | 1201041212 | 07-MAR-2006 23:35 | DONE | 0 | -0.43 | pCi/L | 0.14 | -0.836 | -0.511 | 0.79 | 1.11 | 0.32 |
| 509582 | 1201046244 | 08-MAR-2006 08:59 | DONE | 0 | -0.38 | pCi/L | 0.14 | -0.836 | -0.511 | 0.79 | 1.11 | 0.32 |
| 509840 | 1201046800 | 10-MAR-2006 11:48 | DONE | 0 | 0.26 | pCi/L | 0.14 | -0.836 | -0.511 | 0.79 | 1.11 | 0.32 |
| 509118 | 1201045258 | 11-MAR-2006 09:34 | DONE | 0 | -0.45 | pCi/L | 0.14 | -0.836 | -0.511 | 0.79 | 1.11 | 0.32 |
| 511062 | 1201049578 | 14-MAR-2006 17:18 | DONE | 0 | -0.33 | pCi/L | 0.14 | -0.836 | -0.511 | 0.79 | 1.11 | 0.32 |
| 509796 | 1201046675 | 14-MAR-2006 17:43 | DONE | 0 | -0.48 | pCi/L | 0.14 | -0.836 | -0.511 | 0.79 | 1.11 | 0.32 |
| 510660 | 1201048675 | 15-MAR-2006 10:56 | DONE | 0 | 0.16 | pCi/L | 0.14 | -0.836 | -0.511 | 0.79 | 1.11 | 0.32 |
| 511207 | 1201049870 | 18-MAR-2006 12:05 | DUSE | 0 | -0.43 | pCi/L | 0.14 | -0.836 | -0.511 | 0.79 | 1.11 | 0.32 |
| 512010 | 1201051735 | 22-MAR-2006 20:59 | DONE | 0 | -0.34 | pCi/L | 0.14 | -0.836 | -0.511 | 0.79 | 1.11 | 0.32 |
| 511986 | 1201051678 | 23-MAR-2006 08:32 | DUSE | 0 | -0.23 | pCi/L | 0.14 | -0.836 | -0.511 | 0.79 | 1.11 | 0.32 |

| | | | | | | | | | | | | |
|--------|------------|-------------------|------|---|-------|-------|------|--------|--------|------|------|------|
| 512003 | 1201051718 | 25-MAR-2006 10:35 | DONE | 0 | -0.43 | pCi/L | 0.14 | -0.836 | -0.511 | 0.79 | 1.11 | 0.32 |
| 512008 | 1201051727 | 27-MAR-2006 09:42 | DUSE | 0 | -0.43 | pCi/L | 0.14 | -0.836 | -0.511 | 0.79 | 1.11 | 0.32 |
| 512781 | 1201053532 | 28-MAR-2006 07:34 | DONE | 0 | -0.26 | pCi/L | 0.14 | -0.836 | -0.511 | 0.79 | 1.11 | 0.32 |
| 511549 | 1201050713 | 29-MAR-2006 08:24 | DONE | 1 | 2.3 | pCi/L | 0.14 | -0.836 | -0.511 | 0.79 | 1.11 | 0.32 |
| 515678 | 1201059766 | 29-MAR-2006 10:23 | DONE | 0 | -0.43 | pCi/L | 0.14 | -0.836 | -0.511 | 0.79 | 1.11 | 0.32 |
| 514263 | 1201056523 | 29-MAR-2006 22:27 | DUSE | 0 | -0.39 | pCi/L | 0.14 | -0.836 | -0.511 | 0.79 | 1.11 | 0.32 |
| 515544 | 1201059406 | 01-APR-2006 09:22 | DONE | 0 | -0.1 | pCi/L | 0.14 | -0.836 | -0.511 | 0.79 | 1.11 | 0.32 |
| 515266 | 1201058728 | 03-APR-2006 16:59 | DUSE | 0 | -1 | pCi/L | 0.14 | -0.836 | -0.511 | 0.79 | 1.11 | 0.32 |
| 517136 | 1201062871 | 05-APR-2006 21:54 | DONE | 0 | -0.43 | pCi/L | 0.14 | -0.836 | -0.511 | 0.79 | 1.11 | 0.32 |
| 517718 | 1201064215 | 06-APR-2006 13:23 | DONE | 0 | -0.36 | pCi/L | 0.14 | -0.836 | -0.511 | 0.79 | 1.11 | 0.32 |
| 517716 | 1201064208 | 12-APR-2006 12:14 | DUSE | 0 | 0.63 | pCi/L | 0.14 | -0.836 | -0.511 | 0.79 | 1.11 | 0.32 |
| 518887 | 1201066848 | 12-APR-2006 19:27 | DONE | 0 | -0.37 | pCi/L | 0.14 | -0.836 | -0.511 | 0.79 | 1.11 | 0.32 |
| 518909 | 1201066925 | 16-APR-2006 08:06 | DONE | 0 | 0.03 | pCi/L | 0.14 | -0.836 | -0.511 | 0.79 | 1.11 | 0.32 |
| 519439 | 1201068031 | 18-APR-2006 12:58 | DONE | 0 | -0.31 | pCi/L | 0.14 | -0.836 | -0.511 | 0.79 | 1.11 | 0.32 |
| 520797 | 1201071136 | 19-APR-2006 14:45 | DONE | 0 | -0.35 | pCi/L | 0.14 | -0.836 | -0.511 | 0.79 | 1.11 | 0.32 |
| 521038 | 1201071719 | 19-APR-2006 14:47 | DONE | 0 | -0.27 | pCi/L | 0.14 | -0.836 | -0.511 | 0.79 | 1.11 | 0.32 |
| 520798 | 1201071140 | 20-APR-2006 07:49 | DONE | 0 | -0.2 | pCi/L | 0.14 | -0.836 | -0.511 | 0.79 | 1.11 | 0.32 |
| 519427 | 1201067981 | 20-APR-2006 12:32 | DONE | 1 | 2.4 | pCi/L | 0.14 | -0.836 | -0.511 | 0.79 | 1.11 | 0.32 |
| 521959 | 1201074063 | 20-APR-2006 21:36 | DONE | 0 | -0.42 | pCi/L | 0.14 | -0.836 | -0.511 | 0.79 | 1.11 | 0.32 |

Thorium-230 DUP: Limits LCL = 0 UCL = 20

| Batch ID | Samp ID | Run Date | Status | Value | Deviation | Units | Mean | LCL | LWL | UWL | UCL | Stdev |
|----------|------------|-------------------|--------|-------|-----------|---------|------|-----|------|------|------|-------|
| 506015 | 1201037822 | 02-MAR-2006 07:38 | DONE | 24 | -0.46 | percent | 241 | 0 | -700 | 1180 | 20.0 | 470 |
| 504514 | 1201034272 | 02-MAR-2006 12:09 | DONE | 154 | -0.18 | percent | 241 | 0 | -700 | 1180 | 20.0 | 470 |
| 507398 | 1201041205 | 03-MAR-2006 22:26 | DONE | 365 | 0.26 | percent | 241 | 0 | -700 | 1180 | 20.0 | 470 |
| 507079 | 1201040313 | 04-MAR-2006 21:34 | DONE | 28 | -0.45 | percent | 241 | 0 | -700 | 1180 | 20.0 | 470 |
| 506064 | 1201037941 | 06-MAR-2006 08:00 | DONE | 186 | -0.12 | percent | 241 | 0 | -700 | 1180 | 20.0 | 470 |
| 508121 | 1201042934 | 06-MAR-2006 16:33 | DONE | 455 | 0.45 | percent | 241 | 0 | -700 | 1180 | 20.0 | 470 |
| 506047 | 1201037915 | 07-MAR-2006 01:33 | DONE | 51 | -0.4 | percent | 241 | 0 | -700 | 1180 | 20.0 | 470 |
| 507094 | 1201040359 | 07-MAR-2006 01:33 | DONE | 62 | -0.38 | percent | 241 | 0 | -700 | 1180 | 20.0 | 470 |
| 507087 | 1201040341 | 07-MAR-2006 14:56 | DONE | 66 | -0.37 | percent | 241 | 0 | -700 | 1180 | 20.0 | 470 |
| 507401 | 1201041213 | 07-MAR-2006 23:35 | DONE | 15 | -0.48 | percent | 241 | 0 | -700 | 1180 | 20.0 | 470 |
| 509582 | 1201046245 | 08-MAR-2006 08:59 | DONE | 2795 | 5.4 | percent | 241 | 0 | -700 | 1180 | 20.0 | 470 |
| 509840 | 1201046801 | 10-MAR-2006 11:48 | DONE | 106 | -0.29 | percent | 241 | 0 | -700 | 1180 | 20.0 | 470 |
| 509118 | 1201045259 | 11-MAR-2006 09:34 | DONE | 574 | 0.71 | percent | 241 | 0 | -700 | 1180 | 20.0 | 470 |
| 511062 | 1201049579 | 14-MAR-2006 17:18 | DONE | 494 | 0.54 | percent | 241 | 0 | -700 | 1180 | 20.0 | 470 |
| 509796 | 1201046676 | 14-MAR-2006 17:43 | DONE | 76 | -0.35 | percent | 241 | 0 | -700 | 1180 | 20.0 | 470 |
| 510660 | 1201048676 | 15-MAR-2006 10:56 | DONE | 913 | 1.4 | percent | 241 | 0 | -700 | 1180 | 20.0 | 470 |
| 511207 | 1201049871 | 18-MAR-2006 12:05 | DUSE | 13 | -0.49 | percent | 241 | 0 | -700 | 1180 | 20.0 | 470 |
| 512010 | 1201051736 | 22-MAR-2006 20:59 | DONE | 1 | -0.51 | percent | 241 | 0 | -700 | 1180 | 20.0 | 470 |
| 511986 | 1201051679 | 23-MAR-2006 08:32 | DUSE | 33 | -0.44 | percent | 241 | 0 | -700 | 1180 | 20.0 | 470 |
| 512003 | 1201051719 | 24-MAR-2006 08:00 | DONE | 714 | 1 | percent | 241 | 0 | -700 | 1180 | 20.0 | 470 |
| 512008 | 1201051728 | 27-MAR-2006 18:58 | DUSE | 32 | -0.44 | percent | 241 | 0 | -700 | 1180 | 20.0 | 470 |
| 512781 | 1201053533 | 28-MAR-2006 07:34 | DONE | 180 | -0.13 | percent | 241 | 0 | -700 | 1180 | 20.0 | 470 |
| 511549 | 1201050714 | 28-MAR-2006 11:48 | DONE | 60 | -0.38 | percent | 241 | 0 | -700 | 1180 | 20.0 | 470 |
| 515678 | 1201059767 | 29-MAR-2006 10:23 | DONE | 509 | 0.57 | percent | 241 | 0 | -700 | 1180 | 20.0 | 470 |
| 514263 | 1201056524 | 29-MAR-2006 22:27 | DUSE | 20 | -0.47 | percent | 241 | 0 | -700 | 1180 | 20.0 | 470 |
| 515544 | 1201059407 | 01-APR-2006 09:22 | DONE | 192 | -0.1 | percent | 241 | 0 | -700 | 1180 | 20.0 | 470 |
| 515266 | 1201058729 | 01-APR-2006 11:30 | DUSE | 82 | -0.34 | percent | 241 | 0 | -700 | 1180 | 20.0 | 470 |
| 517718 | 1201064216 | 06-APR-2006 13:23 | DONE | 158 | -0.18 | percent | 241 | 0 | -700 | 1180 | 20.0 | 470 |

| | | | | | | | | | | | | |
|--------|------------|-------------------|------|-----|-------|---------|-----|---|------|------|------|-----|
| 517136 | 1201062872 | 07-APR-2006 07:28 | DONE | 82 | -0.34 | percent | 241 | 0 | -700 | 1180 | 20.0 | 470 |
| 518887 | 1201066849 | 12-APR-2006 19:27 | DONE | 30 | -0.45 | percent | 241 | 0 | -700 | 1180 | 20.0 | 470 |
| 519427 | 1201067982 | 14-APR-2006 14:34 | DONE | 9 | -0.49 | percent | 241 | 0 | -700 | 1180 | 20.0 | 470 |
| 518909 | 1201066926 | 16-APR-2006 08:06 | DONE | 32 | -0.44 | percent | 241 | 0 | -700 | 1180 | 20.0 | 470 |
| 519439 | 1201068032 | 18-APR-2006 12:58 | DONE | 114 | -0.27 | percent | 241 | 0 | -700 | 1180 | 20.0 | 470 |
| 520797 | 1201071137 | 19-APR-2006 14:45 | DONE | 271 | 0.06 | percent | 241 | 0 | -700 | 1180 | 20.0 | 470 |
| 521038 | 1201071720 | 19-APR-2006 14:47 | DONE | 102 | -0.3 | percent | 241 | 0 | -700 | 1180 | 20.0 | 470 |
| 520798 | 1201071141 | 20-APR-2006 07:49 | DONE | 131 | -0.23 | percent | 241 | 0 | -700 | 1180 | 20.0 | 470 |
| 521959 | 1201074064 | 20-APR-2006 21:36 | DONE | 23 | -0.46 | percent | 241 | 0 | -700 | 1180 | 20.0 | 470 |
| 521959 | 1201074155 | 20-APR-2006 21:36 | DONE | 115 | -0.27 | percent | 241 | 0 | -700 | 1180 | 20.0 | 470 |
| 521075 | 1201071845 | 20-APR-2006 21:36 | DONE | 140 | -0.22 | percent | 241 | 0 | -700 | 1180 | 20.0 | 470 |

Thorium-230 LCS: Limits LCL = 75 UCL = 125

| Batch ID | Samp ID | Run Date | Status | Value | Deviation | Units | Mean | LCL | LWL | UWL | UCL | Stdev |
|----------|------------|-------------------|--------|-------|-----------|---------|------|------|------|-----|-----|-------|
| 394997 | 1200773390 | 19-JAN-2005 19:21 | DONE | 85 | -2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 396381 | 1200776551 | 25-JAN-2005 17:25 | DONE | 89 | -1 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 421139 | 1200835683 | 05-MAY-2005 13:31 | DONE | 84 | -2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 423378 | 1200841265 | 10-MAY-2005 17:51 | DONE | 75 | -3.0 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 430938 | 1200859789 | 09-JUN-2005 13:47 | DONE | 90 | -1 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 438579 | 1200878052 | 02-JUL-2005 21:23 | DONE | 84 | -2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 450934 | 1200907752 | 12-AUG-2005 03:24 | DONE | 93 | -0.86 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 456441 | 1200920836 | 30-AUG-2005 17:32 | DONE | 89 | -1 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 457053 | 1200922083 | 09-SEP-2005 14:49 | DONE | 90 | -1 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 465256 | 1200942286 | 26-SEP-2005 15:33 | DONE | 83 | -2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 468593 | 1200949998 | 08-OCT-2005 11:20 | DONE | 79 | -2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 471081 | 1200955896 | 17-OCT-2005 21:18 | DONE | 84 | -2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 478002 | 1200972583 | 10-NOV-2005 02:16 | DONE | 75 | -3.0 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 486414 | 1200993009 | 14-DEC-2005 08:11 | DONE | 76 | -3 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 490270 | 1201001730 | 29-DEC-2005 14:39 | DONE | 81 | -2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 492212 | 1201006211 | 13-JAN-2006 08:17 | DONE | 87 | -2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 505245 | 1201036055 | 22-FEB-2006 23:48 | DONE | 119 | 2.3 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 509582 | 1201046246 | 08-MAR-2006 08:59 | DONE | 84 | -2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 511062 | 1201049581 | 14-MAR-2006 17:18 | DONE | 108 | 0.96 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 517136 | 1201062874 | 05-APR-2006 21:54 | DONE | 98 | -0.23 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 517718 | 1201064218 | 08-APR-2006 08:43 | DONE | 84 | -2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 518887 | 1201066851 | 12-APR-2006 19:25 | DONE | 93 | -0.89 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 519439 | 1201068034 | 18-APR-2006 12:58 | DONE | 110 | 1.2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 520797 | 1201071139 | 19-APR-2006 14:45 | DONE | 106 | 0.72 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 520798 | 1201071143 | 20-APR-2006 07:49 | DONE | 87 | -2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |

Thorium-230 RER: Limits LCL = 0 UCL = 3

| Batch ID | Samp ID | Run Date | Status | Value | Deviation | Units | Mean | LCL | LWL | UWL | UCL | Stdev |
|----------|------------|-------------------|--------|-------|-----------|-------|------|-----|--------|------|------|-------|
| 506015 | 1201037822 | 02-MAR-2006 07:38 | DONE | 0.15 | -1 | num | 1.18 | 0 | -0.394 | 2.76 | 3.00 | 0.79 |
| 504514 | 1201034272 | 02-MAR-2006 12:09 | DONE | 1.65 | 0.6 | num | 1.18 | 0 | -0.394 | 2.76 | 3.00 | 0.79 |
| 507398 | 1201041205 | 03-MAR-2006 22:26 | DONE | 2.43 | 1.6 | num | 1.18 | 0 | -0.394 | 2.76 | 3.00 | 0.79 |
| 507079 | 1201040313 | 04-MAR-2006 21:34 | DONE | 0.42 | -0.97 | num | 1.18 | 0 | -0.394 | 2.76 | 3.00 | 0.79 |
| 506064 | 1201037941 | 06-MAR-2006 08:00 | DONE | 2.88 | 2.2 | num | 1.18 | 0 | -0.394 | 2.76 | 3.00 | 0.79 |
| 508121 | 1201042934 | 06-MAR-2006 16:33 | DONE | 1.71 | 0.66 | num | 1.18 | 0 | -0.394 | 2.76 | 3.00 | 0.79 |
| 506047 | 1201037915 | 07-MAR-2006 01:33 | DONE | 0.93 | -0.32 | num | 1.18 | 0 | -0.394 | 2.76 | 3.00 | 0.79 |
| 507094 | 1201040359 | 07-MAR-2006 01:33 | DONE | 0.51 | -0.85 | num | 1.18 | 0 | -0.394 | 2.76 | 3.00 | 0.79 |

| | | | | | | | | | | | | |
|--------|------------|-------------------|------|------|-------|-----|------|---|--------|------|------|------|
| 507087 | 1201040341 | 07-MAR-2006 14:56 | DONE | 0.76 | -0.54 | num | 1.18 | 0 | -0.394 | 2.76 | 3.00 | 0.79 |
| 507401 | 1201041213 | 07-MAR-2006 23:35 | DONE | 0.47 | -0.91 | num | 1.18 | 0 | -0.394 | 2.76 | 3.00 | 0.79 |
| 509582 | 1201046245 | 08-MAR-2006 08:59 | DONE | 1.97 | 0.99 | num | 1.18 | 0 | -0.394 | 2.76 | 3.00 | 0.79 |
| 509840 | 1201046801 | 10-MAR-2006 11:48 | DONE | 1.14 | -0.06 | num | 1.18 | 0 | -0.394 | 2.76 | 3.00 | 0.79 |
| 509118 | 1201045259 | 11-MAR-2006 09:34 | DONE | 1.35 | 0.21 | num | 1.18 | 0 | -0.394 | 2.76 | 3.00 | 0.79 |
| 511062 | 1201049579 | 14-MAR-2006 17:18 | DONE | 1.45 | 0.34 | num | 1.18 | 0 | -0.394 | 2.76 | 3.00 | 0.79 |
| 509796 | 1201046676 | 14-MAR-2006 17:43 | DONE | 0.64 | -0.69 | num | 1.18 | 0 | -0.394 | 2.76 | 3.00 | 0.79 |
| 510660 | 1201048676 | 15-MAR-2006 10:56 | DONE | 1.4 | 0.27 | num | 1.18 | 0 | -0.394 | 2.76 | 3.00 | 0.79 |
| 511207 | 1201049871 | 18-MAR-2006 12:05 | DUSE | 0.22 | -1 | num | 1.18 | 0 | -0.394 | 2.76 | 3.00 | 0.79 |
| 512010 | 1201051736 | 22-MAR-2006 20:59 | DONE | 0.01 | -1 | num | 1.18 | 0 | -0.394 | 2.76 | 3.00 | 0.79 |
| 511986 | 1201051679 | 23-MAR-2006 08:32 | DUSE | 1.55 | 0.46 | num | 1.18 | 0 | -0.394 | 2.76 | 3.00 | 0.79 |
| 512003 | 1201051719 | 24-MAR-2006 08:00 | DONE | 1.1 | -0.1 | num | 1.18 | 0 | -0.394 | 2.76 | 3.00 | 0.79 |
| 512008 | 1201051728 | 27-MAR-2006 18:58 | DUSE | 0.44 | -0.94 | num | 1.18 | 0 | -0.394 | 2.76 | 3.00 | 0.79 |
| 512781 | 1201053533 | 28-MAR-2006 07:34 | DONE | 2.84 | 2.1 | num | 1.18 | 0 | -0.394 | 2.76 | 3.00 | 0.79 |
| 511549 | 1201050714 | 28-MAR-2006 11:48 | DONE | 1.5 | 0.41 | num | 1.18 | 0 | -0.394 | 2.76 | 3.00 | 0.79 |
| 515678 | 1201059767 | 29-MAR-2006 10:23 | DONE | 1.12 | -0.08 | num | 1.18 | 0 | -0.394 | 2.76 | 3.00 | 0.79 |
| 514263 | 1201056524 | 29-MAR-2006 22:27 | DUSE | 0.24 | -1 | num | 1.18 | 0 | -0.394 | 2.76 | 3.00 | 0.79 |
| 515544 | 1201059407 | 01-APR-2006 09:22 | DONE | 1.8 | 0.78 | num | 1.18 | 0 | -0.394 | 2.76 | 3.00 | 0.79 |
| 515266 | 1201058729 | 01-APR-2006 11:30 | DUSE | 2.28 | 1.4 | num | 1.18 | 0 | -0.394 | 2.76 | 3.00 | 0.79 |
| 517718 | 1201064216 | 06-APR-2006 13:23 | DONE | 2.3 | 1.4 | num | 1.18 | 0 | -0.394 | 2.76 | 3.00 | 0.79 |
| 517136 | 1201062872 | 07-APR-2006 07:28 | DONE | 1.59 | 0.52 | num | 1.18 | 0 | -0.394 | 2.76 | 3.00 | 0.79 |
| 518887 | 1201066849 | 12-APR-2006 19:27 | DONE | 0.16 | -1 | num | 1.18 | 0 | -0.394 | 2.76 | 3.00 | 0.79 |
| 519427 | 1201067982 | 14-APR-2006 14:34 | DONE | 0.29 | -1 | num | 1.18 | 0 | -0.394 | 2.76 | 3.00 | 0.79 |
| 518909 | 1201066926 | 16-APR-2006 08:06 | DONE | 0.4 | -0.99 | num | 1.18 | 0 | -0.394 | 2.76 | 3.00 | 0.79 |
| 519439 | 1201068032 | 18-APR-2006 12:58 | DONE | 1.69 | 0.65 | num | 1.18 | 0 | -0.394 | 2.76 | 3.00 | 0.79 |
| 520797 | 1201071137 | 19-APR-2006 14:45 | DONE | 2.17 | 1.3 | num | 1.18 | 0 | -0.394 | 2.76 | 3.00 | 0.79 |
| 521038 | 1201071720 | 19-APR-2006 14:47 | DONE | 1.05 | -0.17 | num | 1.18 | 0 | -0.394 | 2.76 | 3.00 | 0.79 |
| 520798 | 1201071141 | 20-APR-2006 07:49 | DONE | 1.13 | -0.07 | num | 1.18 | 0 | -0.394 | 2.76 | 3.00 | 0.79 |
| 521959 | 1201074155 | 20-APR-2006 21:36 | DONE | 0.41 | -0.98 | num | 1.18 | 0 | -0.394 | 2.76 | 3.00 | 0.79 |
| 521959 | 1201074064 | 20-APR-2006 21:36 | DONE | 0.42 | -0.97 | num | 1.18 | 0 | -0.394 | 2.76 | 3.00 | 0.79 |
| 521075 | 1201071845 | 20-APR-2006 21:36 | DONE | 1.59 | 0.52 | num | 1.18 | 0 | -0.394 | 2.76 | 3.00 | 0.79 |

Thorium-230 SPIKE: Limits LCL = 75 UCL = 125

| Batch ID | Samp ID | Run Date | Status | Value | Deviation | Units | Mean | LCL | LWL | UWL | UCL | Stdev |
|----------|------------|-------------------|--------|-------|-----------|---------|------|------|------|-----|-----|-------|
| 394997 | 1200773389 | 19-JAN-2005 19:21 | DONE | 86 | -2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 396381 | 1200776550 | 25-JAN-2005 22:09 | DONE | 85 | -2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 421139 | 1200835681 | 04-MAY-2005 20:43 | DONE | 81 | -2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 423378 | 1200841264 | 10-MAY-2005 17:51 | DONE | 76 | -3 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 430938 | 1200859788 | 09-JUN-2005 13:47 | DONE | 90 | -1 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 438579 | 1200878051 | 02-JUL-2005 21:23 | DONE | 84 | -2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 450934 | 1200907751 | 12-AUG-2005 03:24 | DONE | 84 | -2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 456441 | 1200920835 | 30-AUG-2005 17:32 | DONE | 88 | -1 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 457053 | 1200922082 | 09-SEP-2005 14:49 | DONE | 105 | 0.6 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 465256 | 1200942285 | 26-SEP-2005 15:33 | DONE | 85 | -2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 468593 | 1200949997 | 12-OCT-2005 08:29 | DONE | 88 | -1 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 471081 | 1200955895 | 17-OCT-2005 21:18 | DONE | 92 | -0.94 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 478002 | 1200972582 | 08-NOV-2005 08:03 | DONE | 76 | -3 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 486414 | 1200993008 | 14-DEC-2005 08:11 | DONE | 78 | -3 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 490270 | 1201001729 | 29-DEC-2005 14:39 | DONE | 81 | -2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 492212 | 1201006210 | 13-JAN-2006 08:17 | DONE | 89 | -1 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |

| | | | | | | | | | | | | |
|--------|------------|-------------------|------|-----|-------|---------|-----|------|------|-----|-----|------|
| 505245 | 1201036054 | 22-FEB-2006 23:48 | DONE | 89 | -1 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 511062 | 1201049580 | 14-MAR-2006 17:18 | DONE | 96 | -0.49 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 517136 | 1201062873 | 05-APR-2006 21:54 | DONE | 107 | 0.84 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 517718 | 1201064217 | 08-APR-2006 08:43 | DONE | 88 | -1 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 518887 | 1201066850 | 12-APR-2006 19:27 | DONE | 83 | -2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 519439 | 1201068033 | 18-APR-2006 12:58 | DONE | 90 | -1 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 520797 | 1201071138 | 19-APR-2006 14:45 | DONE | 108 | 0.96 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 520798 | 1201071142 | 20-APR-2006 07:49 | DONE | 109 | 1.1 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 521075 | 1201071846 | 20-APR-2006 21:36 | DONE | 74 | -3 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |

Thorium-232 BLANK: Limits LCL = -.2 UCL = .3

| Batch ID | Samp ID | Run Date | Status | Value | Deviation | Units | Mean | LCL | LWL | UWL | UCL | Stdev |
|----------|------------|-------------------|--------|-------|-----------|-------|------|--------|--------|------|------|-------|
| 504484 | 1201034197 | 01-MAR-2006 16:22 | DUSE | 0 | 4.8 | pCi/L | 0.02 | -0.228 | -0.147 | 0.18 | 0.26 | 0.08 |
| 506015 | 1201037821 | 02-MAR-2006 07:38 | DONE | 0 | -0.26 | pCi/L | 0.02 | -0.228 | -0.147 | 0.18 | 0.26 | 0.08 |
| 504514 | 1201034271 | 02-MAR-2006 12:09 | DONE | 0 | -0.36 | pCi/L | 0.02 | -0.228 | -0.147 | 0.18 | 0.26 | 0.08 |
| 507079 | 1201040312 | 04-MAR-2006 21:34 | DONE | 0 | 0.36 | pCi/L | 0.02 | -0.228 | -0.147 | 0.18 | 0.26 | 0.08 |
| 506064 | 1201037940 | 06-MAR-2006 08:00 | DONE | 0 | -0.49 | pCi/L | 0.02 | -0.228 | -0.147 | 0.18 | 0.26 | 0.08 |
| 508121 | 1201042933 | 06-MAR-2006 16:33 | DONE | 0 | -0.19 | pCi/L | 0.02 | -0.228 | -0.147 | 0.18 | 0.26 | 0.08 |
| 507094 | 1201040358 | 07-MAR-2006 01:33 | DONE | 0 | -0.28 | pCi/L | 0.02 | -0.228 | -0.147 | 0.18 | 0.26 | 0.08 |
| 506047 | 1201037914 | 07-MAR-2006 10:21 | DONE | 0 | 0.08 | pCi/L | 0.02 | -0.228 | -0.147 | 0.18 | 0.26 | 0.08 |
| 507087 | 1201040340 | 07-MAR-2006 14:56 | DONE | 0 | -0.11 | pCi/L | 0.02 | -0.228 | -0.147 | 0.18 | 0.26 | 0.08 |
| 507398 | 1201041204 | 07-MAR-2006 23:35 | DONE | 0 | -0.19 | pCi/L | 0.02 | -0.228 | -0.147 | 0.18 | 0.26 | 0.08 |
| 507401 | 1201041212 | 07-MAR-2006 23:35 | DONE | 0 | -0.19 | pCi/L | 0.02 | -0.228 | -0.147 | 0.18 | 0.26 | 0.08 |
| 509582 | 1201046244 | 08-MAR-2006 08:59 | DONE | 0 | 0.37 | pCi/L | 0.02 | -0.228 | -0.147 | 0.18 | 0.26 | 0.08 |
| 509840 | 1201046800 | 10-MAR-2006 11:48 | DONE | 0 | -0.36 | pCi/L | 0.02 | -0.228 | -0.147 | 0.18 | 0.26 | 0.08 |
| 509118 | 1201045258 | 11-MAR-2006 09:34 | DONE | 0 | 0.22 | pCi/L | 0.02 | -0.228 | -0.147 | 0.18 | 0.26 | 0.08 |
| 511062 | 1201049578 | 14-MAR-2006 17:18 | DUSE | 0 | -0.19 | pCi/L | 0.02 | -0.228 | -0.147 | 0.18 | 0.26 | 0.08 |
| 509796 | 1201046675 | 14-MAR-2006 17:43 | DONE | 0 | -0.25 | pCi/L | 0.02 | -0.228 | -0.147 | 0.18 | 0.26 | 0.08 |
| 510660 | 1201048675 | 15-MAR-2006 10:56 | DONE | 0 | 0.02 | pCi/L | 0.02 | -0.228 | -0.147 | 0.18 | 0.26 | 0.08 |
| 511207 | 1201049870 | 18-MAR-2006 12:05 | DONE | 0 | -0.19 | pCi/L | 0.02 | -0.228 | -0.147 | 0.18 | 0.26 | 0.08 |
| 512010 | 1201051735 | 22-MAR-2006 20:59 | DONE | 0 | -0.25 | pCi/L | 0.02 | -0.228 | -0.147 | 0.18 | 0.26 | 0.08 |
| 511986 | 1201051678 | 23-MAR-2006 08:32 | DONE | 0 | 0.22 | pCi/L | 0.02 | -0.228 | -0.147 | 0.18 | 0.26 | 0.08 |
| 512003 | 1201051718 | 25-MAR-2006 10:35 | DONE | 0 | -0.19 | pCi/L | 0.02 | -0.228 | -0.147 | 0.18 | 0.26 | 0.08 |
| 512008 | 1201051727 | 27-MAR-2006 09:42 | DUSE | 0 | -0.19 | pCi/L | 0.02 | -0.228 | -0.147 | 0.18 | 0.26 | 0.08 |
| 512781 | 1201053532 | 28-MAR-2006 07:34 | DONE | 0 | 0.35 | pCi/L | 0.02 | -0.228 | -0.147 | 0.18 | 0.26 | 0.08 |
| 511549 | 1201050713 | 29-MAR-2006 08:24 | DONE | 0 | 1.7 | pCi/L | 0.02 | -0.228 | -0.147 | 0.18 | 0.26 | 0.08 |
| 515678 | 1201059766 | 29-MAR-2006 10:23 | DONE | 0 | -0.19 | pCi/L | 0.02 | -0.228 | -0.147 | 0.18 | 0.26 | 0.08 |
| 514263 | 1201056523 | 29-MAR-2006 22:27 | DUSE | 0 | -0.19 | pCi/L | 0.02 | -0.228 | -0.147 | 0.18 | 0.26 | 0.08 |
| 515544 | 1201059406 | 01-APR-2006 09:22 | DONE | 0 | -0.3 | pCi/L | 0.02 | -0.228 | -0.147 | 0.18 | 0.26 | 0.08 |
| 515266 | 1201058728 | 03-APR-2006 16:59 | DONE | 0 | -3 | pCi/L | 0.02 | -0.228 | -0.147 | 0.18 | 0.26 | 0.08 |
| 517136 | 1201062871 | 05-APR-2006 21:54 | DUSE | 0 | -0.26 | pCi/L | 0.02 | -0.228 | -0.147 | 0.18 | 0.26 | 0.08 |
| 517718 | 1201064215 | 06-APR-2006 13:23 | DONE | 0 | 0.38 | pCi/L | 0.02 | -0.228 | -0.147 | 0.18 | 0.26 | 0.08 |
| 517716 | 1201064208 | 12-APR-2006 12:14 | DONE | 0 | -0.06 | pCi/L | 0.02 | -0.228 | -0.147 | 0.18 | 0.26 | 0.08 |
| 518887 | 1201066848 | 12-APR-2006 19:27 | DUSE | 0 | -0.19 | pCi/L | 0.02 | -0.228 | -0.147 | 0.18 | 0.26 | 0.08 |
| 518909 | 1201066925 | 16-APR-2006 08:06 | DONE | 0 | -0.72 | pCi/L | 0.02 | -0.228 | -0.147 | 0.18 | 0.26 | 0.08 |
| 519439 | 1201068031 | 18-APR-2006 12:58 | DUSE | 0 | -0.26 | pCi/L | 0.02 | -0.228 | -0.147 | 0.18 | 0.26 | 0.08 |
| 520797 | 1201071136 | 19-APR-2006 14:45 | DUSE | 0 | -0.05 | pCi/L | 0.02 | -0.228 | -0.147 | 0.18 | 0.26 | 0.08 |
| 521038 | 1201071719 | 19-APR-2006 14:47 | DONE | 0 | -0.44 | pCi/L | 0.02 | -0.228 | -0.147 | 0.18 | 0.26 | 0.08 |
| 520798 | 1201071140 | 20-APR-2006 07:49 | DONE | 0 | -0.48 | pCi/L | 0.02 | -0.228 | -0.147 | 0.18 | 0.26 | 0.08 |
| 519427 | 1201067981 | 20-APR-2006 12:32 | DONE | 0 | 1.2 | pCi/L | 0.02 | -0.228 | -0.147 | 0.18 | 0.26 | 0.08 |

| | | | | | | | | | | | | |
|--------|------------|-------------------|------|---|-------|-------|------|--------|--------|------|------|------|
| 521959 | 1201074063 | 20-APR-2006 21:36 | DONE | 0 | -0.33 | pCi/L | 0.02 | -0.228 | -0.147 | 0.18 | 0.26 | 0.08 |
|--------|------------|-------------------|------|---|-------|-------|------|--------|--------|------|------|------|

Thorium-232 DUP: Limits LCL = 0 UCL = 20

| Batch ID | Samp ID | Run Date | Status | Value | Deviation | Units | Mean | LCL | LWL | UWL | UCL | Stdev |
|----------|------------|-------------------|--------|-------|-----------|---------|------|-----|--------|-------|------|-------|
| 505915 | 1201037583 | 01-MAR-2006 13:35 | DONE | 71 | -0.18 | percent | 2180 | 0 | -22000 | 26300 | 20.0 | 12000 |
| 506015 | 1201037822 | 02-MAR-2006 07:38 | DONE | 126 | -0.17 | percent | 2180 | 0 | -22000 | 26300 | 20.0 | 12000 |
| 504514 | 1201034272 | 02-MAR-2006 12:09 | DONE | 0 | -0.18 | percent | 2180 | 0 | -22000 | 26300 | 20.0 | 12000 |
| 507398 | 1201041205 | 03-MAR-2006 22:26 | DONE | 200 | -0.16 | percent | 2180 | 0 | -22000 | 26300 | 20.0 | 12000 |
| 507079 | 1201040313 | 04-MAR-2006 21:34 | DONE | 24 | -0.18 | percent | 2180 | 0 | -22000 | 26300 | 20.0 | 12000 |
| 506064 | 1201037941 | 06-MAR-2006 08:00 | DONE | 153 | -0.17 | percent | 2180 | 0 | -22000 | 26300 | 20.0 | 12000 |
| 508121 | 1201042934 | 06-MAR-2006 16:33 | DONE | 484 | -0.14 | percent | 2180 | 0 | -22000 | 26300 | 20.0 | 12000 |
| 506047 | 1201037915 | 07-MAR-2006 01:33 | DONE | 156 | -0.17 | percent | 2180 | 0 | -22000 | 26300 | 20.0 | 12000 |
| 507094 | 1201040359 | 07-MAR-2006 01:33 | DONE | 58 | -0.18 | percent | 2180 | 0 | -22000 | 26300 | 20.0 | 12000 |
| 507087 | 1201040341 | 07-MAR-2006 14:56 | DONE | 200 | -0.16 | percent | 2180 | 0 | -22000 | 26300 | 20.0 | 12000 |
| 507401 | 1201041213 | 07-MAR-2006 23:35 | DONE | 44 | -0.18 | percent | 2180 | 0 | -22000 | 26300 | 20.0 | 12000 |
| 509582 | 1201046245 | 08-MAR-2006 08:59 | DONE | 91 | -0.17 | percent | 2180 | 0 | -22000 | 26300 | 20.0 | 12000 |
| 509840 | 1201046801 | 10-MAR-2006 11:48 | DONE | 1 | -0.18 | percent | 2180 | 0 | -22000 | 26300 | 20.0 | 12000 |
| 509118 | 1201045259 | 11-MAR-2006 09:34 | DONE | 37 | -0.18 | percent | 2180 | 0 | -22000 | 26300 | 20.0 | 12000 |
| 511062 | 1201049579 | 14-MAR-2006 17:18 | DUSE | 184 | -0.17 | percent | 2180 | 0 | -22000 | 26300 | 20.0 | 12000 |
| 509796 | 1201046676 | 14-MAR-2006 17:43 | DONE | 75 | -0.17 | percent | 2180 | 0 | -22000 | 26300 | 20.0 | 12000 |
| 510660 | 1201048676 | 15-MAR-2006 10:56 | DONE | 56 | -0.18 | percent | 2180 | 0 | -22000 | 26300 | 20.0 | 12000 |
| 511207 | 1201049871 | 18-MAR-2006 12:05 | DONE | 58 | -0.18 | percent | 2180 | 0 | -22000 | 26300 | 20.0 | 12000 |
| 512010 | 1201051736 | 22-MAR-2006 20:59 | DONE | 49 | -0.18 | percent | 2180 | 0 | -22000 | 26300 | 20.0 | 12000 |
| 511986 | 1201051679 | 23-MAR-2006 08:32 | DONE | 12 | -0.18 | percent | 2180 | 0 | -22000 | 26300 | 20.0 | 12000 |
| 512003 | 1201051719 | 24-MAR-2006 08:00 | DONE | 486 | -0.14 | percent | 2180 | 0 | -22000 | 26300 | 20.0 | 12000 |
| 512008 | 1201051728 | 27-MAR-2006 18:58 | DUSE | 22 | -0.18 | percent | 2180 | 0 | -22000 | 26300 | 20.0 | 12000 |
| 512781 | 1201053533 | 28-MAR-2006 07:34 | DONE | 282 | -0.16 | percent | 2180 | 0 | -22000 | 26300 | 20.0 | 12000 |
| 511549 | 1201050714 | 28-MAR-2006 11:48 | DONE | 70 | -0.18 | percent | 2180 | 0 | -22000 | 26300 | 20.0 | 12000 |
| 515678 | 1201059767 | 29-MAR-2006 10:23 | DONE | 72 | -0.18 | percent | 2180 | 0 | -22000 | 26300 | 20.0 | 12000 |
| 514263 | 1201056524 | 29-MAR-2006 22:27 | DUSE | 1828 | -0.03 | percent | 2180 | 0 | -22000 | 26300 | 20.0 | 12000 |
| 515544 | 1201059407 | 01-APR-2006 09:22 | DONE | 193 | -0.17 | percent | 2180 | 0 | -22000 | 26300 | 20.0 | 12000 |
| 515266 | 1201058729 | 01-APR-2006 11:30 | DONE | 41 | -0.18 | percent | 2180 | 0 | -22000 | 26300 | 20.0 | 12000 |
| 517718 | 1201064216 | 06-APR-2006 13:23 | DONE | 200 | -0.16 | percent | 2180 | 0 | -22000 | 26300 | 20.0 | 12000 |
| 517136 | 1201062872 | 07-APR-2006 07:28 | DUSE | 75400 | 6.1 | percent | 2180 | 0 | -22000 | 26300 | 20.0 | 12000 |
| 518887 | 1201066849 | 12-APR-2006 19:27 | DUSE | 116 | -0.17 | percent | 2180 | 0 | -22000 | 26300 | 20.0 | 12000 |
| 519427 | 1201067982 | 14-APR-2006 14:34 | DONE | 13 | -0.18 | percent | 2180 | 0 | -22000 | 26300 | 20.0 | 12000 |
| 519439 | 1201068032 | 18-APR-2006 12:58 | DUSE | 12 | -0.18 | percent | 2180 | 0 | -22000 | 26300 | 20.0 | 12000 |
| 520797 | 1201071137 | 19-APR-2006 14:45 | DUSE | 3 | -0.18 | percent | 2180 | 0 | -22000 | 26300 | 20.0 | 12000 |
| 521038 | 1201071720 | 19-APR-2006 14:47 | DONE | 684 | -0.12 | percent | 2180 | 0 | -22000 | 26300 | 20.0 | 12000 |
| 520798 | 1201071141 | 20-APR-2006 07:49 | DONE | 64 | -0.18 | percent | 2180 | 0 | -22000 | 26300 | 20.0 | 12000 |
| 521959 | 1201074064 | 20-APR-2006 21:36 | DONE | 212 | -0.16 | percent | 2180 | 0 | -22000 | 26300 | 20.0 | 12000 |
| 521959 | 1201074155 | 20-APR-2006 21:36 | DONE | 112 | -0.17 | percent | 2180 | 0 | -22000 | 26300 | 20.0 | 12000 |
| 521075 | 1201071845 | 20-APR-2006 21:36 | DUSE | 3168 | 0.08 | percent | 2180 | 0 | -22000 | 26300 | 20.0 | 12000 |

Thorium-232 LCS: Limits LCL = 75 UCL = 125

| Batch ID | Samp ID | Run Date | Status | Value | Deviation | Units | Mean | LCL | LWL | UWL | UCL | Stdev |
|----------|------------|-------------------|--------|-------|-----------|---------|------|------|------|-----|-----|-------|
| 506508 | 1201038991 | 25-FEB-2006 18:04 | DONE | 107 | 0.84 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 502229 | 1201029181 | 25-FEB-2006 18:05 | DONE | 104 | 0.48 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 505996 | 1201037774 | 25-FEB-2006 18:05 | DONE | 99 | -0.11 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 505996 | 1201037775 | 25-FEB-2006 18:05 | DONE | 90 | -1 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |

| | | | | | | | | | | | | |
|--------|------------|-------------------|------|-----|-------|---------|-----|------|------|-----|-----|------|
| 506001 | 1201037788 | 27-FEB-2006 08:26 | DONE | 80 | -2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 506001 | 1201037789 | 27-FEB-2006 08:26 | DONE | 108 | 0.96 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 504486 | 1201034206 | 28-FEB-2006 15:46 | DONE | 93 | -0.79 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 504484 | 1201034200 | 28-FEB-2006 15:47 | DUSE | 124 | 2.9 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 507036 | 1201040184 | 01-MAR-2006 20:40 | DONE | 116 | 1.9 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 506015 | 1201037823 | 02-MAR-2006 07:38 | DONE | 98 | -0.26 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 504514 | 1201034273 | 02-MAR-2006 12:09 | DONE | 122 | 2.6 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 507398 | 1201041207 | 04-MAR-2006 12:45 | DONE | 109 | 1.1 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 508121 | 1201042936 | 04-MAR-2006 13:40 | DONE | 102 | 0.24 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 507079 | 1201040315 | 05-MAR-2006 08:42 | DONE | 86 | -2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 506064 | 1201037942 | 06-MAR-2006 08:00 | DONE | 91 | -1 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 506047 | 1201037916 | 07-MAR-2006 01:33 | DONE | 116 | 1.9 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 507094 | 1201040360 | 07-MAR-2006 01:33 | DONE | 85 | -2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 507087 | 1201040342 | 07-MAR-2006 14:56 | DONE | 78 | -3 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 507401 | 1201041215 | 07-MAR-2006 23:35 | DONE | 98 | -0.29 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 509118 | 1201045261 | 11-MAR-2006 09:34 | DONE | 89 | -1 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 509840 | 1201046803 | 11-MAR-2006 14:29 | DONE | 101 | 0.15 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 509796 | 1201046678 | 15-MAR-2006 12:44 | DONE | 99 | -0.12 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 510660 | 1201048677 | 16-MAR-2006 10:10 | DONE | 108 | 0.96 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 511207 | 1201049873 | 18-MAR-2006 12:05 | DONE | 96 | -0.43 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 511549 | 1201050716 | 20-MAR-2006 07:43 | DONE | 92 | -1 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 511986 | 1201051681 | 23-MAR-2006 08:32 | DONE | 123 | 2.8 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 512003 | 1201051721 | 24-MAR-2006 07:55 | DONE | 92 | -0.97 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 512010 | 1201051738 | 24-MAR-2006 08:00 | DONE | 91 | -1 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 512008 | 1201051730 | 27-MAR-2006 09:42 | DUSE | 103 | 0.36 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 512781 | 1201053535 | 28-MAR-2006 07:34 | DONE | 111 | 1.3 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 515678 | 1201059769 | 29-MAR-2006 10:23 | DONE | 94 | -0.76 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 515266 | 1201058731 | 01-APR-2006 11:31 | DONE | 94 | -0.72 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 515544 | 1201059409 | 01-APR-2006 11:47 | DONE | 120 | 2.4 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 517716 | 1201064210 | 12-APR-2006 12:14 | DONE | 109 | 1.1 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 517716 | 1201064211 | 12-APR-2006 12:14 | DONE | 110 | 1.2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 519427 | 1201067984 | 14-APR-2006 14:35 | DONE | 97 | -0.36 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 518909 | 1201066927 | 16-APR-2006 08:06 | DONE | 88 | -1 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 521038 | 1201071722 | 19-APR-2006 14:47 | DONE | 119 | 2.3 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 521959 | 1201074066 | 20-APR-2006 21:36 | DONE | 89 | -1 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |

Thorium-232 RER: Limits LCL = 0 UCL = 3

| Batch ID | Samp ID | Run Date | Status | Value | Deviation | Units | Mean | LCL | LWL | UWL | UCL | Stdev |
|----------|------------|-------------------|--------|-------|-----------|-------|------|-----|--------|------|------|-------|
| 506015 | 1201037822 | 02-MAR-2006 07:38 | DONE | 0.66 | 00 | num | 0.66 | 0 | -0.383 | 1.69 | 3.00 | 0.52 |
| 504514 | 1201034272 | 02-MAR-2006 12:09 | DONE | 0 | -1 | num | 0.66 | 0 | -0.383 | 1.69 | 3.00 | 0.52 |
| 507398 | 1201041205 | 03-MAR-2006 22:26 | DONE | 0.92 | 0.5 | num | 0.66 | 0 | -0.383 | 1.69 | 3.00 | 0.52 |
| 507079 | 1201040313 | 04-MAR-2006 21:34 | DONE | 0.24 | -0.81 | num | 0.66 | 0 | -0.383 | 1.69 | 3.00 | 0.52 |
| 506064 | 1201037941 | 06-MAR-2006 08:00 | DONE | 1.52 | 1.7 | num | 0.66 | 0 | -0.383 | 1.69 | 3.00 | 0.52 |
| 508121 | 1201042934 | 06-MAR-2006 16:33 | DONE | 1.3 | 1.2 | num | 0.66 | 0 | -0.383 | 1.69 | 3.00 | 0.52 |
| 506047 | 1201037915 | 07-MAR-2006 01:33 | DONE | 0.68 | 0.04 | num | 0.66 | 0 | -0.383 | 1.69 | 3.00 | 0.52 |
| 507094 | 1201040359 | 07-MAR-2006 01:33 | DONE | 0.39 | -0.51 | num | 0.66 | 0 | -0.383 | 1.69 | 3.00 | 0.52 |
| 507087 | 1201040341 | 07-MAR-2006 14:56 | DONE | 0.16 | -0.96 | num | 0.66 | 0 | -0.383 | 1.69 | 3.00 | 0.52 |
| 507401 | 1201041213 | 07-MAR-2006 23:35 | DONE | 1.21 | 1.1 | num | 0.66 | 0 | -0.383 | 1.69 | 3.00 | 0.52 |
| 509582 | 1201046245 | 08-MAR-2006 08:59 | DONE | 0.64 | -0.02 | num | 0.66 | 0 | -0.383 | 1.69 | 3.00 | 0.52 |
| 509840 | 1201046801 | 10-MAR-2006 11:48 | DONE | 00 | -1 | num | 0.66 | 0 | -0.383 | 1.69 | 3.00 | 0.52 |

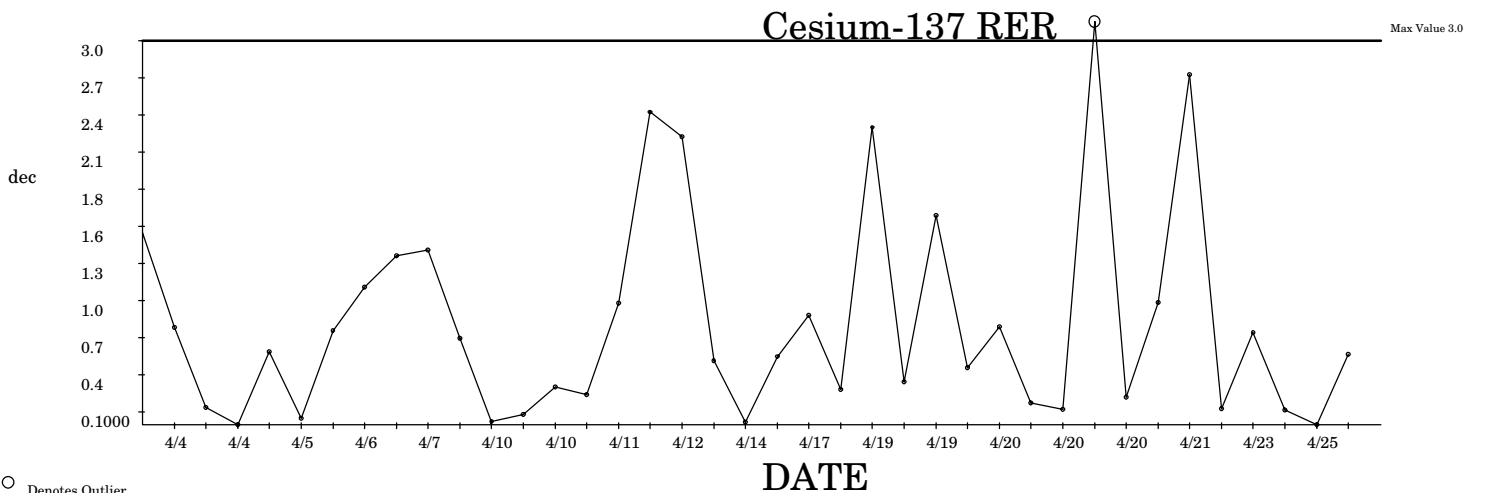
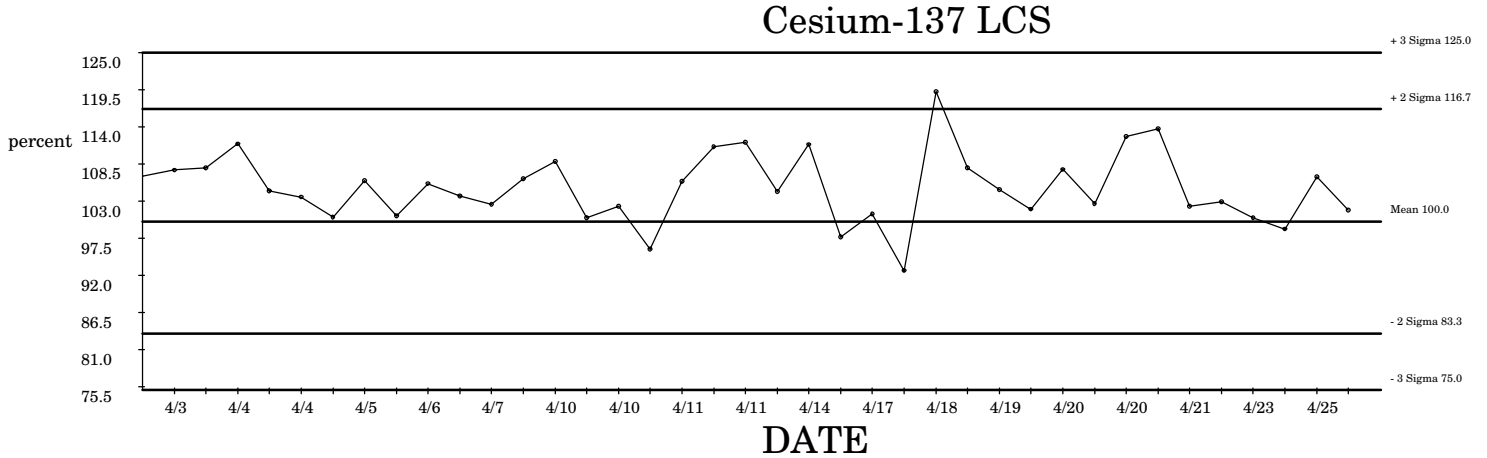
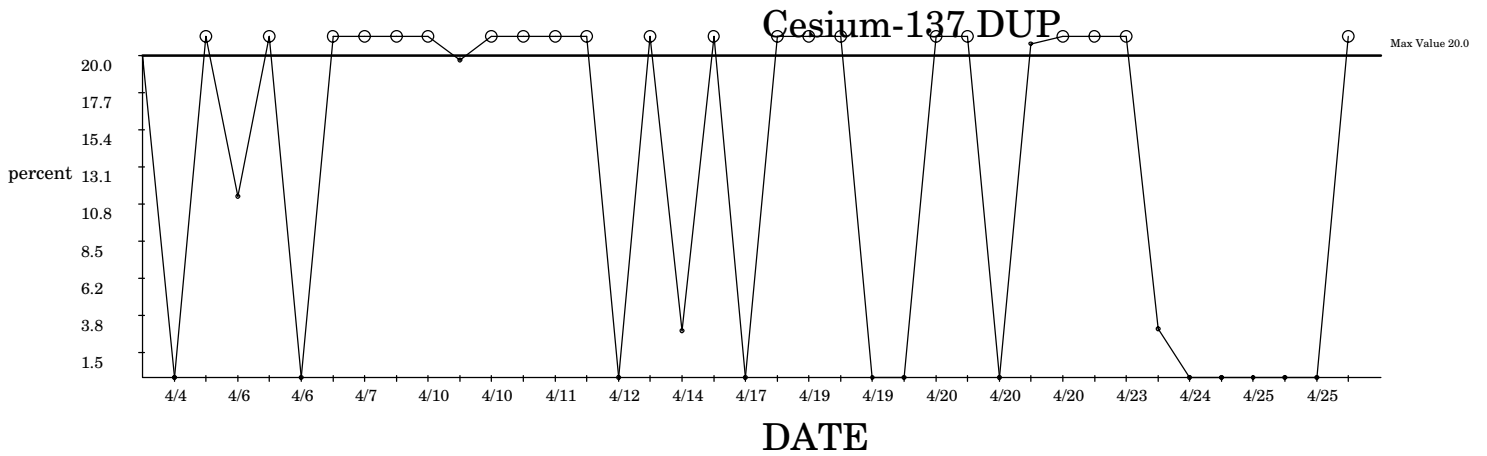
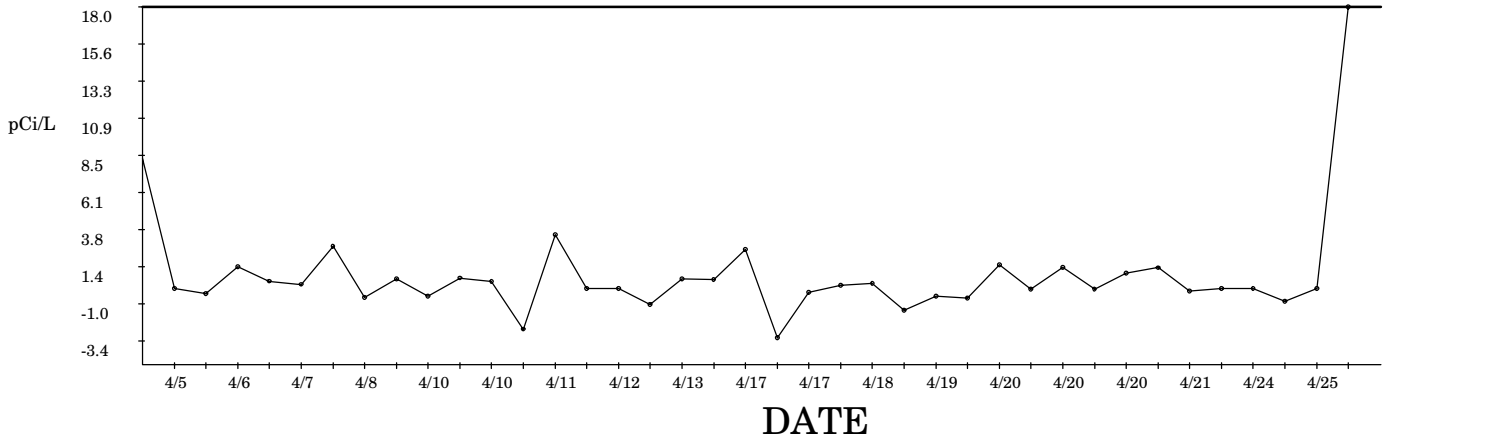
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|--------|------------|-------------------|------|------|-------|-----|------|---|--------|------|------|------|
| 509118 | 1201045259 | 11-MAR-2006 09:34 | DONE | 0.26 | -0.76 | num | 0.66 | 0 | -0.383 | 1.69 | 3.00 | 0.52 |
| 511062 | 1201049579 | 14-MAR-2006 17:18 | DUSE | 0.15 | -0.97 | num | 0.66 | 0 | -0.383 | 1.69 | 3.00 | 0.52 |
| 509796 | 1201046676 | 14-MAR-2006 17:43 | DONE | 0.75 | 0.18 | num | 0.66 | 0 | -0.383 | 1.69 | 3.00 | 0.52 |
| 510660 | 1201048676 | 15-MAR-2006 10:56 | DONE | 0.45 | -0.39 | num | 0.66 | 0 | -0.383 | 1.69 | 3.00 | 0.52 |
| 511207 | 1201049871 | 18-MAR-2006 12:05 | DONE | 0.49 | -0.33 | num | 0.66 | 0 | -0.383 | 1.69 | 3.00 | 0.52 |
| 512010 | 1201051736 | 22-MAR-2006 20:59 | DONE | 0.61 | -0.09 | num | 0.66 | 0 | -0.383 | 1.69 | 3.00 | 0.52 |
| 511986 | 1201051679 | 23-MAR-2006 08:32 | DONE | 0.21 | -0.86 | num | 0.66 | 0 | -0.383 | 1.69 | 3.00 | 0.52 |
| 512003 | 1201051719 | 24-MAR-2006 08:00 | DONE | 1.22 | 1.1 | num | 0.66 | 0 | -0.383 | 1.69 | 3.00 | 0.52 |
| 512008 | 1201051728 | 27-MAR-2006 18:58 | DUSE | 0.33 | -0.63 | num | 0.66 | 0 | -0.383 | 1.69 | 3.00 | 0.52 |
| 512781 | 1201053533 | 28-MAR-2006 07:34 | DONE | 1.92 | 2.4 | num | 0.66 | 0 | -0.383 | 1.69 | 3.00 | 0.52 |
| 511549 | 1201050714 | 28-MAR-2006 11:48 | DONE | 0.6 | -0.11 | num | 0.66 | 0 | -0.383 | 1.69 | 3.00 | 0.52 |
| 515678 | 1201059767 | 29-MAR-2006 10:23 | DONE | 0.63 | -0.05 | num | 0.66 | 0 | -0.383 | 1.69 | 3.00 | 0.52 |
| 514263 | 1201056524 | 29-MAR-2006 22:27 | DUSE | 0.87 | 0.41 | num | 0.66 | 0 | -0.383 | 1.69 | 3.00 | 0.52 |
| 515544 | 1201059407 | 01-APR-2006 09:22 | DONE | 0.87 | 0.42 | num | 0.66 | 0 | -0.383 | 1.69 | 3.00 | 0.52 |
| 515266 | 1201058729 | 01-APR-2006 11:30 | DONE | 0.28 | -0.71 | num | 0.66 | 0 | -0.383 | 1.69 | 3.00 | 0.52 |
| 517718 | 1201064216 | 06-APR-2006 13:23 | DONE | 0.02 | -1 | num | 0.66 | 0 | -0.383 | 1.69 | 3.00 | 0.52 |
| 517136 | 1201062872 | 07-APR-2006 07:28 | DUSE | 1.97 | 2.5 | num | 0.66 | 0 | -0.383 | 1.69 | 3.00 | 0.52 |
| 518887 | 1201066849 | 12-APR-2006 19:27 | DUSE | 0.87 | 0.42 | num | 0.66 | 0 | -0.383 | 1.69 | 3.00 | 0.52 |
| 519427 | 1201067982 | 14-APR-2006 14:34 | DONE | 0.21 | -0.86 | num | 0.66 | 0 | -0.383 | 1.69 | 3.00 | 0.52 |
| 518909 | 1201066926 | 16-APR-2006 08:06 | DONE | 1.01 | 0.68 | num | 0.66 | 0 | -0.383 | 1.69 | 3.00 | 0.52 |
| 519439 | 1201068032 | 18-APR-2006 12:58 | DUSE | 0.05 | -1 | num | 0.66 | 0 | -0.383 | 1.69 | 3.00 | 0.52 |
| 520797 | 1201071137 | 19-APR-2006 14:45 | DUSE | 0.01 | -1 | num | 0.66 | 0 | -0.383 | 1.69 | 3.00 | 0.52 |
| 521038 | 1201071720 | 19-APR-2006 14:47 | DONE | 1.19 | 1 | num | 0.66 | 0 | -0.383 | 1.69 | 3.00 | 0.52 |
| 520798 | 1201071141 | 20-APR-2006 07:49 | DONE | 0.47 | -0.36 | num | 0.66 | 0 | -0.383 | 1.69 | 3.00 | 0.52 |
| 521959 | 1201074064 | 20-APR-2006 21:36 | DONE | 0.39 | -0.51 | num | 0.66 | 0 | -0.383 | 1.69 | 3.00 | 0.52 |
| 521959 | 1201074155 | 20-APR-2006 21:36 | DONE | 0.52 | -0.27 | num | 0.66 | 0 | -0.383 | 1.69 | 3.00 | 0.52 |
| 521075 | 1201071845 | 20-APR-2006 21:36 | DUSE | 1.51 | 1.6 | num | 0.66 | 0 | -0.383 | 1.69 | 3.00 | 0.52 |

Thorium-232 SPIKE: Limits LCL = 75 UCL = 125

| Batch ID | Samp ID | Run Date | Status | Value | Deviation | Units | Mean | LCL | LWL | UWL | UCL | Stdev |
|----------|------------|-------------------|--------|-------|-----------|---------|------|------|------|-----|-----|-------|
| 491004 | 1201003363 | 09-JAN-2006 18:55 | DONE | 105 | 0.6 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 491923 | 1201005543 | 11-JAN-2006 12:43 | DONE | 85 | -2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 491189 | 1201003738 | 12-JAN-2006 18:04 | DONE | 87 | -2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 494226 | 1201010637 | 16-JAN-2006 16:49 | DONE | 87 | -2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 494966 | 1201012326 | 19-JAN-2006 12:40 | DONE | 114 | 1.7 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 494595 | 1201011443 | 19-JAN-2006 12:40 | DONE | 123 | 2.8 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 495880 | 1201014377 | 21-JAN-2006 10:02 | DONE | 82 | -2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 496372 | 1201015511 | 24-JAN-2006 08:37 | DONE | 104 | 0.48 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 494599 | 1201011459 | 26-JAN-2006 14:49 | DONE | 104 | 0.48 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 497833 | 1201018880 | 28-JAN-2006 13:16 | DONE | 91 | -1 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 498151 | 1201019511 | 04-FEB-2006 07:58 | DONE | 125 | 3 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 497915 | 1201019037 | 04-FEB-2006 12:32 | DONE | 112 | 1.4 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 500802 | 1201025782 | 10-FEB-2006 17:25 | DONE | 105 | 0.6 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 500664 | 1201025410 | 12-FEB-2006 08:45 | DONE | 89 | -1 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 504422 | 1201034010 | 22-FEB-2006 09:56 | DONE | 90 | -1 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 502229 | 1201029180 | 22-FEB-2006 23:48 | DONE | 104 | 0.48 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 505915 | 1201037584 | 25-FEB-2006 18:04 | DONE | 108 | 0.96 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 504484 | 1201034199 | 28-FEB-2006 15:47 | DUSE | 104 | 0.48 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 507398 | 1201041206 | 03-MAR-2006 22:26 | DONE | 105 | 0.6 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 508121 | 1201042935 | 04-MAR-2006 13:40 | DONE | 111 | 1.3 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |

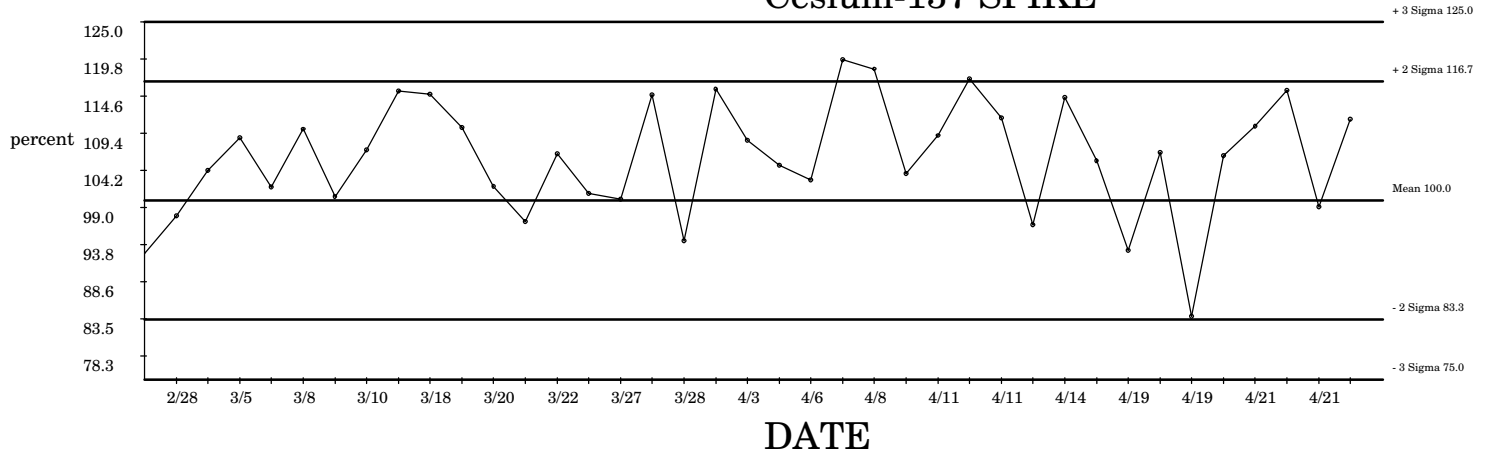
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|--------|------------|-------------------|------|-----|-------|---------|-----|------|------|-----|-----|------|
| 507079 | 1201040314 | 04-MAR-2006 21:34 | DONE | 101 | 0.12 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 507401 | 1201041214 | 07-MAR-2006 23:35 | DONE | 97 | -0.36 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 509840 | 1201046802 | 10-MAR-2006 11:48 | DONE | 116 | 2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 509118 | 1201045260 | 11-MAR-2006 09:34 | DONE | 78 | -3 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 509796 | 1201046677 | 14-MAR-2006 17:43 | DONE | 114 | 1.7 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 511207 | 1201049872 | 18-MAR-2006 12:05 | DONE | 103 | 0.36 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 511549 | 1201050715 | 20-MAR-2006 07:43 | DONE | 116 | 1.9 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 512010 | 1201051737 | 22-MAR-2006 20:59 | DONE | 105 | 0.6 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 511986 | 1201051680 | 23-MAR-2006 08:32 | DONE | 86 | -2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 512003 | 1201051720 | 25-MAR-2006 10:35 | DONE | 95 | -0.61 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 512781 | 1201053534 | 28-MAR-2006 07:34 | DONE | 111 | 1.3 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 515678 | 1201059768 | 29-MAR-2006 10:23 | DONE | 115 | 1.8 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 515544 | 1201059408 | 01-APR-2006 09:22 | DONE | 108 | 0.96 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 515266 | 1201058730 | 01-APR-2006 11:31 | DONE | 96 | -0.52 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 519427 | 1201067983 | 14-APR-2006 14:35 | DONE | 102 | 0.24 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 521038 | 1201071721 | 20-APR-2006 12:32 | DONE | 111 | 1.3 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 521959 | 1201074065 | 20-APR-2006 21:36 | DONE | 97 | -0.35 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 521959 | 1201074157 | 20-APR-2006 21:36 | DONE | 107 | 0.82 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 521959 | 1201074158 | 20-APR-2006 21:36 | DONE | 100 | 00 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |

SPC Graph for Gamma Spec inLiquid 4/25/2006 Cesium-137 BLANK



○ Denotes Outlier

SPC Graph for Gamma Spec inLiquid 4/25/2006 Cesium-137 SPIKE



Data used for Gamma Spec inLiquid 26-APR-2006

Americium-241 LCS: Limits LCL = 75 UCL = 125

| Batch ID | Samp ID | Run Date | Status | Value | Deviation | Units | Mean | LCL | LWL | UWL | UCL | Stdev |
|----------|------------|-------------------|--------|-------|-----------|---------|------|------|------|-----|-----|-------|
| 511298 | 1201050112 | 03-APR-2006 22:07 | DONE | 90.7 | -1 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 512870 | 1201053698 | 03-APR-2006 23:54 | DUSE | 104 | 0.47 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 511297 | 1201050109 | 04-APR-2006 06:47 | DONE | 108 | 0.94 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 516974 | 1201062509 | 04-APR-2006 07:59 | DONE | 94.4 | -0.67 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 516284 | 1201061022 | 04-APR-2006 10:09 | DUSE | 90.8 | -1 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 516477 | 1201061403 | 04-APR-2006 11:44 | DONE | 95.9 | -0.49 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 516727 | 1201061913 | 04-APR-2006 21:44 | DONE | 91.8 | -0.98 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 511296 | 1201050106 | 05-APR-2006 19:38 | DONE | 104 | 0.52 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 515679 | 1201059782 | 06-APR-2006 21:11 | DONE | 109 | 1.1 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 516333 | 1201061132 | 06-APR-2006 22:33 | DONE | 103 | 0.31 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 516981 | 1201062535 | 07-APR-2006 13:55 | DONE | 114 | 1.7 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 516331 | 1201061128 | 07-APR-2006 16:56 | DONE | 110 | 1.2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 517019 | 1201062620 | 08-APR-2006 17:13 | DONE | 106 | 0.71 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 516976 | 1201062516 | 10-APR-2006 08:10 | DONE | 106 | 0.76 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 517034 | 1201062660 | 10-APR-2006 20:35 | DONE | 98.7 | -0.16 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 516982 | 1201062538 | 10-APR-2006 21:32 | DONE | 88.8 | -1 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 517023 | 1201062632 | 10-APR-2006 22:38 | DONE | 93.4 | -0.79 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 517024 | 1201062641 | 11-APR-2006 06:58 | DONE | 106 | 0.68 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 519523 | 1201068262 | 11-APR-2006 10:58 | DONE | 113 | 1.6 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 519011 | 1201067124 | 11-APR-2006 22:38 | DUSE | 107 | 0.83 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 516978 | 1201062524 | 14-APR-2006 06:31 | DONE | 108 | 0.96 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 516977 | 1201062520 | 14-APR-2006 10:17 | DONE | 96.4 | -0.43 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 520998 | 1201071625 | 17-APR-2006 19:03 | DONE | 101 | 0.13 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 517253 | 1201063139 | 17-APR-2006 22:49 | DONE | 93.9 | -0.73 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 520996 | 1201071617 | 18-APR-2006 05:54 | DONE | 91.9 | -0.97 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 520754 | 1201071041 | 18-APR-2006 19:10 | DUSE | 113 | 1.6 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 516979 | 1201062528 | 19-APR-2006 13:02 | DONE | 117 | 2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 516657 | 1201061779 | 19-APR-2006 18:10 | DUSE | 110 | 1.1 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 516980 | 1201062532 | 19-APR-2006 22:50 | DONE | 115 | 1.8 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 521937 | 1201074024 | 20-APR-2006 06:04 | DUSE | 110 | 1.2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 519545 | 1201068320 | 20-APR-2006 09:41 | DONE | 88.3 | -1 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 517257 | 1201063155 | 20-APR-2006 12:11 | DONE | 98.4 | -0.19 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 519535 | 1201068291 | 21-APR-2006 06:15 | DONE | 92.2 | -0.93 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 517255 | 1201063147 | 21-APR-2006 07:39 | DONE | 108 | 0.9 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 519516 | 1201068251 | 21-APR-2006 09:58 | DONE | 97.3 | -0.32 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 522386 | 1201075056 | 23-APR-2006 21:45 | DONE | 96.4 | -0.44 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 523018 | 1201076449 | 24-APR-2006 05:38 | DONE | 92.7 | -0.88 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |

| | | | | | | | | | | | | |
|--------|------------|-------------------|------|-----|-----|---------|-----|------|------|-----|-----|------|
| 523017 | 1201076445 | 25-APR-2006 06:13 | DONE | 118 | 2.1 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 519510 | 1201068238 | 26-APR-2006 05:24 | DONE | 109 | 1.1 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |

Americium-241 RER: Limits LCL = 0 UCL = 3

| Batch ID | Samp ID | Run Date | Status | Value | Deviation | Units | Mean | LCL | LWL | UWL | UCL | Stdev |
|----------|------------|-------------------|--------|-------|-----------|-------|------|-----|------|------|------|-------|
| 511295 | 1201050102 | 03-APR-2006 05:16 | DONE | 0.59 | -0.31 | dec | 1.37 | 0 | -3.7 | 6.45 | 3.00 | 2.54 |
| 515677 | 1201059771 | 03-APR-2006 10:09 | DUSE | 1.06 | -0.12 | dec | 1.37 | 0 | -3.7 | 6.45 | 3.00 | 2.54 |
| 511297 | 1201050108 | 04-APR-2006 05:50 | DONE | 1.15 | -0.09 | dec | 1.37 | 0 | -3.7 | 6.45 | 3.00 | 2.54 |
| 516974 | 1201062507 | 04-APR-2006 11:01 | DONE | 1.03 | -0.13 | dec | 1.37 | 0 | -3.7 | 6.45 | 3.00 | 2.54 |
| 512870 | 1201053697 | 04-APR-2006 12:02 | DUSE | 0.49 | -0.35 | dec | 1.37 | 0 | -3.7 | 6.45 | 3.00 | 2.54 |
| 516477 | 1201061402 | 04-APR-2006 12:18 | DONE | 0.97 | -0.16 | dec | 1.37 | 0 | -3.7 | 6.45 | 3.00 | 2.54 |
| 516284 | 1201061021 | 04-APR-2006 17:27 | DUSE | 0.07 | -0.51 | dec | 1.37 | 0 | -3.7 | 6.45 | 3.00 | 2.54 |
| 511296 | 1201050105 | 05-APR-2006 18:16 | DUSE | 0.6 | -0.3 | dec | 1.37 | 0 | -3.7 | 6.45 | 3.00 | 2.54 |
| 515679 | 1201059780 | 06-APR-2006 11:54 | DONE | 0.08 | -0.51 | dec | 1.37 | 0 | -3.7 | 6.45 | 3.00 | 2.54 |
| 516981 | 1201062534 | 06-APR-2006 23:55 | DONE | 0.18 | -0.47 | dec | 1.37 | 0 | -3.7 | 6.45 | 3.00 | 2.54 |
| 516976 | 1201062514 | 07-APR-2006 11:18 | DONE | 0.8 | -0.22 | dec | 1.37 | 0 | -3.7 | 6.45 | 3.00 | 2.54 |
| 516333 | 1201061130 | 07-APR-2006 16:54 | DONE | 1.47 | 0.04 | dec | 1.37 | 0 | -3.7 | 6.45 | 3.00 | 2.54 |
| 517034 | 1201062659 | 10-APR-2006 18:58 | DONE | 11.8 | 4.1 | dec | 1.37 | 0 | -3.7 | 6.45 | 3.00 | 2.54 |
| 517023 | 1201062631 | 10-APR-2006 19:02 | DONE | 1.24 | -0.05 | dec | 1.37 | 0 | -3.7 | 6.45 | 3.00 | 2.54 |
| 517019 | 1201062618 | 10-APR-2006 19:13 | DUSE | 0.34 | -0.41 | dec | 1.37 | 0 | -3.7 | 6.45 | 3.00 | 2.54 |
| 516982 | 1201062537 | 10-APR-2006 21:49 | DONE | 0.81 | -0.22 | dec | 1.37 | 0 | -3.7 | 6.45 | 3.00 | 2.54 |
| 517024 | 1201062639 | 11-APR-2006 10:13 | DONE | 0.46 | -0.36 | dec | 1.37 | 0 | -3.7 | 6.45 | 3.00 | 2.54 |
| 519523 | 1201068260 | 11-APR-2006 10:15 | DONE | 0.89 | -0.19 | dec | 1.37 | 0 | -3.7 | 6.45 | 3.00 | 2.54 |
| 516331 | 1201061126 | 12-APR-2006 13:16 | DONE | 0.02 | -0.53 | dec | 1.37 | 0 | -3.7 | 6.45 | 3.00 | 2.54 |
| 516977 | 1201062518 | 13-APR-2006 21:04 | DONE | 2.14 | 0.31 | dec | 1.37 | 0 | -3.7 | 6.45 | 3.00 | 2.54 |
| 516978 | 1201062522 | 14-APR-2006 06:30 | DONE | 0.92 | -0.18 | dec | 1.37 | 0 | -3.7 | 6.45 | 3.00 | 2.54 |
| 517253 | 1201063138 | 17-APR-2006 11:51 | DONE | 0.96 | -0.16 | dec | 1.37 | 0 | -3.7 | 6.45 | 3.00 | 2.54 |
| 520754 | 1201071040 | 17-APR-2006 23:56 | DUSE | 0.03 | -0.52 | dec | 1.37 | 0 | -3.7 | 6.45 | 3.00 | 2.54 |
| 520996 | 1201071615 | 18-APR-2006 05:53 | DONE | 1.28 | -0.03 | dec | 1.37 | 0 | -3.7 | 6.45 | 3.00 | 2.54 |
| 520998 | 1201071623 | 19-APR-2006 06:01 | DONE | 12 | 4.2 | dec | 1.37 | 0 | -3.7 | 6.45 | 3.00 | 2.54 |
| 516979 | 1201062526 | 19-APR-2006 07:25 | DONE | 0.76 | -0.24 | dec | 1.37 | 0 | -3.7 | 6.45 | 3.00 | 2.54 |
| 516657 | 1201061778 | 19-APR-2006 17:52 | DUSE | 2.12 | 0.3 | dec | 1.37 | 0 | -3.7 | 6.45 | 3.00 | 2.54 |
| 516980 | 1201062530 | 19-APR-2006 23:19 | DONE | 0.33 | -0.41 | dec | 1.37 | 0 | -3.7 | 6.45 | 3.00 | 2.54 |
| 521937 | 1201074023 | 20-APR-2006 06:04 | DUSE | 0.38 | -0.39 | dec | 1.37 | 0 | -3.7 | 6.45 | 3.00 | 2.54 |
| 517257 | 1201063153 | 20-APR-2006 10:21 | DONE | 0.21 | -0.45 | dec | 1.37 | 0 | -3.7 | 6.45 | 3.00 | 2.54 |
| 519545 | 1201068318 | 20-APR-2006 15:32 | DONE | 0.49 | -0.35 | dec | 1.37 | 0 | -3.7 | 6.45 | 3.00 | 2.54 |
| 519011 | 1201067123 | 20-APR-2006 23:49 | DUSE | 0.39 | -0.39 | dec | 1.37 | 0 | -3.7 | 6.45 | 3.00 | 2.54 |
| 517255 | 1201063145 | 20-APR-2006 23:50 | DONE | 0.13 | -0.49 | dec | 1.37 | 0 | -3.7 | 6.45 | 3.00 | 2.54 |
| 519535 | 1201068296 | 20-APR-2006 23:55 | DUSE | 1.46 | 0.04 | dec | 1.37 | 0 | -3.7 | 6.45 | 3.00 | 2.54 |
| 519516 | 1201068249 | 21-APR-2006 09:09 | DONE | 1.37 | -0 | dec | 1.37 | 0 | -3.7 | 6.45 | 3.00 | 2.54 |
| 522386 | 1201075055 | 23-APR-2006 23:51 | DUSE | 1.09 | -0.11 | dec | 1.37 | 0 | -3.7 | 6.45 | 3.00 | 2.54 |
| 523018 | 1201076447 | 23-APR-2006 23:56 | DONE | 1.06 | -0.12 | dec | 1.37 | 0 | -3.7 | 6.45 | 3.00 | 2.54 |

| | | | | | | | | | | | | |
|--------|------------|-------------------|------|------|-------|-----|------|---|------|------|------|------|
| 523017 | 1201076444 | 25-APR-2006 06:13 | DUSE | 1.94 | 0.23 | dec | 1.37 | 0 | -3.7 | 6.45 | 3.00 | 2.54 |
| 519510 | 1201068237 | 26-APR-2006 05:28 | DUSE | 0.22 | -0.45 | dec | 1.37 | 0 | -3.7 | 6.45 | 3.00 | 2.54 |

Americium-241 SPIKE: Limits LCL = 75 UCL = 125

| Batch ID | Samp ID | Run Date | Status | Value | Deviation | Units | Mean | LCL | LWL | UWL | UCL | Stdev |
|----------|------------|-------------------|--------|-------|-----------|---------|------|------|------|-----|-----|-------|
| 503740 | 1201032437 | 27-FEB-2006 06:22 | DONE | 101 | 0.08 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 506274 | 1201038473 | 28-FEB-2006 09:00 | DONE | 95.9 | -0.49 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 506282 | 1201038480 | 03-MAR-2006 11:15 | DONE | 100 | 0.05 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 507258 | 1201040767 | 05-MAR-2006 19:50 | DONE | 93.9 | -0.74 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 507638 | 1201041726 | 07-MAR-2006 10:55 | DONE | 109 | 1.1 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 508355 | 1201043465 | 08-MAR-2006 11:21 | DONE | 112 | 1.4 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 507632 | 1201041716 | 10-MAR-2006 10:00 | DONE | 106 | 0.71 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 510364 | 1201048016 | 10-MAR-2006 17:46 | DONE | 104 | 0.48 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 507647 | 1201041742 | 11-MAR-2006 15:34 | DONE | 109 | 1.1 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 507649 | 1201041746 | 18-MAR-2006 13:45 | DONE | 102 | 0.28 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 507650 | 1201041750 | 18-MAR-2006 13:46 | DONE | 104 | 0.53 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 507640 | 1201041730 | 20-MAR-2006 18:44 | DONE | 113 | 1.6 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 512038 | 1201051800 | 21-MAR-2006 11:50 | DONE | 99.3 | -0.08 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 508908 | 1201044773 | 22-MAR-2006 17:05 | DONE | 118 | 2.2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 507641 | 1201041734 | 23-MAR-2006 09:11 | DONE | 95.2 | -0.58 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 510369 | 1201048027 | 27-MAR-2006 06:50 | DONE | 102 | 0.18 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 508910 | 1201044781 | 27-MAR-2006 19:42 | DONE | 103 | 0.36 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 511246 | 1201049992 | 28-MAR-2006 11:43 | DONE | 106 | 0.76 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 508909 | 1201044777 | 29-MAR-2006 08:15 | DONE | 115 | 1.8 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 507644 | 1201041738 | 03-APR-2006 12:47 | DONE | 107 | 0.81 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 516974 | 1201062508 | 04-APR-2006 09:02 | DONE | 98.4 | -0.19 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 515679 | 1201059781 | 06-APR-2006 21:11 | DONE | 104 | 0.52 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 516333 | 1201061131 | 06-APR-2006 22:34 | DONE | 115 | 1.8 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 517019 | 1201062619 | 08-APR-2006 18:42 | DONE | 105 | 0.56 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 516976 | 1201062515 | 10-APR-2006 06:39 | DONE | 99.1 | -0.11 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 517024 | 1201062640 | 11-APR-2006 05:39 | DONE | 89.0 | -1 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 519523 | 1201068261 | 11-APR-2006 08:15 | DONE | 112 | 1.4 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 516331 | 1201061127 | 11-APR-2006 12:05 | DONE | 118 | 2.1 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 516977 | 1201062519 | 13-APR-2006 21:04 | DONE | 107 | 0.82 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 516978 | 1201062523 | 14-APR-2006 06:30 | DONE | 108 | 0.98 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 520996 | 1201071616 | 18-APR-2006 05:54 | DONE | 105 | 0.61 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 520998 | 1201071624 | 19-APR-2006 06:01 | DONE | 468 | 44 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 516979 | 1201062527 | 19-APR-2006 07:26 | DONE | 121 | 2.5 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 516980 | 1201062531 | 19-APR-2006 11:25 | DONE | 103 | 0.36 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 517255 | 1201063146 | 21-APR-2006 06:23 | DONE | 103 | 0.37 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 519516 | 1201068250 | 21-APR-2006 09:10 | DONE | 103 | 0.3 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |

| | | | | | | | | | | | | |
|--------|------------|-------------------|------|------|-------|---------|-----|------|------|-----|-----|------|
| 517257 | 1201063154 | 21-APR-2006 12:55 | DONE | 99.1 | -0.11 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 519535 | 1201068297 | 21-APR-2006 13:59 | DONE | 110 | 1.2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 523018 | 1201076448 | 21-APR-2006 20:25 | DONE | 96.7 | -0.39 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |

Cesium-137 BLANK: Limits LCL = -9.2 UCL = 10.2

| Batch ID | Samp ID | Run Date | Status | Value | Deviation | Units | Mean | LCL | LWL | UWL | UCL | Stdev |
|----------|------------|-------------------|--------|--------|-----------|-------|------|------|------|------|------|-------|
| 516727 | 1201061912 | 04-APR-2006 21:43 | DUSE | -4.9 | -2 | pCi/L | 0.53 | -9.2 | -5.9 | 6.99 | 10.2 | 3.23 |
| 508904 | 1201044759 | 05-APR-2006 10:31 | DUSE | 0 | -0.16 | pCi/L | 0.53 | -9.2 | -5.9 | 6.99 | 10.2 | 3.23 |
| 511296 | 1201050104 | 05-APR-2006 18:15 | DONE | -0.309 | -0.26 | pCi/L | 0.53 | -9.2 | -5.9 | 6.99 | 10.2 | 3.23 |
| 516981 | 1201062533 | 06-APR-2006 16:41 | DONE | 1.39 | 0.27 | pCi/L | 0.53 | -9.2 | -5.9 | 6.99 | 10.2 | 3.23 |
| 515679 | 1201059779 | 06-APR-2006 20:00 | DONE | 0.47 | -0.02 | pCi/L | 0.53 | -9.2 | -5.9 | 6.99 | 10.2 | 3.23 |
| 516333 | 1201061129 | 07-APR-2006 16:54 | DONE | 0.27 | -0.08 | pCi/L | 0.53 | -9.2 | -5.9 | 6.99 | 10.2 | 3.23 |
| 516331 | 1201061125 | 07-APR-2006 16:55 | DONE | 2.7 | 0.67 | pCi/L | 0.53 | -9.2 | -5.9 | 6.99 | 10.2 | 3.23 |
| 517023 | 1201062630 | 08-APR-2006 01:11 | DONE | -0.56 | -0.34 | pCi/L | 0.53 | -9.2 | -5.9 | 6.99 | 10.2 | 3.23 |
| 517019 | 1201062617 | 08-APR-2006 17:58 | DONE | 0.62 | 0.03 | pCi/L | 0.53 | -9.2 | -5.9 | 6.99 | 10.2 | 3.23 |
| 517034 | 1201062658 | 10-APR-2006 14:44 | DONE | -0.471 | -0.31 | pCi/L | 0.53 | -9.2 | -5.9 | 6.99 | 10.2 | 3.23 |
| 516976 | 1201062513 | 10-APR-2006 15:40 | DONE | 0.67 | 0.04 | pCi/L | 0.53 | -9.2 | -5.9 | 6.99 | 10.2 | 3.23 |
| 516982 | 1201062536 | 10-APR-2006 19:45 | DONE | 0.45 | -0.02 | pCi/L | 0.53 | -9.2 | -5.9 | 6.99 | 10.2 | 3.23 |
| 517024 | 1201062638 | 10-APR-2006 23:56 | DONE | -2.6 | -0.97 | pCi/L | 0.53 | -9.2 | -5.9 | 6.99 | 10.2 | 3.23 |
| 519523 | 1201068259 | 11-APR-2006 06:19 | DONE | 3.46 | 0.91 | pCi/L | 0.53 | -9.2 | -5.9 | 6.99 | 10.2 | 3.23 |
| 512920 | 1201053810 | 11-APR-2006 17:05 | DUSE | 0 | -0.16 | pCi/L | 0.53 | -9.2 | -5.9 | 6.99 | 10.2 | 3.23 |
| 513067 | 1201054116 | 12-APR-2006 12:55 | DUSE | 0 | -0.16 | pCi/L | 0.53 | -9.2 | -5.9 | 6.99 | 10.2 | 3.23 |
| 516977 | 1201062517 | 13-APR-2006 12:23 | DONE | -1 | -0.48 | pCi/L | 0.53 | -9.2 | -5.9 | 6.99 | 10.2 | 3.23 |
| 516978 | 1201062521 | 13-APR-2006 23:22 | DONE | 0.6 | 0.02 | pCi/L | 0.53 | -9.2 | -5.9 | 6.99 | 10.2 | 3.23 |
| 520998 | 1201071622 | 16-APR-2006 20:07 | DONE | 0.58 | 0.01 | pCi/L | 0.53 | -9.2 | -5.9 | 6.99 | 10.2 | 3.23 |
| 517253 | 1201063137 | 17-APR-2006 19:16 | DONE | 2.52 | 0.61 | pCi/L | 0.53 | -9.2 | -5.9 | 6.99 | 10.2 | 3.23 |
| 520996 | 1201071614 | 17-APR-2006 23:10 | DONE | -3.2 | -1 | pCi/L | 0.53 | -9.2 | -5.9 | 6.99 | 10.2 | 3.23 |
| 520754 | 1201071039 | 17-APR-2006 23:45 | DONE | -0.253 | -0.24 | pCi/L | 0.53 | -9.2 | -5.9 | 6.99 | 10.2 | 3.23 |
| 519011 | 1201067122 | 18-APR-2006 19:02 | DONE | 0.19 | -0.1 | pCi/L | 0.53 | -9.2 | -5.9 | 6.99 | 10.2 | 3.23 |
| 516657 | 1201061777 | 18-APR-2006 19:37 | DONE | 0.32 | -0.06 | pCi/L | 0.53 | -9.2 | -5.9 | 6.99 | 10.2 | 3.23 |
| 516979 | 1201062525 | 19-APR-2006 11:15 | DONE | -1.4 | -0.6 | pCi/L | 0.53 | -9.2 | -5.9 | 6.99 | 10.2 | 3.23 |
| 516980 | 1201062529 | 19-APR-2006 22:49 | DONE | -0.499 | -0.32 | pCi/L | 0.53 | -9.2 | -5.9 | 6.99 | 10.2 | 3.23 |
| 521937 | 1201074022 | 20-APR-2006 06:03 | DONE | -0.61 | -0.35 | pCi/L | 0.53 | -9.2 | -5.9 | 6.99 | 10.2 | 3.23 |
| 517257 | 1201063152 | 20-APR-2006 10:17 | DONE | 1.53 | 0.31 | pCi/L | 0.53 | -9.2 | -5.9 | 6.99 | 10.2 | 3.23 |
| 519545 | 1201068317 | 20-APR-2006 12:30 | DONE | -0.03 | -0.17 | pCi/L | 0.53 | -9.2 | -5.9 | 6.99 | 10.2 | 3.23 |
| 517255 | 1201063144 | 20-APR-2006 17:02 | DONE | 1.35 | 0.25 | pCi/L | 0.53 | -9.2 | -5.9 | 6.99 | 10.2 | 3.23 |
| 519535 | 1201068288 | 20-APR-2006 21:41 | DONE | -0.02 | -0.17 | pCi/L | 0.53 | -9.2 | -5.9 | 6.99 | 10.2 | 3.23 |
| 519516 | 1201068248 | 20-APR-2006 23:48 | DONE | 0.98 | 0.14 | pCi/L | 0.53 | -9.2 | -5.9 | 6.99 | 10.2 | 3.23 |
| 523018 | 1201076446 | 21-APR-2006 17:26 | DONE | 1.33 | 0.25 | pCi/L | 0.53 | -9.2 | -5.9 | 6.99 | 10.2 | 3.23 |
| 522386 | 1201075054 | 21-APR-2006 23:16 | DONE | -0.16 | -0.21 | pCi/L | 0.53 | -9.2 | -5.9 | 6.99 | 10.2 | 3.23 |
| 515884 | 1201060218 | 23-APR-2006 17:45 | DUSE | 0 | -0.16 | pCi/L | 0.53 | -9.2 | -5.9 | 6.99 | 10.2 | 3.23 |
| 516457 | 1201061353 | 24-APR-2006 17:09 | DUSE | 0 | -0.16 | pCi/L | 0.53 | -9.2 | -5.9 | 6.99 | 10.2 | 3.23 |

| | | | | | | | | | | | | |
|--------|------------|-------------------|------|--------|-------|-------|------|------|------|------|------|------|
| 523017 | 1201076443 | 24-APR-2006 23:31 | DUSE | -0.822 | -0.42 | pCi/L | 0.53 | -9.2 | -5.9 | 6.99 | 10.2 | 3.23 |
| 517021 | 1201062624 | 25-APR-2006 09:46 | DONE | 0 | -0.16 | pCi/L | 0.53 | -9.2 | -5.9 | 6.99 | 10.2 | 3.23 |
| 519510 | 1201068236 | 25-APR-2006 18:43 | DUSE | 18 | 5.4 | pCi/L | 0.53 | -9.2 | -5.9 | 6.99 | 10.2 | 3.23 |

Cesium-137 DUP: Limits LCL = 0 UCL = 20

| Batch ID | Samp ID | Run Date | Status | Value | Deviation | Units | Mean | LCL | LWL | UWL | UCL | Stdev |
|----------|------------|-------------------|--------|-------|-----------|---------|------|-----|------|-----|------|-------|
| 510984 | 1201049365 | 04-APR-2006 17:17 | DONE | 0 | -0.46 | percent | 166 | 0 | -560 | 889 | 20.0 | 362 |
| 516284 | 1201061021 | 04-APR-2006 17:27 | DONE | 0 | -0.46 | percent | 166 | 0 | -560 | 889 | 20.0 | 362 |
| 511296 | 1201050105 | 05-APR-2006 18:16 | DONE | 36 | -0.36 | percent | 166 | 0 | -560 | 889 | 20.0 | 362 |
| 515679 | 1201059780 | 06-APR-2006 11:54 | DONE | 11.3 | -0.43 | percent | 166 | 0 | -560 | 889 | 20.0 | 362 |
| 516981 | 1201062534 | 06-APR-2006 23:55 | DONE | 786 | 1.7 | percent | 166 | 0 | -560 | 889 | 20.0 | 362 |
| 508904 | 1201044760 | 06-APR-2006 23:56 | DUSE | 0 | -0.46 | percent | 166 | 0 | -560 | 889 | 20.0 | 362 |
| 516976 | 1201062514 | 07-APR-2006 11:18 | DONE | 162 | -0.01 | percent | 166 | 0 | -560 | 889 | 20.0 | 362 |
| 516333 | 1201061130 | 07-APR-2006 16:54 | DONE | 126 | -0.11 | percent | 166 | 0 | -560 | 889 | 20.0 | 362 |
| 517034 | 1201062659 | 10-APR-2006 18:58 | DONE | 64.3 | -0.28 | percent | 166 | 0 | -560 | 889 | 20.0 | 362 |
| 517023 | 1201062631 | 10-APR-2006 19:02 | DONE | 24 | -0.39 | percent | 166 | 0 | -560 | 889 | 20.0 | 362 |
| 517019 | 1201062618 | 10-APR-2006 19:13 | DONE | 19.7 | -0.4 | percent | 166 | 0 | -560 | 889 | 20.0 | 362 |
| 516982 | 1201062537 | 10-APR-2006 21:49 | DONE | 135 | -0.09 | percent | 166 | 0 | -560 | 889 | 20.0 | 362 |
| 517024 | 1201062639 | 11-APR-2006 10:13 | DONE | 24.7 | -0.39 | percent | 166 | 0 | -560 | 889 | 20.0 | 362 |
| 519523 | 1201068260 | 11-APR-2006 10:15 | DONE | 110 | -0.15 | percent | 166 | 0 | -560 | 889 | 20.0 | 362 |
| 516331 | 1201061126 | 12-APR-2006 13:16 | DONE | 120 | -0.13 | percent | 166 | 0 | -560 | 889 | 20.0 | 362 |
| 513067 | 1201054117 | 12-APR-2006 16:58 | DUSE | 0 | -0.46 | percent | 166 | 0 | -560 | 889 | 20.0 | 362 |
| 516977 | 1201062518 | 13-APR-2006 21:04 | DONE | 59.9 | -0.29 | percent | 166 | 0 | -560 | 889 | 20.0 | 362 |
| 516978 | 1201062522 | 14-APR-2006 06:30 | DONE | 2.89 | -0.45 | percent | 166 | 0 | -560 | 889 | 20.0 | 362 |
| 517253 | 1201063138 | 17-APR-2006 11:51 | DONE | 1580 | 3.9 | percent | 166 | 0 | -560 | 889 | 20.0 | 362 |
| 520754 | 1201071040 | 17-APR-2006 23:56 | DONE | 0 | -0.46 | percent | 166 | 0 | -560 | 889 | 20.0 | 362 |
| 520996 | 1201071615 | 18-APR-2006 05:53 | DONE | 65.6 | -0.28 | percent | 166 | 0 | -560 | 889 | 20.0 | 362 |
| 520998 | 1201071623 | 19-APR-2006 06:01 | DONE | 1520 | 3.8 | percent | 166 | 0 | -560 | 889 | 20.0 | 362 |
| 516979 | 1201062526 | 19-APR-2006 07:25 | DONE | 48.4 | -0.32 | percent | 166 | 0 | -560 | 889 | 20.0 | 362 |
| 516657 | 1201061778 | 19-APR-2006 17:52 | DONE | 0 | -0.46 | percent | 166 | 0 | -560 | 889 | 20.0 | 362 |
| 521937 | 1201074023 | 20-APR-2006 06:04 | DONE | 0 | -0.46 | percent | 166 | 0 | -560 | 889 | 20.0 | 362 |
| 517257 | 1201063153 | 20-APR-2006 10:21 | DONE | 82 | -0.23 | percent | 166 | 0 | -560 | 889 | 20.0 | 362 |
| 519545 | 1201068318 | 20-APR-2006 15:32 | DONE | 180 | 0.04 | percent | 166 | 0 | -560 | 889 | 20.0 | 362 |
| 519011 | 1201067123 | 20-APR-2006 23:49 | DONE | 0 | -0.46 | percent | 166 | 0 | -560 | 889 | 20.0 | 362 |
| 517255 | 1201063145 | 20-APR-2006 23:50 | DONE | 20.7 | -0.4 | percent | 166 | 0 | -560 | 889 | 20.0 | 362 |
| 519535 | 1201068296 | 20-APR-2006 23:55 | DONE | 279 | 0.31 | percent | 166 | 0 | -560 | 889 | 20.0 | 362 |
| 519516 | 1201068249 | 21-APR-2006 09:09 | DONE | 425 | 0.72 | percent | 166 | 0 | -560 | 889 | 20.0 | 362 |
| 522386 | 1201075055 | 23-APR-2006 23:51 | DONE | 114 | -0.14 | percent | 166 | 0 | -560 | 889 | 20.0 | 362 |
| 523018 | 1201076447 | 23-APR-2006 23:56 | DONE | 3 | -0.45 | percent | 166 | 0 | -560 | 889 | 20.0 | 362 |
| 515884 | 1201060219 | 24-APR-2006 05:36 | DUSE | 0 | -0.46 | percent | 166 | 0 | -560 | 889 | 20.0 | 362 |
| 516457 | 1201061354 | 24-APR-2006 19:50 | DUSE | 0 | -0.46 | percent | 166 | 0 | -560 | 889 | 20.0 | 362 |

| | | | | | | | | | | | | |
|--------|------------|-------------------|------|-----|-------|---------|-----|---|------|-----|------|-----|
| 516457 | 1201061354 | 25-APR-2006 09:11 | DUSE | 0 | -0.46 | percent | 166 | 0 | -560 | 889 | 20.0 | 362 |
| 517021 | 1201062625 | 25-APR-2006 09:46 | DONE | 0 | -0.46 | percent | 166 | 0 | -560 | 889 | 20.0 | 362 |
| 516457 | 1201061354 | 25-APR-2006 16:01 | DUSE | 0 | -0.46 | percent | 166 | 0 | -560 | 889 | 20.0 | 362 |
| 519510 | 1201068237 | 26-APR-2006 05:28 | DUSE | 459 | 0.81 | percent | 166 | 0 | -560 | 889 | 20.0 | 362 |

Cesium-137 LCS: Limits LCL = 75 UCL = 125

| Batch ID | Samp ID | Run Date | Status | Value | Deviation | Units | Mean | LCL | LWL | UWL | UCL | Stdev |
|----------|------------|-------------------|--------|-------|-----------|---------|------|------|------|-----|-----|-------|
| 511298 | 1201050112 | 03-APR-2006 22:07 | DONE | 93.3 | -0.8 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 512870 | 1201053698 | 03-APR-2006 23:54 | DONE | 108 | 0.91 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 511297 | 1201050109 | 04-APR-2006 06:47 | DONE | 108 | 0.95 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 516974 | 1201062509 | 04-APR-2006 07:59 | DONE | 112 | 1.4 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 516284 | 1201061022 | 04-APR-2006 10:09 | DONE | 105 | 0.54 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 516477 | 1201061403 | 04-APR-2006 11:44 | DONE | 104 | 0.43 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 516727 | 1201061913 | 04-APR-2006 21:44 | DONE | 101 | 0.07 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 511296 | 1201050106 | 05-APR-2006 19:38 | DONE | 106 | 0.72 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 515679 | 1201059782 | 06-APR-2006 21:11 | DONE | 101 | 0.1 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 516333 | 1201061132 | 06-APR-2006 22:33 | DONE | 106 | 0.67 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 516981 | 1201062535 | 07-APR-2006 13:55 | DONE | 104 | 0.45 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 516331 | 1201061128 | 07-APR-2006 16:56 | DONE | 103 | 0.3 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 517019 | 1201062620 | 08-APR-2006 17:13 | DONE | 106 | 0.76 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 516976 | 1201062516 | 10-APR-2006 08:10 | DONE | 109 | 1.1 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 517034 | 1201062660 | 10-APR-2006 20:35 | DONE | 101 | 0.06 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 516982 | 1201062538 | 10-APR-2006 21:32 | DONE | 102 | 0.27 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 517023 | 1201062632 | 10-APR-2006 22:38 | DONE | 95.9 | -0.49 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 517024 | 1201062641 | 11-APR-2006 06:58 | DONE | 106 | 0.71 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 519523 | 1201068262 | 11-APR-2006 10:58 | DONE | 111 | 1.3 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 519011 | 1201067124 | 11-APR-2006 22:38 | DONE | 112 | 1.4 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 516978 | 1201062524 | 14-APR-2006 06:31 | DONE | 104 | 0.53 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 516977 | 1201062520 | 14-APR-2006 10:17 | DONE | 111 | 1.4 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 520998 | 1201071625 | 17-APR-2006 19:03 | DONE | 97.7 | -0.28 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 517253 | 1201063139 | 17-APR-2006 22:49 | DONE | 101 | 0.13 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 520996 | 1201071617 | 18-APR-2006 05:54 | DONE | 92.7 | -0.88 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 520754 | 1201071041 | 18-APR-2006 19:10 | DONE | 119 | 2.3 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 516979 | 1201062528 | 19-APR-2006 13:02 | DONE | 108 | 0.95 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 516657 | 1201061779 | 19-APR-2006 18:10 | DONE | 105 | 0.56 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 516980 | 1201062532 | 19-APR-2006 22:50 | DONE | 102 | 0.22 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 521937 | 1201074024 | 20-APR-2006 06:04 | DONE | 108 | 0.92 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 519545 | 1201068320 | 20-APR-2006 09:41 | DONE | 103 | 0.31 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 517257 | 1201063155 | 20-APR-2006 12:11 | DONE | 113 | 1.5 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 519535 | 1201068291 | 21-APR-2006 06:15 | DONE | 114 | 1.6 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 517255 | 1201063147 | 21-APR-2006 07:39 | DONE | 102 | 0.26 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 519516 | 1201068251 | 21-APR-2006 09:58 | DONE | 103 | 0.35 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |

| | | | | | | | | | | | | |
|--------|------------|-------------------|------|------|-------|---------|-----|------|------|-----|-----|------|
| 522386 | 1201075056 | 23-APR-2006 21:45 | DONE | 101 | 0.06 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 523018 | 1201076449 | 24-APR-2006 05:38 | DONE | 98.9 | -0.14 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 523017 | 1201076445 | 25-APR-2006 06:13 | DONE | 107 | 0.79 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 519510 | 1201068238 | 26-APR-2006 05:24 | DONE | 102 | 0.2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |

Cesium-137 RER: Limits LCL = 0 UCL = 3

| Batch ID | Samp ID | Run Date | Status | Value | Deviation | Units | Mean | LCL | LWL | UWL | UCL | Stdev |
|----------|------------|-------------------|--------|-------|-----------|-------|------|-----|------|------|------|-------|
| 516974 | 1201062507 | 04-APR-2006 11:01 | DONE | 1.5 | 0.47 | dec | 0.9 | 0 | -1.6 | 3.45 | 3.00 | 1.27 |
| 512870 | 1201053697 | 04-APR-2006 12:02 | DONE | 0.76 | -0.11 | dec | 0.9 | 0 | -1.6 | 3.45 | 3.00 | 1.27 |
| 516477 | 1201061402 | 04-APR-2006 12:18 | DONE | 0.14 | -0.6 | dec | 0.9 | 0 | -1.6 | 3.45 | 3.00 | 1.27 |
| 510984 | 1201049365 | 04-APR-2006 17:17 | DONE | 0 | -0.71 | dec | 0.9 | 0 | -1.6 | 3.45 | 3.00 | 1.27 |
| 516284 | 1201061021 | 04-APR-2006 17:27 | DONE | 0.57 | -0.26 | dec | 0.9 | 0 | -1.6 | 3.45 | 3.00 | 1.27 |
| 511296 | 1201050105 | 05-APR-2006 18:16 | DONE | 0.05 | -0.67 | dec | 0.9 | 0 | -1.6 | 3.45 | 3.00 | 1.27 |
| 515679 | 1201059780 | 06-APR-2006 11:54 | DONE | 0.74 | -0.13 | dec | 0.9 | 0 | -1.6 | 3.45 | 3.00 | 1.27 |
| 516981 | 1201062534 | 06-APR-2006 23:55 | DONE | 1.08 | 0.14 | dec | 0.9 | 0 | -1.6 | 3.45 | 3.00 | 1.27 |
| 516976 | 1201062514 | 07-APR-2006 11:18 | DONE | 1.32 | 0.33 | dec | 0.9 | 0 | -1.6 | 3.45 | 3.00 | 1.27 |
| 516333 | 1201061130 | 07-APR-2006 16:54 | DONE | 1.37 | 0.37 | dec | 0.9 | 0 | -1.6 | 3.45 | 3.00 | 1.27 |
| 517034 | 1201062659 | 10-APR-2006 18:58 | DONE | 0.67 | -0.18 | dec | 0.9 | 0 | -1.6 | 3.45 | 3.00 | 1.27 |
| 517023 | 1201062631 | 10-APR-2006 19:02 | DONE | 0.03 | -0.68 | dec | 0.9 | 0 | -1.6 | 3.45 | 3.00 | 1.27 |
| 517019 | 1201062618 | 10-APR-2006 19:13 | DONE | 0.08 | -0.65 | dec | 0.9 | 0 | -1.6 | 3.45 | 3.00 | 1.27 |
| 516982 | 1201062537 | 10-APR-2006 21:49 | DONE | 0.29 | -0.48 | dec | 0.9 | 0 | -1.6 | 3.45 | 3.00 | 1.27 |
| 517024 | 1201062639 | 11-APR-2006 10:13 | DONE | 0.23 | -0.52 | dec | 0.9 | 0 | -1.6 | 3.45 | 3.00 | 1.27 |
| 519523 | 1201068260 | 11-APR-2006 10:15 | DONE | 0.95 | 0.04 | dec | 0.9 | 0 | -1.6 | 3.45 | 3.00 | 1.27 |
| 512920 | 1201053811 | 11-APR-2006 19:17 | DUSE | 2.44 | 1.2 | dec | 0.9 | 0 | -1.6 | 3.45 | 3.00 | 1.27 |
| 516331 | 1201061126 | 12-APR-2006 13:16 | DONE | 2.25 | 1.1 | dec | 0.9 | 0 | -1.6 | 3.45 | 3.00 | 1.27 |
| 516977 | 1201062518 | 13-APR-2006 21:04 | DONE | 0.5 | -0.31 | dec | 0.9 | 0 | -1.6 | 3.45 | 3.00 | 1.27 |
| 516978 | 1201062522 | 14-APR-2006 06:30 | DONE | 0.02 | -0.69 | dec | 0.9 | 0 | -1.6 | 3.45 | 3.00 | 1.27 |
| 517253 | 1201063138 | 17-APR-2006 11:51 | DONE | 0.53 | -0.29 | dec | 0.9 | 0 | -1.6 | 3.45 | 3.00 | 1.27 |
| 520754 | 1201071040 | 17-APR-2006 23:56 | DONE | 0.85 | -0.04 | dec | 0.9 | 0 | -1.6 | 3.45 | 3.00 | 1.27 |
| 520996 | 1201071615 | 18-APR-2006 05:53 | DONE | 0.28 | -0.49 | dec | 0.9 | 0 | -1.6 | 3.45 | 3.00 | 1.27 |
| 520998 | 1201071623 | 19-APR-2006 06:01 | DONE | 2.32 | 1.1 | dec | 0.9 | 0 | -1.6 | 3.45 | 3.00 | 1.27 |
| 516979 | 1201062526 | 19-APR-2006 07:25 | DONE | 0.34 | -0.44 | dec | 0.9 | 0 | -1.6 | 3.45 | 3.00 | 1.27 |
| 516657 | 1201061778 | 19-APR-2006 17:52 | DONE | 1.63 | 0.58 | dec | 0.9 | 0 | -1.6 | 3.45 | 3.00 | 1.27 |
| 516980 | 1201062530 | 19-APR-2006 23:19 | DONE | 0.44 | -0.36 | dec | 0.9 | 0 | -1.6 | 3.45 | 3.00 | 1.27 |
| 521937 | 1201074023 | 20-APR-2006 06:04 | DONE | 0.77 | -0.11 | dec | 0.9 | 0 | -1.6 | 3.45 | 3.00 | 1.27 |
| 517257 | 1201063153 | 20-APR-2006 10:21 | DONE | 0.17 | -0.57 | dec | 0.9 | 0 | -1.6 | 3.45 | 3.00 | 1.27 |
| 519545 | 1201068318 | 20-APR-2006 15:32 | DONE | 0.12 | -0.61 | dec | 0.9 | 0 | -1.6 | 3.45 | 3.00 | 1.27 |
| 519011 | 1201067123 | 20-APR-2006 23:49 | DONE | 7.26 | 5 | dec | 0.9 | 0 | -1.6 | 3.45 | 3.00 | 1.27 |
| 517255 | 1201063145 | 20-APR-2006 23:50 | DONE | 0.21 | -0.54 | dec | 0.9 | 0 | -1.6 | 3.45 | 3.00 | 1.27 |
| 519535 | 1201068296 | 20-APR-2006 23:55 | DONE | 0.95 | 0.04 | dec | 0.9 | 0 | -1.6 | 3.45 | 3.00 | 1.27 |
| 519516 | 1201068249 | 21-APR-2006 09:09 | DONE | 2.73 | 1.4 | dec | 0.9 | 0 | -1.6 | 3.45 | 3.00 | 1.27 |

| | | | | | | | | | | | | |
|--------|------------|-------------------|------|------|-------|-----|-----|---|------|------|------|------|
| 522386 | 1201075055 | 23-APR-2006 23:51 | DONE | 0.13 | -0.61 | dec | 0.9 | 0 | -1.6 | 3.45 | 3.00 | 1.27 |
| 523018 | 1201076447 | 23-APR-2006 23:56 | DONE | 0.72 | -0.14 | dec | 0.9 | 0 | -1.6 | 3.45 | 3.00 | 1.27 |
| 523017 | 1201076444 | 25-APR-2006 06:13 | DUSE | 0.11 | -0.62 | dec | 0.9 | 0 | -1.6 | 3.45 | 3.00 | 1.27 |
| 517021 | 1201062625 | 25-APR-2006 09:46 | DONE | 0 | -0.71 | dec | 0.9 | 0 | -1.6 | 3.45 | 3.00 | 1.27 |
| 519510 | 1201068237 | 26-APR-2006 05:28 | DUSE | 0.55 | -0.27 | dec | 0.9 | 0 | -1.6 | 3.45 | 3.00 | 1.27 |

Cesium-137 SPIKE: Limits LCL = 75 UCL = 125

| Batch ID | Samp ID | Run Date | Status | Value | Deviation | Units | Mean | LCL | LWL | UWL | UCL | Stdev |
|----------|------------|-------------------|--------|-------|-----------|---------|------|------|------|-----|-----|-------|
| 503740 | 1201032437 | 27-FEB-2006 06:22 | DONE | 107 | 0.89 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 506274 | 1201038473 | 28-FEB-2006 09:00 | DONE | 97.9 | -0.25 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 506282 | 1201038480 | 03-MAR-2006 11:15 | DONE | 104 | 0.5 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 507258 | 1201040767 | 05-MAR-2006 19:50 | DONE | 109 | 1.1 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 507638 | 1201041726 | 07-MAR-2006 10:55 | DONE | 102 | 0.23 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 508355 | 1201043465 | 08-MAR-2006 11:21 | DONE | 110 | 1.2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 507632 | 1201041716 | 10-MAR-2006 10:00 | DONE | 101 | 0.07 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 510364 | 1201048016 | 10-MAR-2006 17:46 | DONE | 107 | 0.85 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 507647 | 1201041742 | 11-MAR-2006 15:34 | DONE | 115 | 1.8 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 507649 | 1201041746 | 18-MAR-2006 13:45 | DONE | 115 | 1.8 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 507650 | 1201041750 | 18-MAR-2006 13:46 | DONE | 110 | 1.2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 507640 | 1201041730 | 20-MAR-2006 18:44 | DONE | 102 | 0.24 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 512038 | 1201051800 | 21-MAR-2006 11:50 | DONE | 97 | -0.36 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 508908 | 1201044773 | 22-MAR-2006 17:05 | DONE | 107 | 0.79 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 507641 | 1201041734 | 23-MAR-2006 09:11 | DONE | 101 | 0.12 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 510369 | 1201048027 | 27-MAR-2006 06:50 | DONE | 100 | 0.02 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 508910 | 1201044781 | 27-MAR-2006 19:42 | DONE | 115 | 1.8 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 511246 | 1201049992 | 28-MAR-2006 11:43 | DONE | 94.4 | -0.67 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 508909 | 1201044777 | 29-MAR-2006 08:15 | DONE | 116 | 1.9 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 507644 | 1201041738 | 03-APR-2006 12:47 | DONE | 108 | 1 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 516974 | 1201062508 | 04-APR-2006 09:02 | DONE | 105 | 0.59 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 515679 | 1201059781 | 06-APR-2006 21:11 | DONE | 103 | 0.35 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 516333 | 1201061131 | 06-APR-2006 22:34 | DONE | 120 | 2.4 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 517019 | 1201062619 | 08-APR-2006 18:42 | DONE | 118 | 2.2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 516976 | 1201062515 | 10-APR-2006 06:39 | DONE | 104 | 0.46 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 517024 | 1201062640 | 11-APR-2006 05:39 | DONE | 109 | 1.1 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 519523 | 1201068261 | 11-APR-2006 08:15 | DONE | 117 | 2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 516331 | 1201061127 | 11-APR-2006 12:05 | DONE | 112 | 1.4 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 516977 | 1201062519 | 13-APR-2006 21:04 | DONE | 96.6 | -0.41 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 516978 | 1201062523 | 14-APR-2006 06:30 | DONE | 114 | 1.7 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 520996 | 1201071616 | 18-APR-2006 05:54 | DONE | 106 | 0.67 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 520998 | 1201071624 | 19-APR-2006 06:01 | DONE | 93.0 | -0.84 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 516979 | 1201062527 | 19-APR-2006 07:26 | DONE | 107 | 0.8 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 516980 | 1201062531 | 19-APR-2006 11:25 | DONE | 83.8 | -2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |

| | | | | | | | | | | | | |
|--------|------------|-------------------|------|------|------|---------|-----|------|------|-----|-----|------|
| 519535 | 1201068297 | 21-APR-2006 13:59 | DONE | 99.1 | -0.1 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 523018 | 1201076448 | 21-APR-2006 20:25 | DONE | 111 | 1.4 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |

Cobalt-60 BLANK: Limits LCL = -4 UCL = 5.4

| Batch ID | Samp ID | Run Date | Status | Value | Deviation | Units | Mean | LCL | LWL | UWL | UCL | Stddev |
|----------|------------|-------------------|--------|--------|-----------|-------|------|-----|------|------|------|--------|
| 511298 | 1201050110 | 02-APR-2006 22:50 | DONE | 0.15 | -0.38 | pCi/L | 0.74 | -4 | -2.4 | 3.88 | 5.44 | 1.57 |
| 512870 | 1201053696 | 02-APR-2006 23:54 | DONE | 1.6 | 0.54 | pCi/L | 0.74 | -4 | -2.4 | 3.88 | 5.44 | 1.57 |
| 512910 | 1201053787 | 03-APR-2006 16:51 | DUSE | 3.83 | 2 | pCi/L | 0.74 | -4 | -2.4 | 3.88 | 5.44 | 1.57 |
| 516974 | 1201062506 | 04-APR-2006 06:44 | DONE | 0.2 | -0.35 | pCi/L | 0.74 | -4 | -2.4 | 3.88 | 5.44 | 1.57 |
| 516284 | 1201061020 | 04-APR-2006 10:08 | DONE | -1.7 | -2 | pCi/L | 0.74 | -4 | -2.4 | 3.88 | 5.44 | 1.57 |
| 516477 | 1201061401 | 04-APR-2006 10:18 | DONE | 6.83 | 3.9 | pCi/L | 0.74 | -4 | -2.4 | 3.88 | 5.44 | 1.57 |
| 516727 | 1201061912 | 04-APR-2006 21:43 | DUSE | -0.858 | -1 | pCi/L | 0.74 | -4 | -2.4 | 3.88 | 5.44 | 1.57 |
| 511296 | 1201050104 | 05-APR-2006 18:15 | DONE | 1.32 | 0.37 | pCi/L | 0.74 | -4 | -2.4 | 3.88 | 5.44 | 1.57 |
| 516981 | 1201062533 | 06-APR-2006 16:41 | DONE | 1.36 | 0.4 | pCi/L | 0.74 | -4 | -2.4 | 3.88 | 5.44 | 1.57 |
| 515679 | 1201059779 | 06-APR-2006 20:00 | DONE | 2.14 | 0.89 | pCi/L | 0.74 | -4 | -2.4 | 3.88 | 5.44 | 1.57 |
| 516333 | 1201061129 | 07-APR-2006 16:54 | DONE | -0.153 | -0.57 | pCi/L | 0.74 | -4 | -2.4 | 3.88 | 5.44 | 1.57 |
| 516331 | 1201061125 | 07-APR-2006 16:55 | DONE | -0.15 | -0.57 | pCi/L | 0.74 | -4 | -2.4 | 3.88 | 5.44 | 1.57 |
| 517023 | 1201062630 | 08-APR-2006 01:11 | DONE | 1.56 | 0.52 | pCi/L | 0.74 | -4 | -2.4 | 3.88 | 5.44 | 1.57 |
| 517019 | 1201062617 | 08-APR-2006 17:58 | DUSE | -0.436 | -0.75 | pCi/L | 0.74 | -4 | -2.4 | 3.88 | 5.44 | 1.57 |
| 517034 | 1201062658 | 10-APR-2006 14:44 | DONE | 0.67 | -0.05 | pCi/L | 0.74 | -4 | -2.4 | 3.88 | 5.44 | 1.57 |
| 516976 | 1201062513 | 10-APR-2006 15:40 | DONE | 0.01 | -0.47 | pCi/L | 0.74 | -4 | -2.4 | 3.88 | 5.44 | 1.57 |
| 516982 | 1201062536 | 10-APR-2006 19:45 | DONE | 1.45 | 0.45 | pCi/L | 0.74 | -4 | -2.4 | 3.88 | 5.44 | 1.57 |
| 517024 | 1201062638 | 10-APR-2006 23:56 | DONE | 1.64 | 0.57 | pCi/L | 0.74 | -4 | -2.4 | 3.88 | 5.44 | 1.57 |
| 519523 | 1201068259 | 11-APR-2006 06:19 | DONE | 0.58 | -0.1 | pCi/L | 0.74 | -4 | -2.4 | 3.88 | 5.44 | 1.57 |
| 516977 | 1201062517 | 13-APR-2006 12:23 | DONE | -2.2 | -2 | pCi/L | 0.74 | -4 | -2.4 | 3.88 | 5.44 | 1.57 |
| 516978 | 1201062521 | 13-APR-2006 23:22 | DONE | 1.76 | 0.65 | pCi/L | 0.74 | -4 | -2.4 | 3.88 | 5.44 | 1.57 |
| 520998 | 1201071622 | 16-APR-2006 20:07 | DONE | 0.61 | -0.09 | pCi/L | 0.74 | -4 | -2.4 | 3.88 | 5.44 | 1.57 |
| 517253 | 1201063137 | 17-APR-2006 19:16 | DONE | 0.44 | -0.2 | pCi/L | 0.74 | -4 | -2.4 | 3.88 | 5.44 | 1.57 |
| 520996 | 1201071614 | 17-APR-2006 23:10 | DONE | -1 | -1 | pCi/L | 0.74 | -4 | -2.4 | 3.88 | 5.44 | 1.57 |
| 520754 | 1201071039 | 17-APR-2006 23:45 | DONE | 0.48 | -0.17 | pCi/L | 0.74 | -4 | -2.4 | 3.88 | 5.44 | 1.57 |
| 519011 | 1201067122 | 18-APR-2006 19:02 | DONE | 0.29 | -0.29 | pCi/L | 0.74 | -4 | -2.4 | 3.88 | 5.44 | 1.57 |
| 516657 | 1201061777 | 18-APR-2006 19:37 | DONE | 1.16 | 0.26 | pCi/L | 0.74 | -4 | -2.4 | 3.88 | 5.44 | 1.57 |
| 516979 | 1201062525 | 19-APR-2006 11:15 | DONE | 0.47 | -0.18 | pCi/L | 0.74 | -4 | -2.4 | 3.88 | 5.44 | 1.57 |
| 516980 | 1201062529 | 19-APR-2006 22:49 | DONE | -0.125 | -0.55 | pCi/L | 0.74 | -4 | -2.4 | 3.88 | 5.44 | 1.57 |
| 521937 | 1201074022 | 20-APR-2006 06:03 | DUSE | 0.05 | -0.44 | pCi/L | 0.74 | -4 | -2.4 | 3.88 | 5.44 | 1.57 |
| 517257 | 1201063152 | 20-APR-2006 10:17 | DONE | -0.245 | -0.63 | pCi/L | 0.74 | -4 | -2.4 | 3.88 | 5.44 | 1.57 |
| 519545 | 1201068317 | 20-APR-2006 12:30 | DONE | 1.06 | 0.2 | pCi/L | 0.74 | -4 | -2.4 | 3.88 | 5.44 | 1.57 |
| 517255 | 1201063144 | 20-APR-2006 17:02 | DONE | 0.43 | -0.2 | pCi/L | 0.74 | -4 | -2.4 | 3.88 | 5.44 | 1.57 |

| | | | | | | | | | | | | |
|--------|------------|-------------------|------|--------|-------|-------|------|----|------|------|------|------|
| 519535 | 1201068288 | 20-APR-2006 21:41 | DONE | 1.97 | 0.78 | pCi/L | 0.74 | -4 | -2.4 | 3.88 | 5.44 | 1.57 |
| 519516 | 1201068248 | 20-APR-2006 23:48 | DONE | 0.35 | -0.25 | pCi/L | 0.74 | -4 | -2.4 | 3.88 | 5.44 | 1.57 |
| 523018 | 1201076446 | 21-APR-2006 17:26 | DONE | -0.582 | -0.85 | pCi/L | 0.74 | -4 | -2.4 | 3.88 | 5.44 | 1.57 |
| 522386 | 1201075054 | 21-APR-2006 23:16 | DONE | 2.89 | 1.4 | pCi/L | 0.74 | -4 | -2.4 | 3.88 | 5.44 | 1.57 |
| 523017 | 1201076443 | 24-APR-2006 23:31 | DUSE | -0.982 | -1 | pCi/L | 0.74 | -4 | -2.4 | 3.88 | 5.44 | 1.57 |
| 519510 | 1201068236 | 25-APR-2006 18:43 | DUSE | 2.14 | 0.89 | pCi/L | 0.74 | -4 | -2.4 | 3.88 | 5.44 | 1.57 |

Cobalt-60 DUP: Limits LCL = 0 UCL = 20

| Batch ID | Samp ID | Run Date | Status | Value | Deviation | Units | Mean | LCL | LWL | UWL | UCL | Stdev |
|----------|------------|-------------------|--------|-------|-----------|---------|------|-----|------|------|------|-------|
| 514861 | 1201057810 | 01-APR-2006 20:22 | DONE | 184 | -0.22 | percent | 282 | 0 | -610 | 1170 | 20.0 | 445 |
| 511298 | 1201050111 | 02-APR-2006 22:51 | DONE | 78.7 | -0.46 | percent | 282 | 0 | -610 | 1170 | 20.0 | 445 |
| 511295 | 1201050102 | 03-APR-2006 05:16 | DONE | 73 | -0.47 | percent | 282 | 0 | -610 | 1170 | 20.0 | 445 |
| 515677 | 1201059771 | 03-APR-2006 10:09 | DONE | 711 | 0.96 | percent | 282 | 0 | -610 | 1170 | 20.0 | 445 |
| 511297 | 1201050108 | 04-APR-2006 05:50 | DONE | 1210 | 2.1 | percent | 282 | 0 | -610 | 1170 | 20.0 | 445 |
| 516974 | 1201062507 | 04-APR-2006 11:01 | DONE | 211 | -0.16 | percent | 282 | 0 | -610 | 1170 | 20.0 | 445 |
| 512870 | 1201053697 | 04-APR-2006 12:02 | DONE | 0 | -0.63 | percent | 282 | 0 | -610 | 1170 | 20.0 | 445 |
| 516477 | 1201061402 | 04-APR-2006 12:18 | DONE | 133 | -0.33 | percent | 282 | 0 | -610 | 1170 | 20.0 | 445 |
| 516284 | 1201061021 | 04-APR-2006 17:27 | DONE | 0 | -0.63 | percent | 282 | 0 | -610 | 1170 | 20.0 | 445 |
| 511296 | 1201050105 | 05-APR-2006 18:16 | DONE | 274 | -0.02 | percent | 282 | 0 | -610 | 1170 | 20.0 | 445 |
| 515679 | 1201059780 | 06-APR-2006 11:54 | DONE | 36.6 | -0.55 | percent | 282 | 0 | -610 | 1170 | 20.0 | 445 |
| 516981 | 1201062534 | 06-APR-2006 23:55 | DONE | 11.5 | -0.61 | percent | 282 | 0 | -610 | 1170 | 20.0 | 445 |
| 516976 | 1201062514 | 07-APR-2006 11:18 | DONE | 87 | -0.44 | percent | 282 | 0 | -610 | 1170 | 20.0 | 445 |
| 516333 | 1201061130 | 07-APR-2006 16:54 | DONE | 67.7 | -0.48 | percent | 282 | 0 | -610 | 1170 | 20.0 | 445 |
| 517034 | 1201062659 | 10-APR-2006 18:58 | DONE | 42.7 | -0.54 | percent | 282 | 0 | -610 | 1170 | 20.0 | 445 |
| 517023 | 1201062631 | 10-APR-2006 19:02 | DONE | 36.6 | -0.55 | percent | 282 | 0 | -610 | 1170 | 20.0 | 445 |
| 517019 | 1201062618 | 10-APR-2006 19:13 | DUSE | 214 | -0.15 | percent | 282 | 0 | -610 | 1170 | 20.0 | 445 |
| 516982 | 1201062537 | 10-APR-2006 21:49 | DONE | 259 | -0.05 | percent | 282 | 0 | -610 | 1170 | 20.0 | 445 |
| 517024 | 1201062639 | 11-APR-2006 10:13 | DONE | 301 | 0.04 | percent | 282 | 0 | -610 | 1170 | 20.0 | 445 |
| 519523 | 1201068260 | 11-APR-2006 10:15 | DONE | 152 | -0.29 | percent | 282 | 0 | -610 | 1170 | 20.0 | 445 |
| 516331 | 1201061126 | 12-APR-2006 13:16 | DONE | 1660 | 3.1 | percent | 282 | 0 | -610 | 1170 | 20.0 | 445 |
| 516977 | 1201062518 | 13-APR-2006 21:04 | DONE | 650 | 0.83 | percent | 282 | 0 | -610 | 1170 | 20.0 | 445 |
| 516978 | 1201062522 | 14-APR-2006 06:30 | DONE | 65.3 | -0.49 | percent | 282 | 0 | -610 | 1170 | 20.0 | 445 |
| 517253 | 1201063138 | 17-APR-2006 11:51 | DONE | 1480 | 2.7 | percent | 282 | 0 | -610 | 1170 | 20.0 | 445 |
| 520754 | 1201071040 | 17-APR-2006 23:56 | DONE | 0 | -0.63 | percent | 282 | 0 | -610 | 1170 | 20.0 | 445 |
| 520996 | 1201071615 | 18-APR-2006 05:53 | DONE | 102 | -0.4 | percent | 282 | 0 | -610 | 1170 | 20.0 | 445 |
| 520998 | 1201071623 | 19-APR-2006 06:01 | DONE | 688 | 0.91 | percent | 282 | 0 | -610 | 1170 | 20.0 | 445 |
| 516979 | 1201062526 | 19-APR-2006 07:25 | DONE | 308 | 0.06 | percent | 282 | 0 | -610 | 1170 | 20.0 | 445 |
| 516657 | 1201061778 | 19-APR-2006 17:52 | DONE | 0 | -0.63 | percent | 282 | 0 | -610 | 1170 | 20.0 | 445 |
| 521937 | 1201074023 | 20-APR-2006 06:04 | DUSE | 0 | -0.63 | percent | 282 | 0 | -610 | 1170 | 20.0 | 445 |
| 517257 | 1201063153 | 20-APR-2006 10:21 | DONE | 107 | -0.39 | percent | 282 | 0 | -610 | 1170 | 20.0 | 445 |
| 519545 | 1201068318 | 20-APR-2006 15:32 | DONE | 36 | -0.55 | percent | 282 | 0 | -610 | 1170 | 20.0 | 445 |
| 519011 | 1201067123 | 20-APR-2006 23:49 | DONE | 0 | -0.63 | percent | 282 | 0 | -610 | 1170 | 20.0 | 445 |

| | | | | | | | | | | | | |
|--------|------------|-------------------|------|------|-------|---------|-----|---|------|------|------|-----|
| 519011 | 1201067125 | 20-APR-2006 23:47 | DONE | 51.8 | -0.52 | percent | 282 | 0 | -610 | 1170 | 20.0 | 445 |
| 517255 | 1201063145 | 20-APR-2006 23:50 | DONE | 51.8 | -0.52 | percent | 282 | 0 | -610 | 1170 | 20.0 | 445 |
| 519535 | 1201068296 | 20-APR-2006 23:55 | DONE | 1510 | 2.7 | percent | 282 | 0 | -610 | 1170 | 20.0 | 445 |
| 519516 | 1201068249 | 21-APR-2006 09:09 | DONE | 75.8 | -0.46 | percent | 282 | 0 | -610 | 1170 | 20.0 | 445 |
| 522386 | 1201075055 | 23-APR-2006 23:51 | DONE | 155 | -0.28 | percent | 282 | 0 | -610 | 1170 | 20.0 | 445 |
| 523018 | 1201076447 | 23-APR-2006 23:56 | DONE | 17.1 | -0.6 | percent | 282 | 0 | -610 | 1170 | 20.0 | 445 |
| 519510 | 1201068237 | 26-APR-2006 05:28 | DUSE | 28.5 | -0.57 | percent | 282 | 0 | -610 | 1170 | 20.0 | 445 |

Cobalt-60 LCS: Limits LCL = 75 UCL = 125

| Batch ID | Samp ID | Run Date | Status | Value | Deviation | Units | Mean | LCL | LWL | UWL | UCL | Stdev |
|----------|------------|-------------------|--------|-------|-----------|---------|------|------|------|-----|-----|-------|
| 511298 | 1201050112 | 03-APR-2006 22:07 | DONE | 94.3 | -0.69 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 512870 | 1201053698 | 03-APR-2006 23:54 | DONE | 111 | 1.3 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 511297 | 1201050109 | 04-APR-2006 06:47 | DONE | 107 | 0.8 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 516974 | 1201062509 | 04-APR-2006 07:59 | DONE | 97.7 | -0.28 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 516284 | 1201061022 | 04-APR-2006 10:09 | DONE | 94.2 | -0.7 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 516477 | 1201061403 | 04-APR-2006 11:44 | DONE | 97.7 | -0.28 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 516727 | 1201061913 | 04-APR-2006 21:44 | DONE | 96.2 | -0.46 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 511296 | 1201050106 | 05-APR-2006 19:38 | DONE | 99.8 | -0.03 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 515679 | 1201059782 | 06-APR-2006 21:11 | DONE | 108 | 0.98 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 516333 | 1201061132 | 06-APR-2006 22:33 | DONE | 102 | 0.28 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 516981 | 1201062535 | 07-APR-2006 13:55 | DONE | 112 | 1.4 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 516331 | 1201061128 | 07-APR-2006 16:56 | DONE | 98.8 | -0.14 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 517019 | 1201062620 | 08-APR-2006 17:13 | DUSE | 106 | 0.71 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 516976 | 1201062516 | 10-APR-2006 08:10 | DONE | 108 | 0.95 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 517034 | 1201062660 | 10-APR-2006 20:35 | DONE | 107 | 0.8 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 516982 | 1201062538 | 10-APR-2006 21:32 | DONE | 96.7 | -0.4 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 517023 | 1201062632 | 10-APR-2006 22:38 | DONE | 96.1 | -0.47 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 517024 | 1201062641 | 11-APR-2006 06:58 | DONE | 106 | 0.72 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 519523 | 1201068262 | 11-APR-2006 10:58 | DONE | 105 | 0.62 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 519011 | 1201067124 | 11-APR-2006 22:38 | DONE | 97.4 | -0.31 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 516978 | 1201062524 | 14-APR-2006 06:31 | DONE | 103 | 0.3 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 516977 | 1201062520 | 14-APR-2006 10:17 | DONE | 117 | 2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 520998 | 1201071625 | 17-APR-2006 19:03 | DONE | 93.8 | -0.74 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 517253 | 1201063139 | 17-APR-2006 22:49 | DONE | 95.4 | -0.55 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 520996 | 1201071617 | 18-APR-2006 05:54 | DONE | 97.2 | -0.34 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 520754 | 1201071041 | 18-APR-2006 19:10 | DONE | 110 | 1.2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 516979 | 1201062528 | 19-APR-2006 13:02 | DONE | 105 | 0.56 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 516657 | 1201061779 | 19-APR-2006 18:10 | DONE | 105 | 0.56 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 516980 | 1201062532 | 19-APR-2006 22:50 | DONE | 108 | 0.96 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 521937 | 1201074024 | 20-APR-2006 06:04 | DUSE | 101 | 0.16 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 519545 | 1201068320 | 20-APR-2006 09:41 | DONE | 92.5 | -0.9 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 517257 | 1201063155 | 20-APR-2006 12:11 | DONE | 102 | 0.18 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |

| | | | | | | | | | | | | |
|--------|------------|-------------------|------|------|-------|---------|-----|------|------|-----|-----|------|
| 519535 | 1201068291 | 21-APR-2006 06:15 | DONE | 103 | 0.37 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 517255 | 1201063147 | 21-APR-2006 07:39 | DONE | 104 | 0.5 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 519516 | 1201068251 | 21-APR-2006 09:58 | DONE | 97.5 | -0.3 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 522386 | 1201075056 | 23-APR-2006 21:45 | DONE | 97.2 | -0.34 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 523018 | 1201076449 | 24-APR-2006 05:38 | DONE | 90.9 | -1 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 523017 | 1201076445 | 25-APR-2006 06:13 | DONE | 99.1 | -0.11 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 519510 | 1201068238 | 26-APR-2006 05:24 | DONE | 98.0 | -0.24 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |

Cobalt-60 RER: Limits LCL = 0 UCL = 3

| Batch ID | Samp ID | Run Date | Status | Value | Deviation | Units | Mean | LCL | LWL | UWL | UCL | Stdev |
|----------|------------|-------------------|--------|-------|-----------|-------|------|-----|--------|------|------|-------|
| 511295 | 1201050102 | 03-APR-2006 05:16 | DONE | 0.13 | -0.98 | dec | 0.76 | 0 | -0.518 | 2.03 | 3.00 | 0.64 |
| 515677 | 1201059771 | 03-APR-2006 10:09 | DONE | 0.5 | -0.4 | dec | 0.76 | 0 | -0.518 | 2.03 | 3.00 | 0.64 |
| 511297 | 1201050108 | 04-APR-2006 05:50 | DONE | 2.13 | 2.2 | dec | 0.76 | 0 | -0.518 | 2.03 | 3.00 | 0.64 |
| 516974 | 1201062507 | 04-APR-2006 11:01 | DONE | 1.99 | 1.9 | dec | 0.76 | 0 | -0.518 | 2.03 | 3.00 | 0.64 |
| 512870 | 1201053697 | 04-APR-2006 12:02 | DONE | 0.84 | 0.14 | dec | 0.76 | 0 | -0.518 | 2.03 | 3.00 | 0.64 |
| 516477 | 1201061402 | 04-APR-2006 12:18 | DONE | 0.39 | -0.57 | dec | 0.76 | 0 | -0.518 | 2.03 | 3.00 | 0.64 |
| 516284 | 1201061021 | 04-APR-2006 17:27 | DONE | 0.85 | 0.14 | dec | 0.76 | 0 | -0.518 | 2.03 | 3.00 | 0.64 |
| 511296 | 1201050105 | 05-APR-2006 18:16 | DONE | 0.4 | -0.56 | dec | 0.76 | 0 | -0.518 | 2.03 | 3.00 | 0.64 |
| 515679 | 1201059780 | 06-APR-2006 11:54 | DONE | 0.9 | 0.22 | dec | 0.76 | 0 | -0.518 | 2.03 | 3.00 | 0.64 |
| 516981 | 1201062534 | 06-APR-2006 23:55 | DONE | 0.11 | -1 | dec | 0.76 | 0 | -0.518 | 2.03 | 3.00 | 0.64 |
| 516976 | 1201062514 | 07-APR-2006 11:18 | DONE | 0.88 | 0.2 | dec | 0.76 | 0 | -0.518 | 2.03 | 3.00 | 0.64 |
| 516333 | 1201061130 | 07-APR-2006 16:54 | DONE | 0.46 | -0.46 | dec | 0.76 | 0 | -0.518 | 2.03 | 3.00 | 0.64 |
| 517034 | 1201062659 | 10-APR-2006 18:58 | DONE | 0.22 | -0.84 | dec | 0.76 | 0 | -0.518 | 2.03 | 3.00 | 0.64 |
| 517023 | 1201062631 | 10-APR-2006 19:02 | DONE | 0.09 | -1 | dec | 0.76 | 0 | -0.518 | 2.03 | 3.00 | 0.64 |
| 517019 | 1201062618 | 10-APR-2006 19:13 | DUSE | 0.89 | 0.2 | dec | 0.76 | 0 | -0.518 | 2.03 | 3.00 | 0.64 |
| 516982 | 1201062537 | 10-APR-2006 21:49 | DONE | 1.57 | 1.3 | dec | 0.76 | 0 | -0.518 | 2.03 | 3.00 | 0.64 |
| 517024 | 1201062639 | 11-APR-2006 10:13 | DONE | 2.34 | 2.5 | dec | 0.76 | 0 | -0.518 | 2.03 | 3.00 | 0.64 |
| 519523 | 1201068260 | 11-APR-2006 10:15 | DONE | 1.95 | 1.9 | dec | 0.76 | 0 | -0.518 | 2.03 | 3.00 | 0.64 |
| 516331 | 1201061126 | 12-APR-2006 13:16 | DONE | 0.63 | -0.2 | dec | 0.76 | 0 | -0.518 | 2.03 | 3.00 | 0.64 |
| 516977 | 1201062518 | 13-APR-2006 21:04 | DONE | 0.38 | -0.59 | dec | 0.76 | 0 | -0.518 | 2.03 | 3.00 | 0.64 |
| 516978 | 1201062522 | 14-APR-2006 06:30 | DONE | 0.37 | -0.61 | dec | 0.76 | 0 | -0.518 | 2.03 | 3.00 | 0.64 |
| 517253 | 1201063138 | 17-APR-2006 11:51 | DONE | 0.29 | -0.73 | dec | 0.76 | 0 | -0.518 | 2.03 | 3.00 | 0.64 |
| 520754 | 1201071040 | 17-APR-2006 23:56 | DONE | 0.02 | -1 | dec | 0.76 | 0 | -0.518 | 2.03 | 3.00 | 0.64 |
| 520996 | 1201071615 | 18-APR-2006 05:53 | DONE | 1.12 | 0.58 | dec | 0.76 | 0 | -0.518 | 2.03 | 3.00 | 0.64 |
| 520998 | 1201071623 | 19-APR-2006 06:01 | DONE | 1.52 | 1.2 | dec | 0.76 | 0 | -0.518 | 2.03 | 3.00 | 0.64 |
| 516979 | 1201062526 | 19-APR-2006 07:25 | DONE | 1.2 | 0.7 | dec | 0.76 | 0 | -0.518 | 2.03 | 3.00 | 0.64 |
| 516657 | 1201061778 | 19-APR-2006 17:52 | DONE | 0.11 | -1 | dec | 0.76 | 0 | -0.518 | 2.03 | 3.00 | 0.64 |
| 516980 | 1201062530 | 19-APR-2006 23:19 | DONE | 0.08 | -1 | dec | 0.76 | 0 | -0.518 | 2.03 | 3.00 | 0.64 |
| 521937 | 1201074023 | 20-APR-2006 06:04 | DUSE | 0.61 | -0.22 | dec | 0.76 | 0 | -0.518 | 2.03 | 3.00 | 0.64 |
| 517257 | 1201063153 | 20-APR-2006 10:21 | DONE | 0.84 | 0.13 | dec | 0.76 | 0 | -0.518 | 2.03 | 3.00 | 0.64 |
| 519545 | 1201068318 | 20-APR-2006 15:32 | DONE | 0.15 | -0.95 | dec | 0.76 | 0 | -0.518 | 2.03 | 3.00 | 0.64 |
| 519011 | 1201067132 | 20-APR-2006 22:40 | DONE | 0.75 | 0.01 | dec | 0.76 | 0 | -0.518 | 2.03 | 3.00 | 0.64 |

| | | | | | | | | | | | | |
|--------|------------|-------------------|------|------|-------|-----|------|---|--------|------|------|------|
| 519011 | 1201067125 | 20-APR-2006 23:47 | DONE | 0.75 | -0.01 | dec | 0.76 | 0 | -0.518 | 2.03 | 3.00 | 0.64 |
| 517255 | 1201063145 | 20-APR-2006 23:50 | DONE | 0.43 | -0.51 | dec | 0.76 | 0 | -0.518 | 2.03 | 3.00 | 0.64 |
| 519535 | 1201068296 | 20-APR-2006 23:55 | DONE | 1.94 | 1.9 | dec | 0.76 | 0 | -0.518 | 2.03 | 3.00 | 0.64 |
| 519516 | 1201068249 | 21-APR-2006 09:09 | DONE | 0.46 | -0.46 | dec | 0.76 | 0 | -0.518 | 2.03 | 3.00 | 0.64 |
| 522386 | 1201075055 | 23-APR-2006 23:51 | DONE | 0.53 | -0.36 | dec | 0.76 | 0 | -0.518 | 2.03 | 3.00 | 0.64 |
| 523018 | 1201076447 | 23-APR-2006 23:56 | DONE | 0.55 | -0.32 | dec | 0.76 | 0 | -0.518 | 2.03 | 3.00 | 0.64 |
| 523017 | 1201076444 | 25-APR-2006 06:13 | DUSE | 0.8 | 0.07 | dec | 0.76 | 0 | -0.518 | 2.03 | 3.00 | 0.64 |
| 519510 | 1201068237 | 26-APR-2006 05:28 | DUSE | 0.08 | -1 | dec | 0.76 | 0 | -0.518 | 2.03 | 3.00 | 0.64 |

Cobalt-60 SPIKE: Limits LCL = 75 UCL = 125

| Batch ID | Samp ID | Run Date | Status | Value | Deviation | Units | Mean | LCL | LWL | UWL | UCL | Stdev |
|----------|------------|-------------------|--------|-------|-----------|---------|------|------|------|-----|-----|-------|
| 503740 | 1201032437 | 27-FEB-2006 06:22 | DONE | 96.9 | -0.37 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 506274 | 1201038473 | 28-FEB-2006 09:00 | DONE | 93.0 | -0.84 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 506282 | 1201038480 | 03-MAR-2006 11:15 | DONE | 103 | 0.38 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 507258 | 1201040767 | 05-MAR-2006 19:50 | DONE | 107 | 0.82 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 507638 | 1201041726 | 07-MAR-2006 10:55 | DONE | 90.5 | -1 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 508355 | 1201043465 | 08-MAR-2006 11:21 | DONE | 102 | 0.23 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 507632 | 1201041716 | 10-MAR-2006 10:00 | DONE | 104 | 0.49 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 510364 | 1201048016 | 10-MAR-2006 17:46 | DONE | 108 | 0.96 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 507647 | 1201041742 | 11-MAR-2006 15:34 | DONE | 86.8 | -2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 507649 | 1201041746 | 18-MAR-2006 13:45 | DONE | 108 | 0.94 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 507650 | 1201041750 | 18-MAR-2006 13:46 | DONE | 109 | 1.1 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 507640 | 1201041730 | 20-MAR-2006 18:44 | DONE | 99.4 | -0.07 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 512038 | 1201051800 | 21-MAR-2006 11:50 | DONE | 103 | 0.41 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 508908 | 1201044773 | 22-MAR-2006 17:05 | DONE | 105 | 0.63 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 507641 | 1201041734 | 23-MAR-2006 09:11 | DONE | 102 | 0.28 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 510369 | 1201048027 | 27-MAR-2006 06:50 | DONE | 88.6 | -1 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 508910 | 1201044781 | 27-MAR-2006 19:42 | DONE | 94.2 | -0.7 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 511246 | 1201049992 | 28-MAR-2006 11:43 | DONE | 105 | 0.54 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 508909 | 1201044777 | 29-MAR-2006 08:15 | DONE | 102 | 0.2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 507644 | 1201041738 | 03-APR-2006 12:47 | DONE | 109 | 1.1 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 516974 | 1201062508 | 04-APR-2006 09:02 | DONE | 104 | 0.52 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 515679 | 1201059781 | 06-APR-2006 21:11 | DONE | 103 | 0.31 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 516333 | 1201061131 | 06-APR-2006 22:34 | DONE | 100 | -0 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 517019 | 1201062619 | 08-APR-2006 18:42 | DUSE | 106 | 0.73 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 516976 | 1201062515 | 10-APR-2006 06:39 | DONE | 102 | 0.28 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 517024 | 1201062640 | 11-APR-2006 05:39 | DONE | 97.6 | -0.29 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 519523 | 1201068261 | 11-APR-2006 08:15 | DONE | 91.7 | -01 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 516331 | 1201061127 | 11-APR-2006 12:05 | DONE | 96.6 | -0.41 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 516977 | 1201062519 | 13-APR-2006 21:04 | DONE | 102 | 0.26 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 516978 | 1201062523 | 14-APR-2006 06:30 | DONE | 111 | 1.3 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 520996 | 1201071616 | 18-APR-2006 05:54 | DONE | 110 | 1.2 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |

| | | | | | | | | | | | | |
|--------|------------|-------------------|------|------|-------|---------|-----|------|------|-----|-----|------|
| 520998 | 1201071624 | 19-APR-2006 06:01 | DONE | 104 | 0.48 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 516979 | 1201062527 | 19-APR-2006 07:26 | DONE | 99.4 | -0.08 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 516980 | 1201062531 | 19-APR-2006 11:25 | DONE | 98.6 | -0.17 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 517255 | 1201063146 | 21-APR-2006 06:23 | DONE | 106 | 0.76 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 519516 | 1201068250 | 21-APR-2006 09:10 | DONE | 111 | 1.3 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 517257 | 1201063154 | 21-APR-2006 12:55 | DONE | 102 | 0.24 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 519535 | 1201068297 | 21-APR-2006 13:59 | DONE | 105 | 0.58 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |
| 523018 | 1201076448 | 21-APR-2006 20:25 | DONE | 112 | 1.4 | percent | 100 | 75.0 | 83.3 | 117 | 125 | 8.33 |

Lead-212 RER: Limits LCL = 0 UCL = 3

| Batch ID | Samp ID | Run Date | Status | Value | Deviation | Units | Mean | LCL | LWL | UWL | UCL | Stdev |
|----------|------------|-------------------|--------|-------|-----------|-------|------|-----|--------|------|------|-------|
| 511295 | 1201050102 | 03-APR-2006 05:16 | DUSE | 0.22 | -0.82 | dec | 0.59 | 0 | -0.313 | 1.49 | 3.00 | 0.45 |
| 515677 | 1201059771 | 03-APR-2006 10:09 | DUSE | 0.36 | -0.5 | dec | 0.59 | 0 | -0.313 | 1.49 | 3.00 | 0.45 |
| 511297 | 1201050108 | 04-APR-2006 05:50 | DONE | 2.15 | 3.5 | dec | 0.59 | 0 | -0.313 | 1.49 | 3.00 | 0.45 |
| 516974 | 1201062507 | 04-APR-2006 11:01 | DUSE | 0.07 | -1 | dec | 0.59 | 0 | -0.313 | 1.49 | 3.00 | 0.45 |
| 512870 | 1201053697 | 04-APR-2006 12:02 | DUSE | 0.58 | -0.01 | dec | 0.59 | 0 | -0.313 | 1.49 | 3.00 | 0.45 |
| 516477 | 1201061402 | 04-APR-2006 12:18 | DUSE | 0.47 | -0.27 | dec | 0.59 | 0 | -0.313 | 1.49 | 3.00 | 0.45 |
| 516284 | 1201061021 | 04-APR-2006 17:27 | DUSE | 0.65 | 0.14 | dec | 0.59 | 0 | -0.313 | 1.49 | 3.00 | 0.45 |
| 511296 | 1201050105 | 05-APR-2006 18:16 | DUSE | 0.33 | -0.58 | dec | 0.59 | 0 | -0.313 | 1.49 | 3.00 | 0.45 |
| 515679 | 1201059780 | 06-APR-2006 11:54 | DONE | 0.58 | -0.03 | dec | 0.59 | 0 | -0.313 | 1.49 | 3.00 | 0.45 |
| 516981 | 1201062534 | 06-APR-2006 23:55 | DUSE | 0.59 | 0.01 | dec | 0.59 | 0 | -0.313 | 1.49 | 3.00 | 0.45 |
| 516976 | 1201062514 | 07-APR-2006 11:18 | DUSE | 0.33 | -0.58 | dec | 0.59 | 0 | -0.313 | 1.49 | 3.00 | 0.45 |
| 516333 | 1201061130 | 07-APR-2006 16:54 | DONE | 0.28 | -0.69 | dec | 0.59 | 0 | -0.313 | 1.49 | 3.00 | 0.45 |
| 517034 | 1201062659 | 10-APR-2006 18:58 | DONE | 1 | 0.91 | dec | 0.59 | 0 | -0.313 | 1.49 | 3.00 | 0.45 |
| 517023 | 1201062631 | 10-APR-2006 19:02 | DUSE | 0.12 | -1 | dec | 0.59 | 0 | -0.313 | 1.49 | 3.00 | 0.45 |
| 517019 | 1201062618 | 10-APR-2006 19:13 | DONE | 0.87 | 0.62 | dec | 0.59 | 0 | -0.313 | 1.49 | 3.00 | 0.45 |
| 516982 | 1201062537 | 10-APR-2006 21:49 | DUSE | 0.39 | -0.45 | dec | 0.59 | 0 | -0.313 | 1.49 | 3.00 | 0.45 |
| 517024 | 1201062639 | 11-APR-2006 10:13 | DONE | 0.15 | -0.98 | dec | 0.59 | 0 | -0.313 | 1.49 | 3.00 | 0.45 |
| 519523 | 1201068260 | 11-APR-2006 10:15 | DONE | 0.82 | 0.51 | dec | 0.59 | 0 | -0.313 | 1.49 | 3.00 | 0.45 |
| 516331 | 1201061126 | 12-APR-2006 13:16 | DONE | 0.41 | -0.39 | dec | 0.59 | 0 | -0.313 | 1.49 | 3.00 | 0.45 |
| 516977 | 1201062518 | 13-APR-2006 21:04 | DUSE | 0.65 | 0.13 | dec | 0.59 | 0 | -0.313 | 1.49 | 3.00 | 0.45 |
| 516978 | 1201062522 | 14-APR-2006 06:30 | DUSE | 1.35 | 1.7 | dec | 0.59 | 0 | -0.313 | 1.49 | 3.00 | 0.45 |
| 517253 | 1201063138 | 17-APR-2006 11:51 | DONE | 0.64 | 0.11 | dec | 0.59 | 0 | -0.313 | 1.49 | 3.00 | 0.45 |
| 520754 | 1201071040 | 17-APR-2006 23:56 | DUSE | 1.26 | 1.5 | dec | 0.59 | 0 | -0.313 | 1.49 | 3.00 | 0.45 |
| 520996 | 1201071615 | 18-APR-2006 05:53 | DONE | 0.84 | 0.55 | dec | 0.59 | 0 | -0.313 | 1.49 | 3.00 | 0.45 |
| 520998 | 1201071623 | 19-APR-2006 06:01 | DONE | 0.07 | -1 | dec | 0.59 | 0 | -0.313 | 1.49 | 3.00 | 0.45 |
| 516979 | 1201062526 | 19-APR-2006 07:25 | DUSE | 1.28 | 1.5 | dec | 0.59 | 0 | -0.313 | 1.49 | 3.00 | 0.45 |
| 516657 | 1201061778 | 19-APR-2006 17:52 | DUSE | 0.3 | -0.64 | dec | 0.59 | 0 | -0.313 | 1.49 | 3.00 | 0.45 |
| 516980 | 1201062530 | 19-APR-2006 23:19 | DUSE | 0.33 | -0.58 | dec | 0.59 | 0 | -0.313 | 1.49 | 3.00 | 0.45 |
| 521937 | 1201074023 | 20-APR-2006 06:04 | DUSE | 0.65 | 0.14 | dec | 0.59 | 0 | -0.313 | 1.49 | 3.00 | 0.45 |
| 517257 | 1201063153 | 20-APR-2006 10:21 | DONE | 1.11 | 1.1 | dec | 0.59 | 0 | -0.313 | 1.49 | 3.00 | 0.45 |
| 519545 | 1201068218 | 20-APR-2006 15:22 | DONE | 0.22 | -1 | dec | 0.59 | 0 | -0.313 | 1.49 | 3.00 | 0.45 |

| | | | | | | | | | | | | |
|--------|------------|-------------------|------|------|-------|-----|------|---|--------|------|------|------|
| 519545 | 1201068318 | 20-APR-2006 15:32 | DONE | 0.03 | -1 | dec | 0.59 | 0 | -0.313 | 1.49 | 3.00 | 0.45 |
| 519011 | 1201067123 | 20-APR-2006 23:49 | DUSE | 0.07 | -1 | dec | 0.59 | 0 | -0.313 | 1.49 | 3.00 | 0.45 |
| 517255 | 1201063145 | 20-APR-2006 23:50 | DONE | 0.29 | -0.66 | dec | 0.59 | 0 | -0.313 | 1.49 | 3.00 | 0.45 |
| 519535 | 1201068296 | 20-APR-2006 23:55 | DUSE | 0.3 | -0.65 | dec | 0.59 | 0 | -0.313 | 1.49 | 3.00 | 0.45 |
| 519516 | 1201068249 | 21-APR-2006 09:09 | DONE | 1.04 | 1 | dec | 0.59 | 0 | -0.313 | 1.49 | 3.00 | 0.45 |
| 522386 | 1201075055 | 23-APR-2006 23:51 | DUSE | 0.64 | 0.12 | dec | 0.59 | 0 | -0.313 | 1.49 | 3.00 | 0.45 |
| 523018 | 1201076447 | 23-APR-2006 23:56 | DUSE | 0.01 | -1 | dec | 0.59 | 0 | -0.313 | 1.49 | 3.00 | 0.45 |
| 523017 | 1201076444 | 25-APR-2006 06:13 | DONE | 0.73 | 0.3 | dec | 0.59 | 0 | -0.313 | 1.49 | 3.00 | 0.45 |
| 519510 | 1201068237 | 26-APR-2006 05:28 | DONE | 1.03 | 0.97 | dec | 0.59 | 0 | -0.313 | 1.49 | 3.00 | 0.45 |

STANDARDS DATA

CERTIFICATE OF CALIBRATION ALPHA STANDARD SOLUTION

0159

Radionuclide: Th-230
Half Life: $(7.54 \pm 0.03) \times 10^4$ years
Catalog No.: 7230
Source No.: 678-28-1
Customer: GENERAL ENGINEERING LABS
P.O.No.: 2507 RD
Reference Date: 1 Sep 99 12:00 PST.
Contained Radioactivity: Th-230: 9.740 μ Ci (360.4 kBq)

Description of Solution

- a. Mass of solution: 4.89252 grams in 5 mL flame sealed ampoule
- b. Chemical form: Thorium nitrate in 0.1M nitric acid
- c. Carrier content: 10 μ g Th/mL of solution
- d. Density: 1.0016

gram/ml @ 20°C.

Radioimpurities

Am-241: See Technical Data Sheet

Radioactive Daughters

Ra-226: See Technical Data Sheet

Radionuclide Concentration

Th-230: 1.991 μ Ci/gram of solution (73.67 kBq/gram of solution)

Method of Calibration

Weighed aliquots of the solution were assayed using a liquid scintillation counter.

Uncertainty of Measurement

- a. Systematic uncertainty in instrument calibration: $\pm 2.0\%$
- b. Random uncertainty in assay: $\pm 0.8\%$
- c. Random uncertainty in weighing(s): $\pm 0.0\%$
- d. Total uncertainty at the 99% confidence level: $\pm 2.2\%$

NIST Traceability

This calibration is implicitly traceable to the National Institute of Standards and Technology.

Leak Test(s)

See reverse side for Leak Test(s) applied to this source.

Notes

1. IPL participates in an NIST measurement assurance program to establish and maintain implicit traceability for a number of nuclides, based on the blind assay (and later NIST certification) of Standard Reference Materials. (As in NRC Regulatory Guide 4.15)
2. Nuclear data were taken from Table of Radioactive Isotopes (1986), edited by Virginia Shirley.

Daniel James Van Dalsen
QUALITY CONTROL

26-Aug-99
Date Signed



ISOTOPE PRODUCTS LABORATORIES

1800 N. KEYSTONE STREET
BURBANK, CALIFORNIA 91504

818-843-7000 FAX 818-843-6168

0159



Th-230 TECHNICAL DATA

The Th-230 used to prepare your order was taken from Isotope Products Laboratories Lot #6481 and had the following composition as of December 15, 1994.

| <u>NUCLIDE</u> | <u>ATOM%</u> | <u>ACTIVITY%</u> |
|--------------------------|--------------|--------------------------|
| Th-229 | <0.001 | <1.23 x 10 ⁻² |
| Th-230 | 83.71 | 99.79 |
| Th-232 | 16.29 | 1.08 x 10 ⁻⁴ |
| Ra-226 (daughter Th-230) | ---- | 0.15 |
| Am-241 | ---- | 0.05 |

Isotopic composition provided by Oak Ridge National Laboratory.

No other alpha emitting nuclides were detected.

If you have any questions, please contact Technical Service.

Corporate and
Sales Offices
1800 N. Keystone Street
Folsom, California
91504
818-843-7000
818-843-6163



Standard Traceability Log Rad

| Source Material Info | | A Solution Material Info | |
|----------------------|--------------|--------------------------|-------------|
| Parent Code: | 0159 | Isotope: | Thorium-230 |
| Prepared By: | Joe Davis | Prepared By: | Joe Davis |
| Carrier Conc: | 0.1M HNO3 | Prep Date: | 09/21/1999 |
| Reference Date: | 09/01/1999 | Verification Date: | 06/19/2004 |
| Ampoule Mass (g): | 4.89252 g | Expiration Date: | 06/19/2005 |
| Uncertainty: | +/- 2.2 % | Primary Code: | 0159-A |
| LogBook No: | RC S 023 102 | Dilution(mL): | 100 mL |
| | | Mass of Parent(g): | 4.7484 g |
| | | Density(g/mL): | 0.9992 |

Calculations Converting parent activity to dpm/mL | dpm/g

| |
|---|
| $(\text{Mass of parent(g)}) * (\text{Parm Activity (uCi/g)}) * (\text{conversion dpm to uCi}) / (\text{Dilution Vol}) = \text{Parent Activity (dpm/mL)}$ |
| $(\text{Mass of parent(g)}) * (\text{Parm Activity (uCi/g)}) * (\text{conversion dpm to uCi}) / \text{Density (g/mL)} / (\text{Dilution Vol}) = \text{Parent Activity (dpm/g)}$ |
| $(4.7484 \text{ g}) * (1.991 \text{ uCi/g}) * (2220000 \text{ dpm/uCi}) / (100 \text{ mL}) = 209880.2297 \text{ dpm/mL}$ |
| $(4.7484 \text{ g}) * (1.991 \text{ uCi/g}) * (2220000 \text{ dpm/uCi}) / (0.9992 \text{ g/mL}) / (100 \text{ mL}) = 210051.8397 \text{ dpm/g}$ |

Secondary Standards

| Prep Date | Preparer | Mass Primary | Dilution (mL) | Code | Conc dpm/mL | Verification Date | Expiration Date |
|------------|----------------|--------------|---------------|------------|-----------------|-------------------|-----------------|
| 01/29/2001 | Angela Albee | .0992 | 100 | 0159-H | 208.37 dpm/mL | 01/29/2001 | 01/29/2002 |
| 02/28/2001 | Angela Albee | 1.0451 | 1000 | 0159-I-102 | 219.525 dpm/mL | 03/06/2002 | 03/06/2003 |
| 02/28/2001 | Angela Albee | 1.0451 | 1000 | 0159-I-202 | 219.525 dpm/mL | 03/12/2002 | 03/12/2003 |
| 09/21/1999 | Joe Davis | .1172 | 100 | 0159-B | 246.18 dpm/mL | 09/21/1999 | 09/21/2000 |
| 09/23/1999 | Joe Davis | .1016 | 100 | 0159-C | 213.41 dpm/mL | 09/23/1999 | 09/23/2000 |
| 01/10/2000 | Joe Davis | .1008 | 100 | 0159-D | 211.56 dpm/mL | 01/10/2000 | 01/10/2001 |
| 02/16/2000 | Richard Kinney | .2422 | 500 | 0159-E | 101.75 dpm/mL | 02/16/2000 | 02/16/2001 |
| 03/20/2000 | Joe Davis | .0998 | 100 | 0159-F | 209.63 dpm/mL | 03/20/2000 | 03/20/2001 |
| 07/28/2000 | Robert Timm | 1.0046 | 1000 | 0159-G | 211.02 dpm/mL | 07/28/2000 | 07/28/2001 |
| 05/10/2001 | Angela Albee | .0987 | 1000 | 0159-J | 210.1569 dpm/mL | 05/10/2001 | 05/10/2002 |
| 08/31/2001 | Lonnie Morris | .0416 | 100 | 0159-K | 87.31 dpm/mL | 09/23/2002 | 09/23/2003 |
| 06/07/2002 | Angela Albee | 1.0002 | 1000 | 0159-L | 207.278 dpm/mL | 06/07/2002 | 06/07/2003 |
| 01/16/2003 | Angela Albee | 4.5144 | 1000 | 0159-M | 947.483 dpm/mL | 01/16/2003 | 01/16/2004 |
| 02/27/2003 | Angela Albee | 1.1079 | 1000 | 0159-N | 232.526 dpm/mL | 02/27/2004 | 02/27/2005 |
| 06/23/2004 | Amanda Fehr | 1.14 | 1000 | 0159-O | 239.459 dpm/mL | 07/03/2005 | 07/03/2006 |

General Engineering Laboratories, LLC
Version 1.0 9/18/2000

Verification for Th-230 Standard 0159-O

A. Fehr
7/3/2005

| | Isotope | Detector CPM | BKG CPM | NET CPM | Detector Eff | Standard Amt Used (mL) | Source DPM/mL |
|--------------------------------|-------------|--------------|-------------------|-------------------|--------------|------------------------|---------------|
| | 0159-N N1 | 258.0000 | 23.3000 | 234.7000 | 0.9696 | 1.0000 | 242.0585809 |
| | 0159-N N2 | 259.3000 | 23.3000 | 236.0000 | 0.9696 | 1.0000 | 243.3993399 |
| | 0159-N N3 | 255.4000 | 23.3000 | 232.1000 | 0.9696 | 1.0000 | 239.3770627 |
| Mean Value (Counting) = | 241.6116612 | dpm/mL | 100.903182 | % of known | | | |
| Stdev = | 2.048043318 | dpm/mL | 0.00847659 | | | | |
| Certificate Value = | 239.449 | dpm/mL | | | | | |
| Lower Limit = | 237.5155745 | dpm/mL | | | | | |
| Upper Limit = | 245.7077478 | dpm/mL | | | | | |
| Rule 1 Pass/Fail | Pass | Pass | Pass | | | | |
| Two sigma = | 4.096086636 | | | | | | |
| 10 % of Mean = | 24.16116612 | | | | | | |
| 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.

The analyst prepared three standard verification sources for Th-230 source 0159-O by transferring 1.0 mL portions of the standard to 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 Yellow (Wallac) using Protocol 26 for alpha source standard verification. The alpha efficiency calibration which was used for verification calculations was performed using NIST source 0556-A (Th-230). Calibration data is recorded in this logbook under Th-230 0556-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

Amanda L. Fehr 7/3/05

*Angela A. Johnson
7/5/05*

CERTIFICATE OF CALIBRATION

Standard Radionuclide Source

61762-278

Ac-227 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 by alpha spectroscopy. 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: | Ac-227 |
| ACTIVITY (dps): | 2.085 E5 |
| HALF-LIFE: | 21.77 years |
| CALIBRATION DATE: | June 8, 2001 12:00 EST |
| TOTAL UNCERTAINTY*: | 5.0% |
| SYSTEMATIC: | 2.0% |
| RANDOM: | 3.0% |

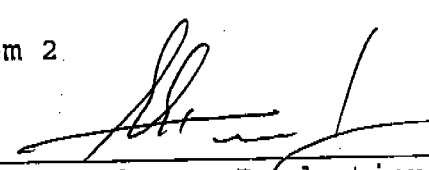
*99% Confidence Level

Impurities: γ -impurities (other than decay products) <0.1%
 α -impurities <0.3%

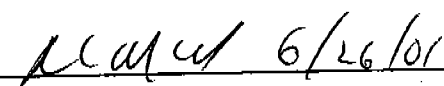
5.3136 grams 2M HNO₃ solution, carrier free.

P O NUMBER 2533RD, Item 2

SOURCE PREPARED BY:


E. A. Taskaev, Production Manager

Q A APPROVED:


6/26/01



Standard Traceability Log Rad

| Source Material Info | | A Solution Material Info | |
|----------------------|----------------|--------------------------|----------------|
| Parent Code: | 0387 | Isotope: | Actinium-227 |
| Prepared By: | Angela Johnson | Prepared By: | Angela Johnson |
| Carrier Conc: | 2 M HNO3 | Prep Date: | 07/17/2001 |
| Reference Date: | 06/08/2001 | Verification Date: | 07/01/2002 |
| Ampoule Mass (g): | 5.3136 g | Expiration Date: | 07/01/2003 |
| Uncertainty: | +/- 5 % | Primary Code: | 0387-A |
| LogBook No: | RC S 034 | Dilution(mL): | 100 mL |
| | | Mass of Parent(g): | 4.7794 g |
| | | Density(g/mL): | 1.0370 |

Calculations Converting parent activity to dpm/mL|dpm/g

$$(\text{Mass of parent(g)}) * (\text{Parm Activity (dps)}) * (\text{conversion dpm to dps}) / (\text{Ampoule Mass(g)} * (\text{Dilution Vol})) = \text{Parent Activity (dpm/mL)}$$

$$(\text{Mass of parent(g)}) * (\text{Parm Activity (dps)}) * (\text{conversion dpm to dps}) / \text{Density} / (\text{Ampoule Mass (g)} * (\text{Dilution Vol})) = \text{Parent Activity (dpm/g)}$$

$$(4.7794 \text{ g}) * (208500 \text{ dps}) * (59.9 \text{ dpm/dps}) / (5.3136 \text{ g} * 100 \text{ mL}) = 112335.5983 \text{ dpm/mL}$$

$$(4.7794 \text{ g}) * (208500 \text{ dps}) * (59.9 \text{ dpm/dps}) / (1.0370 \text{ g/mL}) / (5.3136 \text{ g} * 100 \text{ mL}) = 108330.3019 \text{ dpm/g}$$

Secondary Standards

| Prep Date | Preparer | Mass Primary | Dilution (mL) | Code | Conc dpm/mL | Verification Date | Expiration Date |
|------------|---------------|--------------|---------------|------------|----------------|-------------------|-----------------|
| 07/17/2001 | Lonnie Morris | .4684 | 1000 | 0387-B-102 | 50.8266 dpm/mL | 07/11/2005 | 07/11/2006 |
| 07/17/2001 | Lonnie Morris | .4684 | 1000 | 0387-B-202 | 50.827 dpm/mL | 07/11/2004 | 07/11/2005 |

General Engineering Laboratories, LLC
Version 1.0 9/18/2000

Verification for Ac-227 Standard 0387-B

| A. Fehr 7/13/2005 | Isotope | Value | Uncertainty |
|----------------------|-----------|---------|-------------|
| | 0387-B #1 | 193.600 | 38.1000 |
| | 0387-B #2 | 181.200 | 36.2000 |
| | 0387-B #3 | 192.900 | 52.4000 |

Mean Value (Counting) = 189.233 0.9416936
 Stdev = 6.965869173

Target = 200.95
 Lower Limit = 175.301595
 Upper Limit = 203.1650717
 Rule 1 Pass/Fail **Pass Pass Pass**
 Two sigma = 13.93173835
 10 % of Mean = 18.92333333
 Rule 2 (Pass/Fail) **Pass**

The analyst prepared three standard verification sources for standard 0387-B using 0.1 mL for each source. Each standard was combined with 0.1 mL of Th-230 standard 0159-K and 50 micrograms of cerium carrier in a disposable centrifuge tube. Each standard was diluted to 20 mL with 0.1 M HCl. Three mL of 48% HF was added to precipitate cerium (and Thorium) 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. DPM values for Ac-227 were calculated by comparison to Th-230 certified values.

Amanda L. Fehr
 7/13/05

STANDARDIZATION OF LEAD CARRIER

DATE: 1/30/2006
 LOT NUMBER: 1006864

| | LEAD PRECIPITATES | | | | Average | Std. Dev. | |
|-------------------------|-------------------|--------|--------|--------|--------------|-----------------|----------|
| | 1 | 2 | 3 | 4 | | | |
| Weight of carrier added | 1.00 | 1.01 | 1.00 | 1.01 | 13.88 | ± 0.05 | 0.003604 |
| Aliquot (1.00 mL) | 1 | 1 | 1 | 1 | 13.81 | ± 0.12 | 0.008355 |
| filter + ppt | 0.0975 | 0.0970 | 0.0979 | 0.0978 | | | |
| filter | 0.0836 | 0.0832 | 0.0840 | 0.0839 | | | |
| Wt. of ppt., g | 0.0139 | 0.0138 | 0.0139 | 0.0139 | 13.88 | mg Pb/mL | |
| | | | | | 13.81 | mg Pb/g | |
| mg Ca/mL | 13.90 | 13.80 | 13.90 | 13.90 | | | |
| mg Ca/g | 13.90 | 13.66 | 13.90 | 13.76 | | | |

0.5% of Mean Value = 0.069 Pass

A satisfactory standardization is obtained when results give a standard deviation of less than 0.5% of the mean value.

DEUTSCHER KALIBRIERDIENST (DKD)

Kalibrierlaboratorium für Meßgrößen der Radioaktivität
Calibration laboratory for measurements of radioactivity

AKKREDITIERT DURCH DIE PHYSIKALISCH-TECHNISCHE BUNDESANSTALT (PTB)



Amersham Buchler GmbH & Co KG
Postfach 11 49 Gieselweg 1
D-38001 Braunschweig D-38110 Braunschweig

Telefon (05307) 930-0
Telefax (05307) 930-293
Telefax-Zentrale 930-237

Kalibrierschein *Calibration Certificate*

Kalibrierzeichen
Calibration mark

| |
|-----------------|
| 02628 |
| DKD-K- 06501 |
| 95-10 |

| | |
|--|--|
| Gegenstand <i>Object</i> | Radioactive Reference Solution |
| Hersteller <i>Manufacturer</i> | Amersham Buchler GmbH & Co KG Postfach 11 49 Gieselweg 1 D-38001 Braunschweig D-38110 Braunschweig |
| Typ <i>Type</i> | RBZB44 |
| Strahler-Nr. <i>Source number</i> | ET 491 |
| Auftraggeber <i>Customer</i> | Amersham Corporation 2636 S. Clearbrook Drive Arlington Heights, IL 60005 USA-Arlington Heights, IL |
| Auftragsnummer <i>Work order number</i> | 112116 |
| Anzahl der Seiten des Kalibrierscheines <i>Number of pages of the certificate</i> | 2 |
| Referenzdatum <i>Reference date</i> | 1 January 1995 |

Der Deutsche Kalibrierdienst ist Unterzeichner des multilateralen Übereinkommens der Western European Calibration Cooperation (WECC) zur gegenseitigen Anerkennung der Kalibrierscheine. Die Kalibrierung erfolgt auf der Grundlage des zwischen der Physikalisch-Technischen Bundesanstalt und dem Träger abgeschlossenen Vertrages. Dieser Kalibrierschein dokumentiert die Rückführbarkeit auf nationale Normale zur Darstellung der physikalischen Einheiten in Übereinstimmung mit dem Internationalen Einheitensystem (SI). Für die Einhaltung einer angemessenen Frist zur Wiederholung der Kalibrierung ist der Benutzer verantwortlich.

The Deutscher Kalibrierdienst is signatory to the multilateral agreement of the Western European Calibration Cooperation (WECC) for the mutual recognition of calibration certificates. The calibration is performed according to the stipulations of the contract between the Physikalisch-Technische Bundesanstalt and the holder of the calibration laboratory. This calibration certificate documents the traceability to national standards, which realize the physical units of measurement according to the International System of Units (SI). The user is obliged to have the object recalibrated at appropriate intervals.

Dieser Kalibrierschein darf nur vollständig und unverändert weiterverbreitet werden. Auszüge oder Änderungen bedürfen der Genehmigung sowohl der Physikalisch-Technischen Bundesanstalt als auch des ausstellenden Kalibrierlaboratoriums.
Kalibrierscheine ohne Unterschrift und Stempel haben keine Gültigkeit.
This calibration certificate may not be reproduced other than in full except with the permission of both the Physikalisch-Technische Bundesanstalt and the issuing laboratory. Calibration certificates without signature and seal are not valid.

| | | | | |
|-----------------|-----------------|---|--------------------------|----------------------------------|
| Stempel Seal | Datum Date | Leiter des Kalibrierlaboratoriums Head of the calibration laboratory | Stellvertreter Deputy | Bearbeiter Person responsible |
| | 18 October 1995 | Dr. Dornhöfer | Dr. Thieme | E. Schuber 20-5-013-4 |

| |
|-------------|
| 02628 |
| DKD-K-06501 |
| 95-10 |

Radioactive Reference Solution

Solution No.: ET 491

Drawing No.: VZ-2058

Nuclide: Lead-210

Radioactive concentration: 38.1 kBq/g

Reference date: 1 January 1995 at 12.00 GMT

Mass of solution: (5.182 ± 0.001) g

Volume of solution: approx. 5 ml

Chemical composition: Solution in 1.2 M HNO₃
Carrier: Pb (NO₃)₂, Bi (NO₃)₃; each 20 mg/l of the corresponding element.

Measuring method: The activity was determined by comparison with a reference solution by measurement with a Ge-detector with MCA.

Traceability: Additional to the direct traceability to the PTB through the DKD this product satisfies the quality assurance requirements of USNRC Regulatory Guide 4.15 Revision 1, February 1979, for achieving NIST traceability through Amersham's participation in the NEI-NIST Measurements Assurance Program of the Nuclear Power Industry.

Uncertainty: The relative uncertainty of the activity is ± 3 %.

The declared uncertainty U is an expanded uncertainty $U = k * u_c$ with a coverage factor of $k = 3$. The combined uncertainty u_c is the sum of all uncertainties which can be evaluated by statistical means (uncertainty type A, u_A) and all other uncertainties (uncertainty type B, u_B) whereby $u_c^2 = u_A^2 + u_B^2$.
(Ref.: NIST Technical Note 1297 / WECC-Doc. 19-1990)

Radioactive impurities: Related to Pb-210 (equal 100 %) the following radioactive impurities were detected:
Ra-226: 0.003 %



LC-5-013-47

TRACEABILITY TO NIST

Amersham Corporation
2636 S. Clearbrook Drive
Arlington Heights, IL 60005
tel (708) 593-6300
fax (708) 593-8091



Traceability is the ability to relate the accuracy of measurement of radionuclides to the National Institute of Standards and Technology (NIST). Traceability is achieved by participation in a Measurements Assurance Program linked to NIST and production of certified materials in accordance with a quality assurance program.

Amersham participates in measurement assurance programs conducted by NIST in cooperation with the Nuclear Energy Institute (NEI, formerly USCEA). Additionally, our production facilities and measurement laboratories operate under routinely audited quality assurance programs.

Therefore, Amersham certified standardized products meet or exceed, the NRC requirements for measurements traceable to NIST.

278004C



Standard Traceability Log Rad

| Source Material Info | | A Solution Material Info | |
|----------------------|--------------|--------------------------|------------|
| Parent Code: | ET491 | Isotope: | Lead-210 |
| Prepared By: | Garret Ray | Prepared By: | Garret Ray |
| Carrier Conc: | 1.2M HNO3 | Prep Date: | 03/01/1996 |
| Reference Date: | 01/01/1995 | Verification Date: | 07/12/2005 |
| Ampoule Mass (g): | 5.182 g | Expiration Date: | 07/12/2006 |
| Uncertainty: | +/- 3 % | Primary Code: | ET491-A |
| LogBook No: | RC S 014 004 | Dilution(mL): | 100 mL |
| | | Mass of Parent(g): | 5.0547 g |
| | | Density(g/mL): | 1.0000 |

Calculations Converting parent activity to dpm/mL|dpm/g

| |
|---|
| $(\text{Mass of parent(g)}) * (\text{Parm Activity (kBq/g)}) * (\text{conversion dpm to kBq}) / (\text{Dilution Vol}) = \text{Parent Activity (dpm/mL)}$ |
| $(\text{Mass of parent(g)}) * (\text{Parm Activity (kBq/g)}) * (\text{conversion dpm to kBq}) / \text{Density (g/mL)} / (\text{Dilution Vol}) = \text{Parent Activity (dpm/g)}$ |
| $(5.0547 \text{ g}) * (38.1 \text{ kBq/g}) * (60000 \text{ dpm/kBq}) / (100 \text{ mL}) = 115550.4420 \text{ dpm/mL}$ |
| $(5.0547 \text{ g}) * (38.1 \text{ kBq/g}) * (60000 \text{ dpm/kBq}) / (1.0000 \text{ g/mL}) / (100 \text{ mL}) = 115550.4420 \text{ dpm/g}$ |

Secondary Standards

| Prep Date | Preparer | Mass Primary | Dilution (mL) | Code | Conc dpm/mL | Verification Date | Expiration Date |
|------------|----------------|--------------|---------------|---------|---------------|-------------------|-----------------|
| 10/20/1997 | Richard Kinney | .467 | 100 | ET491-B | 524.45 dpm/ml | 03/01/1997 | 03/01/1998 |
| 10/29/1997 | Richard Kinney | 3.0992 | 500 | ET491-C | 696.09 dpm/mL | 10/29/1998 | 10/29/1999 |
| 04/03/2001 | Angela Johnson | .5184 | 100 | ET491-D | 582.17 dpm/mL | 04/16/2003 | 04/16/2004 |
| 09/15/2003 | Angela Johnson | .5132 | 100 | ET491-E | 576.33 dpm/mL | 11/11/2005 | 11/11/2006 |

General Engineering Laboratories, LLC
Version 1.0 9/18/2000

Verification for Pb-210 Standard ET491-E

A. Fehr
11/11/2005

| Isotope | Detector CPM | BKG CPM | NET CPM | Detector Eff Mass. Used (mL) | Source DPM/mL |
|------------|--------------|---------|-----------|------------------------------|---------------|
| ET491-E N1 | 1098.1000 | 21.6000 | 1098.1000 | 1.0000 | 416.9502415 |
| ET491-E N2 | 1124.3000 | 21.6000 | 1124.3000 | 1.0000 | 426.8984214 |
| ET491-E N3 | 1105.2000 | 21.6000 | 1105.2000 | 1.0000 | 419.6461223 |
| Average = | | | | | 421.1649284 |

Mean Value (Counting) = 421.1649284 % of known
 Stdev = 5.145060708 0.01221626

Certificate Value = 410.9
 Lower Limit = 410.874807
 Upper Limit = 431.4550498
 Rule 1 Pass/Fail Pass Pass
 Two sigma = 10.29012142
 10 % of Mean = 42.11649284
 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.

The analyst prepared three calibration sources for source ET491-E by transferring 1.0 mL portions of the standard to 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 calibration vials and background source were dark adapted for two hours and counted on LSC Yellow (Wallac) using Protocol 31 for Pb-210 standard verification. The efficiency calibration which was used for verification calculations was performed on 4/19/04 using source 0356-A (Pb-210). 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

Amanda L. Fehr 11/11/05

0112



UKAS ACCREDITED CALIBRATION LABORATORY No. 0146

Methods of measurement The measurement techniques listed below are currently in use at Nycomed Amersham for the absolute standardisation of radioactive solutions. The methods used for this standardisation are indicated on page 2 of the certificate.

Using a gas flow proportional counter

- A 4 pi beta counting
- B 4 pi alpha counting
- C 4 pi internal conversion electron counting
- D 4 pi coincidence counting
- E 4 pi anticoincidence counting
- F 4 pi coincidence and anticoincidence counting

Using a liquid scintillation counter

- G 4 pi coincidence counting
- H 4 pi anticoincidence counting
- J 4 pi coincidence and anticoincidence counting
- K 4 pi efficiency tracing

SI unit of radioactivity The S.I. unit of radioactivity is the becquerel

- 1 becquerel (Bq) = 1 nuclear transformation per second, therefore
- 1 curie (Ci) = 3.7×10^{10} becquerels exactly

Useful conversion factors are:

- 1 microcurie (μ Ci) = 3.7×10^4 Bq = 37 kilobecquerels (kBq)
- 1 millicurie (mCi) = 3.7×10^7 Bq = 37 megabecquerels (MBq)
- 1 kilobecquerel (kBq) = 27.027 nanocuries (nCi)
- 1 megabecquerel (MBq) = 27.027 microcuries (μ Ci)

RC-5-024-038B



Standard Traceability Log Rad

| Source Material Info | | A Solution Material Info | |
|----------------------|----------------|--------------------------|----------------|
| Parent Code: | 0112 | Isotope: | Barium-133 |
| Prepared By: | Richard Kinney | Prepared By: | Richard Kinney |
| Carrier Conc: | 0.1M HCL | Prep Date: | 04/09/1999 |
| Reference Date: | 06/20/1997 | Verification Date: | 01/21/2004 |
| Ampoule Mass (g): | 5.129 g | Expiration Date: | 01/21/2005 |
| Uncertainty: | +/- 1.8 % | Primary Code: | 0112-A |
| LogBook No: | RC S 023 038A | Dilution(mL): | 100 mL |
| | | Mass of Parent(g): | 5.0881 g |
| | | Density(g/mL): | 0.9935 |

Calculations Converting parent activity to dpm/mL|dpm/g

| |
|---|
| $(\text{Mass of parent(g)}) * (\text{Parm Activity (kBq/g)}) * (\text{conversion dpm to kBq}) / (\text{Dilution Vol}) = \text{Parent Activity (dpm/mL)}$ |
| $(\text{Mass of parent(g)}) * (\text{Parm Activity (kBq/g)}) * (\text{conversion dpm to kBq}) / \text{Density (g/mL)} / (\text{Dilution Vol}) = \text{Parent Activity (dpm/g)}$ |
| $(5.0881 \text{ g}) * (474 \text{ kBq/g}) * (60000 \text{ dpm/kBq}) / (100 \text{ mL}) = 1447055.6400 \text{ dpm/mL}$ |
| $(5.0881 \text{ g}) * (474 \text{ kBq/g}) * (60000 \text{ dpm/kBq}) / (0.9935 \text{ g/mL}) / (100 \text{ mL}) = 1456575.8226 \text{ dpm/g}$ |

Secondary Standards

| Prep Date | Preparer | Mass Primary | Dilution (mL) | Code | Conc dpm/mL | Verification Date | Expiration Date |
|------------|--------------------|--------------|---------------|------------|------------------|-------------------|-----------------|
| 04/09/1999 | Joe Davis | .5846 | 100 | 0112-B | 8514.6 dpm/ml | 04/09/1999 | 04/09/2000 |
| 07/09/1999 | Joe Davis | .5027 | 100 | 0112-C | 7321.7 dpm/mL | 07/09/1999 | 07/09/2000 |
| 11/11/1999 | Joe Davis | .4993 | 100 | 0112-D | 7272.22 dpm/mL | 11/11/1999 | 11/11/2000 |
| 01/28/2000 | Aadli Abdul-Kareem | 5.2157 | 1000 | 0112-E | 7596.58 dpm/mL | 02/17/2001 | 02/17/2002 |
| 06/08/2001 | Angela Johnson | 10.6972 | 1000 | 0112-F-102 | 15580.3 dpm/mL | 06/11/2002 | 06/11/2003 |
| 06/08/2001 | Angela Johnson | 10.6972 | 1000 | 0112-F-202 | 15580.3 dpm/mL | 06/11/2002 | 06/11/2003 |
| 10/31/2002 | Angela Johnson | 10.11 | 1000 | 0112-G | 14725.049 dpm/mL | 10/31/2003 | 10/31/2004 |
| 01/19/2005 | Amanda Fehr | 10.431 | 1000 | 0112-H | 15193.542 dpm/mL | 01/18/2006 | 01/18/2007 |

General Engineering Laboratories, LLC
Version 1.0 9/18/2000

Verification for Ba-133 Standard 0112-H

| A. Fehr 1/18/2006 | Isotope | Detector CPM | BKG CPM | NET CPM | Detector Eff Vol. Used (mL) | Standard Source DPM/mL |
|----------------------|-----------|--------------|---------|----------|--------------------------------|---------------------------|
| | 0112-H N1 | 707.9000 | 39.2000 | 668.7000 | 0.7442 | 8985.12049 |
| | 0112-H N2 | 685.8000 | 39.2000 | 646.6000 | 0.7442 | 8688.169447 |
| | 0112-H N3 | 693.1000 | 39.2000 | 653.9000 | 0.7442 | 8786.257348 |
| | | | | | Average = | 8819.849095 |

Mean Value (Counting) = 8819.849095 **Pass**
 Stdev = 151.2986605 0.01715434 **Rule 3 (Pass/Fail)**

Certificate Value = 8634.7
 Lower Limit = 8517.251774
 Upper Limit = 9122.446416
 Rule 1 Pass/Fail **Pass**
 Two sigma = 302.597321
 10 % of Mean = 881.9849095
 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 Ba-133 source 0112-H by transferring 0.1 mL 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 Yellow (Wallac) using Protocol 24 for Ba-133 source standard verification. The Ba-133 efficiency calibration which was used for verification calculations was performed on 1/18/06 using source 0487-A (Ba-133). Calibration data is recorded in this logbook under Ba-133 0487. 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

Amanda L. Fehr 2/2/06
 Amanda L. Fehr 1/19/06

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: γ -impurities <0.1%5.02617 grams 0.1M HCl solution with 110 μ g/g Ba carrier.

P O NUMBER 3208RD, Item 2

SOURCE PREPARED BY:

M. Taskaeva
M. Taskaeva, Radiochemist

Q A APPROVED:

M. M. 10-2-02



Standard Traceability Log Rad

| Source Material Info | | A Solution Material Info | |
|----------------------|--------------|--------------------------|--------------|
| Parent Code: | 0503 | Isotope: | Radium-228 |
| Prepared By: | Angela Albee | Prepared By: | Angela Albee |
| 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 |

Calculations Converting parent activity to dpm/mL|dpm/g

| |
|--|
| $(\text{Mass of parent(g)}) * (\text{Parm Activity (dps)}) * (\text{conversion dpm to dps}) / (\text{Ampoule Mass(g)} * (\text{Dilution Vol})) = \text{Parent Activity (dpm/mL)}$ |
| $(\text{Mass of parent(g)}) * (\text{Parm Activity (dps)}) * (\text{conversion dpm to dps}) / \text{Density} / (\text{Ampoule Mass (g)} * (\text{Dilution Vol})) = \text{Parent Activity (dpm/g)}$ |
| $(4.4737 \text{ g}) * (19390 \text{ dps}) * (59.9 \text{ dpm/dps}) / (5.02617 \text{ g} * 100 \text{ mL}) = 10337.9473 \text{ dpm/mL}$ |
| $(4.4737 \text{ g}) * (19390 \text{ dps}) * (59.9 \text{ dpm/dps}) / (0.9992 \text{ g/mL}) / (5.02617 \text{ g} * 100 \text{ mL}) = 10345.8102 \text{ dpm/g}$ |

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 | 09/09/2005 | 09/09/2006 |

General Engineering Laboratories, LLC
Version 1.0 9/18/2000

Verification for Ra-228 Standard 0503-B

| A. Fehr 9/9/2005 | Isotope | Detector CPM | BKG CPM | NET CPM | Detector Eff Mass. Used (mL) | Standard Source DPM/mL |
|---------------------|-----------|--------------|---------|----------|------------------------------|---------------------------|
| | 0503-B N1 | 252.8000 | 14.4000 | 238.4000 | 0.8260783 | 1.0000 288.5924962 |
| | 0503-B N2 | 267.0000 | 14.4000 | 252.6000 | 0.8260783 | 1.0000 305.7821499 |
| | 0503-B N3 | 266.0000 | 14.4000 | 251.6000 | 0.8260783 | 1.0000 304.5716109 |
| | | | | | | Average = 299.6487523 |

Mean Value (Counting) = 299.6487523 dpm/mL 103.79387 % of known
 Stdev = 9.594110231 dpm/mL 0.03201785

Certificate Value = 288.7 dpm/mL
 Lower Limit = 280.4605319 dpm/mL
 Upper Limit = 318.8369728 dpm/mL
 Rule 1 Pass/Fail Pass
 Two sigma = 19.18822046
 10 % of Mean = 29.96487523
 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.

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 Yellow (Wallac) using Protocol 23 for Ra-228 source standard verification. The Ra-228 efficiency calibration which was used for verification calculations was performed on 2/20/03 using Analytic's source 0503(Ra-228). Calibration data is recorded in this logbook under Ra-228 0503. Each verification source calculation was performed as follows:

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

Amenda D. Fehr 9/9/05
 Heath B Urow 9/9/05

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 UNCERTAINTY (k=2): | 3.3% |

Impurities: γ -impurities (other than decay products) <0.1%

5.01065 grams 0.1M HCl solution with 50 μ g/g Ba carrier.

P O NUMBER 3231RD, Item 5

SOURCE PREPARED BY:

M. D. Currie
M. D. Currie, Radiochemist

Q A APPROVED:

ACUW 1/26/04



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: | 01/16/2006 |
| Ampoule Mass (g): | 5.01065 g | Expiration Date: | 01/16/2007 |
| 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 |

Calculations Converting parent activity to dpm/mL|dpm/g

$$(\text{Mass of parent(g)}) * (\text{Parm Activity (dps)}) * (\text{conversion dpm to dps}) / (\text{Ampoule Mass(g)} * (\text{Dilution Vol})) = \text{Parent Activity (dpm/mL)}$$

$$(\text{Mass of parent(g)}) * (\text{Parm Activity (dps)}) * (\text{conversion dpm to dps}) / \text{Density} / (\text{Ampoule Mass (g)} * (\text{Dilution Vol})) = \text{Parent Activity (dpm/g)}$$

$$(4.8398 \text{ g}) * (23530 \text{ dps}) * (59.9 \text{ dpm/dps}) / (5.01065 \text{ g} * 100 \text{ mL}) = 13613.8856 \text{ dpm/mL}$$

$$(4.8398 \text{ g}) * (23530 \text{ dps}) * (59.9 \text{ dpm/dps}) / (1.0266 \text{ g/mL}) / (5.01065 \text{ g} * 100 \text{ mL}) = 13260.8293 \text{ dpm/g}$$

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 | 01/17/2006 | 01/17/2007 |

General Engineering Laboratories, LLC
Version 1.0 9/18/2000

Certificate of Analysis

0903

Catalog No: 060092-16

Lot No: 1006930

Storage: Ambient

Matrix: 1M HNO₃

Container: 250 ml Narrow Mouth, HDPE

Description: Uranium 250 µg/L ± 0.5% in 1M HNO₃

Quality System
Audited & Registered
by NSF-ISR to ISO 9001:2000

Received: 2/7/06

Issue Date: 3/1/2007

| Element | Symbol | CAS No | Source Lot No | Purity % | Concentration ug/L |
|---------------|--------|-----------|---------------|----------|--------------------|
| Uranium Total | U | 7440-61-1 | 7075.42.5 | 100 | 250 |



Mark Filla

This standard was prepared gravimetrically using balances calibrated with NIST traceable weights (NIST Test Number 1000). Only calibrated Class A volumetric glassware was used to prepare this standard. Sub-boiled distilled acid and deionized water were used to stabilize the product. All raw materials were checked for stoichiometry and purity. This standard has been spectrometrically certified by an independent source, which is directly traceable to NIST.

CERTIFICATE OF CALIBRATION
Standard Radionuclide Source

68509-278

U-232 5 mL Liquid in Flame Sealed Vial

This standard radionuclide source was prepared using an aliquot measured gravimetrically from a master radionuclide solution standard. The master radionuclide solution standard was calibrated by the Department Des Applications Et De La Metrologie Des Rayonnements Ionisants (DAMRI), Paris, France, as Number 23236.

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: | U-232 |
| ACTIVITY (dps): | 3.779 E3 |
| CALIBRATION DATE: | June 18, 2004 12:00 EST |
| HALF-LIFE: | 68.9 years |
| RELATIVE EXPANDED: UNCERTAINTY (k=2): | 3.3% |

Impurities: Am-241 <0.15%
U-233 <0.3%

5.20343 grams 1M HNO₃ solution.

P O NUMBER 3243 RD, Item 1

SOURCE PREPARED BY:

M. Dimitrova
M. Dimitrova, Radiochemist

Q A APPROVED:

ACU/6/23/04

RECEIVED
11/26/04



Standard Traceability Log Rad

| Source Material Info | | A Solution Material Info | |
|----------------------|--------------|--------------------------|-------------|
| Parent Code: | 0688 | Isotope: | Uranium-232 |
| Prepared By: | Amanda Fehr | Prepared By: | Amanda Fehr |
| Carrier Conc: | 1M HNO3 | Prep Date: | 06/25/2004 |
| Reference Date: | 06/18/2004 | Verification Date: | 01/12/2006 |
| Ampoule Mass (g): | 5.20343 g | Expiration Date: | 01/12/2007 |
| Uncertainty: | +/- 3.3 % | Primary Code: | 0688-A |
| LogBook No: | RC-S-037-087 | Dilution(mL): | 100 mL |
| | | Mass of Parent(g): | 4.9894 g |
| | | Density(g/mL): | 1.0276 |

Calculations Converting parent activity to dpm/mL|dpm/g

$$(\text{Mass of parent(g)}) * (\text{Parm Activity (dps)}) * (\text{conversion dpm to dps}) / (\text{Ampoule Mass(g)} * (\text{Dilution Vol})) = \text{Parent Activity (dpm/mL)}$$

$$(\text{Mass of parent(g)}) * (\text{Parm Activity (dps)}) * (\text{conversion dpm to dps}) / \text{Density} / (\text{Ampoule Mass (g)} * (\text{Dilution Vol})) = \text{Parent Activity (dpm/g)}$$

$$(4.9894 \text{ g}) * (3779 \text{ dps}) * (59.9 \text{ dpm/dps}) / (5.20343 \text{ g} * 100 \text{ mL}) = 2170.5126 \text{ dpm/mL}$$

$$(4.9894 \text{ g}) * (3779 \text{ dps}) * (59.9 \text{ dpm/dps}) / (1.0276 \text{ g/mL}) / (5.20343 \text{ g} * 100 \text{ mL}) = 2112.2178 \text{ dpm/g}$$

Secondary Standards

| Prep Date | Preparer | Mass Primary | Dilution (mL) | Code | Conc dpm/mL | Verification Date | Expiration Date |
|------------|--------------|--------------|---------------|--------|----------------|-------------------|-----------------|
| 06/18/2004 | Brenda Burke | 2.203 | 250 | 0688-B | 18.6439 g/mL | 06/28/2005 | 06/28/2006 |
| 07/06/2004 | Tim Chandler | 2.2243 | 250 | 0688-C | 18.8242 dpm/mL | 08/14/2004 | 08/14/2005 |
| 07/06/2004 | Amanda Fehr | 26.03 | 1000 | 0688-D | 55.0728 dpm/mL | 07/06/2004 | 07/06/2005 |
| 04/19/2005 | Amanda Fehr | 26.01 | 1000 | 0688-E | 55.0305 dpm/mL | 05/04/2005 | 05/04/2006 |
| 05/27/2005 | Brenda Burke | .612 | 250 | 0688-F | 5.17934 dpm/mL | 05/31/2005 | 05/31/2006 |
| 06/23/2005 | Brenda Burke | 2.227 | 250 | 0688-G | 18.847 dpm/mL | 06/28/2005 | 06/28/2006 |
| 01/06/2006 | Mary Avins | 26.01 | 1000 | 0688-H | 55.0305 dpm/mL | 01/12/2006 | 01/12/2007 |

General Engineering Laboratories, LLC
Version 1.0 9/18/2000

Verification for Uranium-232 Standard 0688-H

| | | | | | |
|--------------------------------|----------------|--------------|-------|--------------------|-------------------|
| Analyst: M Avins | Isotope | Value | | Uncertainty | |
| Date: 1/12/06 | 0688-H N1 | 2.46 | pCi/L | 0.292 | pCi/L |
| | 0688-H N2 | 2.49 | pCi/L | 0.383 | pCi/L |
| | 0688-H N3 | 2.48 | pCi/L | 0.315 | pCi/L |
| Mean Value (Counting) = | 2.477 | pCi/L | | 0.9992767 | % of known |
| Stdev = | 0.015275252 | pCi/L | | | |
| Target = | 2.48 | pCi/L | | | |
| Lower Limit = | 2.446116162 | pCi/L | | | |
| Upper Limit = | 2.507217171 | pCi/L | | | |
| Rule 1 Pass/Fail | Pass | Pass | | Pass | |
| Two sigma = | 0.030550505 | | | | |
| 10 % of Mean = | 0.247666667 | | | | |
| Rule 2 (Pass/Fail) | Pass | | | | |

The analyst prepared three standard verification sources for standard **0688-H** using 0.1 mL for each source. Each standard was combined with 0.1 mL of **U-238** standard **0858-B** and 50 micrograms of Nd carrier in a disposable centrifuge tube. Each standard was diluted to 4 mL with 2 M HCl, and 2 mL of DI water. One mL of TiCl₃ was added. Two mL of 48% HF was added to precipitate Nd (and **Uranium**) 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. DPM values for **U-232** were calculated by comparison to **U-238** certified values.

Reference SOP RAD M-001

Mary L. Avins
1/12/06

Amanda L. Fike
1/24/06



National Institute of Standards & Technology

Certificate

Standard Reference Material 4321C Natural Uranium Radioactivity Standard

This Standard Reference Material (SRM) consists of radioactive natural uranium 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 uranium-238, uranium-235, and uranium-234 with a total activity of approximately 2600 Bq. Uranium decays by alpha-particle emission. The progeny of uranium-238, uranium-235, and uranium-234 have a total activity of approximately 2600 Bq and decay by alpha- and beta-particle emission. None of the alpha or beta particles escape from the SRM ampoule. During the decay process X-rays and gamma rays with energies from 11 keV to 2.0 MeV 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 (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 August 2007.

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
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 4321C
(Certified values are shown in bold type)

| | | | |
|-------------------------------------|--|--------------------------------------|------------------------------------|
| Source identification number | NIST SRM 4321C | | |
| 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 | (1.053 ± 0.001) g·mL ⁻¹ at 21.4 °C [b]* | | |
| Solution mass | (5.258 ± 0.002) g [b] | | |
| Chemical Properties: | | | |
| Solution composition | Chemical Formula | Concentration (mol·L ⁻¹) | Mass Fraction (g·g ⁻¹) |
| | H ₂ O | 53 | 0.91 |
| | HNO ₃ | 1.0 | 0.06 |
| | UO ₂ (NO ₃) ₂ | 0.09 | 0.03 |
| Radiological Properties: | | | |
| Radionuclide | Natural Uranium (Mixture of U-238, U-235, and U-234) | | |
| Reference time | 1200 EST, 1 August 1997 | | |
| Massic activity of the solution [c] | U-238: 242.0 Bq·g ⁻¹ U-235: 11.14 Bq·g ⁻¹ U-234: 233.1 Bq·g ⁻¹ | | |
| Relative expanded uncertainty (k=2) | U-238: 0.60% [d] [e] U-235: 0.62% [d] [e] U-234: 0.98% [d] [e] | | |
| Mass fraction of uranium | (0.01960 ± 0.00010) g·g ⁻¹ [b] | | |
| Photon-emitting impurities | None detected [f] | | |
| Half lives used | Uranium-238: (4.468 ± 0.003) × 10 ⁹ a [g] Uranium-235: (7.038 ± 0.005) × 10 ⁸ a [g] Uranium-234: (2.455 ± 0.006) × 10 ⁵ a [g] | | |
| Measuring instruments | Mass spectrometer, silicon surface-barrier detector, and 4π(α+β) liquid-scintillation counting systems. | | |

EVALUATION OF THE UNCERTAINTY OF THE MASSIC ACTIVITY [d]*

| Input Quantity x_i , the source of uncertainty (and individual uncertainty components where appropriate) | Method Used To Evaluate $u(x_i)$, the standard uncertainty of x_i (A) denotes evaluation by statistical methods (B) denotes evaluation by other methods | Relative Uncertainty Of Input Quantity, $u(x_i)/x_i$, (%) [h] | Relative Sensitivity Factor, $ \partial y/\partial x_i \cdot$ (x_i/y) [i] | Relative Uncertainty Of Output Quantity, $u_i(y)/y$, (%) [j] |
|--|---|---|---|--|
| Isotopic uranium atom fraction in SRM 960 | Standard deviation of the mean for repeated mass-spectrometric measurements (A) | U-238: 0.001 | 1.0 | 0.001 |
| | | U-235: 0.07 | 1.0 | 0.07 |
| | | U-234: 0.31 | 1.0 | 0.31 |
| Half life | Standard uncertainty of the half life (A) | U-238: 0.07 | 1.0 | 0.07 |
| | | U-235: 0.07 | 1.0 | 0.07 |
| | | U-234: 0.25 | 1.0 | 0.25 |
| Uranium mass fraction in SRM 960 | Certificate value (B) | 0.003 | 1.0 | 0.003 |
| Quantitative dissolution | Estimated (B) | 0.25 | 1.0 | 0.25 |
| Gravimetric measurements | Estimated (B) | 0.10 | 1.0 | 0.10 |
| Photon-emitting impurities | Limit of detection (B) [k] | 100. | 0.001 | 0.10 |
| Relative Combined Standard Uncertainty of the Output Quantity, $u_c(y)/y$, (%) | | | U-238: | 0.30 |
| | | | U-235: | 0.31 |
| | | | U-234: | 0.49 |
| Coverage Factor, k | | | | <u>x 2</u> |
| Relative Expanded Uncertainty of the Output Quantity, U/y , (%) | | | U-238: | 0.60 |
| | | | U-235: | 0.62 |
| | | | U-234: | 0.98 |

NOTES

- [a] The Sievert is the SI unit for dose equivalent. See reference [1]. One μSv is equal to 0.1 mrem.
 Distance from Ampoule (cm): 1 30 100
 Approximate Dose Rate ($\mu\text{Sv/h}$): <0.1
- [b] The stated uncertainty is two times the standard uncertainty.
- [c] **Massic activity** is the preferred name for the quantity activity divided by the total mass of the sample. See reference [1].
- [d] The reported value, y , of massic activity (activity per unit mass) at the reference time was not measured directly but was derived from measurements and calculations of other quantities. This can be expressed as $y = f(x_1, x_2, x_3, \dots, x_n)$, where f is a mathematical function derived from the assumed model of the measurement process.
- The value, x_i , used for each input quantity i has a **standard uncertainty**, $u(x_i)$, that generates a corresponding uncertainty in y , $u_i(y) \equiv |\partial y / \partial x_i| \cdot u(x_i)$, called a **component of combined standard uncertainty** of y .
- The **combined standard uncertainty** of y , $u_c(y)$, is the positive square root of the sum of the squares of the components of combined standard uncertainty.
- The combined standard uncertainty is multiplied by a coverage factor of $k = 2$ to obtain U , the **expanded uncertainty** of y .
- Since it can be assumed that the possible estimated values of the massic activity are approximately normally distributed with approximate standard deviation $u_c(y)$, the unknown value of the massic activity is believed to lie in the interval $y \pm U$ with a level of confidence of approximately 95 percent.
- For further information on the expression of uncertainties, see references [2] and [3].
- [e] The value of each standard uncertainty component, and hence the value of the expanded uncertainty itself, is a best estimate based upon all available information, but is only approximately known. That is to say, the "uncertainty of the uncertainty" is large and not well known. This is true for uncertainties evaluated by statistical methods (e.g., the relative standard deviation of the standard deviation of the mean for the massic count rate is approximately 50%) and for uncertainties evaluated by other methods (which could easily be over estimated or under estimated by substantial amounts). The unknown value of the expanded uncertainty is believed to lie in the interval $U/2$ to $2U$ (i.e., within a factor of 2 of the estimated value).
- [f] Estimated limits of detection for photon-emitting impurities are:
 $1.4 \gamma \cdot \text{s}^{-1} \cdot \text{g}^{-1}$ for energies between 8 and 59 keV,
 $1.1 \gamma \cdot \text{s}^{-1} \cdot \text{g}^{-1}$ for energies between 67 and 88 keV,
 $0.5 \gamma \cdot \text{s}^{-1} \cdot \text{g}^{-1}$ for energies between 102 and 197 keV,
 $0.3 \gamma \cdot \text{s}^{-1} \cdot \text{g}^{-1}$ for energies between 205 and 762 keV,
 $0.2 \gamma \cdot \text{s}^{-1} \cdot \text{g}^{-1}$ for energies between 770 and 996 keV, and
 $0.1 \gamma \cdot \text{s}^{-1} \cdot \text{g}^{-1}$ for energies between 1006 and 1900 keV,
 provided that the photons are separated in energy by 4 keV or more from photons emitted in the decay of uranium-238, uranium-235, uranium-234, or their progeny.
- [g] The stated uncertainty is the standard uncertainty. See reference [5].

- [h] Relative standard uncertainty of the input quantity x_i .
- [i] 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 .
- [j] 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 $u_i(y)/y \equiv |\partial y/\partial x_i| \cdot u(x_i)/y = |\partial y/\partial x_i| \cdot (x_i/y) \cdot u(x_i)/x_i$. 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.
- [k] 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. $u(x_i)/x_i = 100\%$. $|\partial y/\partial x_i| \cdot (x_i/y) = \{(\text{response per Bq of impurity})/(\text{response per Bq of U-238})\} \cdot \{(\text{Bq of impurity})/(\text{Bq of U-238})\}$. 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), August 1997.



Standard Traceability Log Rad

| Source Material Info | | A Solution Material Info | |
|----------------------|--------------|--------------------------|-------------|
| Parent Code: | 0858 | Isotope: | Uranium-238 |
| Prepared By: | Mary Avins | Prepared By: | Mary Avins |
| Carrier Conc: | HNO3 | Prep Date: | 11/21/2005 |
| Reference Date: | 08/01/1997 | Verification Date: | 11/21/2005 |
| Ampoule Mass (g): | 5.258 g | Expiration Date: | 11/21/2006 |
| Uncertainty: | +/- .6 % | Primary Code: | 0858-A |
| LogBook No: | RC-S-041-034 | Dilution(mL): | 100 mL |
| | | Mass of Parent(g): | 4.972 g |
| | | Density(g/mL): | 1.0155 |

Calculations Converting parent activity to dpm/mL|dpm/g

| |
|---|
| $(\text{Mass of parent(g)}) * (\text{Parm Activity (Bq/g)}) * (\text{conversion dpm to Bq}) / (\text{Dilution Vol}) = \text{Parent Activity (dpm/mL)}$ |
| $(\text{Mass of parent(g)}) * (\text{Parm Activity (Bq/g)}) * (\text{conversion dpm to Bq}) / \text{Density (g/mL)} / (\text{Dilution Vol}) = \text{Parent Activity (dpm/g)}$ |
| $(4.972 \text{ g}) * (242 \text{ Bq/g}) * (60 \text{ dpm/Bq}) / (100 \text{ mL}) = 721.9344 \text{ dpm/mL}$ |
| $(4.972 \text{ g}) * (242 \text{ Bq/g}) * (60 \text{ dpm/Bq}) / (1.0155 \text{ g/mL}) / (100 \text{ mL}) = 710.9460 \text{ dpm/g}$ |

Secondary Standards

| Prep Date | Preparer | Mass Primary | Dilution (mL) | Code | Conc dpm/mL | Verification Date | Expiration Date |
|------------|------------|--------------|---------------|--------|----------------|-------------------|-----------------|
| 11/21/2005 | Mary Avins | 8.2104 | 100 | 0858-B | 58.3715 dpm/mL | 11/21/2005 | 11/21/2006 |

General Engineering Laboratories, LLC
Version 1.0 9/18/2000

CERTIFICATE OF CALIBRATION
Standard Radionuclide Source

70361-278

5 mL Liquid in Flame Sealed Vial

This standard radionuclide source was prepared using aliquots measured gravimetrically from master radionuclide solution sources. The Am-241 was calibrated by 4 pi alpha liquid scintillation counting. All other radionuclides were calibrated using a germanium gamma spectrometer system. Calibration and purity were checked using a germanium gamma spectrometer system. At the time of calibration no interfering gamma-ray emitting impurities were detected. The gamma-ray emission rates for the most intense gamma-ray lines are given. Analytix maintains traceability to the National Institute of Standards and Technology through a Measurements Assurance Program as described in USNRC Regulatory Guide 4.15, Rev. 1, February, 1979.

Calibration date: April 1, 2005 12:00 EST

| ISOTOPE | GAMMA-RAY ENERGY | HALF-LIFE | GAMMA-RAYS PER SECOND | TOTAL UNCERTAINTY % |
|---------|------------------|-----------|-----------------------|---------------------|
| Am-241 | 59.5 | 432 Y | 3372 | 4.5 |
| Cd-109 | 88 | 462.6 d | 4698 | 3.3 |
| Co-57 | 122 | 271.79 d | 2450 | 3.0 |
| Ce-139 | 166 | 137.6 d | 3496 | 2.8 |
| Hg-203 | 279 | 46.61 d | 7565 | 2.7 |
| Sn-113 | 392 | 115.1 d | 4711 | 2.6 |
| Cs-137 | 662 | 30.07 Y | 3109 | 3.0 |
| Y-88 | 898 | 106.6 d | 12320 | 2.6 |
| Co-60 | 1173 | 5.2714 Y | 5769 | 2.7 |
| Co-60 | 1332 | 5.2714 Y | 5830 | 2.6 |
| Y-88 | 1836 | 106.6 d | 12860 | 2.6 |

5.32720 grams 4M HCl solution.
P O NUMBER 2704RD, Item 1

SOURCE PREPARED BY: M. Taskaeva
M. Taskaeva, Radiochemist

Q A APPROVED: [Signature] 04-11-2005

This standard will expire one year after the calibration date.



U.S. DEPARTMENT OF COMMERCE
National Institute of Standards & Technology
Gaithersburg, MD 20899

Certificate of Participation

Analytics, Incorporated
Atlanta, Georgia

is a participant for the period January 1, 2005, through December 31, 2005, in a radioactivity measurements assurance program conducted by the National Institute of Standards and Technology, in cooperation with the Nuclear Energy Institute. Continued participation is evidenced by dated Reports of Traceability issued for particular radionuclides, which indicate the deviation of the participant's reported value from that measured by the National Institute of Standards and Technology. The significance of these Reports is addressed below.*

For the Director,

A handwritten signature in black ink, appearing to read "Michael P. Unterweger".

Michael P. Unterweger, Acting Leader
Radioactivity Group
Physics Laboratory

* As guidance for the proper use of Reports of Traceability, it should be emphasized that the National Institute of Standards and Technology is concerned only with fostering good measurements capability and consistency with the national measurements system. The assurance of the proper application of that capability to the ultimate consumer products is the responsibility of each manufacturer of these products and of the Federal regulatory agencies.

A continuing traceability program in radioactivity demonstrates, to the degree established by the periodic assays of calibrated radioactivity samples, a continuing competence to maintain the methods and standards necessary for accurate measurement. Such a program cannot, however, endorse each and every measurement nor the final product, any more than a spot check can vouch for every unchecked item. Care should be taken, therefore, not to imply such endorsement. The proper use of this Report is governed by section 200.114 of Title 15 of the Code of Federal Regulations. These regulations may be met if Reports are quoted only in their entirety. Excerpts out of context may be misleading.

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ANALYSIS OF UNCERTAINTY FOR MIXED GAMMA STANDARDS

BATCH 120

CALIBRATION DATE: April 1, 2005 12:00 EST

| Isotope | Energy (keV) | Calibration Method ¹ | Statistics ² | Calibration ² | Peak Fitting ² | Geometry ² | Impurities ² | Weighing ² | Combined Standard Uncertainty ² | Relative Expanded Uncertainty ² (k=2) |
|---------|--------------|---------------------------------|-------------------------|--------------------------|---------------------------|-----------------------|-------------------------|-----------------------|--|--|
| Cd-109 | 88 | HPGe | 0.16 | 1.1 | 0.88 | 0.8 | 0 | 0.2 | 1.64 | 3.3 |
| Co-57 | 122 | HPGe | 0.23 | 1.1 | 0.71 | 0.7 | 0 | 0.2 | 1.52 | 3.0 |
| Ce-139 | 166 | HPGe | 0.17 | 1.0 | 0.58 | 0.7 | 0 | 0.2 | 1.38 | 2.8 |
| Hg-203 | 279 | HPGe | 0.11 | 1.1 | 0.34 | 0.7 | 0 | 0.2 | 1.37 | 2.7 |
| Sn-113 | 392 | HPGe | 0.21 | 1.0 | 0.35 | 0.7 | 0 | 0.2 | 1.30 | 2.6 |
| Cs-137 | 662 | HPGe | 0.36 | 1.1 | 0.60 | 0.7 | 0 | 0.2 | 1.49 | 3.0 |
| Y-88 | 898 | HPGe | 0.19 | 1.0 | 0.33 | 0.7 | 0 | 0.2 | 1.29 | 2.6 |
| Co-60 | 1173 | HPGe | 0.31 | .97 | 0.45 | 0.7 | 0 | 0.2 | 1.33 | 2.7 |
| Co-60 | 1332 | HPGe | 0.33 | .93 | 0.48 | 0.7 | 0 | 0.2 | 1.32 | 2.6 |
| Y-88 | 1836 | HPGe | 0.24 | 1.0 | 0.35 | 0.7 | 0 | 0.2 | 1.31 | 2.6 |

Optional Additional Isotopes

| | | | | | | | | | | |
|--------|------|-------|------|-----|---|-----|------|-----|------|-----|
| Pb-210 | 46.5 | 4π LS | 0.33 | 1.1 | 0 | 0.9 | 0.30 | 0.2 | 1.50 | 3.0 |
| Am-241 | 59.5 | 4π LS | 0.33 | 1.1 | 0 | 0.9 | 0.30 | 0.2 | 1.50 | 3.0 |
| Sr-85 | 514 | IC | 0.30 | 1.1 | 0 | 0.7 | 0.17 | 0.2 | 1.36 | 2.7 |
| Cs-134 | 605 | IC | 0.30 | 1.0 | 0 | 0.8 | 0.17 | 0.2 | 1.34 | 2.7 |
| Cs-134 | 796 | IC | 0.30 | 1.0 | 0 | 0.8 | 0.17 | 0.2 | 1.34 | 2.7 |
| Mn-54 | 835 | IC | 0.30 | 1.0 | 0 | 0.8 | 0.17 | 0.2 | 1.34 | 2.7 |
| Zn-65 | 1116 | IC | 0.30 | 1.0 | 0 | 0.8 | 0.17 | 0.2 | 1.34 | 2.7 |

Calibration Methods:

- 4π LS (4 pi Liquid Scintillation Counting)
- HPGe (High Purity Germanium Gamma Ray Spectrometer)
- IC (Gamma Ray Ionization Chamber)

²As Percent (%) from counting data

No interfering gamma emitting impurities were detected during calibration. Depending on the resolution and energy dispersion (keV/channel) of the measuring system, the following spectral conflicts may occur: (1) between the 88 keV gamma-ray and the X-rays emitted in the decay of Hg-203, (2) between the 1333 keV gamma-ray and the 1325 keV single escape peak from the 1836 keV gamma-ray.



Standard Traceability Log Rad

| Source Material Info | | A Solution Material Info | |
|----------------------|--------------|--------------------------|-------------|
| Parent Code: | 0781 | Isotope: | Mixed Gamma |
| Prepared By: | Amanda Fehr | Prepared By: | Amanda Fehr |
| Carrier Conc: | 4M HCL | Prep Date: | 04/26/2005 |
| Reference Date: | 04/01/2005 | Verification Date: | 04/27/2005 |
| Ampoule Mass (g): | 5.3272 g | Expiration Date: | 04/27/2006 |
| Uncertainty: | +/- 3 % | Primary Code: | 0781-A |
| LogBook No: | RC-S-039-065 | Dilution(mL): | 100 mL |
| | | Mass of Parent(g): | 5.1233 g |
| | | Density(g/mL): | 5.4962 |

Calculations Converting parent activity to dpm/mL|dpm/g

$$(\text{Mass of parent(g)}) * (\text{Parm Activity (dpm)}) * (\text{conversion dpm to dpm}) / (\text{Ampoule Mass(g)} * (\text{Dilution Vol})) = \text{Parent Activity (dpm/mL)}$$

$$(\text{Mass of parent(g)}) * (\text{Parm Activity (dpm)}) * (\text{conversion dpm to dpm}) / \text{Density} / (\text{Ampoule Mass (g)} * (\text{Dilution Vol})) = \text{Parent Activity (dpm/g)}$$

$$(5.1233 \text{ g}) * (219149.436 \text{ dpm}) * (1 \text{ dpm/dpm}) / (5.3272 \text{ g} * 100 \text{ mL}) = 2107.6143 \text{ dpm/mL}$$

$$(5.1233 \text{ g}) * (219149.436 \text{ dpm}) * (1 \text{ dpm/dpm}) / (5.4962 \text{ g/mL}) / (5.3272 \text{ g} * 100 \text{ mL}) = 383.4709 \text{ dpm/g}$$

Secondary Standards

| Prep Date | Preparer | Mass Primary | Dilution (mL) | Code | Conc dpm/mL | Verification Date | Expiration Date |
|-----------|----------|--------------|---------------|------|-------------|-------------------|-----------------|
|-----------|----------|--------------|---------------|------|-------------|-------------------|-----------------|

General Engineering Laboratories, LLC

Version 1.0 9/18/2000

Verification for Mixed Gamma Standard 0781-A (AM-241 & Cs-137)

A. Fehr
4/29/2005

| Am-241 | | | Cs-137 | | |
|--------------------------------|----------------|---------------------------|-------------|----------------|---------------|
| | Isotope | Result | | Isotope | Result |
| | Mixed Gamma N1 | 9796 | | Mixed Gamma N1 | 3753 |
| | Mixed Gamma N2 | 9930 | | Mixed Gamma N2 | 4015 |
| | Mixed Gamma N3 | 10290 | | Mixed Gamma N3 | 3878 |
| Mean Value (Counting) = | 10005.33 | 102.47 | Pass | 3882.00 | 102.39 |
| Stdev = | 255.471 | Rule 3 (Pass/Fail) | | 131.046 | Pass |
| Certificate Value = | 9764.6 | | | 3791.3 | |
| Lower Limit = | 9494.391719 | | | 3619.908413 | |
| Upper Limit = | 10516.27495 | | | 4144.091587 | |
| Rule 1 (Pass/Fail) | Pass | | | Pass | |
| Two sigma = | 510.9416144 | | | 262.091587 | |
| 10 % of Mean = | 1000.53333333 | | | 388.20000000 | |
| Rule 2 (Pass/Fail) | Pass | | | 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.

Amanda L. Fehr 4/29/05

Angela L. Johnson 5/6/05

Verification for Mixed Gamma Standard 0781-A (Co-60)

| A. Fehr 4/29/2005 | Isotope | Result pCi/L | |
|--------------------------------|----------------|-----------------|---------------------------|
| | Mixed Gamma N1 | 6132 | |
| | Mixed Gamma N2 | 6073 | |
| | Mixed Gamma N3 | 6240 | |
| Mean Value (Counting) = | 6148.33 | pCi/L | 102.365 Pass |
| Stdev = | 84.690 | pCi/L | Rule 3 (Pass/Fail) |
| Certificate Value = | 6006.3 | pCi/L | |
| Lower Limit = | 5978.954074 | pCi/L | |
| Upper Limit = | 6317.712592 | pCi/L | |
| Rule 1 Pass/Fail | Pass | | |
| Two sigma = | 169.3792589 | | |
| 10 % of Mean = | 614.8333333 | | |
| 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.

Amanda L. Fehr 4/29/05

*Angela L. Johnson
5/6/05*

RUNLOGS



Instrument Run Log

| ID | Sample Type | Analyst | Instrument | Dil | Run Date | Batch Id | Status | Geometry | Cal Date |
|------------|-------------|---------|------------|-----|-------------------|----------|--------|----------|----------|
| 158272001 | SAMPLE | BJB1 | 1026 | | 20-APR-2006 07:49 | 520798 | DONE | | |
| 158275001 | SAMPLE | BJB1 | 1027 | | 20-APR-2006 07:49 | 520798 | DONE | | |
| 158276001 | SAMPLE | BJB1 | 1029 | | 20-APR-2006 07:49 | 520798 | DONE | | |
| 158277001 | SAMPLE | BJB1 | 1030 | | 20-APR-2006 07:49 | 520798 | DONE | | |
| 158436001 | SAMPLE | BJB1 | 1065 | | 20-APR-2006 07:49 | 520798 | DONE | | |
| 158971001 | SAMPLE | BJB1 | 1069 | | 20-APR-2006 07:49 | 520798 | DONE | | |
| 158971002 | SAMPLE | BJB1 | 1070 | | 20-APR-2006 07:49 | 520798 | DONE | | |
| 158971004 | SAMPLE | BJB1 | 1073 | | 20-APR-2006 07:49 | 520798 | DONE | | |
| 159242001 | SAMPLE | BJB1 | 1075 | | 20-APR-2006 07:49 | 520798 | DONE | | |
| 159242002 | SAMPLE | BJB1 | 1077 | | 20-APR-2006 07:49 | 520798 | DONE | | |
| 159242003 | SAMPLE | BJB1 | 1078 | | 20-APR-2006 07:49 | 520798 | DONE | | |
| 159243001 | SAMPLE | BJB1 | 1079 | | 20-APR-2006 07:49 | 520798 | DONE | | |
| 159244001 | SAMPLE | BJB1 | 1080 | | 20-APR-2006 07:49 | 520798 | DONE | | |
| 1201071140 | MB | BJB1 | 1083 | | 20-APR-2006 07:49 | 520798 | DONE | | |
| 1201071141 | DUP | BJB1 | 1085 | | 20-APR-2006 07:49 | 520798 | DONE | | |
| 1201071142 | MS | BJB1 | 1086 | | 20-APR-2006 07:49 | 520798 | DONE | | |
| 1201071143 | LCS | BJB1 | 1088 | | 20-APR-2006 07:49 | 520798 | DONE | | |
| 158971003 | SAMPLE | BJB1 | 1010 | | 21-APR-2006 11:47 | 520798 | DONE | | |
| 159247001 | SAMPLE | BJB1 | 1011 | | 21-APR-2006 11:47 | 520798 | DONE | | |

Version 1.1 9/5/05

General Engineering Laboratories, LLC



Instrument Run Log

| ID | Sample Type | Analyst | Instrument | Dil | Run Date | Batch Id | Status | Geometry | Cal Date |
|------------|-------------|---------|------------|-----|-------------------|----------|--------|----------|----------|
| 158272001 | SAMPLE | BJB1 | 1019 | | 20-APR-2006 17:29 | 520799 | DONE | | |
| 158275001 | SAMPLE | BJB1 | 1020 | | 20-APR-2006 17:29 | 520799 | DONE | | |
| 158276001 | SAMPLE | BJB1 | 1021 | | 20-APR-2006 17:29 | 520799 | DONE | | |
| 158277001 | SAMPLE | BJB1 | 1023 | | 20-APR-2006 17:29 | 520799 | DONE | | |
| 158436001 | SAMPLE | BJB1 | 1001 | | 21-APR-2006 07:38 | 520799 | DONE | | |
| 158971001 | SAMPLE | BJB1 | 1003 | | 21-APR-2006 07:38 | 520799 | DONE | | |
| 158971002 | SAMPLE | BJB1 | 1004 | | 21-APR-2006 07:38 | 520799 | DONE | | |
| 158971003 | SAMPLE | BJB1 | 1005 | | 21-APR-2006 07:38 | 520799 | DONE | | |
| 158971004 | SAMPLE | BJB1 | 1007 | | 21-APR-2006 07:38 | 520799 | DONE | | |
| 159242001 | SAMPLE | BJB1 | 1009 | | 21-APR-2006 07:38 | 520799 | DONE | | |
| 159242002 | SAMPLE | BJB1 | 1010 | | 21-APR-2006 07:38 | 520799 | DONE | | |
| 159242003 | SAMPLE | BJB1 | 1011 | | 21-APR-2006 07:38 | 520799 | DONE | | |
| 159243001 | SAMPLE | BJB1 | 1013 | | 21-APR-2006 07:38 | 520799 | DONE | | |
| 159244001 | SAMPLE | BJB1 | 1016 | | 21-APR-2006 07:38 | 520799 | DONE | | |
| 159247001 | SAMPLE | BJB1 | 1017 | | 21-APR-2006 07:38 | 520799 | DONE | | |
| 1201071144 | MB | BJB1 | 1018 | | 21-APR-2006 07:38 | 520799 | DONE | | |
| 1201071146 | MS | BJB1 | 1020 | | 21-APR-2006 07:38 | 520799 | DONE | | |
| 1201071147 | LCS | BJB1 | 1021 | | 21-APR-2006 07:38 | 520799 | DONE | | |
| 1201071145 | DUP | BJB1 | 1116 | | 22-APR-2006 07:38 | 520799 | DONE | | |

Version 1.1 9/5/05

General Engineering Laboratories, LLC



Instrument Run Log

| ID | Sample Type | Analyst | Instrument | Dil | Run Date | Batch Id | Status | Geometry | Cal Date |
|------------|-------------|---------|------------|-----|-------------------|----------|--------|----------|-------------|
| 158272001 | SAMPLE | MJH1 | GAMMA1 | | 25-APR-2006 18:37 | 519510 | DONE | 2L_MB | 13-FEB-2006 |
| 158275001 | SAMPLE | MJH1 | GAMMA3 | | 25-APR-2006 18:37 | 519510 | DONE | 2L_MB | 24-MAR-2006 |
| 158276001 | SAMPLE | MJH1 | GAMMA4 | | 25-APR-2006 18:37 | 519510 | DONE | 2L_MB | 23-FEB-2006 |
| 158277001 | SAMPLE | MJH1 | GAMMA6 | | 25-APR-2006 18:38 | 519510 | DONE | 2L_MB | 04-JAN-2006 |
| 158436001 | SAMPLE | MJH1 | GAMMA7 | | 25-APR-2006 18:38 | 519510 | DONE | 2L_MB | 03-JAN-2006 |
| 158971001 | SAMPLE | MJH1 | GAMMA8 | | 25-APR-2006 18:38 | 519510 | DONE | 2L_MB | 23-SEP-2005 |
| 158971002 | SAMPLE | MJH1 | GAMMA9 | | 25-APR-2006 18:39 | 519510 | DONE | 2L_MB | 08-JUL-2005 |
| 158971003 | SAMPLE | MJH1 | GAMMA10 | | 25-APR-2006 18:39 | 519510 | DONE | 2L_MB | 15-FEB-2006 |
| 158971004 | SAMPLE | MJH1 | GAMMA11 | | 25-APR-2006 18:39 | 519510 | DONE | 2L_MB | 25-MAR-2006 |
| 159242001 | SAMPLE | MJH1 | GAMMA12 | | 25-APR-2006 18:40 | 519510 | DONE | 2L_MB | 10-JAN-2006 |
| 159242003 | SAMPLE | MJH1 | GAMMA15 | | 25-APR-2006 18:42 | 519510 | DONE | 2L_MB | 09-JUL-2005 |
| 159244001 | SAMPLE | MJH1 | GAMMA17 | | 25-APR-2006 18:42 | 519510 | DONE | 2L_MB | 06-JAN-2006 |
| 159242002 | SAMPLE | MJH1 | GAM14 | | 25-APR-2006 18:43 | 519510 | DONE | 2LMB | 22-FEB-2006 |
| 1201068236 | MB | MJH1 | WELL | | 25-APR-2006 18:43 | 519510 | DONE | 2L_MB | 29-DEC-2005 |
| 159247001 | SAMPLE | MJH1 | GAM19 | | 25-APR-2006 18:46 | 519510 | DONE | 2LMB | 22-FEB-2006 |
| 1201068238 | LCS | MJH1 | GAMMA6 | | 26-APR-2006 05:24 | 519510 | DONE | 2L_MB | 04-JAN-2006 |
| 159243001 | SAMPLE | MJH1 | GAM14 | | 26-APR-2006 05:26 | 519510 | DONE | 2LMB | 22-FEB-2006 |
| 1201068237 | DUP | MJH1 | GAM19 | | 26-APR-2006 05:28 | 519510 | DONE | 2LMB | 22-FEB-2006 |

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Instrument Run Log

| ID | Sample Type | Analyst | Instrument | Dil | Run Date | Batch Id | Status | Geometry | Cal Date |
|------------|--------------------|----------------|-------------------|------------|-------------------|-----------------|---------------|--------------------|-----------------|
| 158272001 | SAMPLE | KSD1 | PIC1B | | 10-APR-2006 18:53 | 515325 | DONE | CeF on 25mm Filter | 22-APR-2005 |
| 1201058924 | MB | KSD1 | PIC2D | | 10-APR-2006 18:53 | 515325 | DONE | CeF on 25mm Filter | 22-APR-2005 |
| 1201058925 | DUP | KSD1 | PIC3B | | 10-APR-2006 18:53 | 515325 | DONE | CeF on 25mm Filter | 22-APR-2005 |
| 1201058926 | MS | KSD1 | PIC3C | | 10-APR-2006 18:53 | 515325 | DONE | CeF on 25mm Filter | 22-APR-2005 |
| 1201058927 | LCS | KSD1 | PIC3D | | 10-APR-2006 18:53 | 515325 | DONE | CeF on 25mm Filter | 22-APR-2005 |
| 158275001 | SAMPLE | KSD1 | PIC1C | | 10-APR-2006 18:54 | 515325 | DONE | CeF on 25mm Filter | 22-APR-2005 |
| 158276001 | SAMPLE | KSD1 | PIC1D | | 10-APR-2006 18:54 | 515325 | DONE | CeF on 25mm Filter | 22-APR-2005 |
| 158277001 | SAMPLE | KSD1 | PIC2A | | 10-APR-2006 18:54 | 515325 | DONE | CeF on 25mm Filter | 22-APR-2005 |
| 158764001 | SAMPLE | KSD1 | PIC2B | | 10-APR-2006 18:54 | 515325 | DONE | CeF on 25mm Filter | 01-MAR-2006 |
| 158995001 | SAMPLE | KSD1 | PIC2C | | 10-APR-2006 18:54 | 515325 | DONE | CeF on 25mm Filter | 22-APR-2005 |

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Instrument Run Log

| ID | Sample Type | Analyst | Instrument | Dil | Run Date | Batch Id | Status | Geometry | Cal Date |
|------------|-------------|---------|------------|-----|-------------------|----------|--------|----------------|-------------|
| 158272001 | SAMPLE | BXF1 | PIC1B | | 25-APR-2006 11:02 | 520607 | DONE | Tuffryn Filter | 29-JUL-2005 |
| 158275001 | SAMPLE | BXF1 | PIC1C | | 25-APR-2006 11:02 | 520607 | DONE | Tuffryn Filter | 29-JUL-2005 |
| 158276001 | SAMPLE | BXF1 | PIC1D | | 25-APR-2006 11:02 | 520607 | DONE | Tuffryn Filter | 29-JUL-2005 |
| 158277001 | SAMPLE | BXF1 | PIC2A | | 25-APR-2006 11:02 | 520607 | DONE | Tuffryn Filter | 29-JUL-2005 |
| 158436001 | SAMPLE | BXF1 | PIC2B | | 25-APR-2006 11:02 | 520607 | DONE | Tuffryn Filter | 29-JUL-2005 |
| 158971001 | SAMPLE | BXF1 | PIC2C | | 25-APR-2006 11:03 | 520607 | DONE | Tuffryn Filter | 29-JUL-2005 |
| 158971003 | SAMPLE | BXF1 | PIC3A | | 25-APR-2006 11:03 | 520607 | DONE | Tuffryn Filter | 29-JUL-2005 |
| 158971004 | SAMPLE | BXF1 | PIC3B | | 25-APR-2006 11:03 | 520607 | DONE | Tuffryn Filter | 29-JUL-2005 |
| 159242001 | SAMPLE | BXF1 | PIC3C | | 25-APR-2006 11:03 | 520607 | DONE | Tuffryn Filter | 29-JUL-2005 |
| 159242002 | SAMPLE | BXF1 | PIC3D | | 25-APR-2006 11:03 | 520607 | DONE | Tuffryn Filter | 29-JUL-2005 |
| 159242003 | SAMPLE | BXF1 | PIC4A | | 25-APR-2006 11:03 | 520607 | DONE | Tuffryn Filter | 29-JUL-2005 |
| 159243001 | SAMPLE | BXF1 | PIC4B | | 25-APR-2006 11:03 | 520607 | DONE | Tuffryn Filter | 29-JUL-2005 |
| 159244001 | SAMPLE | BXF1 | PIC4C | | 25-APR-2006 11:03 | 520607 | DONE | Tuffryn Filter | 29-JUL-2005 |
| 159247001 | SAMPLE | BXF1 | PIC4D | | 25-APR-2006 11:03 | 520607 | DONE | Tuffryn Filter | 29-JUL-2005 |
| 158971002 | SAMPLE | BXF1 | PIC2D | | 25-APR-2006 12:32 | 520607 | DONE | Tuffryn Filter | 29-JUL-2005 |
| 1201070733 | MB | BXF1 | PIC3A | | 25-APR-2006 14:15 | 520607 | DONE | Tuffryn Filter | 29-JUL-2005 |
| 1201070735 | MS | BXF1 | PIC3C | | 25-APR-2006 14:15 | 520607 | DONE | Tuffryn Filter | 29-JUL-2005 |
| 1201070734 | DUP | BXF1 | PIC3B | | 25-APR-2006 14:15 | 520607 | DONE | Tuffryn Filter | 29-JUL-2005 |
| 1201070736 | LCS | BXF1 | PIC3D | | 25-APR-2006 14:15 | 520607 | DONE | Tuffryn Filter | 29-JUL-2005 |

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Instrument Run Log

| ID | Sample Type | Analyst | Instrument | Dil | Run Date | Batch Id | Status | Geometry | Cal Date |
|------------|-------------|---------|------------|-----|-------------------|----------|--------|----------|----------|
| 1201077880 | MB | DRS1 | KPA11AUTO2 | | 26-APR-2006 10:15 | 523680 | DONE | | |
| 1201077881 | DUP | DRS1 | KPA11AUTO2 | | 26-APR-2006 10:18 | 523680 | DONE | | |
| 1201077882 | MS | DRS1 | KPA11AUTO2 | | 26-APR-2006 10:22 | 523680 | DONE | | |
| 1201077883 | LCS | DRS1 | KPA11AUTO2 | | 26-APR-2006 10:26 | 523680 | DONE | | |
| 1201077884 | LCSD | DRS1 | KPA11AUTO2 | | 26-APR-2006 10:27 | 523680 | DONE | | |
| 158272001 | SAMPLE | DRS1 | KPA11AUTO2 | | 26-APR-2006 10:30 | 523680 | DONE | | |
| 158275001 | SAMPLE | DRS1 | KPA11AUTO2 | | 26-APR-2006 10:32 | 523680 | DONE | | |
| 158276001 | SAMPLE | DRS1 | KPA11AUTO2 | | 26-APR-2006 10:34 | 523680 | DONE | | |
| 158277001 | SAMPLE | DRS1 | KPA11AUTO2 | | 26-APR-2006 10:36 | 523680 | DONE | | |
| 158436001 | SAMPLE | DRS1 | KPA11AUTO2 | | 26-APR-2006 10:38 | 523680 | DONE | | |
| 158971001 | SAMPLE | DRS1 | KPA11AUTO2 | | 26-APR-2006 10:40 | 523680 | DONE | | |
| 158971002 | SAMPLE | DRS1 | KPA11AUTO2 | | 26-APR-2006 10:43 | 523680 | DONE | | |
| 158971003 | SAMPLE | DRS1 | KPA11AUTO2 | | 26-APR-2006 10:45 | 523680 | DONE | | |
| 158971004 | SAMPLE | DRS1 | KPA11AUTO2 | | 26-APR-2006 10:47 | 523680 | DONE | | |
| 159242001 | SAMPLE | DRS1 | KPA11AUTO2 | | 26-APR-2006 10:49 | 523680 | DONE | | |
| 159242002 | SAMPLE | DRS1 | KPA11AUTO2 | | 26-APR-2006 10:51 | 523680 | DONE | | |
| 159242003 | SAMPLE | DRS1 | KPA11AUTO2 | | 26-APR-2006 10:53 | 523680 | DONE | | |
| 159243001 | SAMPLE | DRS1 | KPA11AUTO2 | | 26-APR-2006 10:55 | 523680 | DONE | | |
| 159244001 | SAMPLE | DRS1 | KPA11AUTO2 | | 26-APR-2006 10:57 | 523680 | DONE | | |
| 159247001 | SAMPLE | DRS1 | KPA11AUTO2 | | 26-APR-2006 11:01 | 523680 | DONE | | |

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Instrument Run Log

| ID | Sample Type | Analyst | Instrument | Dil | Run Date | Batch Id | Status | Geometry | Cal Date |
|------------|-------------|---------|------------|-----|-------------------|----------|--------|------------|-------------|
| 158276001 | SAMPLE | SG | LUCAS2 | | 11-APR-2006 08:00 | 517605 | DONE | Lucas Cell | 09-MAY-2005 |
| 158277001 | SAMPLE | SG | LUCAS3 | | 11-APR-2006 08:00 | 517605 | DONE | Lucas Cell | 23-NOV-2005 |
| 158436001 | SAMPLE | SG | LUCAS4 | | 11-APR-2006 08:00 | 517605 | DONE | Lucas Cell | 04-NOV-2005 |
| 158783001 | SAMPLE | SG | LUCAS5 | | 11-APR-2006 08:00 | 517605 | DONE | Lucas Cell | 09-DEC-2005 |
| 158783002 | SAMPLE | SG | LUCAS6 | | 11-APR-2006 08:00 | 517605 | DONE | Lucas Cell | 29-DEC-2005 |
| 158783003 | SAMPLE | SG | LUCAS1 | | 11-APR-2006 08:35 | 517605 | DONE | Lucas Cell | 27-MAR-2006 |
| 158783004 | SAMPLE | SG | LUCAS2 | | 11-APR-2006 08:35 | 517605 | DONE | Lucas Cell | 09-MAY-2005 |
| 158783005 | SAMPLE | SG | LUCAS3 | | 11-APR-2006 08:35 | 517605 | DONE | Lucas Cell | 23-NOV-2005 |
| 158971001 | SAMPLE | SG | LUCAS4 | | 11-APR-2006 08:35 | 517605 | DONE | Lucas Cell | 04-NOV-2005 |
| 158971002 | SAMPLE | SG | LUCAS5 | | 11-APR-2006 08:35 | 517605 | DONE | Lucas Cell | 09-DEC-2005 |
| 158971003 | SAMPLE | SG | LUCAS6 | | 11-APR-2006 08:35 | 517605 | DONE | Lucas Cell | 29-DEC-2005 |
| 158971004 | SAMPLE | SG | LUCAS1 | | 11-APR-2006 09:15 | 517605 | DONE | Lucas Cell | 27-MAR-2006 |
| 159242003 | SAMPLE | SG | LUCAS2 | | 11-APR-2006 09:15 | 517605 | DONE | Lucas Cell | 09-MAY-2005 |
| 1201063981 | LCS | SG | LUCAS6 | | 11-APR-2006 09:15 | 517605 | DONE | Lucas Cell | 29-DEC-2005 |
| 1201063982 | DUP | SG | LUCAS4 | | 11-APR-2006 09:15 | 517605 | DONE | Lucas Cell | 04-NOV-2005 |
| 1201063983 | MS | SG | LUCAS5 | | 11-APR-2006 09:15 | 517605 | DONE | Lucas Cell | 09-DEC-2005 |
| 158275001 | SAMPLE | SG | LUCAS1 | | 11-APR-2006 11:25 | 517605 | DONE | Lucas Cell | 27-MAR-2006 |
| 1201063978 | MB | SG | LUCAS3 | | 11-APR-2006 11:25 | 517605 | DONE | Lucas Cell | 23-NOV-2005 |

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