



August 25, 2009

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

Re: Tronox Henderson  
Work Order: 233580

Dear Mr. Hagar:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on July 16, 2009, July 17, 2009, July 18, 2009, July 22, 2009, July 23, 2009, July 24, 2009, July 25, 2009 and July 28, 2009. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

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

Sincerely,

Edith Kent  
Project Manager

Chain of Custody: 2027.001.00253, 2027.001.00267, 2027.001.00295, 2027.001.00302, 2027.001.00306,  
2027.001.00320, 2027.001.00326, 2027.001.00329, 2027.001.00332 and 2027.001.00341

Enclosures

**Tronox LLC**  
**Tronox Henderson**  
**SDG:233580**

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# Case Narrative



**CASE NARRATIVE**  
**for**  
**Tronox LLC**  
**Tronox Henderson**  
**SDG:233580**

**August 25, 2009**

**Laboratory Identification:**

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

**Summary**

**Sample receipt**

The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on July 16, 2009, July 17, 2009, July 18, 2009, July 22, 2009, July 23, 2009, July 24, 2009, July 25, 2009 and July 28, 2009 for analysis. Shipping container temperatures were checked, documented, and within specifications. The samples were delivered with proper chain of custody documentation and signatures. All sample containers arrived without any visible signs of tampering or breakage. There are no additional comments concerning sample receipt.

**Items of Note**

All samples under this SDG were logged as an open SDG until a sufficient amount of samples were received by the lab. The client was notified that the SDG was closed on July 28, 2009 and the turnaround time would start from then. Please refer to the attached e-mail for further details.

**QC Issues**

The following samples did not meet the Tronox QA program sample result uncertainty limit of <30% for Ra-226 with the results between 2 and 5 times the MDA and were counted for the maximum time: and 233580009. The following samples did not meet the Tronox QA program sample result uncertainty limit of <30% for Alpha Spec Uranium with the results between 2 and 5 times the MDA and were counted for the maximum time: 233580001, 233580010 and 233580013. The following samples did not meet the Tronox QA program sample result uncertainty limit of <30% for Alpha Spec Thorium with the results between 2 and 5 times the MDA and were counted for the maximum time: 233580003 and 233580008. The following samples did not meet the Tronox QA program sample tracer yield requirements of 70-120% for Alpha Spec Uranium due to matrix issues: 233580004, 233580005, 233580009, 233580010 and 233580013. The following samples did not meet the Tronox QA program sample tracer yield requirements of 70-120% for Alpha Spec Thorium due to matrix issues: and 233580004. The following samples did not meet the Tronox QA program required detection limits for Alpha Spec Thorium due to limited sample volume and were counted for the maximum time: 233580001, 233580004, 233580006, 233580007, 233580010, 233580011, 233580012 and 233580013. The following samples did not meet the Tronox QA program required detection limits for Alpha Spec Uranium due to limited sample volume and were counted for the maximum time: and 233580004. The lab duplicate did not meet the Tronox QA program sample result uncertainty limit of <30% for Alpha Spec Uranium with the results greater than 5 times the MDA and were counted for the maximum time. Please refer to the attached e-mail for further details on QC issues.

**Sample Identification**

The laboratory received the following samples:

<b><u>Laboratory ID</u></b>	<b><u>Client ID</u></b>
233580001	M-92BDISS
233580002	M-97B

233580003	TR-6B
233580004	EB-071709-GW
233580005	M-33B
233580006	CLD-4RB
233580007	MW-6RB
233580008	M-52B
233580009	M-35B
233580010	M-11B
233580011	M-11BDISS
233580012	M-11009B
233580013	M-11009BDISS

**Case Narrative**

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

**Data Package**

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

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



Edith Kent

Project Manager

**Chain of Custody  
and  
Supporting  
Documentation**

235807



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

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

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

COC No. 2027.001.00267  
Page: 1 of 1  
Cooler # / of 2

Required Ship to Lab:		Required Project Information:		Required Invoices Information:		TAT: Standard 30 day		Rush		Mark One	
Lab Name: GEL Laboratories, LLC		Site ID #: TRINOX LLC, HENDERSON		Send Invoice to: Susan Crowley, Trinox LLC		If Rush, Date due				Special EPA Stage 4 Mark one	
Address: 2040 Savage Road		Project #: 2027.001		Address: PO Box 55						EPA 3007/3008	
City: Charleston, SC 29407		State: NV		City/State: Henderson, NV 89009		Phone #: (949)260-9293				QC level Required: Standard	
Lab P/N: Edith M. Kent		City: Henderson		Reimbursement project? <input checked="" type="checkbox"/>		Non-reimbursement project? <input type="checkbox"/>				NJ Reduced Deliverable Package?	
Phone/Fax: (843)556-8171		Site PM Name: Derrick Willis		Send EDD to: Frank Hagar Northgate Environmental Management, Inc		Frank.hagar@ngem.com				MA MCP Cert? <input type="checkbox"/>	
Lab PM email: emk@gel.com		Phone/Fax: 949-375-7004		CC Hardcopy report to: pdf		Electronic Version Only				CT RCP Cert? <input type="checkbox"/>	
Applicable Lab Quote #:		Site PM Email: derrick.willis@ngem.com		CC Hardcopy report to: see additional comments below						Lab Project ID (lab use)	
ITEM #	SAMPLE ID	Matrix	Matrix Code	Sample Type	Sample Date	Sample Time	# of Containers	Field Filtered? (Y/N)	Preservatives	Requested	Comments/Lab Sample I.D.
1	M-92B	One	WG	G	7/15/2009	8:45 AM	1	N	Unpreserved	X	2 L Poly Clear
2	M-92B	One	WG	G	7/15/2009	8:45 AM	1	N	H2SO4	X	2 L Poly Clear
3	M-92BDDISS	One	WG	G	7/15/2009	8:45 AM	1	Y	HNO3	X	2 L Poly Clear
4	M-92BDDISS	One	WG	G	7/15/2009	8:45 AM	1	Y	HCl	X	2 L Poly Clear
5	M-92BMS	One	WG	G	7/15/2009	8:45 AM	1	N	HNO3	X	2 L Poly Clear
6	M-92BMS	One	WG	G	7/15/2009	8:45 AM	1	N	H2SO4	X	2 L Poly Clear
7	M-92BMSDISS	One	WG	G	7/15/2009	8:45 AM	1	Y	Unpreserved	X	2 L Poly Clear
8	M-92BMSDISS	One	WG	G	7/15/2009	8:45 AM	1	Y	H2SO4	X	2 L Poly Clear
9	M-92BMSD	One	WG	G	7/15/2009	8:45 AM	1	N	HNO3	X	2 L Poly Clear
10	M-92BMSD	One	WG	G	7/15/2009	8:45 AM	1	N	HCl	X	2 L Poly Clear
11	M-92BMSDDISS	One	WG	G	7/15/2009	8:45 AM	1	Y	Unpreserved	X	2 L Poly Clear
12	M-92BMSDDISS	One	WG	G	7/15/2009	8:45 AM	1	Y	H2SO4	X	2 L Poly Clear

REINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
Dana R. Brown, NGEM LLC	15-Jul	13:35	GES	7/15	13:35
<i>[Signature]</i>	7/15/09	13:35	<i>[Signature]</i>	7-16-09	08:40

SHIPPING METHOD: (mark as appropriate)	SAMPLER NAME AND SIGNATURE
UPS COURIER FEDEX	<i>[Signature]</i>
US MAIL	Dana R. Brown
	DATE signed: 7/15/2009
	Time: 13:35

Additional Comments/Special Instructions:  
**FULL DIGESTION SPECIFICATION**  
**EMSL HASL 3007 - DOE EMSL HASL 300 modified (alpha spectroscopy)**  
**Thorium (isotopic) and Uranium (isotopic)**

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



### SAMPLE RECEIPT & REVIEW FORM

Client: <u>KEPP/NORHEATE</u>	SDG/ARCOC/Work Order: <u>2335801</u>
Received By: <u>MK</u>	Date Received: <u>7-16-09</u>
<b>Suspected Hazard Information</b>	<small>*If Counts &gt; x2 area background on samples not marked "radioactive", contact the Radiation Safety Group of further investigation.</small>
COC/Samples marked as radioactive?	Maximum Counts Observed*: <u>Cm-20</u>
Classified Radioactive II or III by RSO?	
COC/Samples marked containing PCBs?	
Shipped as a DOT Hazardous?	Hazard Class Shipped: UN#:
Samples identified as Foreign Soil?	

Sample Receipt Criteria		Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	<input checked="" type="checkbox"/>			Circle Applicable: seals broken    damaged container    leaking container    other (describe)
2	Samples requiring cold preservation within 0 ≤ 6 deg. C?		<input checked="" type="checkbox"/>		Preservation Method: ice bags    blue ice    dry ice <u>none</u> other (describe) <u>27°</u> <u>29°</u>
3	Chain of custody documents included with shipment?	<input checked="" type="checkbox"/>			
4	Sample containers intact and sealed?	<input checked="" type="checkbox"/>			Circle Applicable: seals broken    damaged container    leaking container    other (describe)
5	Samples requiring chemical preservation at proper pH?	<input checked="" type="checkbox"/>			Sample ID's, containers affected and observed pH: If Preservation added, Lot#:
6	VOA vials free of headspace (defined as < 6mm bubble)?		<input checked="" type="checkbox"/>		Sample ID's and containers affected:
7	Are Encore containers present?			<input checked="" type="checkbox"/>	(If yes, immediately deliver to Volatiles laboratory)
8	Samples received within holding time?	<input checked="" type="checkbox"/>			Id's and tests affected:
9	Sample ID's on COC match ID's on bottles?	<input checked="" type="checkbox"/>			Sample ID's and containers affected:
10	Date & time on COC match date & time on bottles?	<input checked="" type="checkbox"/>			Sample ID's affected:
11	Number of containers received match number indicated on COC?	<input checked="" type="checkbox"/>			Sample ID's affected:
12	COC form is properly signed in relinquished/received sections?	<input checked="" type="checkbox"/>			

Comments:

FX 7977 6675 2090    29°  
 7967 7963 3305    27°

PM (or PMA) review: Initials EM Date 7/16/09





Client: <u>KEP-NORWATE</u>		SDG/ARCO/Work Order: <u>2335801</u>	
Received By: <u>NK</u>		Date Received: <u>7-17-09</u>	
Suspected Hazard Information		Yes	No
*If Counts > x2 area background on samples not marked "radioactive", contact the Radiation Safety Group of further investigation.			
COC/Samples marked as radioactive?		<input checked="" type="checkbox"/>	Maximum Counts Observed*: <u>Cpm 20</u>
Classified Radioactive II or III by RSO?		<input checked="" type="checkbox"/>	
COC/Samples marked containing PCBs?		<input checked="" type="checkbox"/>	
Shipped as a DOT Hazardous?		<input checked="" type="checkbox"/>	Hazard Class Shipped: UN#:
Samples identified as Foreign Soil?		<input checked="" type="checkbox"/>	

Sample Receipt Criteria		Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	<input checked="" type="checkbox"/>			Circle Applicable: seals broken    damaged container    leaking container    other (describe)
2	Samples requiring cold preservation within 0 ≤ 6 deg. C?		<input checked="" type="checkbox"/>		ice bags    blue ice    dry ice <u>none</u> other (describe) <u>24°</u>
3	Chain of custody documents included with shipment?	<input checked="" type="checkbox"/>			
4	Sample containers intact and sealed?	<input checked="" type="checkbox"/>			Circle Applicable: seals broken    damaged container    leaking container    other (describe)
5	Samples requiring chemical preservation at proper pH?	<input checked="" type="checkbox"/>			Sample ID's, containers affected and observed pH: If Preservation added, Lot#:
6	VOA vials free of headspace (defined as < 6mm bubble)?		<input checked="" type="checkbox"/>		Sample ID's and containers affected:
7	Are Encore containers present?			<input checked="" type="checkbox"/>	(If yes, immediately deliver to Volatiles laboratory)
8	Samples received within holding time?	<input checked="" type="checkbox"/>			Id's and tests affected:
9	Sample ID's on COC match ID's on bottles?	<input checked="" type="checkbox"/>			Sample ID's and containers affected:
10	Date & time on COC match date & time on bottles?	<input checked="" type="checkbox"/>			Sample ID's affected:
11	Number of containers received match number indicated on COC?	<input checked="" type="checkbox"/>			Sample ID's affected:
12	COC form is properly signed in relinquished/received sections?	<input checked="" type="checkbox"/>			

Comments:

FX 7977 7058 0134

PM (or PMA) review: Initials Em

Date 7/17/09





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

<b>Required Ship to Lab:</b> Lab Name: GEL Laboratories, LLC Address: 2040 Savage Road Charleston, SC 29407 Lab P/I: Edith M. Kent Phone/Fax: (843)566-8171 Lab PM email: emk@gel.com		<b>Required Project Information:</b> Site ID #: TRONOX LLC, HENDERSON Project #: 2027.001 Site Address: 560 W. Lake Mead Drive City: Henderson State: NV Site PM Name: Derrick Willis Phone/Fax: 949-376-7004 Site PM Email: derrick.willis@ngem.com		<b>Required Invoice Information:</b> Send Invoice to: Susan Crowley Address: PO Box 55 Henderson, NV 89009 Phone #: (949)260-9293 Reimbursement project? <input checked="" type="checkbox"/> Non-reimbursement project? Send EDD to: frank.hagar@ngem.com CC Hardcopy report to: PDF Electronic Version Only CC Hardcopy report to: see additional comments below		TAT: Standard 30 day <input checked="" type="checkbox"/> Rush If Rush, Date due QC level Required: Standard Special EPA Stage 4 <input type="checkbox"/> Mark One NJ Reduced Deliverable Package? MA MCP Cert? <input type="checkbox"/> CT RCP Cert? <input type="checkbox"/> Mark One Lab Project ID (lab use)									
ITEM #	SAMPLE ID	Matrix Code	Matrix	SAMPLE TYPE	SAMPLE DATE	SAMPLE TIME	# OF CONTAINERS	FIELD FILTERED? (Y/N)	Preservatives						Comments/Lab Sample I.D.
									Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	
1	EB-071709-GW	W	W	G	7/17/2009	9:45 AM	1	N	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	2 L Poly Clear
2	EB-071709-GW	W	W	G	7/17/2009	9:45 AM	1	N	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	2 L Poly Clear
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															

**Additional Comments/Special Instructions:**  
 FULL DIGESTION SPECIFICATION  
 EMSL HASL 300\* - DOE EMSL HASL 300 modified (alpha spectroscopy)  
 Thorium (isotopic) and Uranium (isotopic)

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

REMOVED BY AFFILIATION DATE TIME ACCEPTED BY AFFILIATION DATE TIME  
 Dana Brown N6EM 7/17/09 12:30 G-ES 7/17 12:30  
 G-ES 7/17 11:00 Mike Kubat BEL 7-18-09 09:15 250  
 SHIPPING METHOD: (mark as appropriate)  
 UPS COURIER FEDEX  
 SIGNATURE OF SAMPLER: Dana Brown  
 DATE SIGNED: 7/17/2009 Time: 12:30



Client: <u>Kerr Notheate</u>		SDG/ARCOC/Work Order: <u>233580</u>	
Received By: <u>ML</u>		Date Received: <u>7-18-09</u>	
Suspected Hazard Information	Yes	No	*If Counts > x2 area background on samples not marked "radioactive", contact the Radiation Safety Group of further investigation.
COC/Samples marked as radioactive?		<input checked="" type="checkbox"/>	Maximum Counts Observed*: <u>GM 20</u>
Classified Radioactive II or III by RSO?		<input checked="" type="checkbox"/>	
COC/Samples marked containing PCBs?		<input checked="" type="checkbox"/>	
Shipped as a DOT Hazardous?		<input checked="" type="checkbox"/>	Hazard Class Shipped: _____ UN#: _____
Samples identified as Foreign Soil?		<input checked="" type="checkbox"/>	

Sample Receipt Criteria		Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	<input checked="" type="checkbox"/>			Circle Applicable: seals broken    damaged container    leaking container    other (describe)
2	Samples requiring cold preservation within 0 ≤ 6 deg. C?		<input checked="" type="checkbox"/>		ice bags    blue ice    dry ice <u>none</u> other (describe) <u>25e</u>
3	Chain of custody documents included with shipment?	<input checked="" type="checkbox"/>			
4	Sample containers intact and sealed?	<input checked="" type="checkbox"/>			Circle Applicable: seals broken    damaged container    leaking container    other (describe)
5	Samples requiring chemical preservation at proper pH?	<input checked="" type="checkbox"/>			Sample ID's, containers affected and observed pH: If Preservation added, Lot#:
6	VOA vials free of headspace (defined as < 6mm bubble)?		<input checked="" type="checkbox"/>		Sample ID's and containers affected:
7	Are Encore containers present?			<input checked="" type="checkbox"/>	(If yes, immediately deliver to Volatiles laboratory)
8	Samples received within holding time?	<input checked="" type="checkbox"/>			Id's and tests affected:
9	Sample ID's on COC match ID's on bottles?	<input checked="" type="checkbox"/>			Sample ID's and containers affected:
10	Date & time on COC match date & time on bottles?	<input checked="" type="checkbox"/>			Sample ID's affected:
11	Number of containers received match number indicated on COC?	<input checked="" type="checkbox"/>			Sample ID's affected:
12	COC form is properly signed in relinquished/received sections?	<input checked="" type="checkbox"/>			

Comments:

FX 7967 8724 5464

PM (or PMA) review: Initials EM Date 7/20/09 rec'd 7/18/09





SAMPLE RECEIPT & REVIEW FORM

Client: <u>Kerr Northgate</u>		SDG/ARCO/Work Order: <u>233580</u>	
Received By: <u>ML</u>		Date Received: <u>7-22-09</u>	
Suspected Hazard Information		Yes	No
COC/Samples marked as radioactive?			<input checked="" type="checkbox"/>
Classified Radioactive II or III by RSO?			<input checked="" type="checkbox"/>
COC/Samples marked containing PCBs?			<input checked="" type="checkbox"/>
Shipped as a DOT Hazardous?			<input checked="" type="checkbox"/>
Samples identified as Foreign Soil?			<input checked="" type="checkbox"/>

\*If Counts > x2 area background on samples not marked "radioactive", contact the Radiation Safety Group of further investigation.

Maximum Counts Observed\*: Cpm 20

Hazard Class Shipped: \_\_\_\_\_ UN#: \_\_\_\_\_

Sample Receipt Criteria		Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	<input checked="" type="checkbox"/>			Circle Applicable: seals broken    damaged container    leaking container    other (describe)
2	Samples requiring cold preservation within 0 ≤ 6 deg. C?		<input checked="" type="checkbox"/>		ice bags    blue ice    dry ice <u>none</u> other (describe) <u>25°C</u>
3	Chain of custody documents included with shipment?	<input checked="" type="checkbox"/>			
4	Sample containers intact and sealed?	<input checked="" type="checkbox"/>			Circle Applicable: seals broken    damaged container    leaking container    other (describe)
5	Samples requiring chemical preservation at proper pH?	<input checked="" type="checkbox"/>			Sample ID's, containers affected and observed pH: If Preservation added, Lot#:
6	VOA vials free of headspace (defined as < 6mm bubble)?		<input checked="" type="checkbox"/>		Sample ID's and containers affected:
7	Are Encore containers present?			<input checked="" type="checkbox"/>	(If yes, immediately deliver to Volatiles laboratory)
8	Samples received within holding time?	<input checked="" type="checkbox"/>			Id's and tests affected:
9	Sample ID's on COC match ID's on bottles?	<input checked="" type="checkbox"/>			Sample ID's and containers affected:
10	Date & time on COC match date & time on bottles?	<input checked="" type="checkbox"/>			Sample ID's affected:
11	Number of containers received match number indicated on COC?	<input checked="" type="checkbox"/>			Sample ID's affected:
12	COC form is properly signed in relinquished/received sections?	<input checked="" type="checkbox"/>			

Comments:

FX 7967 9342 3508

PM (or PMA) review: Initials NS Date 7-22-09





### SAMPLE RECEIPT & REVIEW FORM

Client: <u>KERR WORTHINGTON</u>		SDG/ARCOC/Work Order: <u>2335801</u>	
Received By: <u>mk</u>		Date Received: <u>7/23/09</u>	
Suspected Hazard Information	Yes	No	*If Counts > x2 area background on samples not marked "radioactive", contact the Radiation Safety Group of further investigation.
COC/Samples marked as radioactive?		<input checked="" type="checkbox"/>	Maximum Counts Observed*: <u>0.20</u>
Classified Radioactive II or III by RSO?		<input checked="" type="checkbox"/>	
COC/Samples marked containing PCBs?		<input checked="" type="checkbox"/>	
Shipped as a DOT Hazardous?		<input checked="" type="checkbox"/>	Hazard Class Shipped: UN#:
Samples identified as Foreign Soil?		<input checked="" type="checkbox"/>	

Sample Receipt Criteria		Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	<input checked="" type="checkbox"/>			Circle Applicable: seals broken    damaged container    leaking container    other (describe)
2	Samples requiring cold preservation within 0 ≤ 6 deg. C?		<input checked="" type="checkbox"/>		Preservation Method: ice bags    blue ice    dry ice <u>none</u> other (describe) <u>24°</u>
3	Chain of custody documents included with shipment?	<input checked="" type="checkbox"/>			
4	Sample containers intact and sealed?	<input checked="" type="checkbox"/>			Circle Applicable: seals broken    damaged container    leaking container    other (describe)
5	Samples requiring chemical preservation at proper pH?	<input checked="" type="checkbox"/>			Sample ID's, containers affected and observed pH: If Preservation added, Lot#:
6	VOA vials free of headspace (defined as < 6mm bubble)?		<input checked="" type="checkbox"/>		Sample ID's and containers affected:
7	Are Encore containers present?			<input checked="" type="checkbox"/>	If yes, immediately deliver to Volatiles laboratory)
8	Samples received within holding time?	<input checked="" type="checkbox"/>			Id's and tests affected:
9	Sample ID's on COC match ID's on bottles?	<input checked="" type="checkbox"/>			Sample ID's and containers affected:
10	Date & time on COC match date & time on bottles?	<input checked="" type="checkbox"/>			Sample ID's affected:
11	Number of containers received match number indicated on COC?	<input checked="" type="checkbox"/>			Sample ID's affected:
12	COC form is properly signed in relinquished/received sections?	<input checked="" type="checkbox"/>			

Comments:

FX 7977 8573 6320

PM (or PMA) review: Initials EPP Date 7/23/09





Client: <u>Kepp/Northgate</u>		SDG/ARCOC/Work Order: <u>2335807</u>	
Received By: <u>MK</u>		Date Received: <u>7-24-09</u>	
Suspected Hazard Information		Yes	No
*If Counts > x2 area background on samples not marked "radioactive", contact the Radiation Safety Group of further investigation.			
COC/Samples marked as radioactive?			<input checked="" type="checkbox"/> Maximum Counts Observed*: <u>OK 20</u>
Classified Radioactive II or III by RSO?			<input checked="" type="checkbox"/>
COC/Samples marked containing PCBs?			<input checked="" type="checkbox"/>
Shipped as a DOT Hazardous?			<input checked="" type="checkbox"/> Hazard Class Shipped: UN#:
Samples identified as Foreign Soil?			<input checked="" type="checkbox"/>

Sample Receipt Criteria		Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	<input checked="" type="checkbox"/>			Circle Applicable: seals broken    damaged container    leaking container    other (describe)
2	Samples requiring cold preservation within 0 ≤ 6 deg. C?		<input checked="" type="checkbox"/>		ice bags    blue ice    dry ice <u>none</u> other (describe) <u>27°C</u>
3	Chain of custody documents included with shipment?	<input checked="" type="checkbox"/>			
4	Sample containers intact and sealed?	<input checked="" type="checkbox"/>			Circle Applicable: seals broken    damaged container    leaking container    other (describe)
5	Samples requiring chemical preservation at proper pH?	<input checked="" type="checkbox"/>			Sample ID's, containers affected and observed pH: If Preservation added, Lot#:
6	VOA vials free of headspace (defined as < 6mm bubble)?		<input checked="" type="checkbox"/>		Sample ID's and containers affected:
7	Are Encore containers present?			<input checked="" type="checkbox"/>	(If yes, immediately deliver to Volatiles laboratory)
8	Samples received within holding time?	<input checked="" type="checkbox"/>			Id's and tests affected:
9	Sample ID's on COC match ID's on bottles?	<input checked="" type="checkbox"/>			Sample ID's and containers affected:
10	Date & time on COC match date & time on bottles?	<input checked="" type="checkbox"/>			Sample ID's affected:
11	Number of containers received match number indicated on COC?	<input checked="" type="checkbox"/>			Sample ID's affected:
12	COC form is properly signed in relinquished/received sections?	<input checked="" type="checkbox"/>			

Comments:

FX 7977 8945 5275

PM (or PMA) review: Initials EM Date 7/24/09







Client: <u>KERR/NORTHEAST</u>		SDG/ARCOC/Work Order: <u>233580.1</u>	
Received By: <u>mb</u>		Date Received: <u>7-25-09</u>	
Suspected Hazard Information	Yes	No	*If Counts > x2 area background on samples not marked "radioactive", contact the Radiation Safety Group of further investigation.
COC/Samples marked as radioactive?		<input checked="" type="checkbox"/>	Maximum Counts Observed*: <u>cpm 20</u>
Classified Radioactive II or III by RSO?		<input checked="" type="checkbox"/>	
COC/Samples marked containing PCBs?		<input checked="" type="checkbox"/>	
Shipped as a DOT Hazardous?		<input checked="" type="checkbox"/>	Hazard Class Shipped: UN#:
Samples identified as Foreign Soil?		<input checked="" type="checkbox"/>	

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

Comments:

FX 7968 0489 0860

PM (or PMA) review: Initials MB Date 7-27-09

235801



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

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

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

COC No. 2027.001.00341  
Page: 1 of 1  
Cooler # 1 of 1

Required Ship to Lab:		Required Project Information:		Required Invoice Information:		TAT: Standard 30 day		Rush		Mark One								
Lab Name: GEL Laboratories, LLC		Site ID #: TRONOX LLC. HENDERSON		Send Invoice to: Susan Crowley Tronox, LLC		Address: PO Box 55		QC level Required: Standard		EPA Stage Mark one								
Address: 2040 Savage Road		Project #: 2027.001		City/State: Henderson, NV 89009		Phone #: (949)260-9293		Special		4								
Charleston, SC 29407		Site Address: 560 W. Lake Mead Drive		Reimbursement project? <input checked="" type="checkbox"/>		Non-reimbursement project? <input type="checkbox"/>		NJ Reduced Deliverable Package?		Mark one								
Lab PM: Edith M. Kent		City: Henderson		State: NV		Send EDD to: frank.hagar@ngem.com		MA MCP Cert?		Mark One								
Phone/Fax: (843)556-8171		Site PM Name: Derrick Willis		Site PM Email: derrick.willis@ngem.com		CC Hardcopy report to: PDF Electronic Version Only		CT RCP Cert?		Mark One								
Lab PM email: emk@gel.com		Phone/Fax: 949-375-7004		CC Hardcopy report to: see additional comments below		Lab Project ID (lab use)		Temp in OC		Sample Intact?								
Applicable Lab Quote #:								Samples On Ice?		Sample Intact?								
#	ITEM	SAMPLE ID	Character per box. (A-Z, 0-9 / , ) Samples IDs MUST BE UNIQUE	Valid Matrix Codes	MATRIX	SAMPLE TYPE	G-RAB C-COMP	SAMPLE DATE	SAMPLE TIME	# OF CONTAINERS	FIELD FILTERED? (Y/N)	Preservatives						Comments/Lab Sample I.D.
												Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	
1		M-11B		WG	G	G	7/27/2009	9:15 AM		1	N	X	X	X	X	X	X	2 L Poly Clear
2		M-11B		WG	G	G	7/27/2009	9:15 AM		1	N	X	X	X	X	X	X	2 L Poly Clear
3		M-11BDISS		WG	G	G	7/27/2009	9:15 AM		1	Y	X	X	X	X	X	X	2 L Poly Clear
4		M-11BDISS		WG	G	G	7/27/2009	9:15 AM		1	Y	X	X	X	X	X	X	2 L Poly Clear
5		M-11009B		WG	G	G	7/27/2009	9:15 AM		1	N	X	X	X	X	X	X	2 L Poly Clear
6		M-11009B		WG	G	G	7/27/2009	9:15 AM		1	N	X	X	X	X	X	X	2 L Poly Clear
7		M-11009BDISS		WG	G	G	7/27/2009	9:15 AM		1	Y	X	X	X	X	X	X	2 L Poly Clear
8		M-11009BDISS		WG	G	G	7/27/2009	9:15 AM		1	Y	X	X	X	X	X	X	2 L Poly Clear
9																		
10																		
11																		
12																		

Additional Comments/Special Instructions:  
**FULL DIGESTION SPECIFICATION**  
 EMSL HASL 300\* - DOE EMSL HASL 300 modified (alpha spectroscopy) Thorium (isotopic) and Uranium (isotopic)

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

RELINQUISHED BY: AFFILIATION: [Signature] DATE: 7/27/09 TIME: 14:00  
 ACCEPTED BY: AFFILIATION: [Signature] DATE: 7/27/09 TIME: 14:00

SHIPPING METHOD: (mark as appropriate) UPS COURIER FEDEX [Signature] DATE Signed: 7/27/09 Time: 14:00  
 SIGNATURE OF SAMPLER: [Signature] DATE Signed: 7/27/09 Time: 14:00



Client: <u>KEK Northgate</u>		SDG/ARCOC/Work Order: <u>233580</u>	
Received By: <u>mk</u>		Date Received: <u>7-28-09</u>	
Suspected Hazard Information	Yes	No	*If Counts > x2 area background on samples not marked "radioactive", contact the Radiation Safety Group of further investigation.
COC/Samples marked as radioactive?		<input checked="" type="checkbox"/>	Maximum Counts Observed*: <u>ok</u>
Classified Radioactive II or III by RSO?		<input checked="" type="checkbox"/>	
COC/Samples marked containing PCBs?		<input checked="" type="checkbox"/>	
Shipped as a DOT Hazardous?		<input checked="" type="checkbox"/>	Hazard Class Shipped: _____ UN#: _____
Samples identified as Foreign Soil?		<input checked="" type="checkbox"/>	

Sample Receipt Criteria		Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	<input checked="" type="checkbox"/>			Circle Applicable: seals broken    damaged container    leaking container    other (describe)
2	Samples requiring cold preservation within 0 ≤ 6 deg. C?		<input checked="" type="checkbox"/>		Preservation Method: ice bags    blue ice    dry ice <u>none</u> other (describe) <u>27c</u>
3	Chain of custody documents included with shipment?	<input checked="" type="checkbox"/>			
4	Sample containers intact and sealed?	<input checked="" type="checkbox"/>			Circle Applicable: seals broken    damaged container    leaking container    other (describe)
5	Samples requiring chemical preservation at proper pH?	<input checked="" type="checkbox"/>			Sample ID's, containers affected and observed pH: If Preservation added, Lot#:
6	VOA vials free of headspace (defined as < 6mm bubble)?	<input checked="" type="checkbox"/>			Sample ID's and containers affected:
7	Are Encore containers present?			<input checked="" type="checkbox"/>	(If yes, immediately deliver to Volatiles laboratory)
8	Samples received within holding time?	<input checked="" type="checkbox"/>			ID's and tests affected:
9	Sample ID's on COC match ID's on bottles?	<input checked="" type="checkbox"/>			Sample ID's and containers affected:
10	Date & time on COC match date & time on bottles?	<input checked="" type="checkbox"/>			Sample ID's affected:
11	Number of containers received match number indicated on COC?	<input checked="" type="checkbox"/>			Sample ID's affected:
12	COC form is properly signed in relinquished/received sections?	<input checked="" type="checkbox"/>			

Comments:

FX 7977 9671 8270

PM (or PMA) review: Initials PD Date 7-28-09

**Subject:** GEL Closed SDG 233580

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

**Date:** Tue, 28 Jul 2009 11:35:52 -0400

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

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

With today's receipts, we closed water SDG 233580. Attached is a list of the samples in the SDG. As soon as we have completed the login review, you will receive the full receipt package for this SDG.

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

<b>233580.xls</b>	<b>Content-Type:</b> application/msexcel <b>Content-Encoding:</b> base64
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**Subject:** SDG 233580 QC Issues - Alpha Spec Th, Alpha Spec U, Ra-226

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

**Date:** Tue, 25 Aug 2009 15:10:05 -0400

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

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

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

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

Sample M-35B (233580009) did not meet the Tronox QA program sample result uncertainty limit of <30% with activity between 2 and 5 times the MDA and was counted for the maximum possible count time.

**\*Thorium Issues:\***

The following samples do not meet the Tronox QA program sample result uncertainty limit of <30% with activity between 2 and 5 times the MDA for Th-228 and Th-230 and were counted for the maximum possible count time: TR-6B (233580003), M-52B (233580008).

Sample EB-071709-GW (233580004) does not meet the Tronox QA program tracer yield requirements of 70-120% due to matrix. The sample met GEL's standard tracer requirements of 15 to 125%. The sample was counted the maximum count time to achieve the best possible uncertainty and lowest possible MDA.

The following samples did not meet the Tronox QA program required detection limits for Th228: M-92BDISS (233580001), EB-071709-GW (233580004), CLD-4RB (233580006), MW-6RB (233580007), M-11B (233580010), M-11009B (233580012), M-11009BDISS (233580013), the blank, and the lab DUP.

The following samples did not meet the Tronox QA program required detection limits for Th230: M-92BDISS (233580001), EB-071709-GW (233580004), CLD-4RB (233580006), MW-6RB (233580007), M-11BDISS (233580011), M-11009BDISS (233580013), and the blank.

The following samples did not meet the Tronox QA program required detection limits for Th232: M-92BDISS (233580001), EB-071709-GW (233580004), CLD-4RB (233580006).

For the samples that did not meet the program MDAs, the aliquots were reduced on reanalysis in order to improve the tracer yield recoveries. The samples were all counted the maximum count time of 1000 minutes to achieve the best possible uncertainties and lowest possible MDA's.

**\*Uranium Issues: \***

The following samples do not meet the Tronox QA program sample result uncertainty limit of <30% with activity between 2 and 5 times the MDA for U235/236 and were counted for the maximum possible count time: M92BDISS (233580001), M-11B (233580010), M-11009BDISS (233580013).

The lab duplicate does not meet the Tronox QA program sample result uncertainty limit of <30% with activity greater than 5 times the MDA for U235/236 and was counted for the maximum possible count time.

Sample EB-071709-GW (233580004) did not meet the Tronox QA program required detection limits U238. The sample was counted the maximum possible count time to achieve the lowest possible MDA.

The following samples do not meet the Tronox QA program tracer yield requirements of 70-120% due to sample matrix: EB-071709-GW (233580004), M-33B (233580005), M-35B (233580009), M-11B (233580010), M-11009BDISS (233580013). The samples met GEL's standard tracer requirement of 15-125%. The samples were counted for the maximum possible count time.

This will be noted in the case narrative.

Edie

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Edith M. Kent  
Project Manager  
GEL Laboratories, LLC  
2040 Savage Road  
Charleston, SC (USA) 29407  
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Main: 843.556.8171  
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Web: [www.gel.com](http://www.gel.com)



# **Laboratory Certifications**

**List of current GEL Certifications as of 25 August 2009**

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

# RADIOLOGICAL ANALYSIS

**Radiochemistry Case Narrative  
Tronox LLC (KERR)  
SDG 233580**

**Method/Analysis Information**

**Product:** Alphaspec Th, Liquid  
Analytical Method: DOE EML HASL-300, Th-01-RC Modified  
Analytical Batch Number: 895930

<b>Sample ID</b>	<b>Client ID</b>
233580001	M-92BDISS
233580002	M-97B
233580003	TR-6B
233580004	EB-071709-GW
233580005	M-33B
233580006	CLD-4RB
233580007	MW-6RB
233580008	M-52B
233580009	M-35B
233580010	M-11B
233580011	M-11BDISS
233580012	M-11009B
233580013	M-11009BDISS
1201907211	Method Blank (MB)
1201907212	233580001(M-92BDISS) Sample Duplicate (DUP)
1201907213	233580001(M-92BDISS) Matrix Spike (MS)
1201907214	Laboratory Control Sample (LCS)

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

**SOP Reference**

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

**Calibration Information:**

**Calibration Information**

All initial and continuing calibration requirements have been met.

**Standards Information**

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

**Sample Geometry**

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

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

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

**Designated QC**

The following sample was used for QC: 233580001 (M-92BDISS).

**QC Information**

Refer to Non-Conformance Report.

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

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

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

Sample 233580002 (M-97B) was recounted due to a peak shift. Sample 233580008 (M-52B) was recounted due to poor resolution. Batch was repped due to high blank activity and low tracer yield recoveries.

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

Nonconformance reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. The following NCR was generated for this SDG: NCR 725697 was generated due to RDL less than MDA, Failed Recovery for Surrogate or Tracer and Other. 1. Samples 233580003 and 233580008 have Thorium-228 activity between two and five times the MDA and uncertainty greater than 30% of that respective activity. Samples 233580003 and 233580008 have Thorium-230 activity between two and five times the MDA and uncertainty greater than 30% of that respective activity. 2. Samples 233580001, 233580004, 233580006, 233580007, 233580010, 233580012, 233580013, 1201907211, and 1201907212 do not meet the detection limit for Th-228; Samples 233580001, 233580004, 233580006, 233580007, 233580011, 233580013, and 1201907211 do not meet the detection limit for Th-230; and Samples 233580001, 233580004, and 233580006 do not meet the detection limit for Th-232. 3. Sample 233580004 does not meet the client's tracer yield requirements of 70 to 120 percent due to the matrix of the samples. 1. Samples were all counted the maximum count time of 1000 minutes to achieve the best possible uncertainties and lowest possible MDA's. Reporting results. 2. The aliquots were reduced on the reanalysis in order to improve the tracer yield recoveries. Samples were all counted the maximum count time of 1000 minutes to achieve the best possible uncertainties and lowest possible MDA's. Reporting results. 3. The GEL Standard tracer yield requirements of 15 to 125 percent were met. Samples were all counted the maximum count time of 1000 minutes to achieve the best possible uncertainties and lowest possible MDA's. Reporting results.

**Manual Integration**

No manual integrations were performed on data in this batch.

**Additional Comments**

The aliquot for the Matrix Spike was reduced due to limited sample volume because the samples were reppeded.

**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: 891145

<b>Sample ID</b>	<b>Client ID</b>
233580001	M-92BDISS
233580002	M-97B
233580003	TR-6B
233580004	EB-071709-GW
233580005	M-33B
233580006	CLD-4RB
233580007	MW-6RB
233580008	M-52B
233580009	M-35B
233580010	M-11B
233580011	M-11BDISS
233580012	M-11009B
233580013	M-11009BDISS
1201895414	Method Blank (MB)
1201895415	233580001(M-92BDISS) Sample Duplicate (DUP)
1201895416	233580001(M-92BDISS) Matrix Spike (MS)
1201895417	Laboratory Control Sample (LCS)

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

**SOP Reference**

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

### **Calibration Information:**

#### **Calibration Information**

All initial and continuing calibration requirements have been met.

#### **Standards Information**

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

#### **Sample Geometry**

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

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

#### **Blank Information**

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

#### **Designated QC**

The following sample was used for QC: 233580001 (M-92BDISS).

#### **QC Information**

Refer to Non-Conformance Report.

### **Technical Information:**

#### **Holding Time**

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

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

Sample 233580012 (M-11009B) was recounted due to detector error. Samples 1201895414 (MB), 1201895415 (M-92BDISS), 1201895416 (M-92BDISS), 1201895417 (LCS), 233580001 (M-92BDISS), 233580002 (M-97B), 233580003 (TR-6B), 233580004 (EB-071709-GW), 233580005 (M-33B), 233580006 (CLD-4RB) and 233580013 (M-11009BDISS) were recounted for a shorter length of time in order to reduce tailing. Reporting original 1000 minute counts for samples with manual integrations performed on certain samples as needed (see below) to reduce the tailing. This ensured the best possible uncertainties and MDA's. Samples 233580007 (MW-6RB), 233580008 (M-52B), 233580009 (M-35B), 233580010 (M-11B) and 233580011 (M-11BDISS) were recounted to verify the sample order.

### **Miscellaneous Information:**

#### **NCR Documentation**

Nonconformance reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. The following NCR was generated for this SDG: NCR 725374 was generated due to RDL less than MDA, Failed Recovery for Surrogate or Tracer and Other. 1. Sample 1201895415 has Uranium-235/236 activity greater than five times the MDA and uncertainty greater than 30% of that activity. Samples 233580001, 233580010, and 233580013 have Uranium-235/236 activity between two and five times the MDA and uncertainty greater than 30% of that respective activity. 2. Samples 233580004, 233580005, 233580009, 233580010, and 233580013 do not meet the client's tracer yield requirements of 70 to 120 percent due to the matrix of the samples. 3. Sample 233580004 does not meet the 0.03 pCi/L detection limit for U-238. 1. Samples were all counted the maximum count time of 1000 minutes to achieve the best possible uncertainties. Reporting

results. 2. The GEL Standard tracer yield requirements of 15 to 125 percent were met. Samples were all counted the maximum count time of 1000 minutes. Reporting results. 3. Sample was counted the maximum count time of 1000 minutes to achieve the lowest possible MDA. Reporting results.

### **Manual Integration**

Manual integrations of alpha spectroscopy spectra 233580002 (M-97B), 233580003 (TR-6B), 233580005 (M-33B), 233580007 (MW-6RB) and 233580009 (M-35B) were performed to fully separate counts in Regions of Interest which would have been biased.

### **Additional Comments**

Additional comments were not required for this sample set.

### **Qualifier information**

Manual qualifiers were not required.

### **Method/Analysis Information**

**Product:** GFPC, Ra228, Liquid  
Analytical Method: EPA 904.0/SW846 9320 Modified  
Analytical Batch Number: 888878

<b>Sample ID</b>	<b>Client ID</b>
233580001	M-92BDISS
233580002	M-97B
233580003	TR-6B
233580004	EB-071709-GW
233580005	M-33B
233580006	CLD-4RB
233580007	MW-6RB
233580008	M-52B
233580009	M-35B
233580010	M-11B
233580011	M-11BDISS
233580012	M-11009B
233580013	M-11009BDISS
1201890245	Method Blank (MB)
1201890246	233580001(M-92BDISS) Sample Duplicate (DUP)
1201890247	233580001(M-92BDISS) Matrix Spike (MS)
1201890248	Laboratory Control Sample (LCS)

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

### **SOP Reference**



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

**Calibration Information:**

**Calibration Information**

All initial and continuing calibration requirements have been met.

**Standards Information**

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

**Sample Geometry**

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

**Quality Control (QC) Information:**

**Blank Information**

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

**Designated QC**

The following sample was used for QC: 233580001 (M-92BDISS).

**QC Information**

All of the QC samples met the required acceptance limits.

**Technical Information:**

**Holding Time**

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

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

Samples were re-eluted due to high MDA.

**Chemical Recoveries**

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

**Miscellaneous Information:**

**NCR Documentation**

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

**Additional Comments**

Additional comments were not required for this sample set.

**Qualifier information**

Manual qualifiers were not required.

## **Method/Analysis Information**

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

Analytical Method: EPA 903.1 Modified

Analytical Batch Number: 892562

<b>Sample ID</b>	<b>Client ID</b>
233580001	M-92BDISS
233580002	M-97B
233580003	TR-6B
233580004	EB-071709-GW
233580005	M-33B
233580006	CLD-4RB
233580007	MW-6RB
233580008	M-52B
233580009	M-35B
233580010	M-11B
233580011	M-11BDISS
233580012	M-11009B
233580013	M-11009BDISS
1201898768	Method Blank (MB)
1201898769	233580001(M-92BDISS) Sample Duplicate (DUP)
1201898770	233580001(M-92BDISS) Matrix Spike (MS)
1201898771	Laboratory Control Sample (LCS)

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

### **SOP Reference**

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

### **Calibration Information:**

#### **Calibration Information**

All initial and continuing calibration requirements have been met.

#### **Standards Information**

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

#### **Sample Geometry**

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



**COMPANY - WIDE NONCONFORMANCE REPORT**

<b>Mo.Day Yr.</b> 20-AUG-09	<b>Division:</b> Radiochemistry	<b>Quality Criteria:</b> Specifications	<b>Type:</b> Process
<b>Instrument Type:</b> LUCAS CELL DETECTOR	<b>Test / Method:</b> EPA 903.1 Modified	<b>Matrix Type:</b> %Null%	<b>Client Code:</b> KERR
<b>Batch ID:</b> 892562	<b>Sample Numbers:</b> See below		
<b>Potentially affected work order(s)(SDG): 233580</b>			
<b>Application Issues:</b> Other			
<b>Specification and Requirements</b>		<b>NRG Disposition:</b>	
<b>Nonconformance Description:</b>			
1. Sample 233580009 has activity between 2 and 5 times the MDA. Uncertainty is greater than 30 percent and the sample counted the maximum count time.		1. Reporting results.	

**Originator's Name:**  
Lyndsey Pace      20-AUG-09

**Data Validator/Group Leader:**  
Layota Yom      20-AUG-09

**COMPANY - WIDE NONCONFORMANCE REPORT**

<b>Mo.Day Yr.</b> 24-AUG-09	<b>Division:</b> Radiochemistry	<b>Quality Criteria:</b> Specifications	<b>Type:</b> Process
<b>Instrument Type:</b> ALPHA SPECTROMETER	<b>Test / Method:</b> DOE EML HASL-300, U-02-RC Modified	<b>Matrix Type:</b> Liquid	<b>Client Code:</b> KERR
<b>Batch ID:</b> 891145	<b>Sample Numbers:</b> See Below		

**Potentially affected work order(s)(SDG): 233580**

**Application Issues:**

- RDL less than MDA
- Failed Recovery for Surrogate or Tracer
- Other

<b>Specification and Requirements Nonconformance Description:</b>	<b>NRG Disposition:</b>
<ol style="list-style-type: none"> <li>1. Sample 1201895415 has Uranium-235/236 activity greater than five times the MDA and uncertainty greater than 30% of that activity. Samples 233580001, 233580010, and 233580013 have Uranium-235/236 activity between two and five times the MDA and uncertainty greater than 30% of that respective activity.</li> <li>2. Samples 233580004, 233580005, 233580009, 233580010, and 233580013 do not meet the client's tracer yield requirements of 70 to 120 percent due to the matrix of the samples.</li> <li>3. Sample 233580004 does not meet the 0.03 pCi/L detection limit for U-238.</li> </ol>	<ol style="list-style-type: none"> <li>1. Samples were all counted the maximum count time of 1000 minutes to achieve the best possible uncertainties. Reporting results.</li> <li>2. The GEL Standard tracer yield requirements of 15 to 125 percent were met. Samples were all counted the maximum count time of 1000 minutes. Reporting results.</li> <li>3. Sample was counted the maximum count time of 1000 minutes to achieve the lowest possible MDA. Reporting results.</li> </ol>

**Originator's Name:**  
Jessica Downey      25-AUG-09

**Data Validator/Group Leader:**  
Jessica Downey

**COMPANY - WIDE NONCONFORMANCE REPORT**

<b>Mo.Day Yr.</b> 25-AUG-09	<b>Division:</b> Radiochemistry	<b>Quality Criteria:</b> Specifications	<b>Type:</b> Process
<b>Instrument Type:</b> ALPHA SPECTROMETER	<b>Test / Method:</b> DOE EML HASL-300, Th-01-RC Modified	<b>Matrix Type:</b> Liquid	<b>Client Code:</b> KERR
<b>Batch ID:</b> 895930	<b>Sample Numbers:</b> See Below		

**Potentially affected work order(s)(SDG): 233580**

**Application Issues:**

- RDL less than MDA
- Failed Recovery for Surrogate or Tracer
- Other

<b>Specification and Requirements Nonconformance Description:</b>	<b>NRG Disposition:</b>
<p>1. Samples 233580003 and 233580008 have Thorium-228 activity between two and five times the MDA and uncertainty greater than 30% of that respective activity. Samples 233580003 and 233580008 have Thorium-230 activity between two and five times the MDA and uncertainty greater than 30% of that respective activity.</p> <p>2. Samples 233580001, 233580004, 233580006, 233580007, 233580010, 233580012, 233580013, 1201907211, and 1201907212 do not meet the detection limit for Th-228; Samples 233580001, 233580004, 233580006, 233580007, 233580011, 233580013, and 1201907211 do not meet the detection limit for Th-230; and Samples 233580001, 233580004, and 233580006 do not meet the detection limit for Th-232.</p> <p>3. Sample 233580004 does not meet the client's tracer yield requirements of 70 to 120 percent due to the matrix of the samples.</p>	<p>1. Samples were all counted the maximum count time of 1000 minutes to achieve the best possible uncertainties and lowest possible MDA's. Reporting results.</p> <p>2. The aliquots were reduced on the reanalysis in order to improve the tracer yield recoveries. Samples were all counted the maximum count time of 1000 minutes to achieve the best possible uncertainties and lowest possible MDA's. Reporting results.</p> <p>3. The GEL Standard tracer yield requirements of 15 to 125 percent were met. Samples were all counted the maximum count time of 1000 minutes to achieve the best possible uncertainties and lowest possible MDA's. Reporting results.</p>

**Originator's Name:**  
Jessica Downey      25-AUG-09

**Data Validator/Group Leader:**  
Joseph Moulden      25-AUG-09

# SAMPLE DATA SUMMARY

# GEL LABORATORIES LLC

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

## Certificate of Analysis Report for

KERR003 Tronox LLC

Client SDG: 233580 GEL Work Order: 233580

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

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

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

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

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



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



# GEL LABORATORIES LLC

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

## Certificate of Analysis

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

Report Date: August 25, 2009

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

Client Sample ID:	M-92BDISS	Project:	KERRHenderson
Sample ID:	233580001	Client ID:	KERR003
Matrix:	WG		
Collect Date:	15-JUL-09 08:45		
Receive Date:	16-JUL-09		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
<b>Rad Alpha Spec Analysis</b>											
<i>Alphaspec Th, Liquid "As Received"</i>											
Thorium-228	U	-0.00878	+/-0.0448	0.0858	0.030	pCi/L		JXD2 08/22/09 1813	895930	1	
Thorium-230	U	0.0234	+/-0.0214	0.0323	0.030	pCi/L					
Thorium-232	U	-0.00876	+/-0.0172	0.0421	0.030	pCi/L					
<i>Alphaspec U, Liquid "As Received"</i>											
Uranium-233/234		3.01	+/-0.146	0.0202	0.030	pCi/L		JXD2 08/08/09 1619	891145	2	
Uranium-235/236		0.0904	+/-0.0307	0.0278	0.030	pCi/L					
Uranium-238		1.98	+/-0.118	0.0225	0.030	pCi/L					
<b>Rad Gas Flow Proportional Counting</b>											
<i>GFPC, Ra228, Liquid "As Received"</i>											
Radium-228	U	1.04	+/-1.03	1.67	3.00	pCi/L		MXS2 08/04/09 1920	888878	3	
<b>Rad Radium-226</b>											
<i>Lucas Cell, Ra226, liquid "As Received"</i>											
Radium-226		0.659	+/-0.418	0.591	1.00	pCi/L		KSD1 08/20/09 1525	892562	4	

**The following Analytical Methods were performed**

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

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Actinium-227 Tracer	Alphaspec Th, Liquid "As Received"			77.1	(15%-125%)
Uranium-232 Tracer	Alphaspec U, Liquid "As Received"			90.3	(15%-125%)
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			86.0	(15%-125%)

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## Certificate of Analysis

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

Report Date: August 25, 2009

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

Client Sample ID: M-97B	Project: KERRHenderson
Sample ID: 233580002	Client ID: KERR003
Matrix: WG	
Collect Date: 16-JUL-09 08:45	
Receive Date: 17-JUL-09	
Collector: Client	

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
<b>Rad Alpha Spec Analysis</b>											
<i>Alphaspec Th, Liquid "As Received"</i>											
Thorium-228		0.036	+/-0.0231	0.025	0.030	pCi/L		JXD2 08/24/09	1458	895930	1
Thorium-230	U	0.00652	+/-0.00903	0.00978	0.030	pCi/L					
Thorium-232		0.00978	+/-0.0111	0.00978	0.030	pCi/L					
<i>Alphaspec U, Liquid "As Received"</i>											
Uranium-233/234		18.1	+/-0.353	0.0172	0.030	pCi/L		JXD2 08/08/09	1619	891145	2
Uranium-235/236		0.742	+/-0.080	0.0213	0.030	pCi/L					
Uranium-238		11.7	+/-0.284	0.00539	0.030	pCi/L					
<b>Rad Gas Flow Proportional Counting</b>											
<i>GFPC, Ra228, Liquid "As Received"</i>											
Radium-228	U	1.04	+/-1.15	1.91	3.00	pCi/L		MXS2 08/04/09	1920	888878	3
<b>Rad Radium-226</b>											
<i>Lucas Cell, Ra226, liquid "As Received"</i>											
Radium-226		0.605	+/-0.418	0.573	1.00	pCi/L		KSD1 08/20/09	1525	892562	4

**The following Analytical Methods were performed**

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

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Actinium-227 Tracer	Alphaspec Th, Liquid "As Received"			89.8	(15%-125%)
Uranium-232 Tracer	Alphaspec U, Liquid "As Received"			100	(15%-125%)
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			75.9	(15%-125%)

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## Certificate of Analysis

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

Report Date: August 25, 2009

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

Client Sample ID: TR-6B  
Sample ID: 233580003  
Matrix: WG  
Collect Date: 17-JUL-09 07:50  
Receive Date: 18-JUL-09  
Collector: Client

Project: KERRHenderson  
Client ID: KERR003

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
<b>Rad Alpha Spec Analysis</b>											
<i>Alphaspec Th, Liquid "As Received"</i>											
Thorium-228		0.0695	+/-0.0319	0.0334	0.030	pCi/L		JXD2 08/22/09	1813	895930	1
Thorium-230		0.0211	+/-0.0156	0.00904	0.030	pCi/L					
Thorium-232	U	0.00	+/-0.0118	0.0289	0.030	pCi/L					
<i>Alphaspec U, Liquid "As Received"</i>											
Uranium-233/234		24.9	+/-0.478	0.0385	0.030	pCi/L		JXD2 08/08/09	1619	891145	2
Uranium-235/236		1.06	+/-0.109	0.00884	0.030	pCi/L					
Uranium-238		15.9	+/-0.382	0.0182	0.030	pCi/L					
<b>Rad Gas Flow Proportional Counting</b>											
<i>GFPC, Ra228, Liquid "As Received"</i>											
Radium-228	U	1.43	+/-1.51	2.50	3.00	pCi/L		MXS2 08/04/09	1920	888878	3
<b>Rad Radium-226</b>											
<i>Lucas Cell, Ra226, liquid "As Received"</i>											
Radium-226		0.973	+/-0.413	0.492	1.00	pCi/L		KSD1 08/20/09	1525	892562	4

**The following Analytical Methods were performed**

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

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Actinium-227 Tracer	Alphaspec Th, Liquid "As Received"			78.8	(15%-125%)
Uranium-232 Tracer	Alphaspec U, Liquid "As Received"			72.7	(15%-125%)
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			74.6	(15%-125%)

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## Certificate of Analysis

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

Report Date: August 25, 2009

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

Client Sample ID: EB-071709-GW  
Sample ID: 233580004  
Matrix: W  
Collect Date: 17-JUL-09 09:45  
Receive Date: 18-JUL-09  
Collector: Client  
Project: KERRHenderson  
Client ID: KERR003

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
<b>Rad Alpha Spec Analysis</b>											
<i>Alphaspec Th, Liquid "As Received"</i>											
Thorium-228	U	-0.00406	+/-0.0398	0.0803	0.030	pCi/L		JXD2 08/22/09	1813	895930	1
Thorium-230	U	-0.0365	+/-0.0286	0.0747	0.030	pCi/L					
Thorium-232	U	-0.0122	+/-0.0178	0.0499	0.030	pCi/L					
<i>Alphaspec U, Liquid "As Received"</i>											
Uranium-233/234	U	0.0128	+/-0.0128	0.0185	0.030	pCi/L		JXD2 08/08/09	1619	891145	2
Uranium-235/236	U	0.00598	+/-0.00829	0.00897	0.030	pCi/L					
Uranium-238	U	-0.0121	+/-0.0157	0.0391	0.030	pCi/L					
<b>Rad Gas Flow Proportional Counting</b>											
<i>GFPC, Ra228, Liquid "As Received"</i>											
Radium-228	U	0.711	+/-1.34	2.38	3.00	pCi/L		MXS2 08/04/09	1920	888878	3
<b>Rad Radium-226</b>											
<i>Lucas Cell, Ra226, liquid "As Received"</i>											
Radium-226	U	0.565	+/-0.452	0.678	1.00	pCi/L		KSD1 08/20/09	1555	892562	4

### The following Analytical Methods were performed

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

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Actinium-227 Tracer	Alphaspec Th, Liquid "As Received"			60.4	(15%-125%)
Uranium-232 Tracer	Alphaspec U, Liquid "As Received"			69.0	(15%-125%)
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			71.0	(15%-125%)

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## Certificate of Analysis

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

Report Date: August 25, 2009

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

Client Sample ID: M-33B	Project: KERRHenderson
Sample ID: 233580005	Client ID: KERR003
Matrix: WG	
Collect Date: 21-JUL-09 11:15	
Receive Date: 22-JUL-09	
Collector: Client	

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
<b>Rad Alpha Spec Analysis</b>											
<i>Alphaspec Th, Liquid "As Received"</i>											
Thorium-228		0.093	+/-0.0391	0.0497	0.030	pCi/L		JXD2 08/22/09	1813	895930	1
Thorium-230		0.0326	+/-0.019	0.0192	0.030	pCi/L					
Thorium-232	U	0.00251	+/-0.00851	0.0192	0.030	pCi/L					
<i>Alphaspec U, Liquid "As Received"</i>											
Uranium-233/234		65.1	+/-0.949	0.0518	0.030	pCi/L		JXD2 08/08/09	1619	891145	2
Uranium-235/236		3.15	+/-0.232	0.034	0.030	pCi/L					
Uranium-238		42.2	+/-0.764	0.0275	0.030	pCi/L					
<b>Rad Gas Flow Proportional Counting</b>											
<i>GFPC, Ra228, Liquid "As Received"</i>											
Radium-228	U	0.498	+/-0.861	1.54	3.00	pCi/L		MXS2 08/04/09	1920	888878	3
<b>Rad Radium-226</b>											
<i>Lucas Cell, Ra226, liquid "As Received"</i>											
Radium-226		0.478	+/-0.284	0.327	1.00	pCi/L		KSD1 08/20/09	1555	892562	4

**The following Analytical Methods were performed**

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

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Actinium-227 Tracer	Alphaspec Th, Liquid "As Received"			92.4	(15%-125%)
Uranium-232 Tracer	Alphaspec U, Liquid "As Received"			53.6	(15%-125%)
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			87.3	(15%-125%)

# GEL LABORATORIES LLC

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## Certificate of Analysis

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

Report Date: August 25, 2009

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

Client Sample ID: CLD-4RB  
Sample ID: 233580006  
Matrix: WG  
Collect Date: 22-JUL-09 09:50  
Receive Date: 23-JUL-09  
Collector: Client

Project: KERRHenderson  
Client ID: KERR003

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
<b>Rad Alpha Spec Analysis</b>											
<i>Alphaspec Th, Liquid "As Received"</i>											
Thorium-228	U	0.0344	+/-0.0354	0.0585	0.030	pCi/L		JXD2 08/22/09 1813	895930	1	
Thorium-230	U	0.00981	+/-0.0192	0.0353	0.030	pCi/L					
Thorium-232	U	0.00736	+/-0.0186	0.0353	0.030	pCi/L					
<i>Alphaspec U, Liquid "As Received"</i>											
Uranium-233/234		3.79	+/-0.175	0.0201	0.030	pCi/L		JXD2 08/08/09 1619	891145	2	
Uranium-235/236		0.179	+/-0.0434	0.0248	0.030	pCi/L					
Uranium-238		2.80	+/-0.150	0.0232	0.030	pCi/L					
<b>Rad Gas Flow Proportional Counting</b>											
<i>GFPC, Ra228, Liquid "As Received"</i>											
Radium-228	U	0.289	+/-1.02	1.92	3.00	pCi/L		MXS2 08/04/09 1920	888878	3	
<b>Rad Radium-226</b>											
<i>Lucas Cell, Ra226, liquid "As Received"</i>											
Radium-226	U	0.418	+/-0.357	0.547	1.00	pCi/L		KSD1 08/20/09 1555	892562	4	

**The following Analytical Methods were performed**

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

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Actinium-227 Tracer	Alphaspec Th, Liquid "As Received"			85.3	(15%-125%)
Uranium-232 Tracer	Alphaspec U, Liquid "As Received"			84.7	(15%-125%)
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			82.1	(15%-125%)

# GEL LABORATORIES LLC

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## Certificate of Analysis

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

Report Date: August 25, 2009

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

Client Sample ID:	MW-6RB	Project:	KERRHenderson
Sample ID:	233580007	Client ID:	KERR003
Matrix:	WG		
Collect Date:	23-JUL-09 09:17		
Receive Date:	24-JUL-09		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
<b>Rad Alpha Spec Analysis</b>											
<i>Alphaspec Th, Liquid "As Received"</i>											
Thorium-228	U	0.0321	+/-0.0317	0.0519	0.030	pCi/L		JXD2 08/22/09 1813	895930	1	
Thorium-230	U	-0.00493	+/-0.0137	0.033	0.030	pCi/L					
Thorium-232	U	0.00246	+/-0.00836	0.0188	0.030	pCi/L					
<i>Alphaspec U, Liquid "As Received"</i>											
Uranium-233/234		24.1	+/-0.481	0.0382	0.030	pCi/L		JXD2 08/24/09 1632	891145	2	
Uranium-235/236		0.875	+/-0.102	0.00925	0.030	pCi/L					
Uranium-238		16.3	+/-0.395	0.00748	0.030	pCi/L					
<b>Rad Gas Flow Proportional Counting</b>											
<i>GFPC, Ra228, Liquid "As Received"</i>											
Radium-228	U	-0.328	+/-1.24	2.51	3.00	pCi/L		MXS2 08/04/09 1920	888878	3	
<b>Rad Radium-226</b>											
<i>Lucas Cell, Ra226, liquid "As Received"</i>											
Radium-226	U	0.275	+/-0.369	0.635	1.00	pCi/L		KSD1 08/20/09 1555	892562	4	

**The following Analytical Methods were performed**

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

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Actinium-227 Tracer	Alphaspec Th, Liquid "As Received"			89.6	(15%-125%)
Uranium-232 Tracer	Alphaspec U, Liquid "As Received"			90.1	(15%-125%)
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			71.6	(15%-125%)

# GEL LABORATORIES LLC

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

## Certificate of Analysis

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

Report Date: August 25, 2009

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

Client Sample ID:	M-52B	Project:	KERRHenderson
Sample ID:	233580008	Client ID:	KERR003
Matrix:	WG		
Collect Date:	24-JUL-09 08:10		
Receive Date:	25-JUL-09		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
<b>Rad Alpha Spec Analysis</b>											
<i>Alphaspec Th, Liquid "As Received"</i>											
Thorium-228		0.0933	+/-0.038	0.0286	0.030	pCi/L		JXD2 08/24/09	1458	895930	1
Thorium-230		0.0335	+/-0.0219	0.0112	0.030	pCi/L					
Thorium-232		0.0112	+/-0.0126	0.0112	0.030	pCi/L					
<i>Alphaspec U, Liquid "As Received"</i>											
Uranium-233/234		10.6	+/-0.346	0.0224	0.030	pCi/L		JXD2 08/24/09	1632	891145	2
Uranium-235/236		0.326	+/-0.0673	0.0109	0.030	pCi/L					
Uranium-238		6.58	+/-0.273	0.0324	0.030	pCi/L					
<b>Rad Gas Flow Proportional Counting</b>											
<i>GFPC, Ra228, Liquid "As Received"</i>											
Radium-228	U	1.61	+/-1.70	2.83	3.00	pCi/L		MXS2 08/04/09	1920	888878	3
<b>Rad Radium-226</b>											
<i>Lucas Cell, Ra226, liquid "As Received"</i>											
Radium-226		0.780	+/-0.517	0.742	1.00	pCi/L		KSD1 08/20/09	1555	892562	4

**The following Analytical Methods were performed**

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

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Actinium-227 Tracer	Alphaspec Th, Liquid "As Received"			79.5	(15%-125%)
Uranium-232 Tracer	Alphaspec U, Liquid "As Received"			74.9	(15%-125%)
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			75.3	(15%-125%)



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## Certificate of Analysis

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

Report Date: August 25, 2009

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

Client Sample ID:	M-35B	Project:	KERRHenderson
Sample ID:	233580009	Client ID:	KERR003
Matrix:	WG		
Collect Date:	24-JUL-09 11:10		
Receive Date:	25-JUL-09		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
<b>Rad Alpha Spec Analysis</b>											
<i>Alphaspec Th, Liquid "As Received"</i>											
Thorium-228		0.0364	+/-0.0228	0.0287	0.030	pCi/L		JXD2 08/22/09 1813	895930	1	
Thorium-230	U	0.00259	+/-0.00881	0.0199	0.030	pCi/L					
Thorium-232	U	0.00519	+/-0.0102	0.0199	0.030	pCi/L					
<i>Alphaspec U, Liquid "As Received"</i>											
Uranium-233/234		13.4	+/-0.465	0.0463	0.030	pCi/L		JXD2 08/24/09 1632	891145	2	
Uranium-235/236		0.404	+/-0.0896	0.0155	0.030	pCi/L					
Uranium-238		8.83	+/-0.377	0.0321	0.030	pCi/L					
<b>Rad Gas Flow Proportional Counting</b>											
<i>GFPC, Ra228, Liquid "As Received"</i>											
Radium-228	U	0.806	+/-1.21	2.11	3.00	pCi/L		MXS2 08/04/09 1920	888878	3	
<b>Rad Radium-226</b>											
<i>Lucas Cell, Ra226, liquid "As Received"</i>											
Radium-226		1.29	+/-0.479	0.503	1.00	pCi/L		KSD1 08/20/09 1635	892562	4	

**The following Analytical Methods were performed**

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

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Actinium-227 Tracer	Alphaspec Th, Liquid "As Received"			90.5	(15%-125%)
Uranium-232 Tracer	Alphaspec U, Liquid "As Received"			50.7	(15%-125%)
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			80.0	(15%-125%)

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## Certificate of Analysis

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

Report Date: August 25, 2009

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

Client Sample ID: M-11B  
Sample ID: 233580010  
Matrix: WG  
Collect Date: 27-JUL-09 09:15  
Receive Date: 28-JUL-09  
Collector: Client

Project: KERRHenderson  
Client ID: KERR003

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
<b>Rad Alpha Spec Analysis</b>											
<i>Alphaspec Th, Liquid "As Received"</i>											
Thorium-228	U	0.0179	+/-0.027	0.0471	0.030	pCi/L		JXD2 08/22/09 1813	895930	1	
Thorium-230		0.0128	+/-0.0112	0.00766	0.030	pCi/L					
Thorium-232	U	0.0051	+/-0.0123	0.0244	0.030	pCi/L					
<i>Alphaspec U, Liquid "As Received"</i>											
Uranium-233/234		8.13	+/-0.584	0.120	0.030	pCi/L		JXD2 08/24/09 1632	891145	2	
Uranium-235/236		0.241	+/-0.118	0.103	0.030	pCi/L					
Uranium-238		4.37	+/-0.427	0.0326	0.030	pCi/L					
<b>Rad Gas Flow Proportional Counting</b>											
<i>GFPC, Ra228, Liquid "As Received"</i>											
Radium-228	U	1.33	+/-1.32	2.15	3.00	pCi/L		MXS2 08/04/09 1921	888878	3	
<b>Rad Radium-226</b>											
<i>Lucas Cell, Ra226, liquid "As Received"</i>											
Radium-226	U	0.695	+/-0.533	0.803	1.00	pCi/L		KSD1 08/20/09 1635	892562	4	

**The following Analytical Methods were performed**

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

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Actinium-227 Tracer	Alphaspec Th, Liquid "As Received"			88.6	(15%-125%)
Uranium-232 Tracer	Alphaspec U, Liquid "As Received"			19.8	(15%-125%)
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			72.7	(15%-125%)

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## Certificate of Analysis

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

Report Date: August 25, 2009

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

Client Sample ID:	M-11BDISS	Project:	KERRHenderson
Sample ID:	233580011	Client ID:	KERR003
Matrix:	WG		
Collect Date:	27-JUL-09 09:15		
Receive Date:	28-JUL-09		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
<b>Rad Alpha Spec Analysis</b>											
<i>Alphaspec Th, Liquid "As Received"</i>											
Thorium-228		0.0439	+/-0.0294	0.042	0.030	pCi/L		JXD2 08/22/09 1813	895930	1	
Thorium-230	U	0.00274	+/-0.0193	0.0394	0.030	pCi/L					
Thorium-232	U	0.0109	+/-0.0131	0.0209	0.030	pCi/L					
<i>Alphaspec U, Liquid "As Received"</i>											
Uranium-233/234		7.68	+/-0.265	0.0264	0.030	pCi/L		JXD2 08/24/09 1633	891145	2	
Uranium-235/236		0.200	+/-0.0483	0.0226	0.030	pCi/L					
Uranium-238		4.65	+/-0.207	0.0264	0.030	pCi/L					
<b>Rad Gas Flow Proportional Counting</b>											
<i>GFPC, Ra228, Liquid "As Received"</i>											
Radium-228		2.46	+/-1.40	1.98	3.00	pCi/L		MXS2 08/04/09 1921	888878	3	
<b>Rad Radium-226</b>											
<i>Lucas Cell, Ra226, liquid "As Received"</i>											
Radium-226	U	0.259	+/-0.238	0.358	1.00	pCi/L		KSD1 08/20/09 1720	892562	4	

**The following Analytical Methods were performed**

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

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Actinium-227 Tracer	Alphaspec Th, Liquid "As Received"			81.8	(15%-125%)
Uranium-232 Tracer	Alphaspec U, Liquid "As Received"			93.5	(15%-125%)
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			79.5	(15%-125%)

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## Certificate of Analysis

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

Report Date: August 25, 2009

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

Client Sample ID:	M-11009B	Project:	KERRHenderson
Sample ID:	233580012	Client ID:	KERR003
Matrix:	WG		
Collect Date:	27-JUL-09 09:15		
Receive Date:	28-JUL-09		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
<b>Rad Alpha Spec Analysis</b>											
<i>Alphaspec Th, Liquid "As Received"</i>											
Thorium-228	U	0.0273	+/-0.0243	0.038	0.030	pCi/L		JXD2 08/22/09 1813	895930	1	
Thorium-230	U	0.00	+/-0.00486	0.00744	0.030	pCi/L					
Thorium-232	U	0.00248	+/-0.00841	0.019	0.030	pCi/L					
<i>Alphaspec U, Liquid "As Received"</i>											
Uranium-233/234		7.69	+/-0.301	0.0234	0.030	pCi/L		JXD2 08/23/09 1450	891145	2	
Uranium-235/236		0.261	+/-0.0624	0.0289	0.030	pCi/L					
Uranium-238		4.98	+/-0.242	0.0338	0.030	pCi/L					
<b>Rad Gas Flow Proportional Counting</b>											
<i>GFPC, Ra228, Liquid "As Received"</i>											
Radium-228	U	0.0354	+/-0.920	1.86	3.00	pCi/L		MXS2 08/04/09 1921	888878	3	
<b>Rad Radium-226</b>											
<i>Lucas Cell, Ra226, liquid "As Received"</i>											
Radium-226	U	0.421	+/-0.327	0.470	1.00	pCi/L		KSD1 08/20/09 1635	892562	4	

**The following Analytical Methods were performed**

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

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Actinium-227 Tracer	Alphaspec Th, Liquid "As Received"			89.2	(15%-125%)
Uranium-232 Tracer	Alphaspec U, Liquid "As Received"			74.7	(15%-125%)
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			73.2	(15%-125%)

# GEL LABORATORIES LLC

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

## Certificate of Analysis

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

Report Date: August 25, 2009

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

Client Sample ID:	M-11009BDISS	Project:	KERRHenderson
Sample ID:	233580013	Client ID:	KERR003
Matrix:	WG		
Collect Date:	27-JUL-09 09:15		
Receive Date:	28-JUL-09		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
<b>Rad Alpha Spec Analysis</b>											
<i>Alphaspec Th, Liquid "As Received"</i>											
Thorium-228	U	0.0295	+/-0.0255	0.0397	0.030	pCi/L		JXD2 08/22/09 1813	895930	1	
Thorium-230	U	0.00245	+/-0.0173	0.0353	0.030	pCi/L					
Thorium-232	U	0.00	+/-0.00481	0.00736	0.030	pCi/L					
<i>Alphaspec U, Liquid "As Received"</i>											
Uranium-233/234		7.31	+/-0.438	0.0651	0.030	pCi/L		JXD2 08/10/09 1720	891145	2	
Uranium-235/236		0.244	+/-0.0917	0.0643	0.030	pCi/L					
Uranium-238		4.38	+/-0.339	0.052	0.030	pCi/L					
<b>Rad Gas Flow Proportional Counting</b>											
<i>GFPC, Ra228, Liquid "As Received"</i>											
Radium-228	U	0.283	+/-0.948	1.78	3.00	pCi/L		MXS2 08/04/09 1921	888878	3	
<b>Rad Radium-226</b>											
<i>Lucas Cell, Ra226, liquid "As Received"</i>											
Radium-226	U	0.459	+/-0.396	0.618	1.00	pCi/L		KSD1 08/20/09 1635	892562	4	

**The following Analytical Methods were performed**

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

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Actinium-227 Tracer	Alphaspec Th, Liquid "As Received"			88.1	(15%-125%)
Uranium-232 Tracer	Alphaspec U, Liquid "As Received"			31.2	(15%-125%)
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			83.1	(15%-125%)

# QUALITY CONTROL DATA

# GEL LABORATORIES LLC

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

## QC Summary

Report Date: August 25, 2009

Page 1 of 3

Northgate Environmental Management, Inc.

1100 Quail St., Suite 102  
Newport Beach, California

Contact: Mr. Frank Hagar

Workorder: 233580

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
<b>Rad Alpha Spec</b>											
Batch	891145										
QC1201895415	233580001	DUP									
Uranium-233/234		3.01		3.18	pCi/L	5.35		(0% - 20%)	JXD2	08/10/09	17:20
		+/-0.146		+/-0.176							
Uranium-235/236		0.0904		0.106	pCi/L	15.5		(0% - 100%)			
		+/-0.0307		+/-0.0355							
Uranium-238		1.98		2.02	pCi/L	2.01		(0% - 20%)			
		+/-0.118		+/-0.140							
QC1201895417	LCS										
Uranium-233/234				2.83	pCi/L					08/10/09	17:20
				+/-0.162							
Uranium-235/236				0.178	pCi/L						
				+/-0.0466							
Uranium-238	3.15			3.11	pCi/L		98.4	(75%-125%)			
				+/-0.170							
QC1201895414	MB										
Uranium-233/234			U	-0.0113	pCi/L					08/10/09	17:20
				+/-0.00782							
Uranium-235/236			U	0.00285	pCi/L						
				+/-0.00967							
Uranium-238			U	0.00461	pCi/L						
				+/-0.00903							
QC1201895416	233580001	MS									
Uranium-233/234		3.01		6.00	pCi/L					08/10/09	17:20
		+/-0.146		+/-0.253							
Uranium-235/236		0.0904		0.299	pCi/L						
		+/-0.0307		+/-0.0635							
Uranium-238	3.15	1.98		5.25	pCi/L		104	(75%-125%)			
		+/-0.118		+/-0.237							
Batch	895930										
QC1201907212	233580001	DUP									
Thorium-228			U	-0.00878	U	0.0127	pCi/L	1100	N/A	JXD2	08/22/09 18:13
				+/-0.0448		+/-0.0193					
Thorium-230			U	0.0234	U	0.0127	pCi/L	59.5	N/A		
				+/-0.0214		+/-0.0165					
Thorium-232			U	-0.00876	U	3.02E-10	pCi/L	200	N/A		
				+/-0.0172		+/-0.00992					
QC1201907214	LCS										
Thorium-228			U	0.0624	pCi/L					08/22/09	18:13
				+/-0.0416							
Thorium-230	3.57			3.80	pCi/L		106	(75%-125%)			
				+/-0.204							
Thorium-232			U	0.00849	pCi/L			(75%-125%)			

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## QC Summary

Workorder: 233580

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
<b>Rad Alpha Spec</b>											
Batch	895930										
QC1201907211	MB									+/-0.0124	
Thorium-228			U	0.020	pCi/L				JXD2	08/22/09	18:13
	+/-0.0256										
Thorium-230			U	-0.0171	pCi/L						
	+/-0.0158										
Thorium-232			U	0.00285	pCi/L						
	+/-0.00967										
QC1201907213	233580001 MS										
Thorium-228			U	-0.00878	pCi/L					08/22/09	18:13
	+/-0.0448 +/-0.0549										
Thorium-230	7.13		U	0.0234	pCi/L		111	(75%-125%)			
	+/-0.0214 +/-0.391										
Thorium-232			U	-0.00876	pCi/L			(75%-125%)			
	+/-0.0172 +/-0.022										
<b>Rad Gas Flow</b>											
Batch	888878										
QC1201890246	233580001 DUP										
Radium-228			U	1.04	pCi/L	0.00			N/A MXS2	08/04/09	19:20
	+/-1.03 +/-1.36										
QC1201890248	LCS										
Radium-228	40.7			42.9	pCi/L		105	(75%-125%)		08/04/09	19:20
	+/-4.21										
QC1201890245	MB										
Radium-228			U	1.12	pCi/L					08/04/09	19:20
	+/-1.58										
QC1201890247	233580001 MS										
Radium-228	40.9		U	1.04	pCi/L		93.8	(75%-125%)		08/04/09	19:20
	+/-1.03 +/-3.93										
<b>Rad Ra-226</b>											
Batch	892562										
QC1201898769	233580001 DUP										
Radium-226				0.659	pCi/L	28.7		(0% - 100%)	KSD1	08/20/09	16:35
	+/-0.418 +/-0.430										
QC1201898771	LCS										
Radium-226	24.2			26.5	pCi/L		110	(75%-125%)		08/20/09	18:05
	+/-1.97										
QC1201898768	MB										
Radium-226			U	0.490	pCi/L					08/20/09	16:35
	+/-0.398										
QC1201898770	233580001 MS										
Radium-226	121			0.659	pCi/L		119	(75%-125%)		08/20/09	17:20
	+/-0.418 +/-11.3										

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



# GEL LABORATORIES LLC

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## QC Summary

Workorder: 233580

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
**		Analyte is a surrogate compound									
<		Result is less than value reported									
>		Result is greater than value reported									
A		The TIC is a suspected aldol-condensation product									
B		For General Chemistry and Organic analysis the target analyte was detected in the associated blank.									
BD		Results are either below the MDC or tracer recovery is low									
C		Analyte has been confirmed by GC/MS analysis									
D		Results are reported from a diluted aliquot of the sample									
F		Estimated Value									
H		Analytical holding time was exceeded									
J		Value is estimated									
M		M if above MDC and less than LLD									
M		Matrix Related Failure									
N/A		RPD or %Recovery limits do not apply.									
ND		Analyte concentration is not detected above the detection limit									
NJ		Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier									
R		Sample results are rejected									
U		Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.									
UI		Gamma Spectroscopy--Uncertain identification									
X		Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier									
Y		QC Samples were not spiked with this compound									
^		RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.									
h		Preparation or preservation holding time was exceeded									

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

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

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

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

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

**RAW DATA**

# THORIUM

**Radiochemistry Batch Checklist, Rev 9**

Batch# 895930 Product: JN Date: 8/25/09

Criteria:	Yes	No	Comments
Sample Solids are less than or equal to 100 mg for GAB.			NA
Samples have been blank corrected (if required)			NA
If activity less 10* MDA/ MDC, error is 150% or less of sample activity. If greater 10* MDA/ MDC, error is 40% or less. If below the MDA/ MDC, error is okay.	/		
Instrument source check is within limits.	/		
Instrument bkg check is within limits.	/		
Method RDL/ LLD has been met.		/	NCL# 725697
If duplicate activities are less 5* MDA/ MDC, then RPD is 100% or less. If greater 5* MDA/ MDC, then RPD 20% or less. If below the MDA/ MDC, the RPD is 0%.	/		
Or meets the client's required RER acceptance criteria.			
Tracer yield is 15-125% . Carrier yield 25-125%.		/	NCL# 725697
Or meets the client's contract acceptance criteria.			
Method blank is less than the RDL/ LLD.	/		
(If rad samples, < 5% of lowest activity)	/		
Sample was run within hold time.	/		
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 line outs initialed and dated.	/		
No transcription errors are apparent.	/		
Aux data is correct.			NA
Client Special requirements page has been checked.	/		
Raw Data and/ or spectrum are included and property stated.	/		
QC data entered into QC database and batch is in REVW	/		
Hit notification complete (if necessary)			NA
Batch entered into Case Narrative.	/		
Batch non-conformances completed, if applicable.	/		NCL# 725697
Batch non-conformances second reviewed and disposition verified to be completed.	/	/	NCL# 725697
Aliquot Correction completed if required.			NA
Review sample historical results if available (If REMF, results above MDC have been verified by historical results, recount or re-analysis.)	/		

GEL Laboratories, LLC

revised 8/1/08

Primary Review Performed By: [Signature] 8/25/09

Secondary Review Performed By: JNL 8/25/09

8/19(-8/25)  
KERR

# Thorium (Ac-227 Tracer) Que Sheet

21-AUG-09

Batch #: 895930    Analyst: JXD2    First Client Due Date: 25-AUG-09    Internal Due Date: 19-AUG-09  
 Tracer Isotope: Ac-227    Tracer Code: 0827-6-02    Expiration Date: 7/23/09  
 LCS Isotope: Th-230    LCS Code: A2796-5    Expiration Date: 4/13/10  
 Spike Isotope: Th-230    Spike Code: A2796-5    Expiration Date: 4/13/10  
 Prep Date: 8/2/09    Initials: JXD    Pipet ID: 2574055    Balance ID: 16750207

Witness: [Signature]

Wet/Dry

Sample ID	Client Description	Type	Hazard Code	Min CRDL	Matrix	Client	Collection Date	Pos.	Label #	Aliquot (g (1))	Th Det #
233580001-2	M-92BBDISS	SAMPLE		.03 pCi/L	WATER	KERR003	15-JUL-09	1	1	0.600	31
233580002-2	M-97B	SAMPLE		.03 pCi/L	WATER	KERR003	16-JUL-09	2	2	0.600	197 <sup>8/2/09</sup>
233580003-2	TR-6B	SAMPLE		.03 pCi/L	WATER	KERR003	17-JUL-09	3	3	0.600	32
233580004-2	EB-071709-GW	SAMPLE		.03 pCi/L	WATER	KERR003	17-JUL-09	4	4	0.600	35
233580005-2	M-33B	SAMPLE		.03 pCi/L	WATER	KERR003	21-JUL-09	5	5	0.600	36
233580006-2	CLD-4RB	SAMPLE		.03 pCi/L	WATER	KERR003	22-JUL-09	6	6	0.600	37
233580007-2	MW-6RB	SAMPLE		.03 pCi/L	WATER	KERR003	23-JUL-09	7	7	0.600	38 <sup>8/2/09</sup>
233580008-2	M-52B	SAMPLE		.03 pCi/L	WATER	KERR003	24-JUL-09	8	8	0.600	39 <sup>8/2/09</sup>
233580009-2	M-35B	SAMPLE		.03 pCi/L	WATER	KERR003	24-JUL-09	9	9	0.600	37 <sup>198</sup>
233580010-2	M-11B	SAMPLE		.03 pCi/L	WATER	KERR003	27-JUL-09	10	10	0.600	37
233580011-2	M-11BBDISS	SAMPLE		.03 pCi/L	WATER	KERR003	27-JUL-09	11	11	0.600	37
233580012-2	M-11009B	SAMPLE		.03 pCi/L	WATER	KERR003	27-JUL-09	12	12	0.600	37
233580013-2	M-11009BBDISS	SAMPLE		.03 pCi/L	WATER	KERR003	27-JUL-09	13	13	0.600	37
1201907211-1	MB for batch 895930	MB		UCF pCi/L to	WATER	QC ACCOUNT		14	14	0.600	35
1201907212-2	M-92BBDISS(233580001DUP)	DUP		.03 pCi/L	WATER	QC ACCOUNT	15-JUL-09	15	15	0.600	36
1201907213-2	M-92BBDISS(233580001MS)	MS		.03 pCi/L	WATER	QC ACCOUNT	15-JUL-09	16	16	0.300	37
1201907214-1	LCS for batch 895930	LCS		UCF pCi/L to	WATER	QC ACCOUNT		17	17	0.600	34

MAAD 8/24/09

[Signature]

Solid Sample Dissolution by: LEACH or DIGESTION    Data Reviewed By: [Signature]

Choose SOP Used: GL-RAD-A-038

- GL-RAD-A-045
- GL-RAD-A-043
- GL-RAD-A-032

GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 895930  
SAMPLE DATE : 21-AUG-2009 15:35:00

SAMPLE ID : S0233580001\_TH  
SAMPLE QTY: 0.600 L

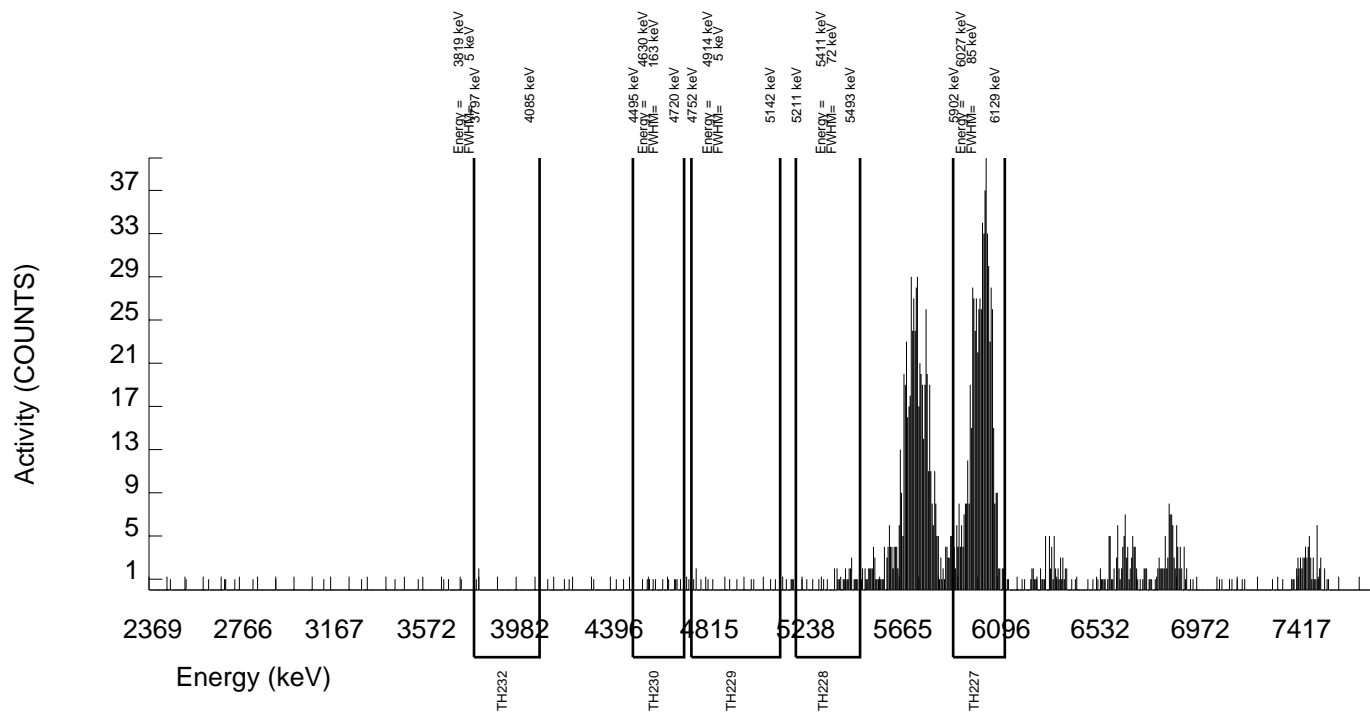
DETECTOR NUMBER :67042  
AVERAGE %EFFICIENCY :33.3397  
% YIELD : 77.074

COUNT DATE:22-AUG-2009 18:13:56  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :JXD2

MS/MSD ID : A2796-J ISOTOPE : TH-230 PCI/L : 3.567E+00	LCS/LCSD ID : A2796-J ISOTOPE : TH-230 PCI/L : 3.567E+00	TRACER ID : 0387-B-102 ISOTOPE : AC227 NOMINAL : 3.91432 dpm RESULTS : 3.01691 dpm	LIB FILE : ENV_ALPHA_TH.N BKG FILE : B031.CNF;1052 BKG DATE : 16-AUG-2009 EFF FILE : W031.CNF;327 CAL DATE : 3-AUG-2009
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NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/L	TPU 1.96-SIGMA	MDA pCi/L	Lc pCi/L	UNC pCi/L
AC-227	6038.010	663.000	649.000	14.000	3.7417	68.10000	2.94E+00	2.80E-01	9.24E-02	3.94E-02	2.31E-01
TH-228	5363.000	29.000	-3.000	32.000	5.6569	99.94000	-8.78E-03	4.48E-02	8.58E-02	3.85E-02	4.48E-02
TH229	4900.000	12.000	-3.000	15.000	3.8730	99.52000	-8.81E-03	2.99E-02	6.17E-02	2.65E-02	2.99E-02
TH-230	4625.000	11.000	8.000	3.000	1.7321	100.0000	2.34E-02	2.15E-02	3.23E-02	1.18E-02	2.14E-02
TH-232	3972.000	3.000	-3.000	6.000	2.4495	100.0000	-8.76E-03	1.72E-02	4.21E-02	1.66E-02	1.72E-02

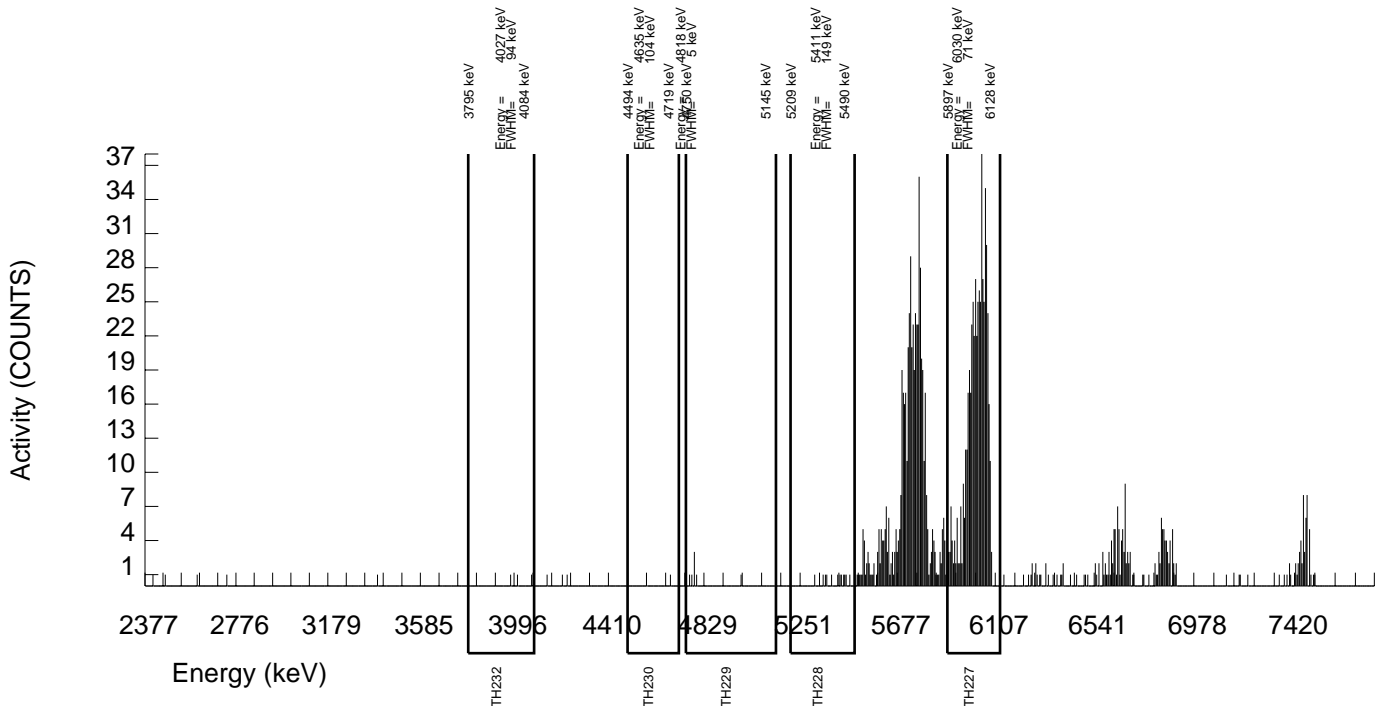


GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 895930 SAMPLE DATE : 21-AUG-2009 15:35:00		SAMPLE ID : S0233580002_TH SAMPLE QTY: 0.600 L	
DETECTOR NUMBER :78894 AVERAGE %EFFICIENCY :25.6555 % YIELD : 89.788		COUNT DATE:24-AUG-2009 14:58:06 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :JXD2	
MS/MSD ID : A2796-J ISOTOPE : TH-230 PCI/L : 3.567E+00	LCS/LCSD ID : A2796-J ISOTOPE : TH-230 PCI/L : 3.567E+00	TRACER ID : 0387-B-102 ISOTOPE : AC227 NOMINAL : 3.91431 dpm RESULTS : 3.51458 dpm	LIB FILE : ENV_ALPHA_TH.N BKG FILE : B197.CNF;48 BKG DATE : 23-AUG-2009 EFF FILE : W197.CNF;37 CAL DATE : 24-AUG-2009

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/L	TPU 1.96-SIGMA	MDA pCi/L	Lc pCi/L	UNC pCi/L
AC-227	6038.010	543.000	543.000	0.000	0.0000	68.10000	2.94E+00	2.94E-01	1.62E-02	0.00E+00	2.47E-01
TH-228	5363.000	12.000	11.000	1.000	1.0000	99.94000	3.60E-02	2.32E-02	2.50E-02	7.61E-03	2.31E-02
TH229	4900.000	7.000	6.000	1.000	1.0000	99.52000	1.96E-02	1.82E-02	2.51E-02	7.62E-03	1.82E-02
TH-230	4625.000	2.000	2.000	0.000	0.0000	100.0000	6.52E-03	9.04E-03	9.78E-03	0.00E+00	9.03E-03
TH-232	3972.000	3.000	3.000	0.000	0.0000	100.0000	9.78E-03	1.11E-02	9.78E-03	0.00E+00	1.11E-02



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 895930  
SAMPLE DATE : 21-AUG-2009 15:35:00

SAMPLE ID : S0233580003\_TH  
SAMPLE QTY: 0.600 L

DETECTOR NUMBER :78785  
AVERAGE %EFFICIENCY :31.5979  
% YIELD : 78.816

COUNT DATE:22-AUG-2009 18:13:56  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :JXD2

MS/MSD  
ID : A2796-J  
ISOTOPE : TH-230  
PCI/L : 3.567E+00

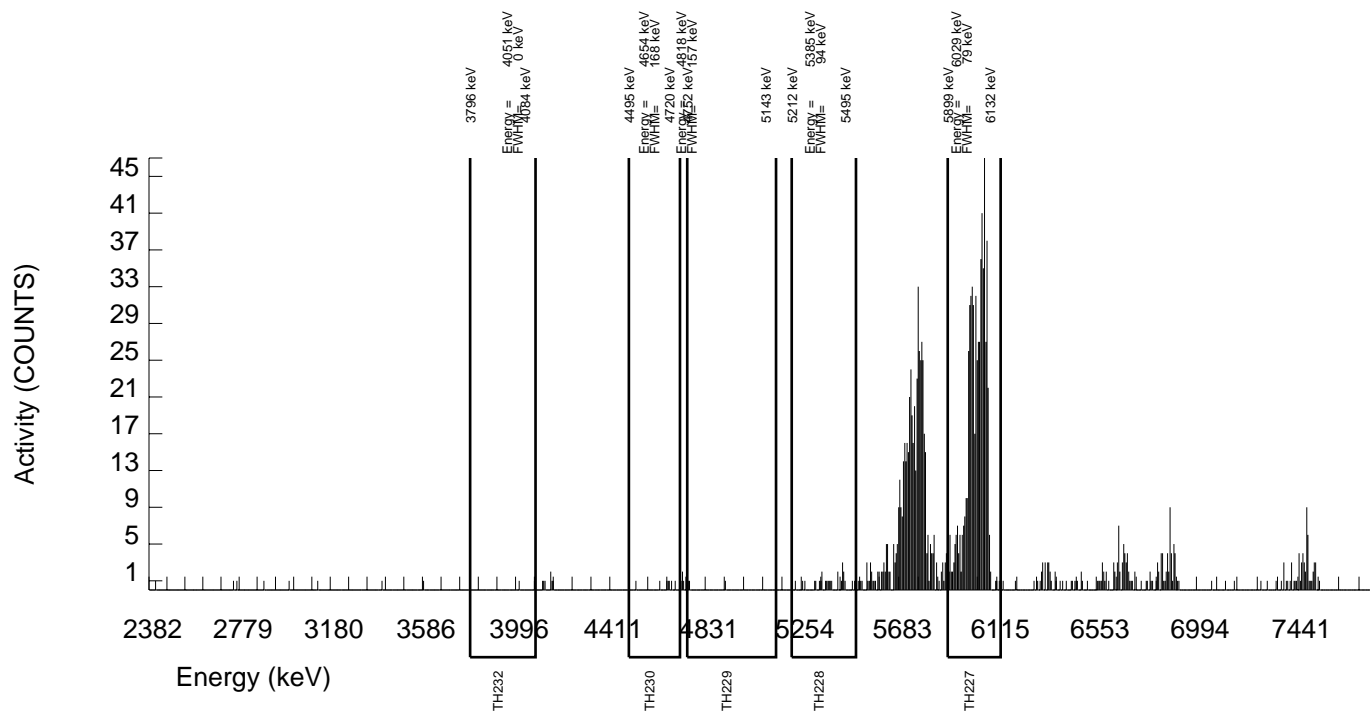
LCS/LCSD  
ID : A2796-J  
ISOTOPE : TH-230  
PCI/L : 3.567E+00

TRACER  
ID : 0387-B-102  
ISOTOPE : AC227  
NOMINAL : 3.91432 dpm  
RESULTS : 3.08512 dpm

LIB FILE : ENV\_ALPHA\_TH.N  
BKG FILE : B033.CNF;1051  
BKG DATE : 16-AUG-2009  
EFF FILE : W033.CNF;317  
CAL DATE : 3-AUG-2009

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/L	TPU 1.96-SIGMA	MDA pCi/L	Lc pCi/L	UNC pCi/L
AC-227	6038.010	630.000	629.000	1.000	1.0000	68.10000	2.94E+00	2.80E-01	3.58E-02	1.09E-02	2.30E-01
TH-228	5363.000	26.000	23.000	3.000	1.7321	99.94000	6.95E-02	3.21E-02	3.34E-02	1.22E-02	3.19E-02
TH229	4900.000	3.000	-2.000	5.000	2.2361	99.52000	-6.06E-03	1.68E-02	4.06E-02	1.58E-02	1.68E-02
TH-230	4625.000	7.000	7.000	0.000	0.0000	100.0000	2.11E-02	1.57E-02	9.04E-03	0.00E+00	1.56E-02
TH-232	3972.000	2.000	0.000	2.000	1.4142	100.0000	0.00E+00	1.18E-02	2.89E-02	9.92E-03	1.18E-02





GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 895930  
SAMPLE DATE : 21-AUG-2009 15:35:00

SAMPLE ID : S0233580004\_TH  
SAMPLE QTY: 0.600 L

DETECTOR NUMBER :78202  
AVERAGE %EFFICIENCY :30.6675  
% YIELD : 60.421

COUNT DATE:22-AUG-2009 18:13:56  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :JXD2

MS/MSD  
ID : A2796-J  
ISOTOPE : TH-230  
PCI/L : 3.567E+00

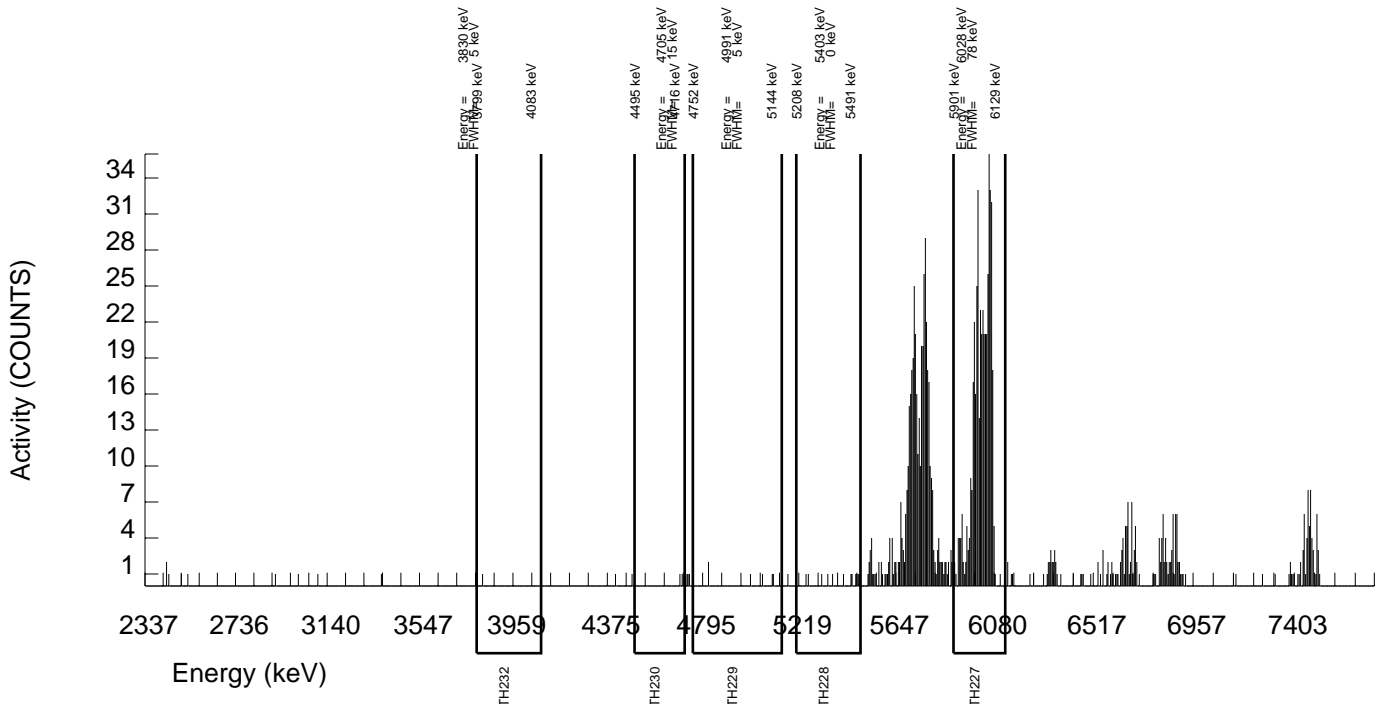
LCS/LCSD  
ID : A2796-J  
ISOTOPE : TH-230  
PCI/L : 3.567E+00

TRACER  
ID : 0387-B-102  
ISOTOPE : AC227  
NOMINAL : 3.91432 dpm  
RESULTS : 2.36508 dpm

LIB FILE : ENV\_ALPHA\_TH.N  
BKG FILE : B035.CNF;1049  
BKG DATE : 16-AUG-2009  
EFF FILE : W035.CNF;306  
CAL DATE : 3-AUG-2009

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/L	TPU 1.96-SIGMA	MDA pCi/L	Lc pCi/L	UNC pCi/L
AC-227	6038.010	472.000	468.000	4.000	2.0000	68.10000	2.94E+00	3.12E-01	7.73E-02	2.92E-02	2.69E-01
TH-228	5363.000	12.000	-1.000	13.000	3.6056	99.94000	-4.06E-03	3.98E-02	8.03E-02	3.41E-02	3.98E-02
TH229	4900.000	6.000	-7.000	13.000	3.6056	99.52000	-2.85E-02	3.48E-02	8.05E-02	3.41E-02	3.48E-02
TH-230	4625.000	2.000	-9.000	11.000	3.3166	100.0000	-3.65E-02	2.86E-02	7.47E-02	3.13E-02	2.86E-02
TH-232	3972.000	1.000	-3.000	4.000	2.0000	100.0000	-1.22E-02	1.78E-02	4.99E-02	1.89E-02	1.78E-02



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 895930  
SAMPLE DATE : 21-AUG-2009 15:35:00

SAMPLE ID : S0233580005\_TH  
SAMPLE QTY: 0.600 L

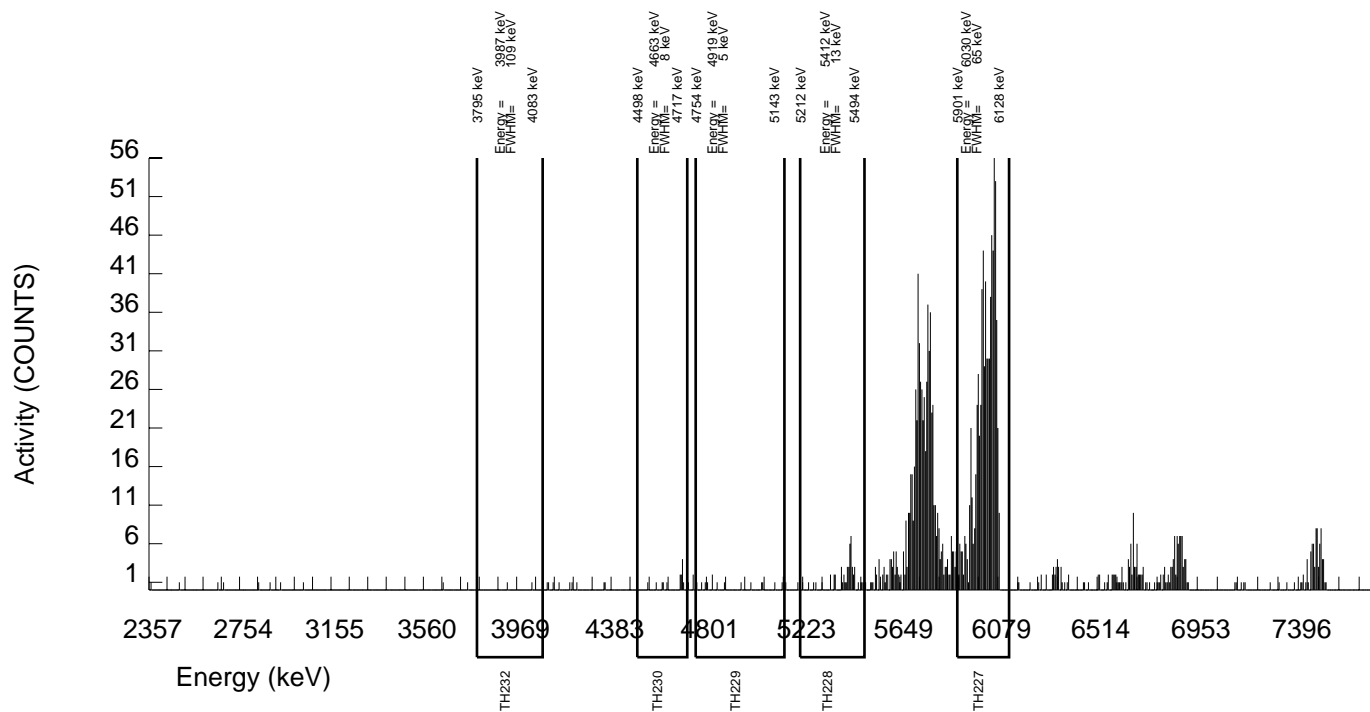
DETECTOR NUMBER :78203  
AVERAGE %EFFICIENCY :32.3872  
% YIELD : 92.421

COUNT DATE:22-AUG-2009 18:13:56  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :JXD2

MS/MSD ID : A2796-J ISOTOPE : TH-230 PCI/L : 3.567E+00	LCS/LCSD ID : A2796-J ISOTOPE : TH-230 PCI/L : 3.567E+00	TRACER ID : 0387-B-102 ISOTOPE : AC227 NOMINAL : 3.91432 dpm RESULTS : 3.61767 dpm	LIB FILE : ENV_ALPHA_TH.N BKG FILE : B036.CNF;1047 BKG DATE : 16-AUG-2009 EFF FILE : W036.CNF;318 CAL DATE : 3-AUG-2009
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NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/L	TPU 1.96-SIGMA	MDA pCi/L	Lc pCi/L	UNC pCi/L
AC-227	6038.010	759.000	756.000	3.000	1.7321	68.10000	2.94E+00	2.64E-01	4.30E-02	1.57E-02	2.10E-01
TH-228	5363.000	50.000	37.000	13.000	3.6056	99.94000	9.30E-02	3.94E-02	4.97E-02	2.11E-02	3.91E-02
TH229	4900.000	14.000	11.000	3.000	1.7321	99.52000	2.77E-02	2.04E-02	2.79E-02	1.02E-02	2.04E-02
TH-230	4625.000	14.000	13.000	1.000	1.0000	100.0000	3.26E-02	1.91E-02	1.92E-02	5.83E-03	1.90E-02
TH-232	3972.000	2.000	1.000	1.000	1.0000	100.0000	2.51E-03	8.52E-03	1.92E-02	5.83E-03	8.51E-03

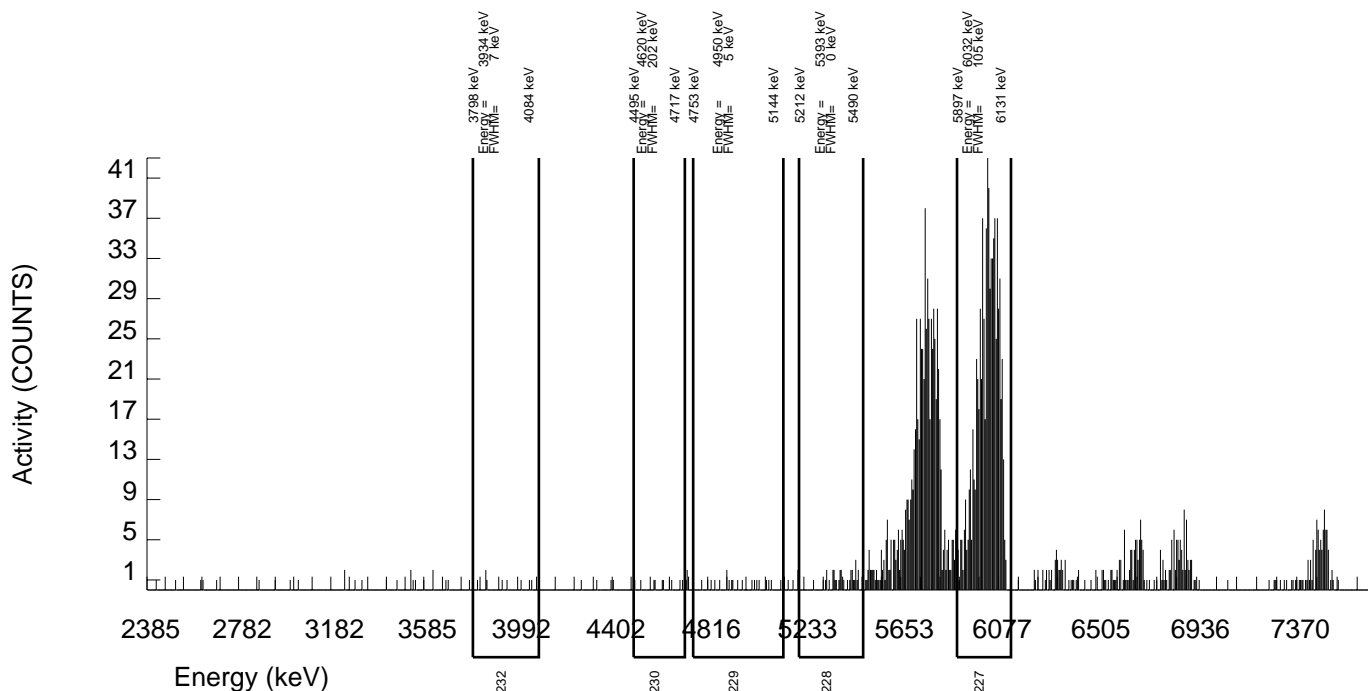


GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 895930 SAMPLE DATE : 21-AUG-2009 15:35:00		SAMPLE ID : S0233580006_TH SAMPLE QTY: 0.600 L	
DETECTOR NUMBER :45-149BB5 AVERAGE %EFFICIENCY :35.8845 % YIELD : 85.290		COUNT DATE:22-AUG-2009 18:13:57 ELAPSED LIVE TIME(SEC): 59999.99 ANALYST :JXD2	
MS/MSD ID : A2796-J ISOTOPE : TH-230 PCI/L : 3.567E+00	LCS/LCSD ID : A2796-J ISOTOPE : TH-230 PCI/L : 3.567E+00	TRACER ID : 0387-B-102 ISOTOPE : AC227 NOMINAL : 3.91432 dpm RESULTS : 3.33851 dpm	LIB FILE : ENV_ALPHA_TH.N BKG FILE : B037.CNF;1058 BKG DATE : 16-AUG-2009 EFF FILE : W037.CNF;294 CAL DATE : 3-AUG-2009

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/L	TPU 1.96-SIGMA	MDA pCi/L	Lc pCi/L	UNC pCi/L
AC-227	6038.010	779.000	773.000	6.000	2.4495	68.10000	2.94E+00	2.62E-01	5.47E-02	2.17E-02	2.09E-01
TH-228	5363.000	34.000	14.000	20.000	4.4721	99.94000	3.44E-02	3.55E-02	5.85E-02	2.56E-02	3.54E-02
TH229	4900.000	21.000	3.000	18.000	4.2426	99.52000	7.39E-03	3.02E-02	5.60E-02	2.43E-02	3.02E-02
TH-230	4625.000	10.000	4.000	6.000	2.4495	100.0000	9.81E-03	1.92E-02	3.53E-02	1.40E-02	1.92E-02
TH-232	3972.000	9.000	3.000	6.000	2.4495	100.0000	7.36E-03	1.86E-02	3.53E-02	1.40E-02	1.86E-02



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 895930  
SAMPLE DATE : 21-AUG-2009 15:35:00

SAMPLE ID : S0233580007\_TH  
SAMPLE QTY: 0.600 L

DETECTOR NUMBER :72532  
AVERAGE %EFFICIENCY :34.0187  
% YIELD : 89.618

COUNT DATE:22-AUG-2009 18:13:57  
ELAPSED LIVE TIME(SEC): 59999.99  
ANALYST :JXD2

MS/MSD  
ID : A2796-J  
ISOTOPE : TH-230  
PCI/L : 3.567E+00

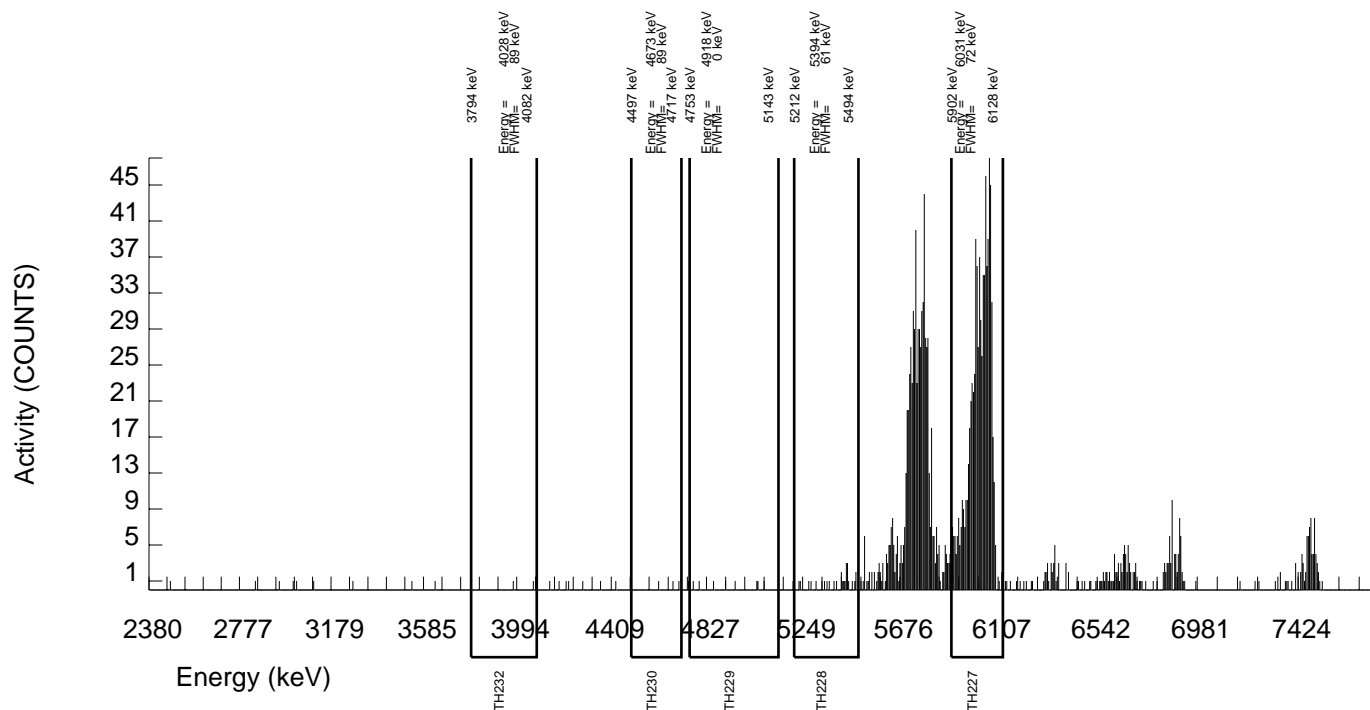
LCS/LCSD  
ID : A2796-J  
ISOTOPE : TH-230  
PCI/L : 3.567E+00

TRACER  
ID : 0387-B-102  
ISOTOPE : AC227  
NOMINAL : 3.91432 dpm  
RESULTS : 3.50794 dpm

LIB FILE : ENV\_ALPHA\_TH.N  
BKG FILE : B038.CNF;1055  
BKG DATE : 16-AUG-2009  
EFF FILE : W038.CNF;308  
CAL DATE : 3-AUG-2009

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/L	TPU 1.96-SIGMA	MDA pCi/L	Lc pCi/L	UNC pCi/L
AC-227	6038.010	773.000	770.000	3.000	1.7321	68.10000	2.94E+00	2.62E-01	4.22E-02	1.54E-02	2.08E-01
TH-228	5363.000	28.000	13.000	15.000	3.8730	99.94000	3.21E-02	3.18E-02	5.19E-02	2.22E-02	3.17E-02
TH229	4900.000	9.000	-6.000	15.000	3.8730	99.52000	-1.48E-02	2.38E-02	5.20E-02	2.23E-02	2.38E-02
TH-230	4625.000	3.000	-2.000	5.000	2.2361	100.0000	-4.93E-03	1.37E-02	3.30E-02	1.28E-02	1.37E-02
TH-232	3972.000	2.000	1.000	1.000	1.0000	100.0000	2.46E-03	8.36E-03	1.88E-02	5.73E-03	8.36E-03

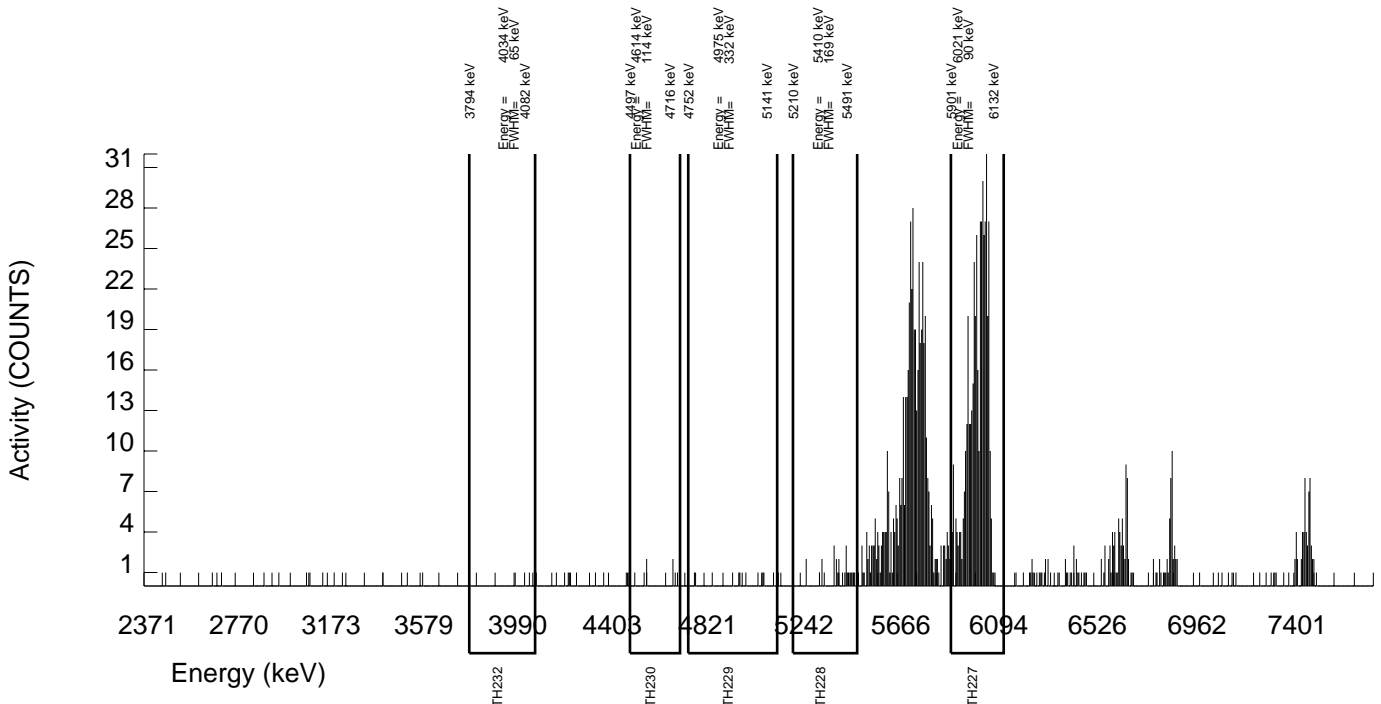


GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 895930 SAMPLE DATE : 21-AUG-2009 15:35:00		SAMPLE ID : S0233580008_TH SAMPLE QTY: 0.600 L	
DETECTOR NUMBER :78895 AVERAGE %EFFICIENCY :25.4102 % YIELD : 79.469		COUNT DATE:24-AUG-2009 14:58:08 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :JXD2	
MS/MSD ID : A2796-J ISOTOPE : TH-230 PCI/L : 3.567E+00	LCS/LCSD ID : A2796-J ISOTOPE : TH-230 PCI/L : 3.567E+00	TRACER ID : 0387-B-102 ISOTOPE : AC227 NOMINAL : 3.91431 dpm RESULTS : 3.11067 dpm	LIB FILE : ENV_ALPHA_TH.N BKG FILE : B198.CNF;48 BKG DATE : 23-AUG-2009 EFF FILE : W198.CNF;35 CAL DATE : 24-AUG-2009

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/L	TPU 1.96-SIGMA	MDA pCi/L	Lc pCi/L	UNC pCi/L
AC-227	6038.010	476.000	476.000	0.000	0.0000	68.10000	2.94E+00	3.08E-01	1.85E-02	0.00E+00	2.64E-01
TH-228	5363.000	26.000	25.000	1.000	1.0000	99.94000	9.33E-02	3.83E-02	2.86E-02	8.68E-03	3.80E-02
TH229	4900.000	11.000	11.000	0.000	0.0000	99.52000	4.11E-02	2.44E-02	1.12E-02	0.00E+00	2.43E-02
TH-230	4625.000	9.000	9.000	0.000	0.0000	100.0000	3.35E-02	2.19E-02	1.12E-02	0.00E+00	2.19E-02
TH-232	3972.000	3.000	3.000	0.000	0.0000	100.0000	1.12E-02	1.26E-02	1.12E-02	0.00E+00	1.26E-02



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 895930  
SAMPLE DATE : 21-AUG-2009 15:35:00

SAMPLE ID : S0233580009\_TH  
SAMPLE QTY: 0.600 L

DETECTOR NUMBER :78773  
AVERAGE %EFFICIENCY :31.9762  
% YIELD : 90.514

COUNT DATE:22-AUG-2009 18:13:57  
ELAPSED LIVE TIME(SEC): 59999.99  
ANALYST :JXD2

MS/MSD  
ID : A2796-J  
ISOTOPE : TH-230  
PCI/L : 3.567E+00

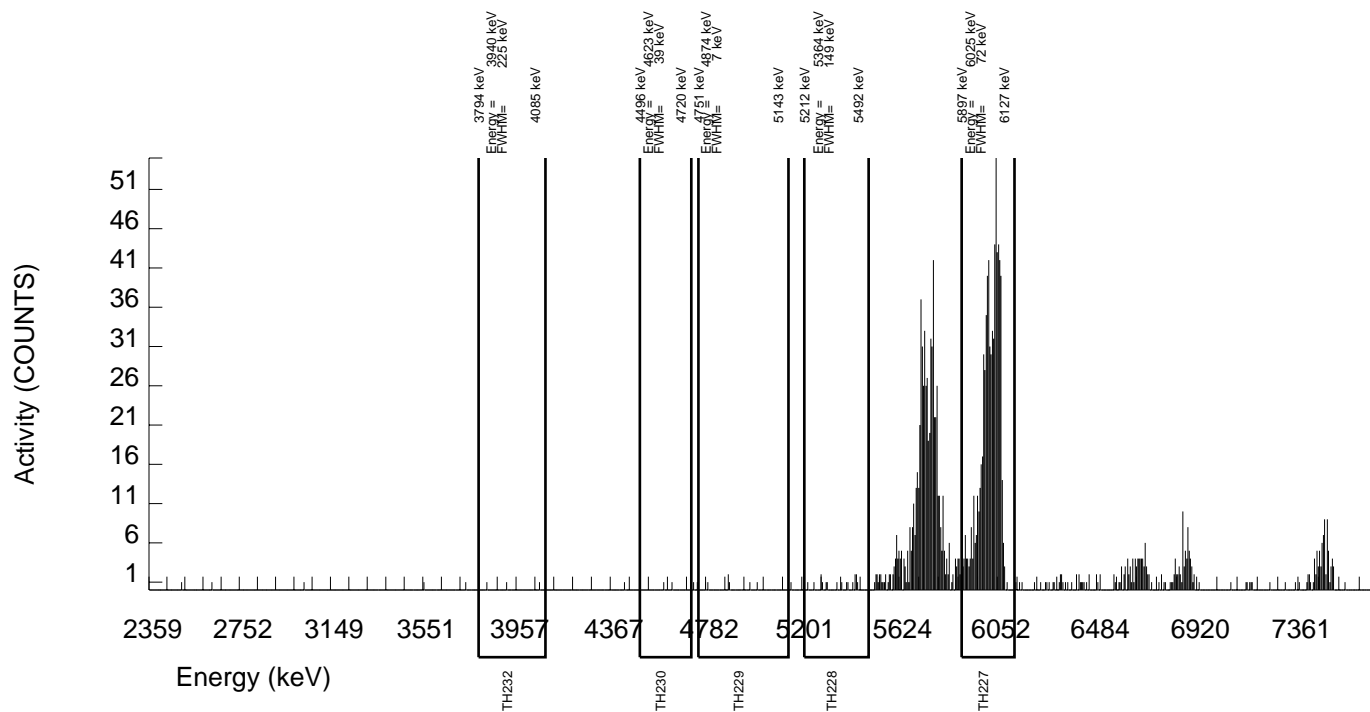
LCS/LCSD  
ID : A2796-J  
ISOTOPE : TH-230  
PCI/L : 3.567E+00

TRACER  
ID : 0387-B-102  
ISOTOPE : AC227  
NOMINAL : 3.91432 dpm  
RESULTS : 3.54300 dpm

LIB FILE : ENV\_ALPHA\_TH.N  
BKG FILE : B040.CNF;1058  
BKG DATE : 16-AUG-2009  
EFF FILE : W040.CNF;304  
CAL DATE : 3-AUG-2009

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/L	TPU 1.96-SIGMA	MDA pCi/L	Lc pCi/L	UNC pCi/L
AC-227	6038.010	733.000	731.000	2.000	1.4142	68.10000	2.94E+00	2.66E-01	3.85E-02	1.32E-02	2.14E-01
TH-228	5363.000	17.000	14.000	3.000	1.7321	99.94000	3.64E-02	2.29E-02	2.87E-02	1.05E-02	2.28E-02
TH229	4900.000	8.000	3.000	5.000	2.2361	99.52000	7.82E-03	1.84E-02	3.49E-02	1.36E-02	1.84E-02
TH-230	4625.000	2.000	1.000	1.000	1.0000	100.0000	2.59E-03	8.81E-03	1.99E-02	6.03E-03	8.81E-03
TH-232	3972.000	3.000	2.000	1.000	1.0000	100.0000	5.19E-03	1.02E-02	1.99E-02	6.03E-03	1.02E-02



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 895930  
SAMPLE DATE : 21-AUG-2009 15:35:00

SAMPLE ID : S0233580010\_TH  
SAMPLE QTY: 0.600 L

DETECTOR NUMBER :78205  
AVERAGE %EFFICIENCY :33.2073  
% YIELD : 88.589

COUNT DATE:22-AUG-2009 18:13:57  
ELAPSED LIVE TIME(SEC): 59999.99  
ANALYST :JXD2

MS/MSD  
ID : A2796-J  
ISOTOPE : TH-230  
PCI/L : 3.567E+00

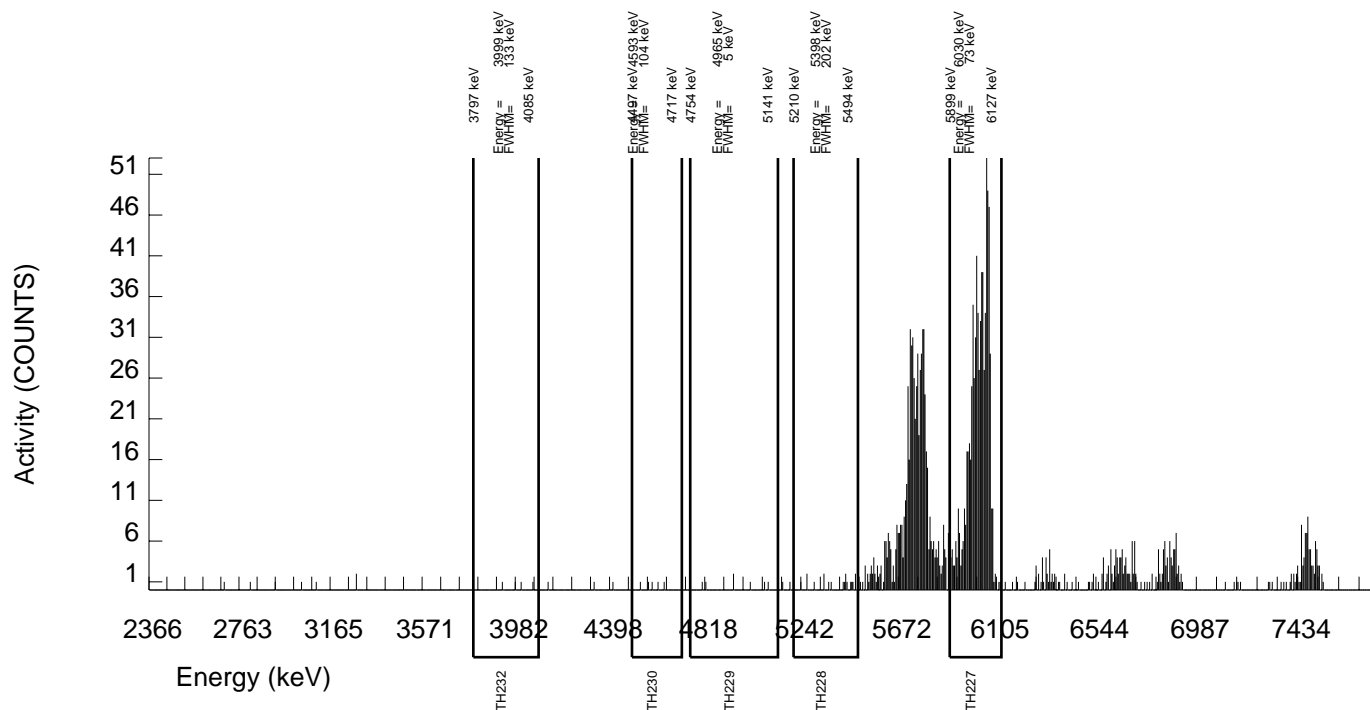
LCS/LCSD  
ID : A2796-J  
ISOTOPE : TH-230  
PCI/L : 3.567E+00

TRACER  
ID : 0387-B-102  
ISOTOPE : AC227  
NOMINAL : 3.91432 dpm  
RESULTS : 3.46765 dpm

LIB FILE : ENV\_ALPHA\_TH.N  
BKG FILE : B041.CNF;1051  
BKG DATE : 16-AUG-2009  
EFF FILE : W041.CNF;308  
CAL DATE : 3-AUG-2009

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/L	TPU 1.96-SIGMA	MDA pCi/L	Lc pCi/L	UNC pCi/L
AC-227	6038.010	748.000	743.000	5.000	2.2361	68.10000	2.94E+00	2.65E-01	5.30E-02	2.06E-02	2.13E-01
TH-228	5363.000	18.000	7.000	11.000	3.3166	99.94000	1.79E-02	2.70E-02	4.71E-02	1.97E-02	2.70E-02
TH229	4900.000	7.000	-2.000	9.000	3.0000	99.52000	-5.13E-03	2.01E-02	4.35E-02	1.79E-02	2.01E-02
TH-230	4625.000	5.000	5.000	0.000	0.0000	100.0000	1.28E-02	1.12E-02	7.66E-03	0.00E+00	1.12E-02
TH-232	3972.000	4.000	2.000	2.000	1.4142	100.0000	5.10E-03	1.23E-02	2.44E-02	8.40E-03	1.23E-02



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 895930  
SAMPLE DATE : 21-AUG-2009 15:35:00

SAMPLE ID : S0233580011\_TH  
SAMPLE QTY: 0.600 L

DETECTOR NUMBER :78793  
AVERAGE %EFFICIENCY :33.5513  
% YIELD : 81.780

COUNT DATE:22-AUG-2009 18:13:57  
ELAPSED LIVE TIME(SEC): 59999.99  
ANALYST :JXD2

MS/MSD  
ID : A2796-J  
ISOTOPE : TH-230  
PCI/L : 3.567E+00

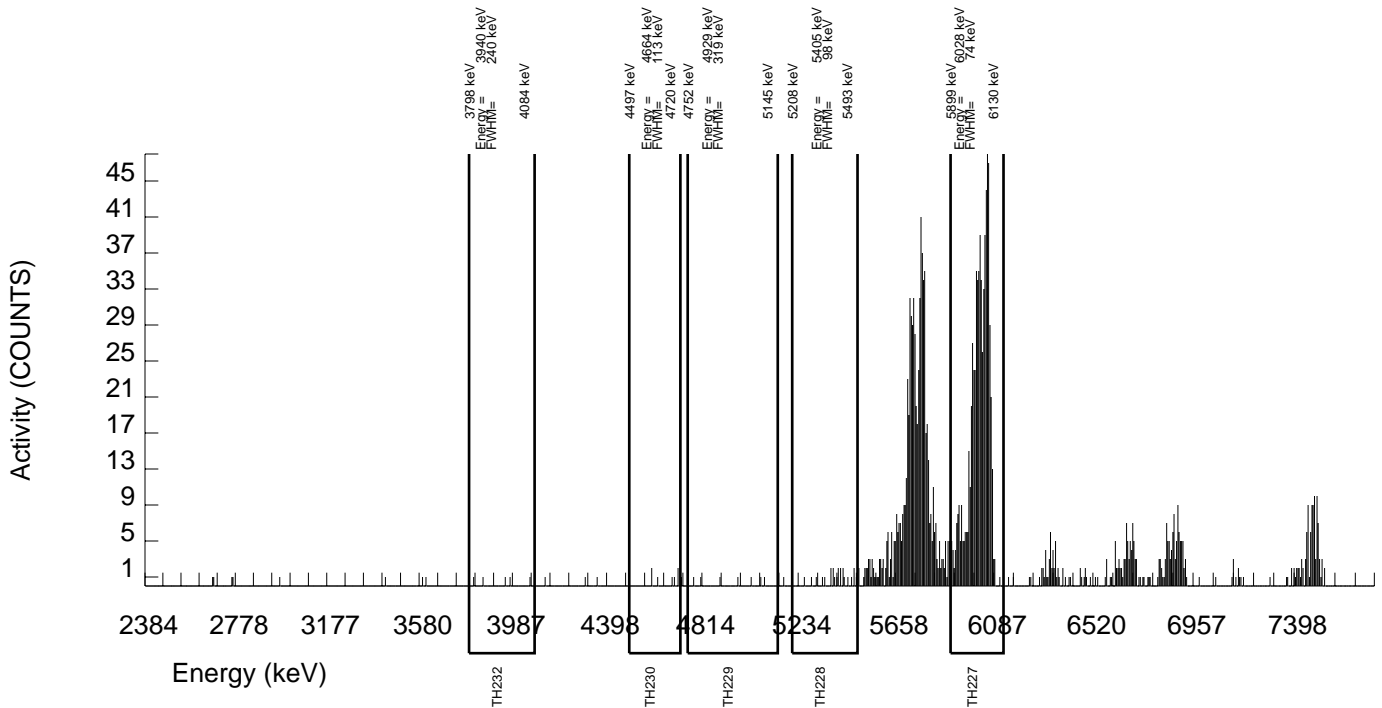
LCS/LCSD  
ID : A2796-J  
ISOTOPE : TH-230  
PCI/L : 3.567E+00

TRACER  
ID : 0387-B-102  
ISOTOPE : AC227  
NOMINAL : 3.91432 dpm  
RESULTS : 3.20114 dpm

LIB FILE : ENV\_ALPHA\_TH.N  
BKG FILE : B042.CNF;1050  
BKG DATE : 16-AUG-2009  
EFF FILE : W042.CNF;281  
CAL DATE : 3-AUG-2009

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/L	TPU 1.96-SIGMA	MDA pCi/L	Lc pCi/L	UNC pCi/L
AC-227	6038.010	695.000	693.000	2.000	1.4142	68.10000	2.94E+00	2.71E-01	4.06E-02	1.40E-02	2.19E-01
TH-228	5363.000	23.000	16.000	7.000	2.6458	99.94000	4.39E-02	2.95E-02	4.20E-02	1.69E-02	2.94E-02
TH229	4900.000	8.000	-1.000	9.000	3.0000	99.52000	-2.75E-03	2.22E-02	4.66E-02	1.92E-02	2.22E-02
TH-230	4625.000	7.000	1.000	6.000	2.4495	100.0000	2.74E-03	1.93E-02	3.94E-02	1.56E-02	1.93E-02
TH-232	3972.000	5.000	4.000	1.000	1.0000	100.0000	1.09E-02	1.31E-02	2.09E-02	6.37E-03	1.31E-02



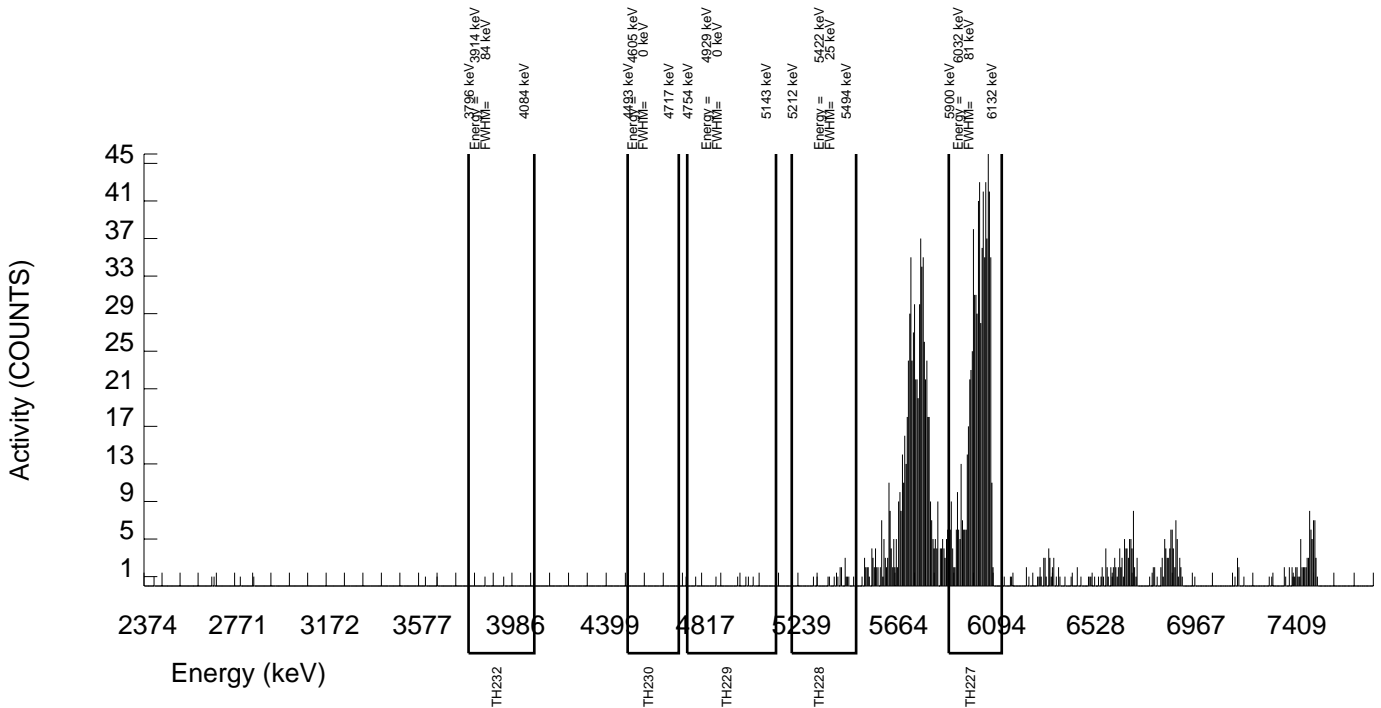


GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 895930 SAMPLE DATE : 21-AUG-2009 15:35:00		SAMPLE ID : S0233580012_TH SAMPLE QTY: 0.600 L	
DETECTOR NUMBER :76543 AVERAGE %EFFICIENCY :33.9498 % YIELD : 89.217		COUNT DATE:22-AUG-2009 18:13:58 ELAPSED LIVE TIME(SEC): 59999.99 ANALYST :JXD2	
MS/MSD ID : A2796-J ISOTOPE : TH-230 PCI/L : 3.567E+00	LCS/LCSD ID : A2796-J ISOTOPE : TH-230 PCI/L : 3.567E+00	TRACER ID : 0387-B-102 ISOTOPE : AC227 NOMINAL : 3.91432 dpm RESULTS : 3.49224 dpm	LIB FILE : ENV_ALPHA_TH.N BKG FILE : B043.CNF;1046 BKG DATE : 16-AUG-2009 EFF FILE : W043.CNF;273 CAL DATE : 3-AUG-2009

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/L	TPU 1.96-SIGMA	MDA pCi/L	Lc pCi/L	UNC pCi/L
AC-227	6038.010	770.000	765.000	5.000	2.2361	68.10000	2.94E+00	2.63E-01	5.15E-02	2.00E-02	2.10E-01
TH-228	5363.000	18.000	11.000	7.000	2.6458	99.94000	2.73E-02	2.44E-02	3.80E-02	1.53E-02	2.43E-02
TH229	4900.000	7.000	1.000	6.000	2.4495	99.52000	2.49E-03	1.76E-02	3.59E-02	1.42E-02	1.76E-02
TH-230	4625.000	0.000	0.000	0.000	0.0000	100.0000	0.00E+00	4.86E-03	7.44E-03	0.00E+00	4.86E-03
TH-232	3972.000	2.000	1.000	1.000	1.0000	100.0000	2.48E-03	8.42E-03	1.90E-02	5.77E-03	8.41E-03

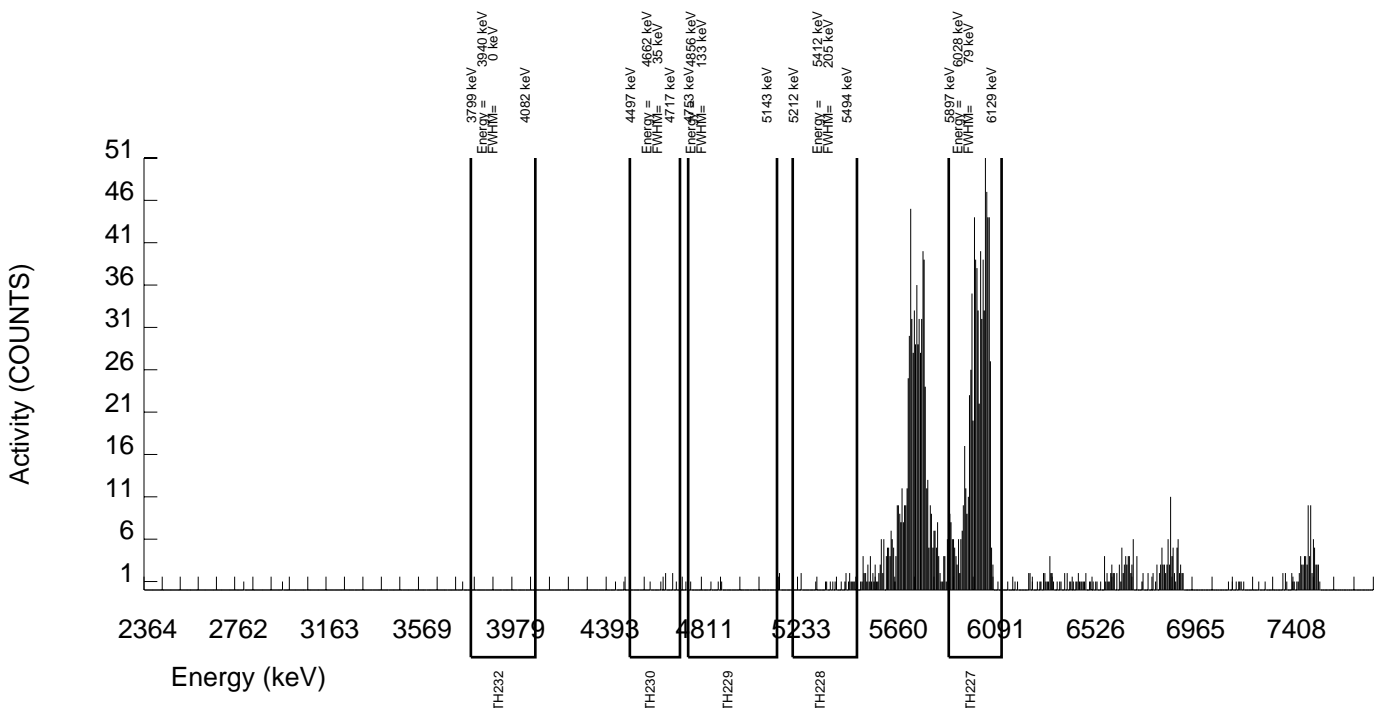


GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 895930 SAMPLE DATE : 21-AUG-2009 15:35:00		SAMPLE ID : S0233580013_TH SAMPLE QTY: 0.600 L	
DETECTOR NUMBER :79459 AVERAGE %EFFICIENCY :34.7262 % YIELD : 88.134		COUNT DATE:22-AUG-2009 18:13:58 ELAPSED LIVE TIME(SEC): 59999.99 ANALYST :JXD2	
MS/MSD ID : A2796-J ISOTOPE : TH-230 PCI/L : 3.567E+00	LCS/LCSD ID : A2796-J ISOTOPE : TH-230 PCI/L : 3.567E+00	TRACER ID : 0387-B-102 ISOTOPE : AC227 NOMINAL : 3.91432 dpm RESULTS : 3.44986 dpm	LIB FILE : ENV_ALPHA_TH.N BKG FILE : B044.CNF;1056 BKG DATE : 16-AUG-2009 EFF FILE : W044.CNF;294 CAL DATE : 3-AUG-2009

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/L	TPU 1.96-SIGMA	MDA pCi/L	Lc pCi/L	UNC pCi/L
AC-227	6038.010	775.000	773.000	2.000	1.4142	68.10000	2.94E+00	2.61E-01	3.64E-02	1.25E-02	2.08E-01
TH-228	5363.000	20.000	12.000	8.000	2.8284	99.94000	2.95E-02	2.55E-02	3.97E-02	1.62E-02	2.55E-02
TH229	4900.000	4.000	-2.000	6.000	2.4495	99.52000	-4.93E-03	1.53E-02	3.55E-02	1.40E-02	1.53E-02
TH-230	4625.000	7.000	1.000	6.000	2.4495	100.0000	2.45E-03	1.73E-02	3.53E-02	1.40E-02	1.73E-02
TH-232	3972.000	0.000	0.000	0.000	0.0000	100.0000	0.00E+00	4.81E-03	7.36E-03	0.00E+00	4.81E-03



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 895930  
SAMPLE DATE : 21-AUG-2009 15:35:00

SAMPLE ID : S1201907211\_TH  
SAMPLE QTY: 0.600 L

DETECTOR NUMBER :78783  
AVERAGE %EFFICIENCY :34.7396  
% YIELD : 75.905

COUNT DATE:22-AUG-2009 18:13:58  
ELAPSED LIVE TIME(SEC): 59999.99  
ANALYST :JXD2

MS/MSD  
ID : A2796-J  
ISOTOPE : TH-230  
PCI/L : 3.567E+00

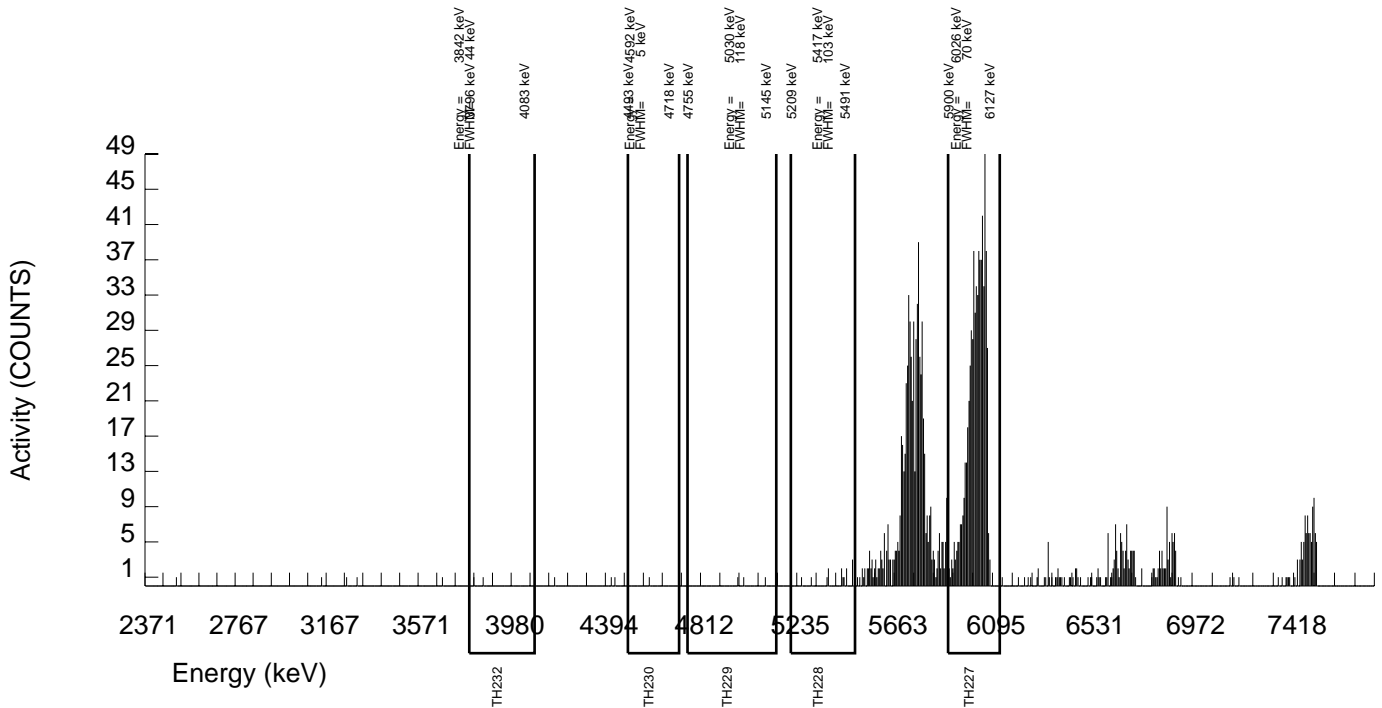
LCS/LCSD  
ID : A2796-J  
ISOTOPE : TH-230  
PCI/L : 3.567E+00

TRACER  
ID : 0387-B-102  
ISOTOPE : AC227  
NOMINAL : 3.91432 dpm  
RESULTS : 2.97118 dpm

LIB FILE : ENV\_ALPHA\_TH.N  
BKG FILE : B045.CNF;1045  
BKG DATE : 16-AUG-2009  
EFF FILE : W045.CNF;285  
CAL DATE : 3-AUG-2009

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/L	TPU 1.96-SIGMA	MDA pCi/L	Lc pCi/L	UNC pCi/L
AC-227	6038.010	673.000	666.000	7.000	2.6458	68.10000	2.94E+00	2.76E-01	6.76E-02	2.72E-02	2.26E-01
TH-228	5363.000	14.000	7.000	7.000	2.6458	99.94000	2.00E-02	2.56E-02	4.37E-02	1.76E-02	2.56E-02
TH229	4900.000	3.000	-9.000	12.000	3.4641	99.52000	-2.57E-02	2.17E-02	5.47E-02	2.31E-02	2.17E-02
TH-230	4625.000	1.000	-6.000	7.000	2.6458	100.0000	-1.71E-02	1.58E-02	4.36E-02	1.75E-02	1.58E-02
TH-232	3972.000	2.000	1.000	1.000	1.0000	100.0000	2.85E-03	9.67E-03	2.18E-02	6.62E-03	9.67E-03



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 895930  
SAMPLE DATE : 21-AUG-2009 15:35:00

SAMPLE ID : S1201907212\_TH  
SAMPLE QTY: 0.600 L

DETECTOR NUMBER :76544  
AVERAGE %EFFICIENCY :33.9666  
% YIELD : 87.308

COUNT DATE:22-AUG-2009 18:13:58  
ELAPSED LIVE TIME(SEC): 59999.99  
ANALYST :JXD2

MS/MSD  
ID : A2796-J  
ISOTOPE : TH-230  
PCI/L : 3.567E+00

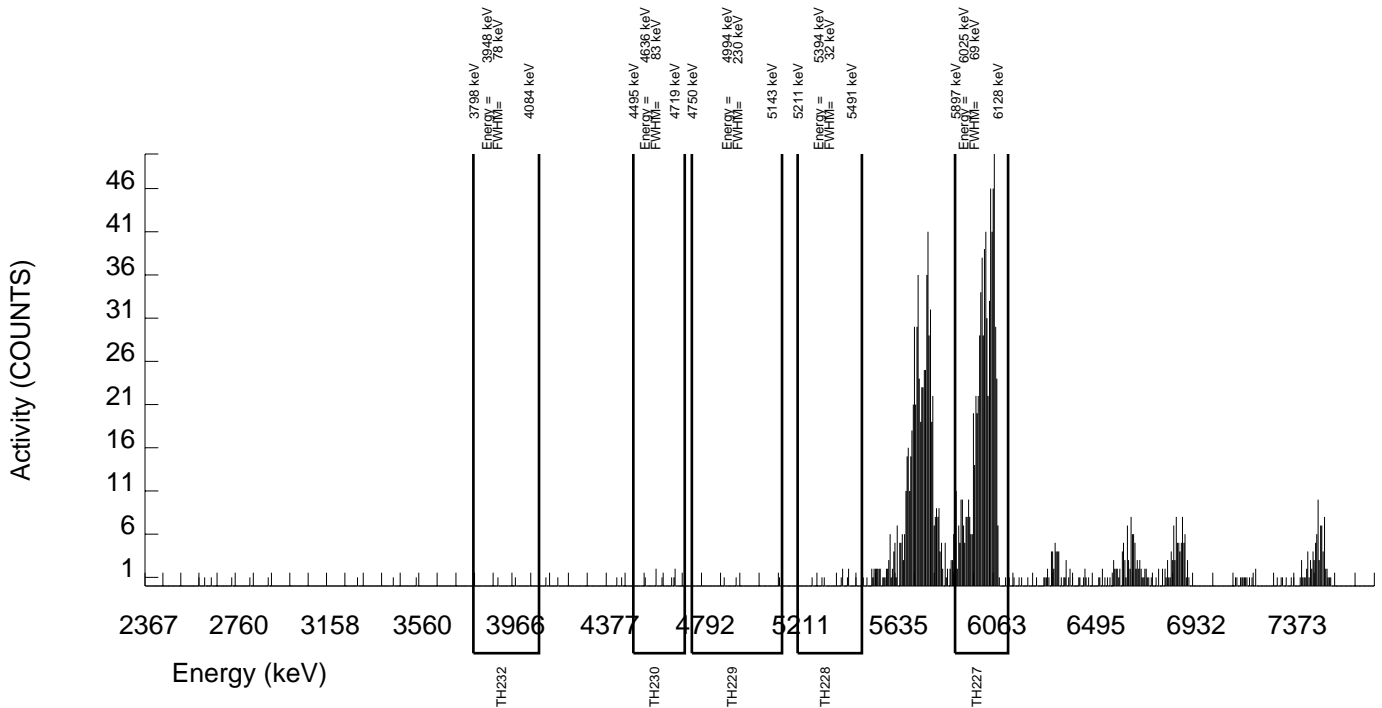
LCS/LCSD  
ID : A2796-J  
ISOTOPE : TH-230  
PCI/L : 3.567E+00

TRACER  
ID : 0387-B-102  
ISOTOPE : AC227  
NOMINAL : 3.91432 dpm  
RESULTS : 3.41751 dpm

LIB FILE : ENV\_ALPHA\_TH.N  
BKG FILE : B046.CNF;1056  
BKG DATE : 16-AUG-2009  
EFF FILE : W046.CNF;276  
CAL DATE : 3-AUG-2009

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/L	TPU 1.96-SIGMA	MDA pCi/L	Lc pCi/L	UNC pCi/L
AC-227	6038.010	750.000	749.000	1.000	1.0000	68.10000	2.94E+00	2.64E-01	3.00E-02	9.13E-03	2.11E-01
TH-228	5363.000	10.000	5.000	5.000	2.2361	99.94000	1.27E-02	1.93E-02	3.40E-02	1.32E-02	1.93E-02
TH229	4900.000	3.000	-5.000	8.000	2.8284	99.52000	-1.27E-02	1.65E-02	4.11E-02	1.67E-02	1.65E-02
TH-230	4625.000	8.000	5.000	3.000	1.7321	100.0000	1.27E-02	1.65E-02	2.80E-02	1.02E-02	1.65E-02
TH-232	3972.000	2.000	0.000	2.000	1.4142	100.0000	3.02E-10	9.92E-03	2.43E-02	8.33E-03	9.92E-03



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 895930  
SAMPLE DATE : 21-AUG-2009 15:35:00

SAMPLE ID : S1201907213\_TH  
SAMPLE QTY: 0.300 L

DETECTOR NUMBER :46-089B1  
AVERAGE %EFFICIENCY :34.1609  
% YIELD : 87.623

COUNT DATE:22-AUG-2009 18:13:58  
ELAPSED LIVE TIME(SEC): 59999.99  
ANALYST :JXD2

MS/MSD  
ID : A2796-J  
ISOTOPE : TH-230  
PCI/L : 7.134E+00

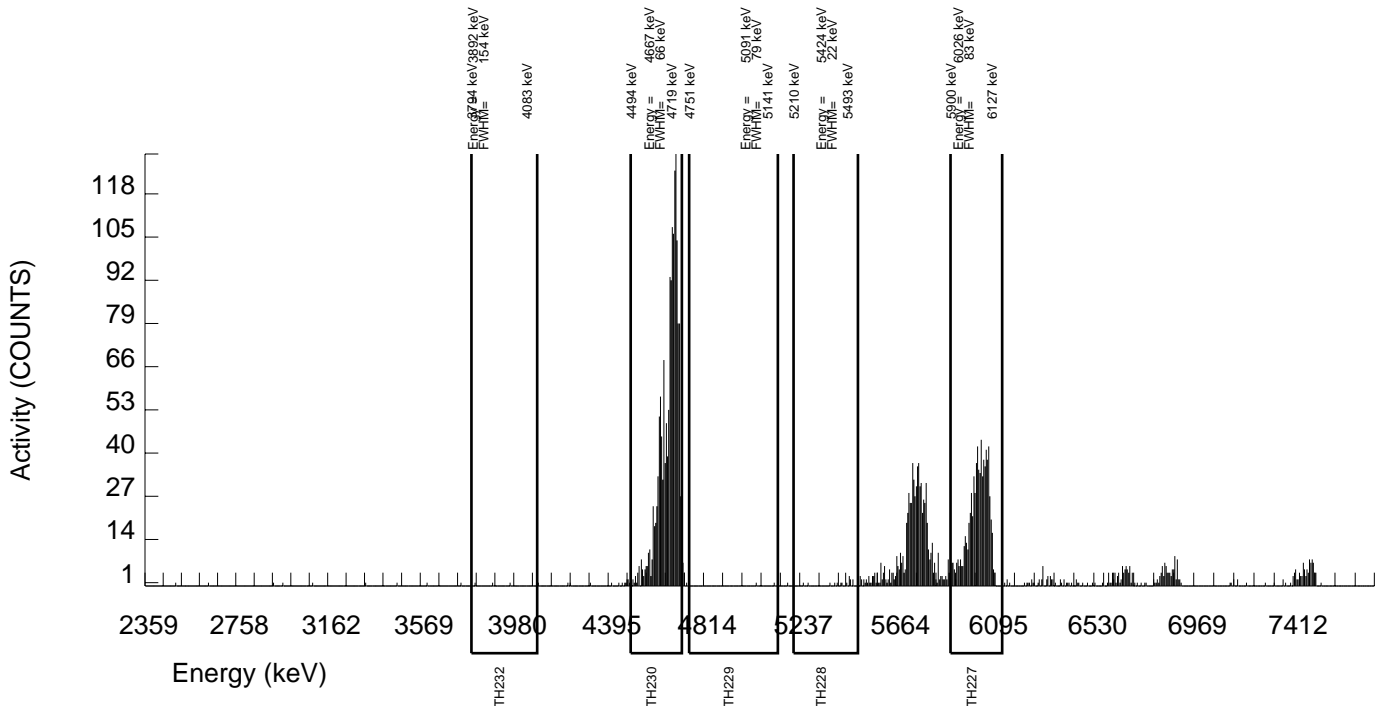
LCS/LCSD  
ID : A2796-J  
ISOTOPE : TH-230  
PCI/L : 7.134E+00

TRACER  
ID : 0387-B-102  
ISOTOPE : AC227  
NOMINAL : 3.91432 dpm  
RESULTS : 3.42983 dpm

LIB FILE : ENV\_ALPHA\_TH.N  
BKG FILE : B047.CNF;1051  
BKG DATE : 16-AUG-2009  
EFF FILE : W047.CNF;290  
CAL DATE : 3-AUG-2009

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/L	TPU 1.96-SIGMA	MDA pCi/L	Lc pCi/L	UNC pCi/L
AC-227	6038.010	764.000	756.000	8.000	2.8284	68.10000	5.88E+00	5.29E-01	1.26E-01	5.12E-02	4.23E-01
TH-228	5363.000	19.000	7.000	12.000	3.4641	99.94000	3.52E-02	5.49E-02	9.61E-02	4.05E-02	5.49E-02
TH229	4900.000	2.000	-8.000	10.000	3.1623	99.52000	-4.03E-02	3.42E-02	8.93E-02	3.71E-02	3.42E-02
TH-230	4625.000	1576.000	1574.000	2.000	1.4142	100.0000	7.90E+00	5.78E-01	4.81E-02	1.65E-02	3.91E-01
TH-232	3972.000	3.000	1.000	2.000	1.4142	100.0000	5.02E-03	2.20E-02	4.81E-02	1.65E-02	2.20E-02



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 895930  
SAMPLE DATE : 21-AUG-2009 15:35:00

SAMPLE ID : S1201907214\_TH  
SAMPLE QTY: 0.600 L

DETECTOR NUMBER :42483  
AVERAGE %EFFICIENCY :31.2363  
% YIELD : 84.926

COUNT DATE:22-AUG-2009 18:13:58  
ELAPSED LIVE TIME(SEC): 59999.99  
ANALYST :JXD2

MS/MSD  
ID : A2796-J  
ISOTOPE : TH-230  
PCI/L : 3.567E+00

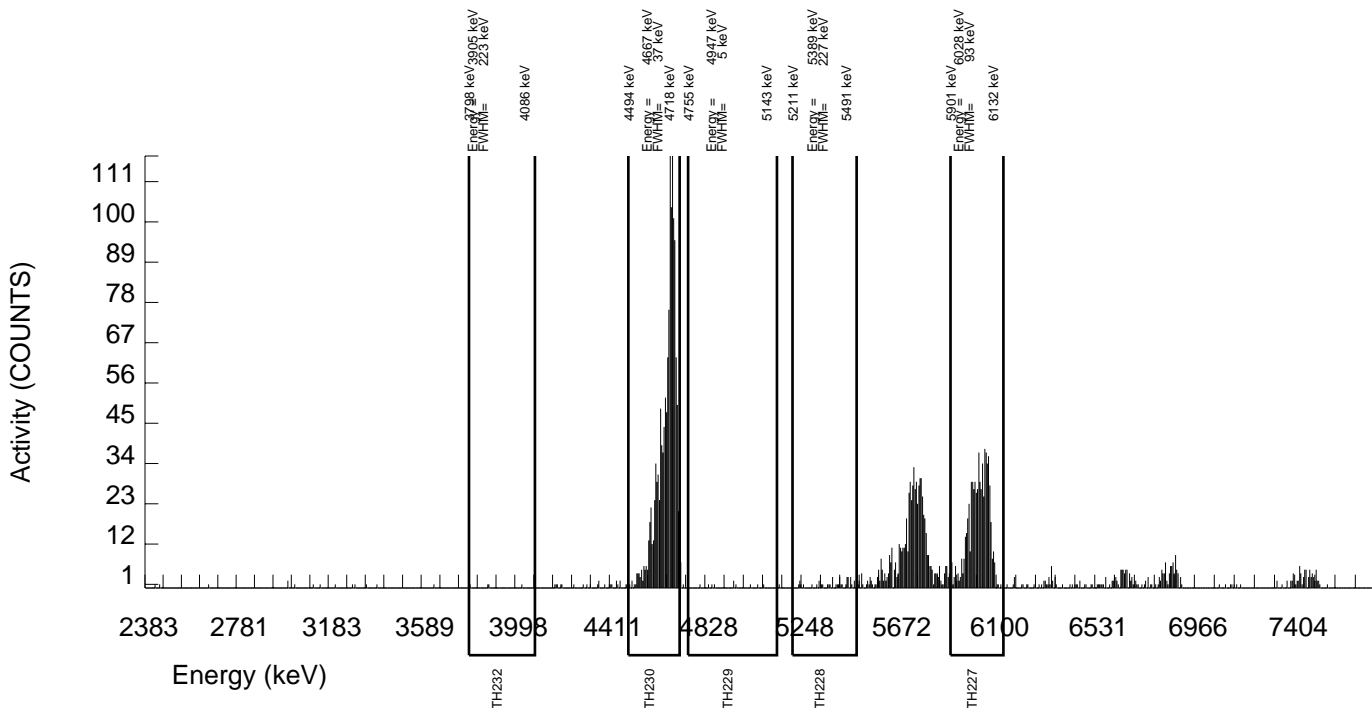
LCS/LCSD  
ID : A2796-J  
ISOTOPE : TH-230  
PCI/L : 3.567E+00

TRACER  
ID : 0387-B-102  
ISOTOPE : AC227  
NOMINAL : 3.91432 dpm  
RESULTS : 3.32426 dpm

LIB FILE : ENV\_ALPHA\_TH.N  
BKG FILE : B048.CNF;1052  
BKG DATE : 16-AUG-2009  
EFF FILE : W048.CNF;303  
CAL DATE : 3-AUG-2009

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/L	TPU 1.96-SIGMA	MDA pCi/L	Lc pCi/L	UNC pCi/L
AC-227	6038.010	673.000	670.000	3.000	1.7321	68.10000	2.94E+00	2.74E-01	4.85E-02	1.77E-02	2.24E-01
TH-228	5363.000	39.000	22.000	17.000	4.1231	99.94000	6.24E-02	4.17E-02	6.29E-02	2.72E-02	4.16E-02
TH229	4900.000	10.000	-1.000	11.000	3.3166	99.52000	-2.84E-03	2.55E-02	5.24E-02	2.19E-02	2.55E-02
TH-230	4625.000	1348.000	1343.000	5.000	2.2361	100.0000	3.80E+00	2.90E-01	3.79E-02	1.47E-02	2.04E-01
TH-232	3972.000	4.000	3.000	1.000	1.0000	100.0000	8.49E-03	1.24E-02	2.17E-02	6.58E-03	1.24E-02



# URANIUM

**Radiochemistry Batch Checklist, Rev 9**

Batch# 891148 Product: U Date: 8/24/09

Criteria:	Yes	No	Comments
Sample Solids are less than or equal to 100 mg for GAB.			N/A
Samples have been blank corrected (if required)			N/A
If activity less 10* MDA/ MDC, error is 150% or less of sample activity. If greater 10* MDA/ MDC, error is 40% or less. If below the MDA/ MDC, error is okay.	/		
Instrument source check is within limits.	/		
Instrument bkg check is within limits.		/	
Method RDL/ LLD has been met.			NCR# 725374
If duplicate activities are less 5* MDA/ MDC, then RPD is 100% or less. If greater 5* MDA/ MDC, then RPD 20% or less. If below the MDA/ MDC, the RPD is 0%.	/		
Or meets the client's required RER acceptance criteria.			
Tracer yield is 15-125% . Carrier yield 25-125%.		/	
Or meets the client's contract acceptance criteria.			NCR# 725374
Method blank is less than the RDL/ LLD.	/		
(If rad samples, < 5% of lowest activity)	/		
Sample was run within hold time.	/		
Sample was correctly preserved if required.	/		
Smears Taken for Radioactive batches.			N/A
Method Spike and LCS are within 75-125% or meets the client's contract acceptance criteria.	/		
No blank spaces on data forms.	/		
All line outs initialed and dated.	/		
No transcription errors are apparent.			
Aux data is correct.			N/A
Client Special requirements page has been checked.	/		
Raw Data and/ or spectrum are included and properly stated.	/		
QC data entered into QC database and batch is in REVW	/		
Hit notification complete (if necessary)			N/A
Batch entered into Case Narrative.	/		
Batch non-conformances completed, if applicable.	/		NCR# 725374
Batch non-conformances second reviewed and disposition verified to be completed.			NCR# 725374
Aliquot Correction completed if required.	/		N/A
Review sample historical results if available (If REMF, results above MDC have been verified by historical results, recount or re-analysis.)			

GEL Laboratories, LLC

revised 8/1/08

Primary Review Performed By: [Signature] 8/25/09

Secondary Review Performed By: [Signature] 8/25/09

8/10-8/25/09  
KERR



PV

# Uranium Que Sheet

05-AUG-09

Batch #: 891145      Analyst: JXD2      First Client Due Date: 25-AUG-09      Internal Due Date: 14-AUG-09

Tracer Isotope: U-232      U-232      Tracer Code: 1283-E      Expiration Date: 01/15/10      Vol: 0.1

LCS Isotope: U-238      LCS Code: 1163-G      Expiration Date: 04/16/10      Vol: 0.1

Spike Isotope: U-238      Spike Code: 1163-G      Expiration Date: 04/16/10      Vol: 0.1

Prep Date: 08/05/09      Initials: QMD      Pipet ID: 277058      Balance ID: 16750207      Witness: ME 8/5/09

Sample ID	Client Description	Type	Hazard Code	Min CRDL	Matrix	Client	Collection Date	Pos.	Label #	Wet/Dry Aliquot (g/μl)	U Det #
233580001-1	M-92BDISS	SAMPLE		.03 pCi/L	WATER	KERR003	15-JUL-09	1	1	0.800	13
233580002-1	M-97B	SAMPLE		.03 pCi/L	WATER	KERR003	16-JUL-09	2	2	0.950	14
233580003-1	TR-6B	SAMPLE		.03 pCi/L	WATER	KERR003	17-JUL-09	3	3	0.900	15
233580004-1	EB-071709-GW	SAMPLE		.03 pCi/L	WATER	KERR003	17-JUL-09	4	4	0.800	16
233580005-1	M-33B	SAMPLE		.03 pCi/L	WATER	KERR003	21-JUL-09	5	5	0.800	17
233580006-1	CLD-4RB	SAMPLE		.03 pCi/L	WATER	KERR003	22-JUL-09	6	6	0.800	18
233580007-1	MW-6RB	SAMPLE		.03 pCi/L	WATER	KERR003	23-JUL-09	7	7	0.900	113
233580008-1	M-52B	SAMPLE		.03 pCi/L	WATER	KERR003	24-JUL-09	8	8	0.900	114
233580009-1	M-35B	SAMPLE		.03 pCi/L	WATER	KERR003	24-JUL-09	9	9	0.900	115
233580010-1	M-11B	SAMPLE		.03 pCi/L	WATER	KERR003	27-JUL-09	10	10	0.900	116
233580011-1	M-11BDISS	SAMPLE		.03 pCi/L	WATER	KERR003	27-JUL-09	11	11	0.900	117
233580012-1	M-11009B	SAMPLE		.03 pCi/L	WATER	KERR003	27-JUL-09	12	12	0.900	119
233580013-1	M-11009BDISS	SAMPLE		.03 pCi/L	WATER	KERR003	27-JUL-09	13	13	0.800	115
1201895414-1	MB for batch 891145	MB		.03 pCi/L	WATER	QC ACCOUNT		14	14	0.800	116
1201895415-1	M-92BDISS(233580001DUP)	DUP		.03 pCi/L	WATER	QC ACCOUNT	15-JUL-09	15	15	0.800	117
1201895416-1	M-92BDISS(233580001MS)	MS		.03 pCi/L	WATER	QC ACCOUNT	15-JUL-09	16	16	0.800	118
1201895417-1	LCS for batch 891145	LCS		.03 pCi/L	WATER	QC ACCOUNT		17	17	0.900	121

*QMD 8/5/09*  
*8/2/09*

Data Reviewed By:

Solid Sample Dissolution by: LEACH or DIGESTION

Circle One

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

GEL Laboratories LLC, Radiochemistry Division

00 N

GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 891145 SAMPLE DATE : 16-JUL-2009 00:00:00		SAMPLE ID : S0233580002_UU SAMPLE QTY: 0.800 L	
DETECTOR NUMBER :67616 AVERAGE %EFFICIENCY :31.3062 % YIELD : 100.087		COUNT DATE: 8-AUG-2009 16:19:55 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :JXD2	
MS/MSD ID : 1163-G ISOTOPE : U-238 PCI/L : 3.149E+00	LCS/LCSD ID : 1163-G ISOTOPE : U-238 PCI/L : 3.149E+00	TRACER ID : 1283-E ISOTOPE : U232 NOMINAL : 5.26608 dpm RESULTS : 5.27066 dpm	LIB FILE : ENV_ALPHA_UU.N BKG FILE : B014.CNF;1033 BKG DATE : 2-AUG-2009 EFF FILE : W014.CNF;312 CAL DATE : 3-AUG-2009

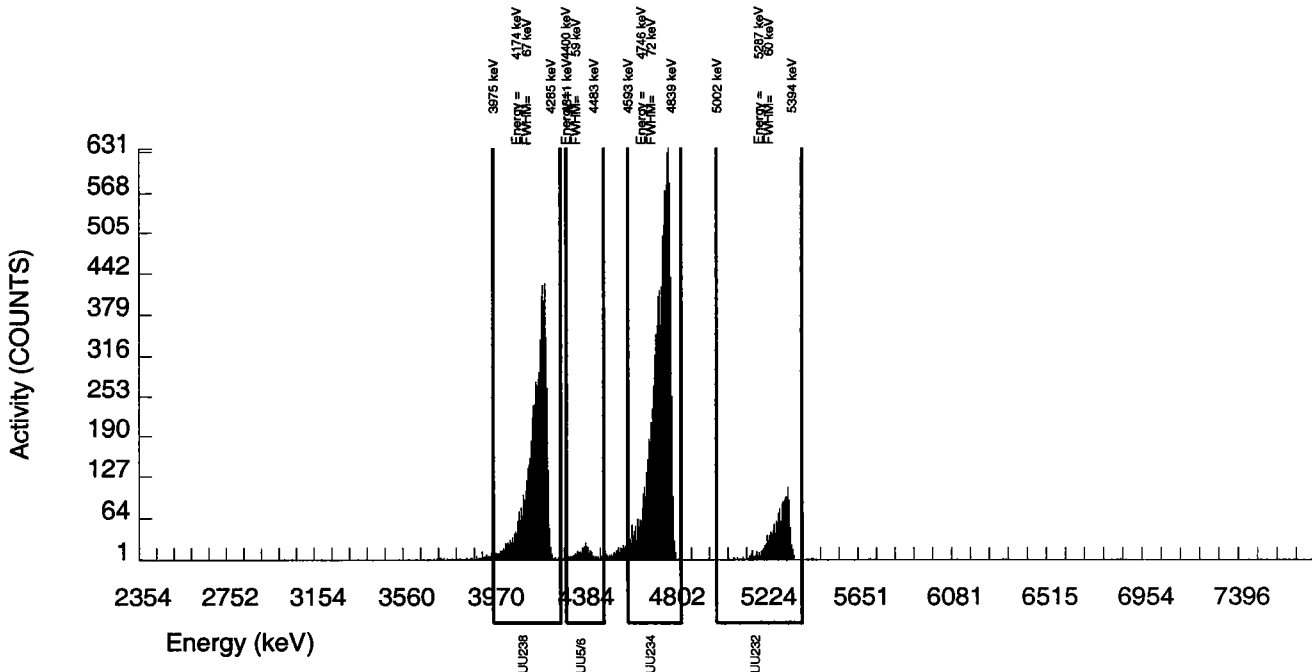
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/L	TPU 1.96-SIGMA	MDA pCi/L	Lc pCi/L	UNC pCi/L
U-3/4	4763.020	9823.000	9816.021	2.000	1.4142	100.0000	1.76E+01	2.38E+00	1.72E-02	5.91E-03	3.49E-01
U232	5302.100	1662.000	1649.000	13.000	3.6056	100.0000	2.97E+00	4.21E-01	3.56E-02	1.51E-02	1.44E-01
U-235	4391.000	336.000	334.000	2.000	1.4142	80.90000	7.42E-01	1.27E-01	2.13E-02	7.31E-03	8.00E-02
U-238	4184.730	6522.000	6522.000	0.000	0.0000	100.0000	1.17E+01	1.59E+00	5.39E-03	0.00E+00	2.84E-01

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

**DO NOT REPORT**

*Integrated*



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 891145 SAMPLE DATE : 17-JUL-2009 00:00:00		SAMPLE ID : S0233580003_UU SAMPLE QTY: 0.800 L	
DETECTOR NUMBER :61581 AVERAGE %EFFICIENCY :32.4959 % YIELD : 72.683		COUNT DATE: 8-AUG-2009 16:19:55 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :JXD2	
MS/MSD ID : 1163-G ISOTOPE : U-238 PCI/L : 3.149E+00	LCS/LCSD ID : 1163-G ISOTOPE : U-238 PCI/L : 3.149E+00	TRACER ID : 1283-E ISOTOPE : U232 NOMINAL : 5.26594 dpm RESULTS : 3.82742 dpm	LIB FILE : ENV_ALPHA_UU.N BKG FILE : B015.CNF;1052 BKG DATE : 2-AUG-2009 EFF FILE : W015.CNF;316 CAL DATE : 3-AUG-2009

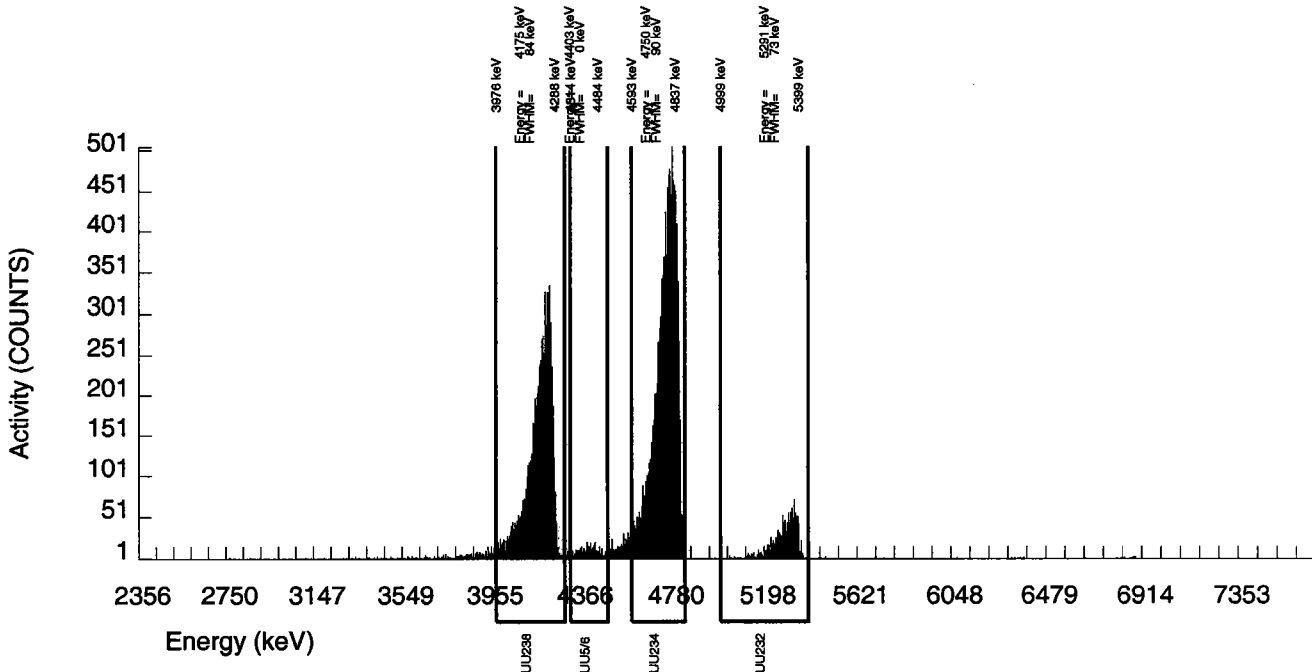
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/L	TPU 1.96-SIGMA	MDA pCi/L	Lc pCi/L	UNC pCi/L
U-3/4	4763.020	10110.000	10099.247	7.000	2.6458	100.0000	2.41E+01	3.32E+00	3.65E-02	1.47E-02	4.70E-01
U232	5302.100	1256.000	1243.000	13.000	3.6056	100.0000	2.97E+00	4.37E-01	4.72E-02	2.00E-02	1.67E-01
U-235	4391.000	359.000	359.000	0.000	0.0000	80.90000	1.06E+00	1.81E-01	8.84E-03	0.00E+00	1.09E-01
U-238	4184.730	6670.000	6669.000	1.000	1.0000	100.0000	1.59E+01	2.20E+00	1.82E-02	5.55E-03	3.82E-01

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

*Integrated*

**DO NOT REPORT**



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 891145 SAMPLE DATE : 21-JUL-2009 00:00:00		SAMPLE ID : S0233580005_UU SAMPLE QTY: 0.800 L	
DETECTOR NUMBER :78791 AVERAGE %EFFICIENCY :29.2091 % YIELD : 53.604		COUNT DATE: 8-AUG-2009 16:19:55 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :JXD2	
MS/MSD ID : 1163-G ISOTOPE : U-238 PCI/L : 3.149E+00	LCS/LCSD ID : 1163-G ISOTOPE : U-238 PCI/L : 3.149E+00	TRACER ID : 1283-E ISOTOPE : U232 NOMINAL : 5.26539 dpm RESULTS : 2.82246 dpm	LIB FILE : ENV_ALPHA_UU.N BKG FILE : B017.CNF;1875 BKG DATE : 2-AUG-2009 EFF FILE : W017.CNF;1249 CAL DATE : 3-AUG-2009

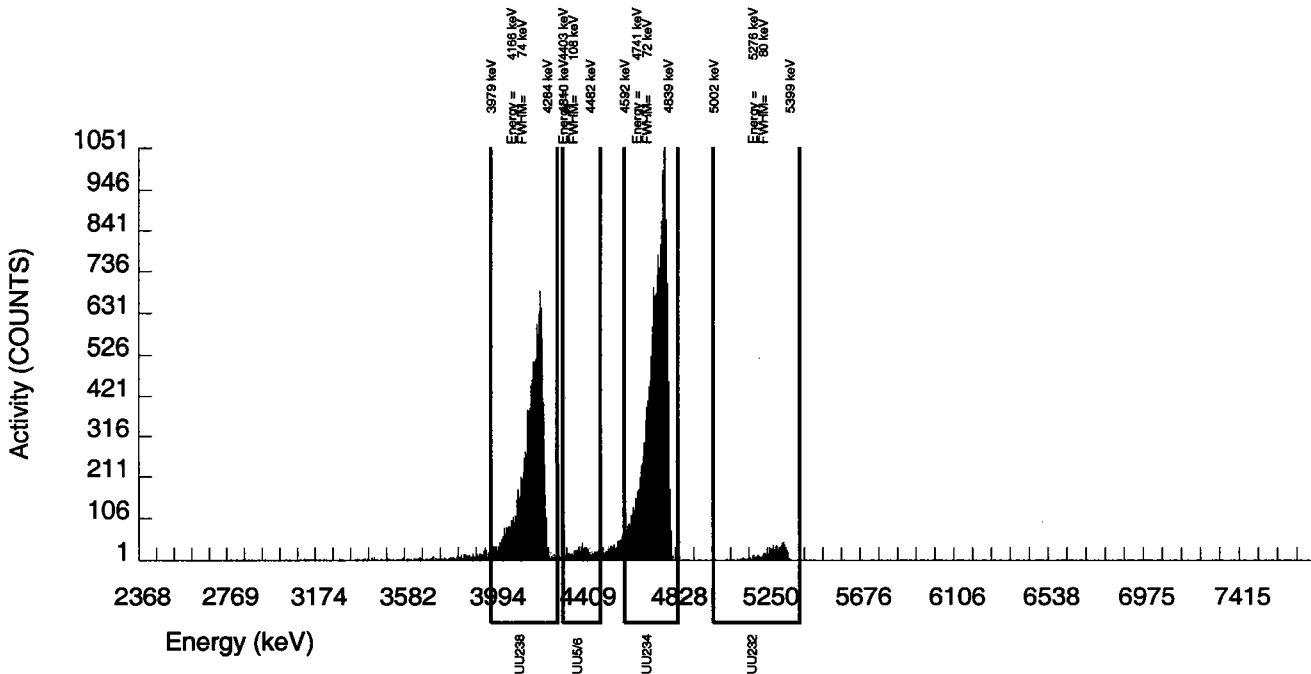
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/L	TPU 1.96-SIGMA	MDA pCi/L	Lc pCi/L	UNC pCi/L
U-3/4	4763.020	17465.000	17457.512	5.000	2.2361	100.0000	6.28E+01	8.96E+00	4.82E-02	1.87E-02	9.32E-01
U232	5302.100	826.000	824.000	2.000	1.4142	100.0000	2.96E+00	4.67E-01	3.45E-02	1.18E-02	2.03E-01
U-235	4391.000	709.000	708.000	1.000	1.0000	80.90000	3.15E+00	5.03E-01	3.40E-02	1.03E-02	2.32E-01
U-238	4184.730	11745.000	11744.000	1.000	1.0000	100.0000	4.22E+01	6.04E+00	2.75E-02	8.37E-03	7.64E-01

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

*Integrated*

**DO NOT REPORT**



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 891145 SAMPLE DATE : 23-JUL-2009 00:00:00		SAMPLE ID : S0233580007_UU SAMPLE QTY: 0.800 L	
DETECTOR NUMBER :45-111B4 AVERAGE %EFFICIENCY :25.0567 % YIELD : 90.129		COUNT DATE:24-AUG-2009 16:32:50 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :JXD2	
MS/MSD ID : 1163-G ISOTOPE : U-238 PCI/L : 3.149E+00	LCS/LCSD ID : 1163-G ISOTOPE : U-238 PCI/L : 3.149E+00	TRACER ID : 1283-E ISOTOPE : U232 NOMINAL : 5.26510 dpm RESULTS : 4.74536 dpm	LIB FILE : ENV_ALPHA_UU.N BKG FILE : B113.CNF;388 BKG DATE : 23-AUG-2009 EFF FILE : W113.CNF;112 CAL DATE : 17-AUG-2009

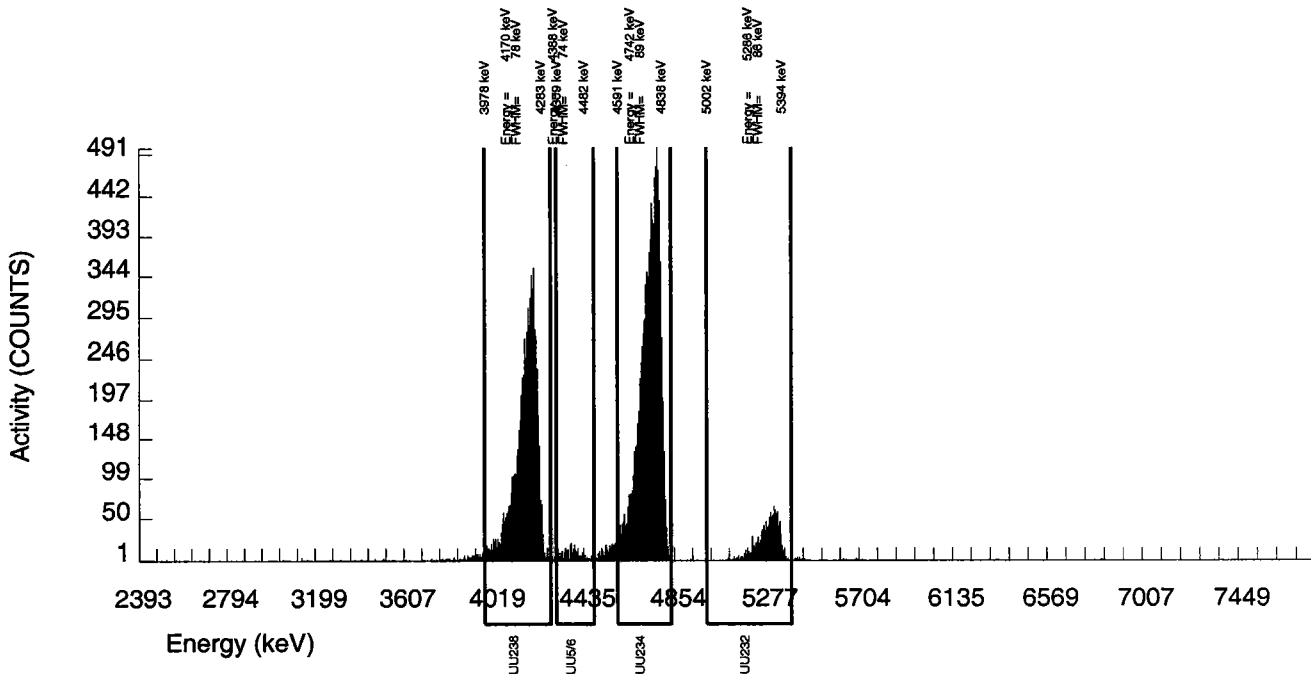
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/L	TPU 1.96-SIGMA	MDA pCi/L	Lc pCi/L	UNC pCi/L
U-3/4	4763.020	9413.000	9402.411	7.000	2.6458	100.0000	2.34E+01	3.24E+00	3.82E-02	1.53E-02	4.74E-01
U232	5302.100	1193.000	1188.000	5.000	2.2361	100.0000	2.96E+00	4.40E-01	3.34E-02	1.30E-02	1.69E-01
U-235	4391.000	284.000	284.000	0.000	0.0000	80.90000	8.75E-01	1.57E-01	9.25E-03	0.00E+00	1.02E-01
U-238	4184.730	6527.000	6527.000	0.000	0.0000	100.0000	1.63E+01	2.26E+00	7.48E-03	0.00E+00	3.95E-01

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

*Integrated*

**DO NOT REPORT**



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 891145 SAMPLE DATE : 24-JUL-2009 00:00:00		SAMPLE ID : S0233580009_UU SAMPLE QTY: 0.800 L	
DETECTOR NUMBER :45-132FF4 AVERAGE %EFFICIENCY :26.5327 % YIELD : 50.654		COUNT DATE:24-AUG-2009 16:32:55 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :JXD2	
MS/MSD ID : 1163-G ISOTOPE : U-238 PCI/L : 3.149E+00	LCS/LCSD ID : 1163-G ISOTOPE : U-238 PCI/L : 3.149E+00	TRACER ID : 1283-E ISOTOPE : U232 NOMINAL : 5.26496 dpm RESULTS : 2.66689 dpm	LIB FILE : ENV_ALPHA_UU.N BKG FILE : B115.CNF;392 BKG DATE : 23-AUG-2009 EFF FILE : W115.CNF;128 CAL DATE : 17-AUG-2009

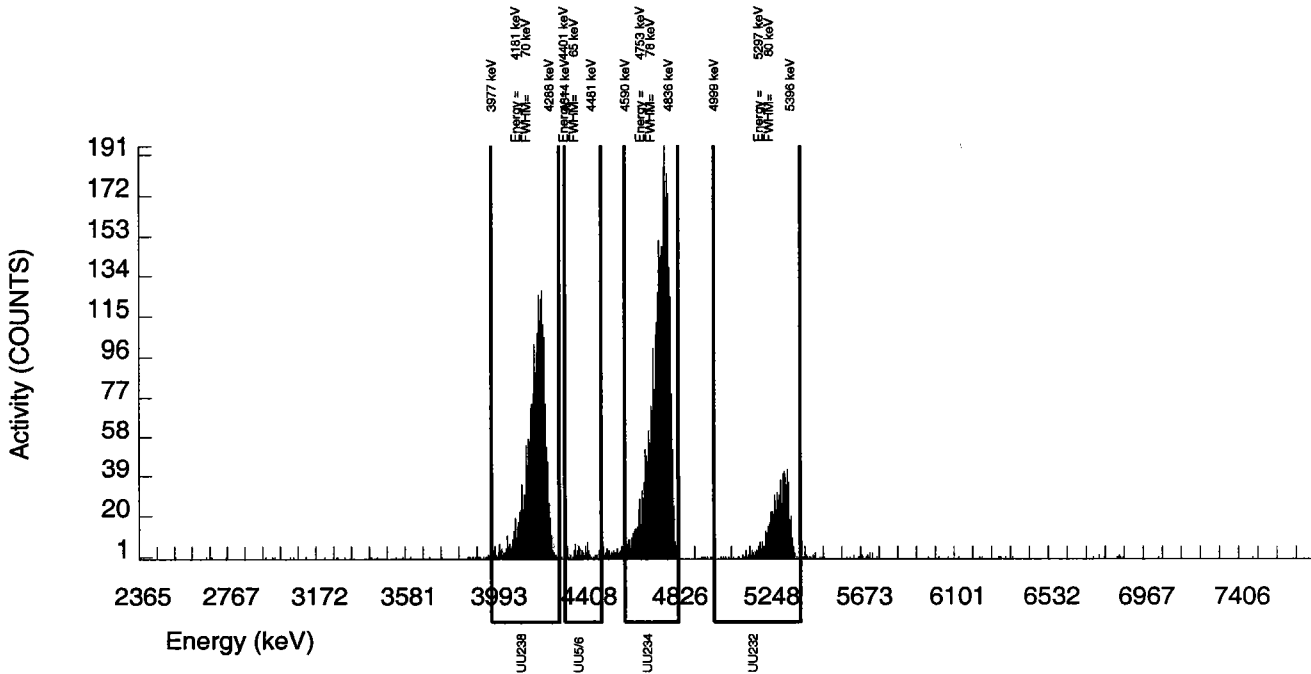
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/L	TPU 1.96-SIGMA	MDA pCi/L	Lc pCi/L	UNC pCi/L
U-3/4	4763.020	3145.000	3139.865	3.000	1.7321	100.0000	1.32E+01	1.96E+00	4.63E-02	1.69E-02	4.61E-01
U232	5302.100	716.000	707.000	9.000	3.0000	100.0000	2.96E+00	4.83E-01	7.11E-02	2.93E-02	2.21E-01
U-235	4391.000	78.000	78.000	0.000	0.0000	80.90000	4.04E-01	1.07E-01	1.55E-02	0.00E+00	8.96E-02
U-238	4184.730	2108.000	2107.000	1.000	1.0000	100.0000	8.83E+00	1.33E+00	3.21E-02	9.75E-03	3.77E-01

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

*Integrated*

**DO NOT REPORT**



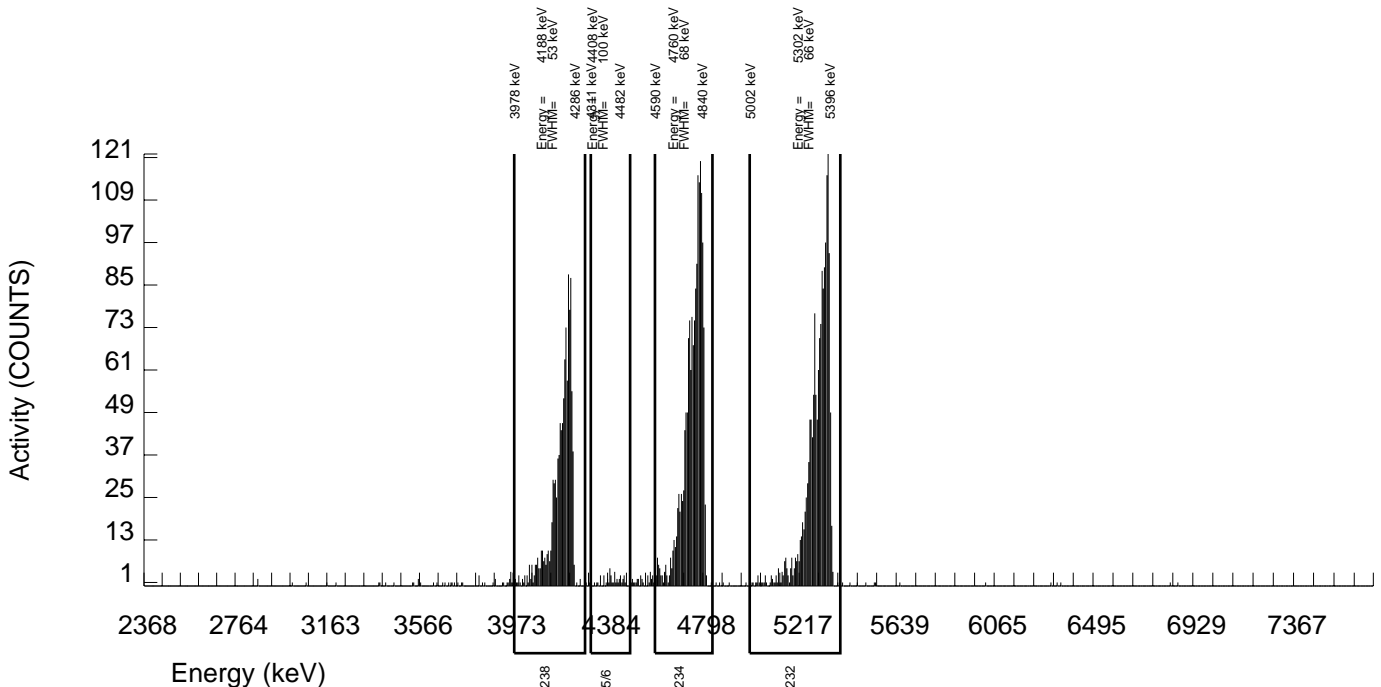
GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 891145 SAMPLE DATE : 15-JUL-2009 00:00:00		SAMPLE ID : S0233580001_UU SAMPLE QTY: 0.800 L	
DETECTOR NUMBER :78790 AVERAGE %EFFICIENCY :34.0969 % YIELD : 90.279		COUNT DATE: 8-AUG-2009 16:19:55 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :JXD2	
MS/MSD ID : 1163-G ISOTOPE : U-238 PCI/L : 3.149E+00	LCS/LCSD ID : 1163-G ISOTOPE : U-238 PCI/L : 3.149E+00	TRACER ID : 1283-E ISOTOPE : U232 NOMINAL : 5.26621 dpm RESULTS : 4.75430 dpm	LIB FILE : ENV_ALPHA_UU.N BKG FILE : B013.CNF;1032 BKG DATE : 2-AUG-2009 EFF FILE : W013.CNF;313 CAL DATE : 3-AUG-2009

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/L	TPU 1.96-SIGMA	MDA pCi/L	Lc pCi/L	UNC pCi/L
U-3/4	4763.020	1656.000	1648.109	3.000	1.7321	100.0000	3.01E+00	4.28E-01	2.02E-02	7.37E-03	1.46E-01
U232	5302.100	1624.000	1620.000	4.000	2.0000	100.0000	2.97E+00	4.21E-01	2.25E-02	8.52E-03	1.45E-01
U-235	4391.000	44.000	40.000	4.000	2.0000	80.90000	9.04E-02	3.30E-02	2.78E-02	1.05E-02	3.07E-02
U-238	4184.730	1088.000	1084.000	4.000	2.0000	100.0000	1.98E+00	2.90E-01	2.25E-02	8.51E-03	1.18E-01

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



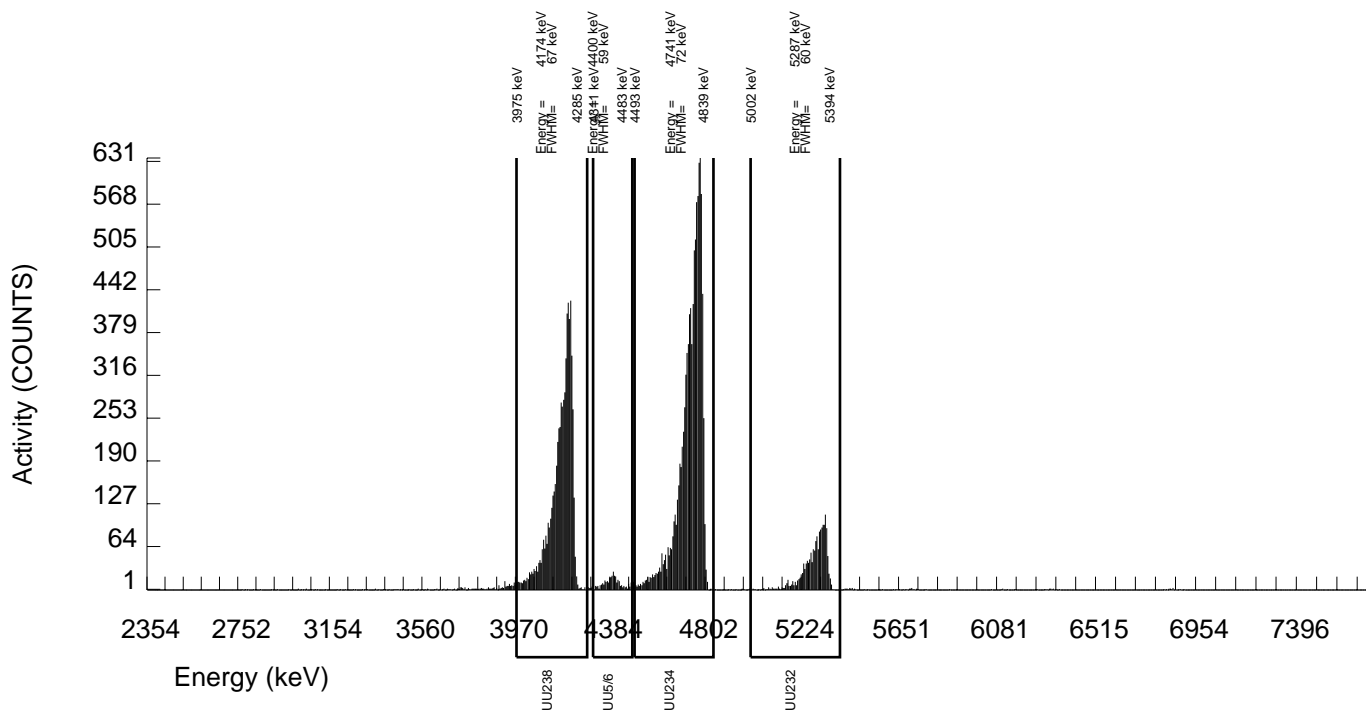
GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 891145 SAMPLE DATE : 16-JUL-2009 00:00:00		SAMPLE ID : S0233580002_UU SAMPLE QTY: 0.800 L	
DETECTOR NUMBER :67616 AVERAGE %EFFICIENCY :31.3062 % YIELD : 100.087		COUNT DATE: 8-AUG-2009 16:19:55 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :JXD2	
MS/MSD ID : 1163-G ISOTOPE : U-238 PCI/L : 3.149E+00	LCS/LCSD ID : 1163-G ISOTOPE : U-238 PCI/L : 3.149E+00	TRACER ID : 1283-E ISOTOPE : U232 NOMINAL : 5.26608 dpm RESULTS : 5.27066 dpm	LIB FILE : ENV_ALPHA_UU.N BKG FILE : B014.CNF;1033 BKG DATE : 2-AUG-2009 EFF FILE : W014.CNF;312 CAL DATE : 3-AUG-2009

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/L	TPU 1.96-SIGMA	MDA pCi/L	Lc pCi/L	UNC pCi/L
U-3/4	4763.020	10070.000	10063.021	2.000	1.4142	100.0000	1.81E+01	2.44E+00	1.72E-02	5.91E-03	3.53E-01
U232	5302.100	1662.000	1649.000	13.000	3.6056	100.0000	2.97E+00	4.21E-01	3.56E-02	1.51E-02	1.44E-01
U-235	4391.000	336.000	334.000	2.000	1.4142	80.90000	7.42E-01	1.27E-01	2.13E-02	7.31E-03	8.00E-02
U-238	4184.730	6522.000	6522.000	0.000	0.0000	100.0000	1.17E+01	1.59E+00	5.39E-03	0.00E+00	2.84E-01

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





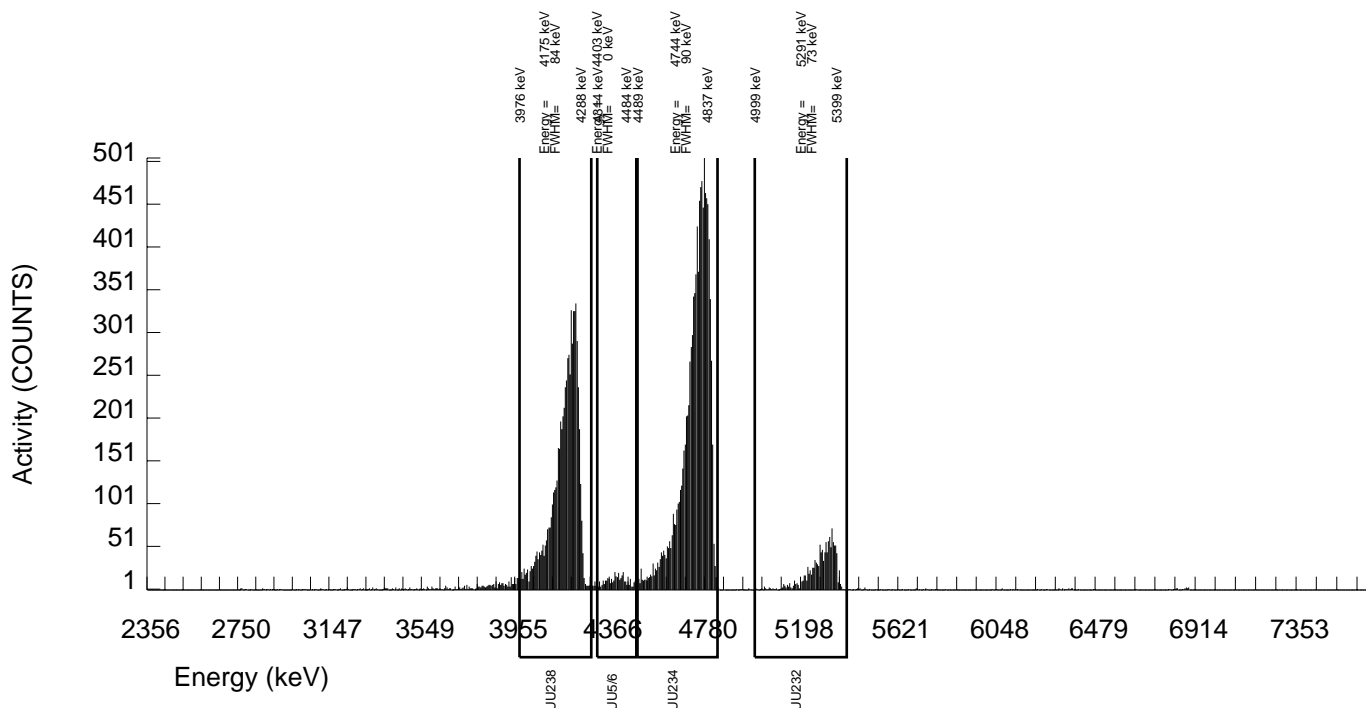
GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 891145 SAMPLE DATE : 17-JUL-2009 00:00:00		SAMPLE ID : S0233580003_UU SAMPLE QTY: 0.800 L	
DETECTOR NUMBER :61581 AVERAGE %EFFICIENCY :32.4959 % YIELD : 72.683		COUNT DATE: 8-AUG-2009 16:19:55 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :JXD2	
MS/MSD ID : 1163-G ISOTOPE : U-238 PCI/L : 3.149E+00	LCS/LCSD ID : 1163-G ISOTOPE : U-238 PCI/L : 3.149E+00	TRACER ID : 1283-E ISOTOPE : U232 NOMINAL : 5.26594 dpm RESULTS : 3.82742 dpm	LIB FILE : ENV_ALPHA_UU.N BKG FILE : B015.CNF;1052 BKG DATE : 2-AUG-2009 EFF FILE : W015.CNF;316 CAL DATE : 3-AUG-2009

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/L	TPU 1.96-SIGMA	MDA pCi/L	Lc pCi/L	UNC pCi/L
U-3/4	4763.020	10456.000	10444.247	8.000	2.8284	100.0000	2.49E+01	3.43E+00	3.85E-02	1.57E-02	4.78E-01
U232	5302.100	1256.000	1243.000	13.000	3.6056	100.0000	2.97E+00	4.37E-01	4.72E-02	2.00E-02	1.67E-01
U-235	4391.000	359.000	359.000	0.000	0.0000	80.90000	1.06E+00	1.81E-01	8.84E-03	0.00E+00	1.09E-01
U-238	4184.730	6670.000	6669.000	1.000	1.0000	100.0000	1.59E+01	2.20E+00	1.82E-02	5.55E-03	3.82E-01

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



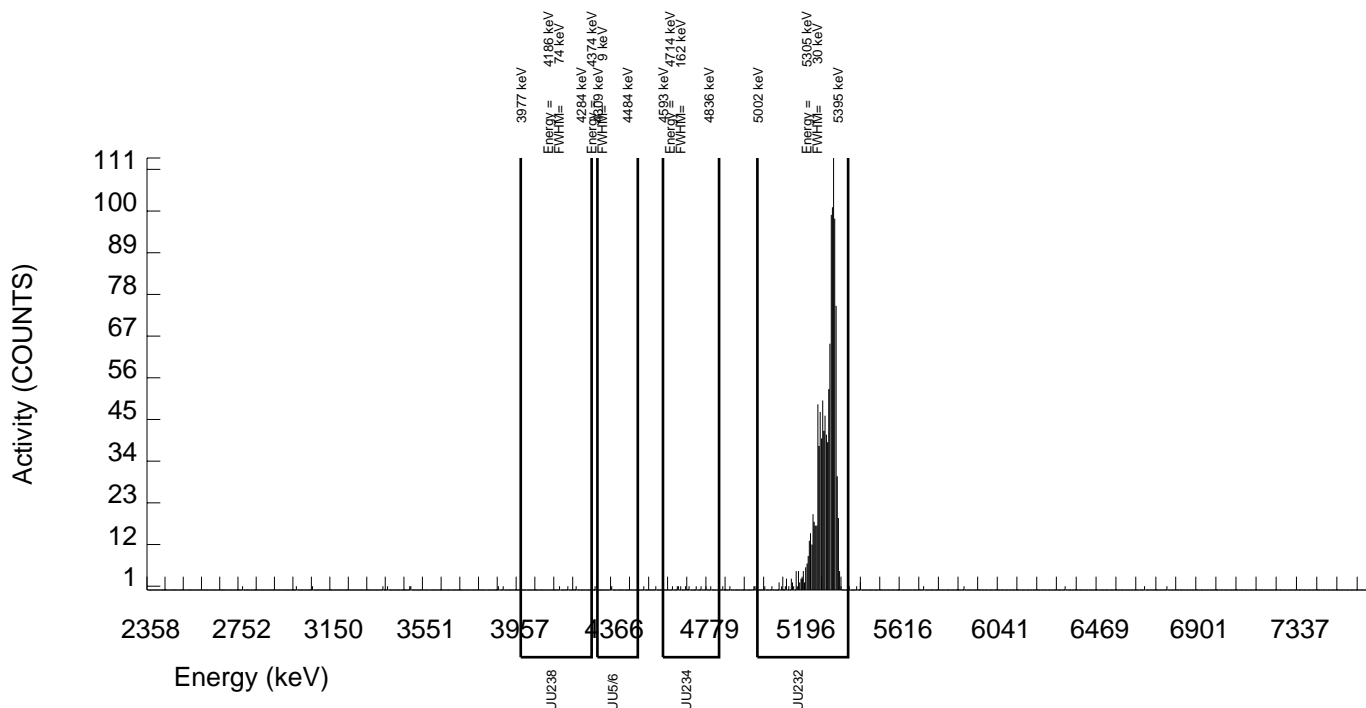
GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 891145 SAMPLE DATE : 17-JUL-2009 00:00:00		SAMPLE ID : S0233580004_UU SAMPLE QTY: 0.800 L	
DETECTOR NUMBER :78774 AVERAGE %EFFICIENCY :33.7280 % YIELD : 69.013		COUNT DATE: 8-AUG-2009 16:19:55 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :JXD2	
MS/MSD ID : 1163-G ISOTOPE : U-238 PCI/L : 3.149E+00	LCS/LCSD ID : 1163-G ISOTOPE : U-238 PCI/L : 3.149E+00	TRACER ID : 1283-E ISOTOPE : U232 NOMINAL : 5.26594 dpm RESULTS : 3.63421 dpm	LIB FILE : ENV_ALPHA_UU.N BKG FILE : B016.CNF;1028 BKG DATE : 2-AUG-2009 EFF FILE : W016.CNF;298 CAL DATE : 3-AUG-2009

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/L	TPU 1.96-SIGMA	MDA pCi/L	Lc pCi/L	UNC pCi/L
U-3/4	4763.020	10.000	5.301	1.000	1.0000	100.0000	1.28E-02	1.29E-02	1.85E-02	5.63E-03	1.28E-02
U232	5302.100	1229.000	1225.000	4.000	2.0000	100.0000	2.97E+00	4.37E-01	2.98E-02	1.13E-02	1.67E-01
U-235	4391.000	2.000	2.000	0.000	0.0000	80.90000	5.98E-03	8.33E-03	8.97E-03	0.00E+00	8.29E-03
U-238	4184.730	3.000	-5.000	8.000	2.8284	100.0000	-1.21E-02	1.57E-02	3.91E-02	1.59E-02	1.57E-02

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



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 891145  
SAMPLE DATE : 21-JUL-2009 00:00:00

SAMPLE ID : S0233580005\_UU  
SAMPLE QTY: 0.800 L

DETECTOR NUMBER :78791  
AVERAGE %EFFICIENCY :29.2091  
% YIELD : 53.604

COUNT DATE: 8-AUG-2009 16:19:55  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :JXD2

MS/MSD  
ID : 1163-G  
ISOTOPE : U-238  
PCI/L : 3.149E+00

LCS/LCSD  
ID : 1163-G  
ISOTOPE : U-238  
PCI/L : 3.149E+00

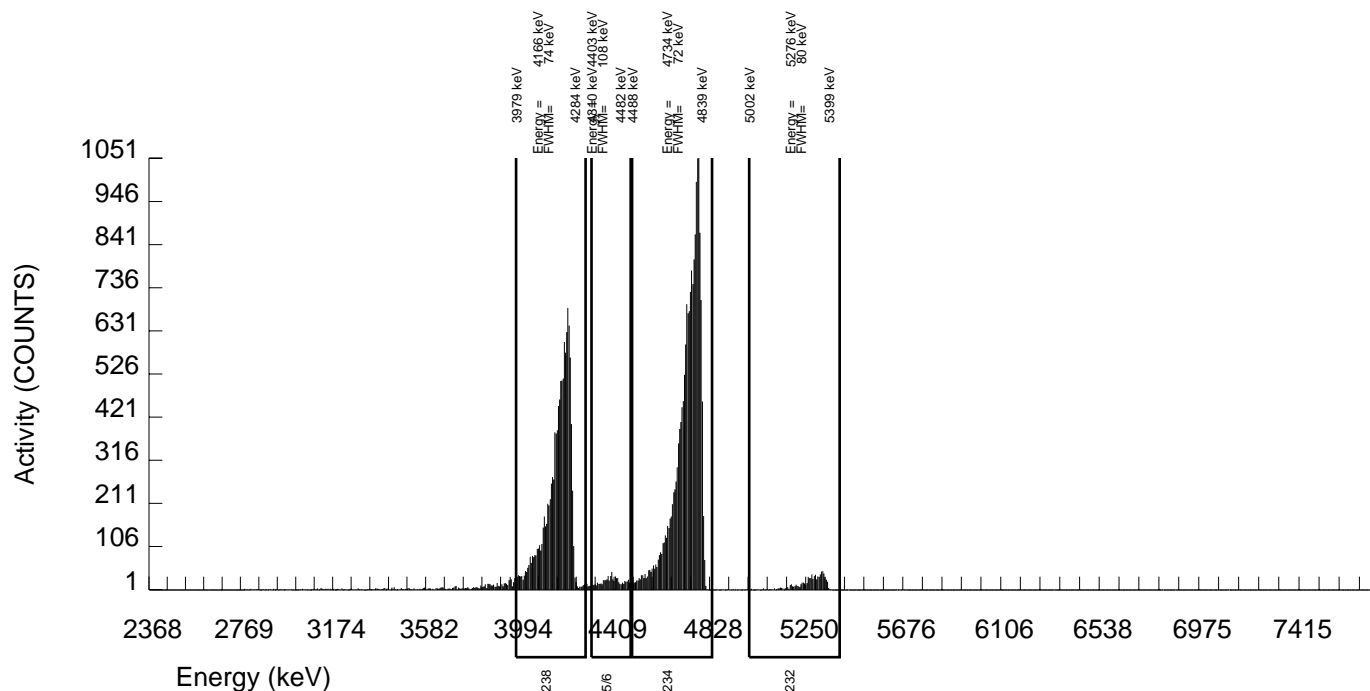
TRACER  
ID : 1283-E  
ISOTOPE : U232  
NOMINAL : 5.26539 dpm  
RESULTS : 2.82246 dpm

LIB FILE : ENV\_ALPHA\_UU.N  
BKG FILE : B017.CNF;1875  
BKG DATE : 2-AUG-2009  
EFF FILE : W017.CNF;1249  
CAL DATE : 3-AUG-2009

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/L	TPU 1.96-SIGMA	MDA pCi/L	Lc pCi/L	UNC pCi/L
U-3/4	4763.020	18110.000	18101.512	6.000	2.4495	100.0000	6.51E+01	9.28E+00	5.18E-02	2.05E-02	9.49E-01
U232	5302.100	826.000	824.000	2.000	1.4142	100.0000	2.96E+00	4.67E-01	3.45E-02	1.18E-02	2.03E-01
U-235	4391.000	709.000	708.000	1.000	1.0000	80.90000	3.15E+00	5.03E-01	3.40E-02	1.03E-02	2.32E-01
U-238	4184.730	11745.000	11744.000	1.000	1.0000	100.0000	4.22E+01	6.04E+00	2.75E-02	8.37E-03	7.64E-01

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



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 891145  
SAMPLE DATE : 22-JUL-2009 00:00:00

SAMPLE ID : S0233580006\_UU  
SAMPLE QTY: 0.800 L

DETECTOR NUMBER :78782  
AVERAGE %EFFICIENCY :31.7210  
% YIELD : 84.701

COUNT DATE: 8-AUG-2009 16:19:55  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :JXD2

MS/MSD  
ID : 1163-G  
ISOTOPE : U-238  
PCI/L : 3.149E+00

LCS/LCSD  
ID : 1163-G  
ISOTOPE : U-238  
PCI/L : 3.149E+00

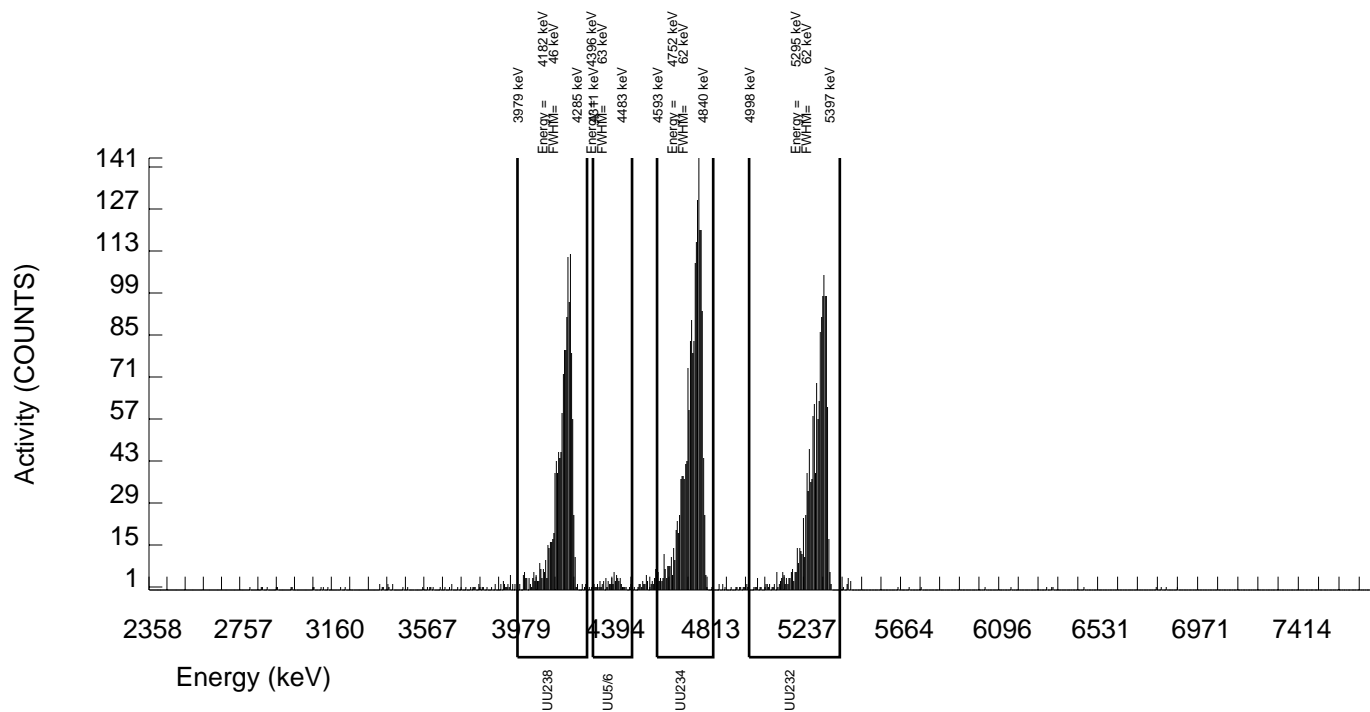
TRACER  
ID : 1283-E  
ISOTOPE : U232  
NOMINAL : 5.26525 dpm  
RESULTS : 4.45974 dpm

LIB FILE : ENV\_ALPHA\_UU.N  
BKG FILE : B018.CNF;1027  
BKG DATE : 2-AUG-2009  
EFF FILE : W018.CNF;293  
CAL DATE : 3-AUG-2009

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/L	TPU 1.96-SIGMA	MDA pCi/L	Lc pCi/L	UNC pCi/L
U-3/4	4763.020	1817.000	1810.731	2.000	1.4142	100.0000	3.79E+00	5.41E-01	2.01E-02	6.89E-03	1.75E-01
U232	5302.100	1417.000	1414.000	3.000	1.7321	100.0000	2.96E+00	4.29E-01	2.32E-02	8.45E-03	1.55E-01
U-235	4391.000	71.000	69.000	2.000	1.4142	80.90000	1.79E-01	4.96E-02	2.48E-02	8.52E-03	4.34E-02
U-238	4184.730	1338.000	1335.000	3.000	1.7321	100.0000	2.80E+00	4.06E-01	2.32E-02	8.44E-03	1.50E-01

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



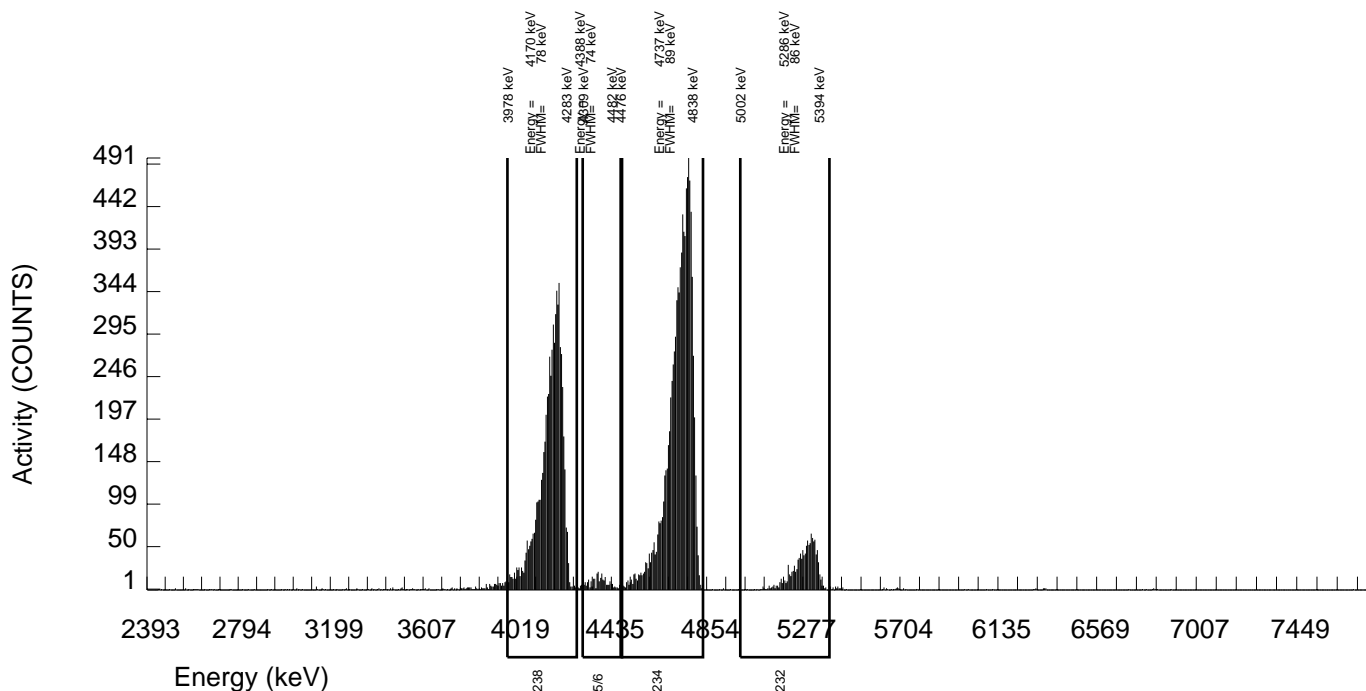
GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 891145 SAMPLE DATE : 23-JUL-2009 00:00:00		SAMPLE ID : S0233580007_UU SAMPLE QTY: 0.800 L	
DETECTOR NUMBER :45-111B4 AVERAGE %EFFICIENCY :25.0567 % YIELD : 90.129		COUNT DATE:24-AUG-2009 16:32:50 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :JXD2	
MS/MSD ID : 1163-G ISOTOPE : U-238 PCI/L : 3.149E+00	LCS/LCSD ID : 1163-G ISOTOPE : U-238 PCI/L : 3.149E+00	TRACER ID : 1283-E ISOTOPE : U232 NOMINAL : 5.26510 dpm RESULTS : 4.74536 dpm	LIB FILE : ENV_ALPHA_UU.N BKG FILE : B113.CNF;388 BKG DATE : 23-AUG-2009 EFF FILE : W113.CNF;112 CAL DATE : 17-AUG-2009

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/L	TPU 1.96-SIGMA	MDA pCi/L	Lc pCi/L	UNC pCi/L
U-3/4	4763.020	9665.000	9654.411	7.000	2.6458	100.0000	2.41E+01	3.33E+00	3.82E-02	1.53E-02	4.81E-01
U232	5302.100	1193.000	1188.000	5.000	2.2361	100.0000	2.96E+00	4.40E-01	3.34E-02	1.30E-02	1.69E-01
U-235	4391.000	284.000	284.000	0.000	0.0000	80.90000	8.75E-01	1.57E-01	9.25E-03	0.00E+00	1.02E-01
U-238	4184.730	6527.000	6527.000	0.000	0.0000	100.0000	1.63E+01	2.26E+00	7.48E-03	0.00E+00	3.95E-01

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



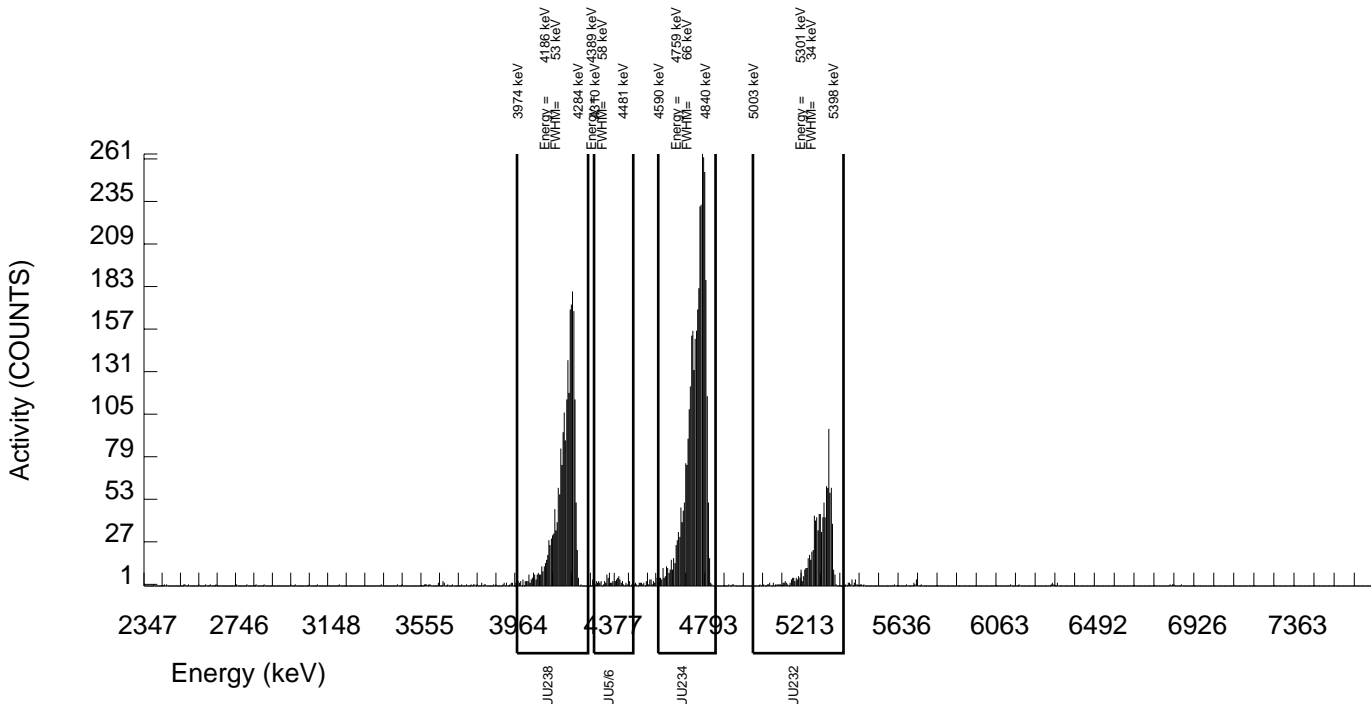
GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 891145 SAMPLE DATE : 24-JUL-2009 00:00:00		SAMPLE ID : S0233580008_UU SAMPLE QTY: 0.800 L	
DETECTOR NUMBER :78258 AVERAGE %EFFICIENCY :25.6694 % YIELD : 74.870		COUNT DATE:24-AUG-2009 16:32:52 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :JXD2	
MS/MSD ID : 1163-G ISOTOPE : U-238 PCI/L : 3.149E+00	LCS/LCSD ID : 1163-G ISOTOPE : U-238 PCI/L : 3.149E+00	TRACER ID : 1283-E ISOTOPE : U232 NOMINAL : 5.26496 dpm RESULTS : 3.94187 dpm	LIB FILE : ENV_ALPHA_UU.N BKG FILE : B114.CNF;389 BKG DATE : 23-AUG-2009 EFF FILE : W114.CNF;108 CAL DATE : 17-AUG-2009

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/L	TPU 1.96-SIGMA	MDA pCi/L	Lc pCi/L	UNC pCi/L
U-3/4	4763.020	3630.000	3625.946	1.000	1.0000	100.0000	1.06E+01	1.51E+00	2.24E-02	6.82E-03	3.46E-01
U232	5302.100	1013.000	1011.000	2.000	1.4142	100.0000	2.96E+00	4.50E-01	2.81E-02	9.65E-03	1.83E-01
U-235	4391.000	90.000	90.000	0.000	0.0000	80.90000	3.26E-01	8.11E-02	1.09E-02	0.00E+00	6.73E-02
U-238	4184.730	2250.000	2247.000	3.000	1.7321	100.0000	6.58E+00	9.53E-01	3.24E-02	1.18E-02	2.73E-01

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



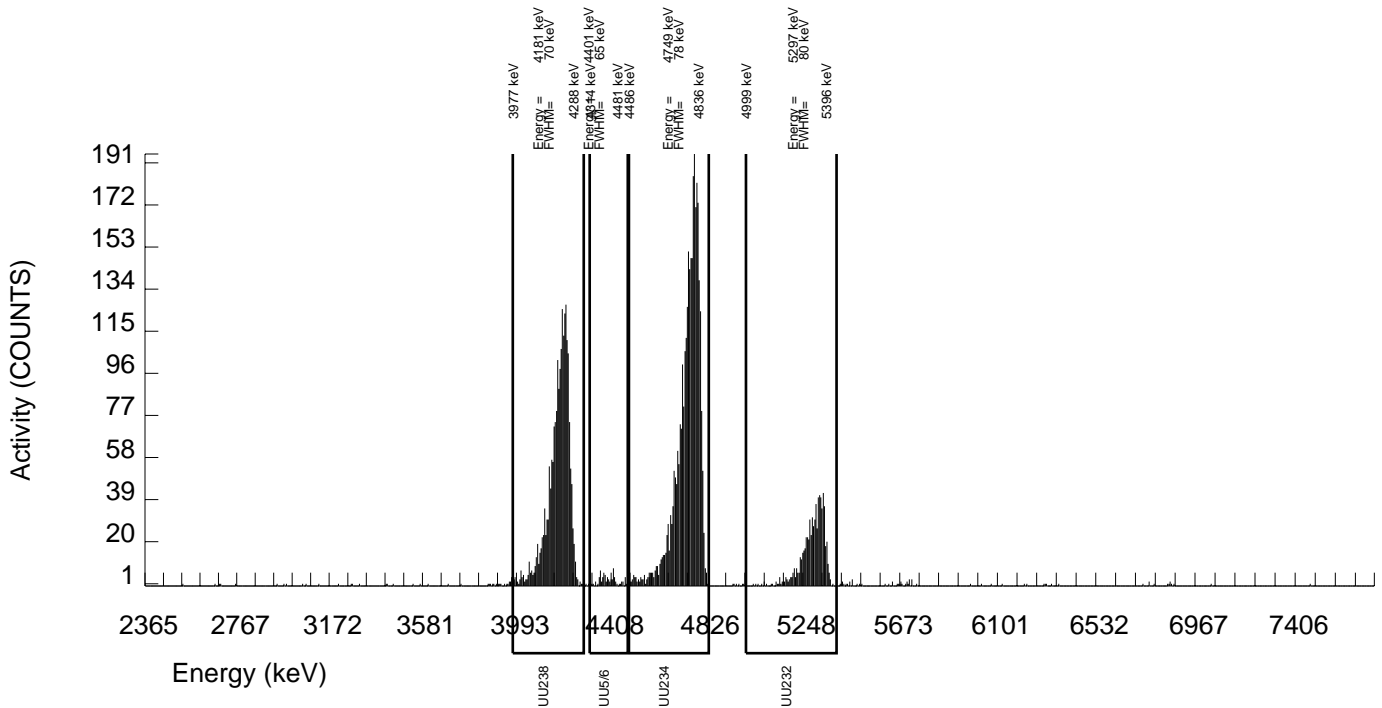
GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 891145 SAMPLE DATE : 24-JUL-2009 00:00:00		SAMPLE ID : S0233580009_UU SAMPLE QTY: 0.800 L	
DETECTOR NUMBER :45-132FF4 AVERAGE %EFFICIENCY :26.5327 % YIELD : 50.654		COUNT DATE:24-AUG-2009 16:32:55 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :JXD2	
MS/MSD ID : 1163-G ISOTOPE : U-238 PCI/L : 3.149E+00	LCS/LCSD ID : 1163-G ISOTOPE : U-238 PCI/L : 3.149E+00	TRACER ID : 1283-E ISOTOPE : U232 NOMINAL : 5.26496 dpm RESULTS : 2.66689 dpm	LIB FILE : ENV_ALPHA_UU.N BKG FILE : B115.CNF;392 BKG DATE : 23-AUG-2009 EFF FILE : W115.CNF;128 CAL DATE : 17-AUG-2009

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/L	TPU 1.96-SIGMA	MDA pCi/L	Lc pCi/L	UNC pCi/L
U-3/4	4763.020	3207.000	3201.865	3.000	1.7321	100.0000	1.34E+01	2.00E+00	4.63E-02	1.69E-02	4.65E-01
U232	5302.100	716.000	707.000	9.000	3.0000	100.0000	2.96E+00	4.83E-01	7.11E-02	2.93E-02	2.21E-01
U-235	4391.000	78.000	78.000	0.000	0.0000	80.90000	4.04E-01	1.07E-01	1.55E-02	0.00E+00	8.96E-02
U-238	4184.730	2108.000	2107.000	1.000	1.0000	100.0000	8.83E+00	1.33E+00	3.21E-02	9.75E-03	3.77E-01

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



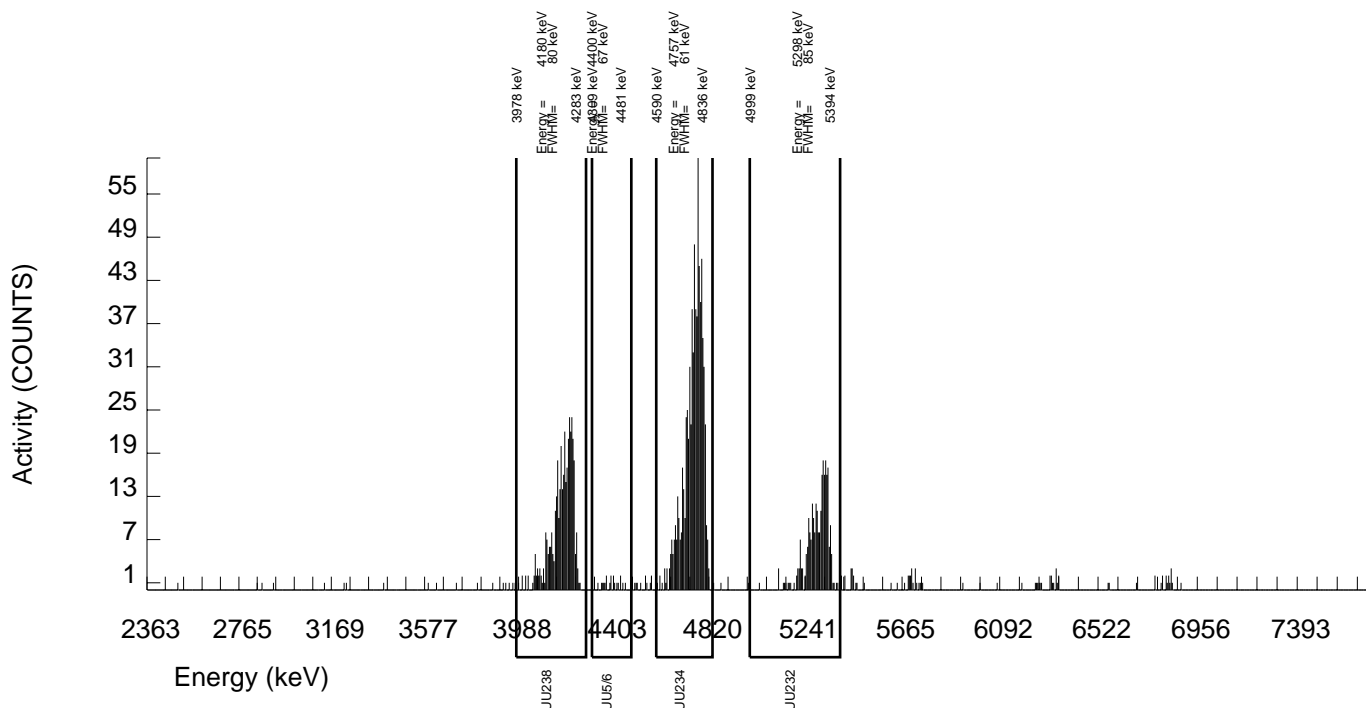
GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 891145 SAMPLE DATE : 27-JUL-2009 00:00:00		SAMPLE ID : S0233580010_UU SAMPLE QTY: 0.800 L	
DETECTOR NUMBER :45-132FF2 AVERAGE %EFFICIENCY :26.1701 % YIELD : 19.830		COUNT DATE:24-AUG-2009 16:32:57 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :JXD2	
MS/MSD ID : 1163-G ISOTOPE : U-238 PCI/L : 3.149E+00	LCS/LCSD ID : 1163-G ISOTOPE : U-238 PCI/L : 3.149E+00	TRACER ID : 1283-E ISOTOPE : U232 NOMINAL : 5.26455 dpm RESULTS : 1.04397 dpm	LIB FILE : ENV_ALPHA_UU.N BKG FILE : B116.CNF;383 BKG DATE : 23-AUG-2009 EFF FILE : W116.CNF;96 CAL DATE : 17-AUG-2009

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/L	TPU 1.96-SIGMA	MDA pCi/L	Lc pCi/L	UNC pCi/L
U-3/4	4763.020	753.000	749.175	3.000	1.7321	100.0000	8.13E+00	1.52E+00	1.20E-01	4.37E-02	5.84E-01
U232	5302.100	276.000	273.000	3.000	1.7321	100.0000	2.96E+00	6.23E-01	1.20E-01	4.38E-02	3.55E-01
U-235	4391.000	19.000	18.000	1.000	1.0000	80.90000	2.41E-01	1.25E-01	1.03E-01	3.12E-02	1.18E-01
U-238	4184.730	403.000	403.000	0.000	0.0000	100.0000	4.37E+00	8.67E-01	3.25E-02	0.00E+00	4.27E-01

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





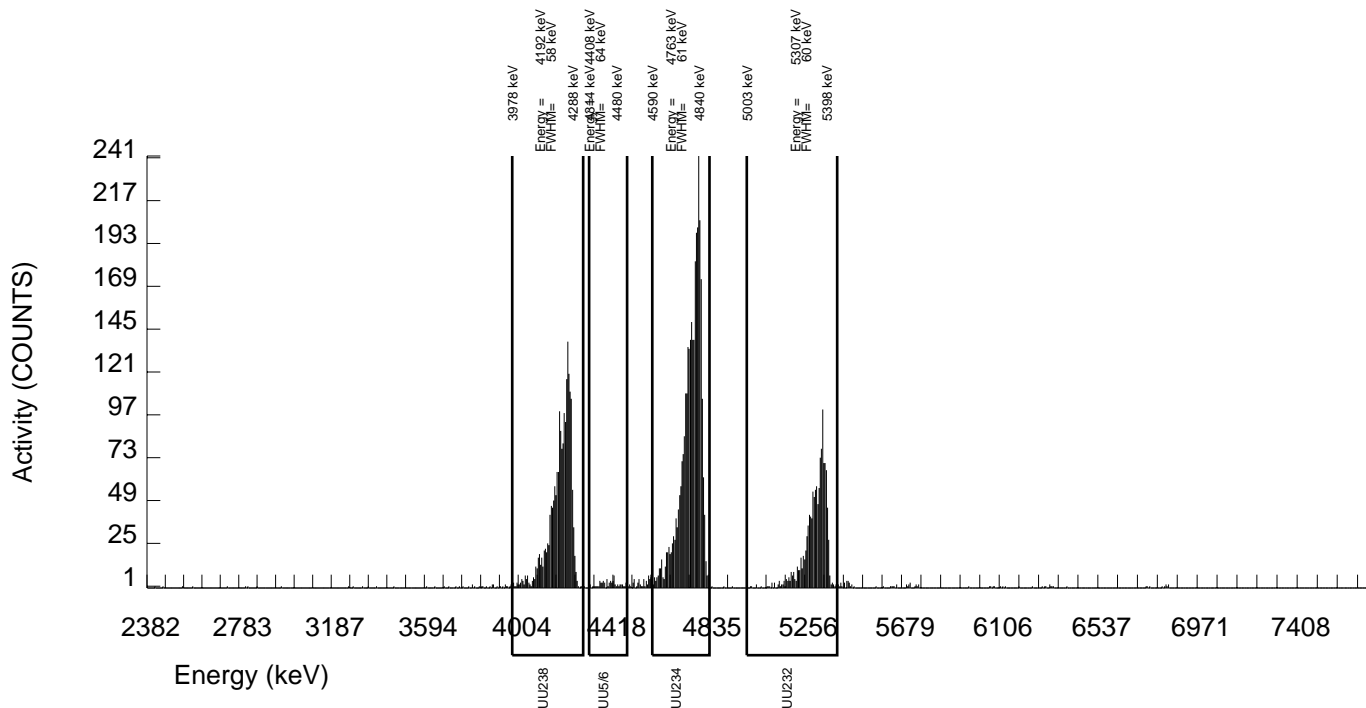
GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 891145 SAMPLE DATE : 27-JUL-2009 00:00:00		SAMPLE ID : S0233580011_UU SAMPLE QTY: 0.800 L	
DETECTOR NUMBER :33450 AVERAGE %EFFICIENCY :25.2558 % YIELD : 93.483		COUNT DATE:24-AUG-2009 16:33:00 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :JXD2	
MS/MSD ID : 1163-G ISOTOPE : U-238 PCI/L : 3.149E+00	LCS/LCSD ID : 1163-G ISOTOPE : U-238 PCI/L : 3.149E+00	TRACER ID : 1283-E ISOTOPE : U232 NOMINAL : 5.26455 dpm RESULTS : 4.92145 dpm	LIB FILE : ENV_ALPHA_UU.N BKG FILE : B117.CNF;393 BKG DATE : 23-AUG-2009 EFF FILE : W117.CNF;108 CAL DATE : 17-AUG-2009

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/L	TPU 1.96-SIGMA	MDA pCi/L	Lc pCi/L	UNC pCi/L
U-3/4	4763.020	3226.000	3219.249	3.000	1.7321	100.0000	7.68E+00	1.08E+00	2.64E-02	9.61E-03	2.65E-01
U232	5302.100	1249.000	1242.000	7.000	2.6458	100.0000	2.96E+00	4.37E-01	3.65E-02	1.47E-02	1.66E-01
U-235	4391.000	69.000	68.000	1.000	1.0000	80.90000	2.00E-01	5.55E-02	2.26E-02	6.86E-03	4.83E-02
U-238	4184.730	1953.000	1950.000	3.000	1.7321	100.0000	4.65E+00	6.67E-01	2.64E-02	9.61E-03	2.07E-01

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



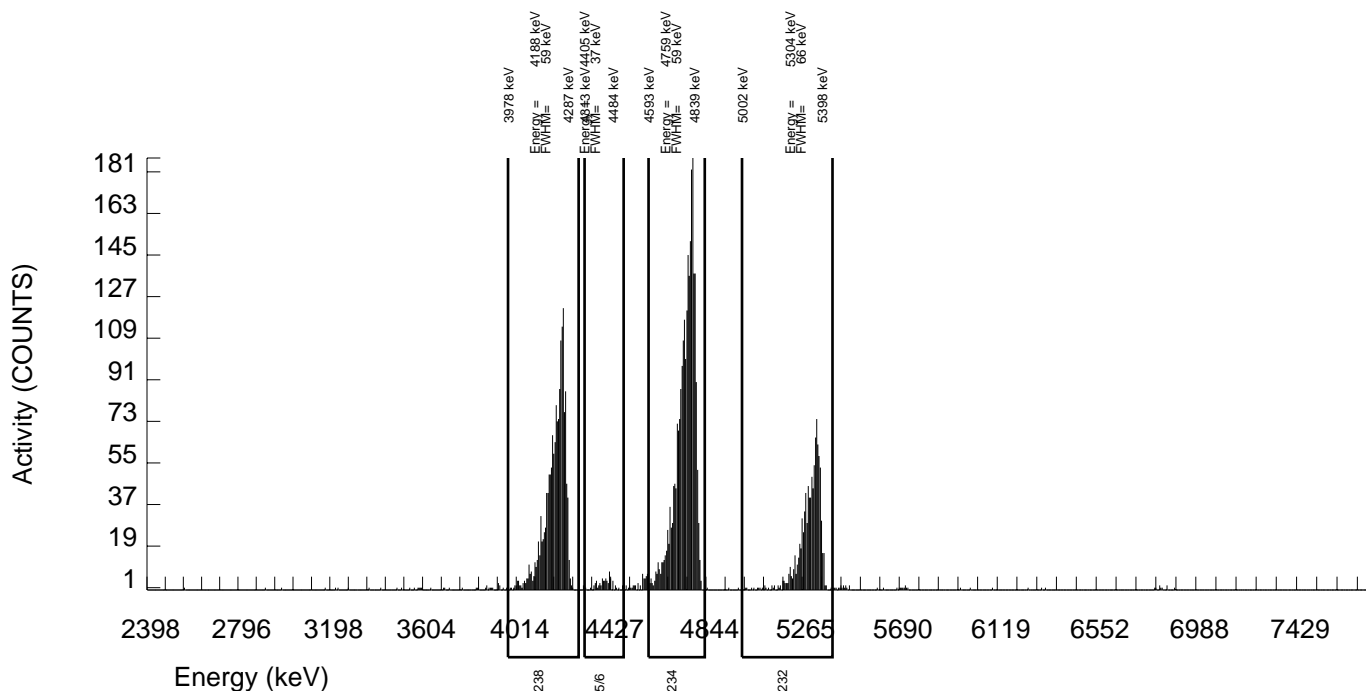
GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 891145 SAMPLE DATE : 27-JUL-2009 00:00:00		SAMPLE ID : S0233580012_UU SAMPLE QTY: 0.800 L	
DETECTOR NUMBER :33449 AVERAGE %EFFICIENCY :24.6514 % YIELD : 74.721		COUNT DATE:23-AUG-2009 14:50:41 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :JXD2	
MS/MSD ID : 1163-G ISOTOPE : U-238 PCI/L : 3.149E+00	LCS/LCSD ID : 1163-G ISOTOPE : U-238 PCI/L : 3.149E+00	TRACER ID : 1283-E ISOTOPE : U232 NOMINAL : 5.26455 dpm RESULTS : 3.93371 dpm	LIB FILE : ENV_ALPHA_UU.N BKG FILE : B149.CNF;345 BKG DATE : 16-AUG-2009 EFF FILE : W149.CNF;102 CAL DATE : 17-AUG-2009

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/L	TPU 1.96-SIGMA	MDA pCi/L	Lc pCi/L	UNC pCi/L
U-3/4	4763.020	2521.000	2517.073	1.000	1.0000	100.0000	7.69E+00	1.12E+00	2.34E-02	7.11E-03	3.01E-01
U232	5302.100	975.000	969.000	6.000	2.4495	100.0000	2.96E+00	4.54E-01	4.40E-02	1.74E-02	1.88E-01
U-235	4391.000	70.000	69.000	1.000	1.0000	80.90000	2.61E-01	7.22E-02	2.89E-02	8.79E-03	6.24E-02
U-238	4184.730	1632.000	1629.000	3.000	1.7321	100.0000	4.98E+00	7.36E-01	3.38E-02	1.23E-02	2.42E-01

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



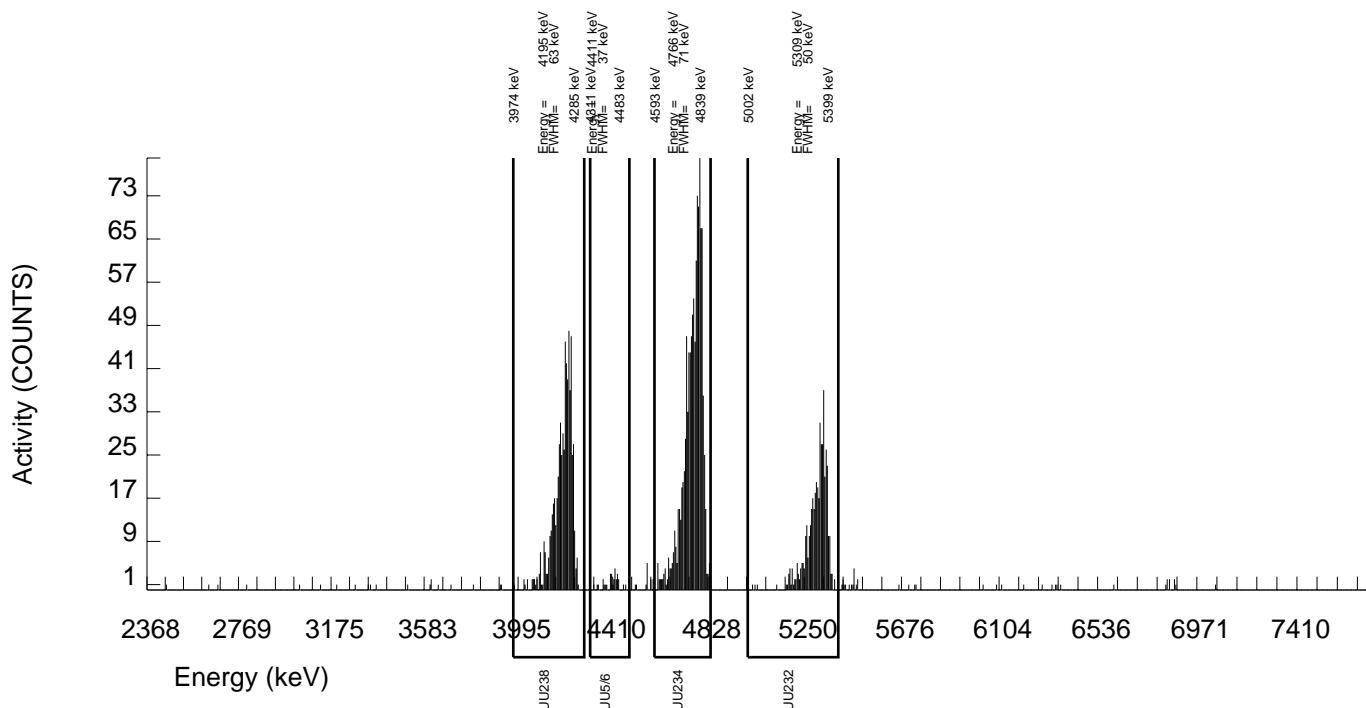
GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 891145 SAMPLE DATE : 27-JUL-2009 00:00:00		SAMPLE ID : S0233580013_UU SAMPLE QTY: 0.800 L	
DETECTOR NUMBER :45-132FF4 AVERAGE %EFFICIENCY :26.5489 % YIELD : 31.207		COUNT DATE:10-AUG-2009 17:20:35 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :JXD2	
MS/MSD ID : 1163-G ISOTOPE : U-238 PCI/L : 3.149E+00	LCS/LCSD ID : 1163-G ISOTOPE : U-238 PCI/L : 3.149E+00	TRACER ID : 1283-E ISOTOPE : U232 NOMINAL : 5.26455 dpm RESULTS : 1.64291 dpm	LIB FILE : ENV_ALPHA_UU.N BKG FILE : B115.CNF;387 BKG DATE : 9-AUG-2009 EFF FILE : W115.CNF;126 CAL DATE : 15-JUL-2009

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/L	TPU 1.96-SIGMA	MDA pCi/L	Lc pCi/L	UNC pCi/L
U-3/4	4763.020	1079.000	1075.683	2.000	1.4142	100.0000	7.31E+00	1.22E+00	6.51E-02	2.24E-02	4.38E-01
U232	5302.100	442.000	436.000	6.000	2.4495	100.0000	2.96E+00	5.43E-01	9.79E-02	3.87E-02	2.82E-01
U-235	4391.000	30.000	29.000	1.000	1.0000	80.90000	2.44E-01	9.93E-02	6.43E-02	1.95E-02	9.17E-02
U-238	4184.730	645.000	644.000	1.000	1.0000	100.0000	4.38E+00	7.64E-01	5.20E-02	1.58E-02	3.39E-01

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



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 891145  
SAMPLE DATE : 5-AUG-2009 00:00:00.

SAMPLE ID : S1201895414\_UU  
SAMPLE QTY: 0.800 L

DETECTOR NUMBER :45-132FF2  
AVERAGE %EFFICIENCY :26.2927  
% YIELD : 92.943

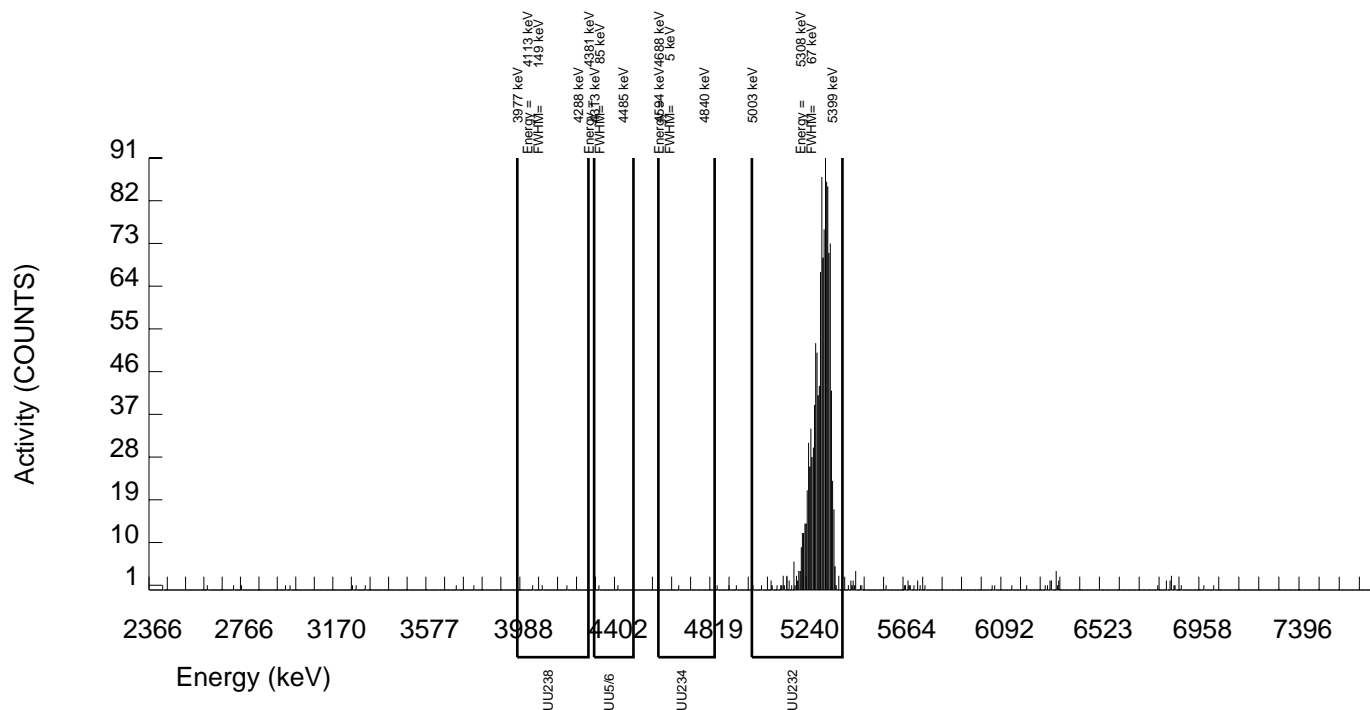
COUNT DATE:10-AUG-2009 17:20:36  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :JXD2

MS/MSD ID : 1163-G ISOTOPE : U-238 PCI/L : 3.149E+00	LCS/LCSD ID : 1163-G ISOTOPE : U-238 PCI/L : 3.149E+00	TRACER ID : 1283-E ISOTOPE : U232 NOMINAL : 5.26330 dpm RESULTS : 4.89188 dpm	LIB FILE : ENV_ALPHA_UU.N BKG FILE : B116.CNF;378 BKG DATE : 9-AUG-2009 EFF FILE : W116.CNF;94 CAL DATE : 15-JUL-2009
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NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/L	TPU 1.96-SIGMA	MDA pCi/L	Lc pCi/L	UNC pCi/L
U-3/4	4763.020	1.000	-4.883	2.000	1.4142	100.0000	-1.13E-02	7.83E-03	2.21E-02	7.58E-03	7.82E-03
U232	5302.100	1291.000	1286.000	5.000	2.2361	100.0000	2.96E+00	4.34E-01	3.09E-02	1.20E-02	1.63E-01
U-235	4391.000	2.000	1.000	1.000	1.0000	80.90000	2.85E-03	9.68E-03	2.18E-02	6.63E-03	9.67E-03
U-238	4184.730	3.000	2.000	1.000	1.0000	100.0000	4.61E-03	9.05E-03	1.76E-02	5.36E-03	9.03E-03

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



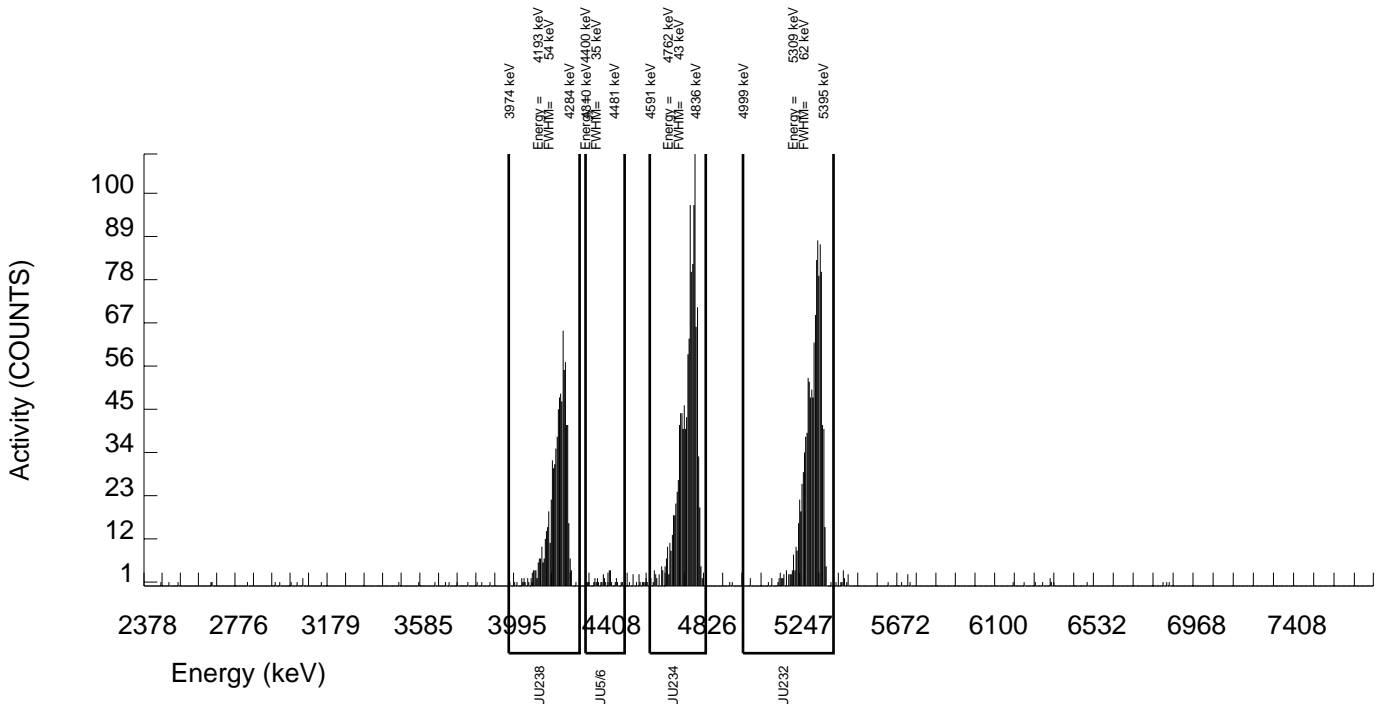
GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 891145 SAMPLE DATE : 15-JUL-2009 00:00:00		SAMPLE ID : S1201895415_UU SAMPLE QTY: 0.800 L	
DETECTOR NUMBER :33450 AVERAGE %EFFICIENCY :25.3585 % YIELD : 88.349		COUNT DATE:10-AUG-2009 17:20:40 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :JXD2	
MS/MSD ID : 1163-G ISOTOPE : U-238 PCI/L : 3.149E+00	LCS/LCSD ID : 1163-G ISOTOPE : U-238 PCI/L : 3.149E+00	TRACER ID : 1283-E ISOTOPE : U232 NOMINAL : 5.26621 dpm RESULTS : 4.65264 dpm	LIB FILE : ENV_ALPHA_UU.N BKG FILE : B117.CNF;388 BKG DATE : 9-AUG-2009 EFF FILE : W117.CNF;106 CAL DATE : 15-JUL-2009

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/L	TPU 1.96-SIGMA	MDA pCi/L	Lc pCi/L	UNC pCi/L
U-3/4	4763.020	1273.000	1265.440	4.000	2.0000	100.0000	3.18E+00	4.70E-01	3.09E-02	1.17E-02	1.76E-01
U232	5302.100	1187.000	1179.000	8.000	2.8284	100.0000	2.97E+00	4.40E-01	4.06E-02	1.65E-02	1.70E-01
U-235	4391.000	34.000	34.000	0.000	0.0000	80.90000	1.06E-01	3.83E-02	9.32E-03	0.00E+00	3.55E-02
U-238	4184.730	807.000	805.000	2.000	1.4142	100.0000	2.02E+00	3.10E-01	2.41E-02	8.27E-03	1.40E-01

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



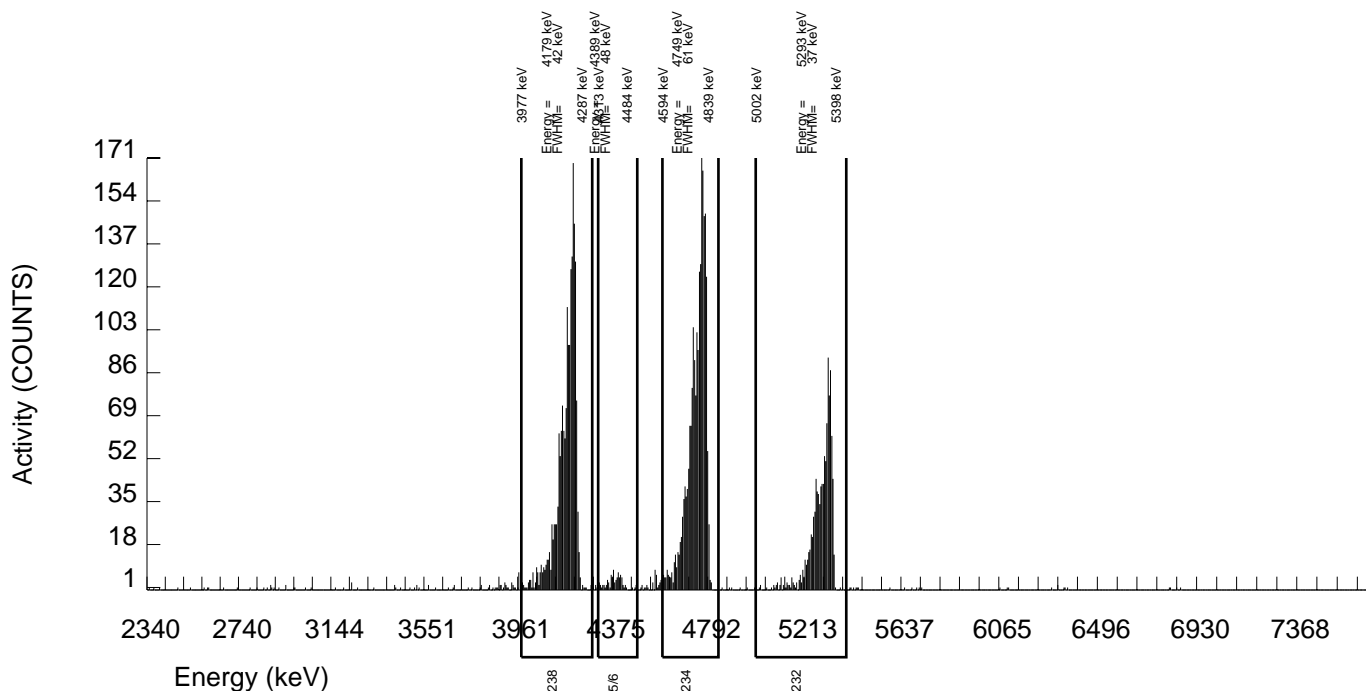
GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 891145 SAMPLE DATE : 15-JUL-2009 00:00:00		SAMPLE ID : S1201895416_UU SAMPLE QTY: 0.800 L	
DETECTOR NUMBER :75544 AVERAGE %EFFICIENCY :25.9868 % YIELD : 78.023		COUNT DATE:10-AUG-2009 17:20:42 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :JXD2	
MS/MSD ID : 1163-G ISOTOPE : U-238 PCI/L : 3.149E+00	LCS/LCSD ID : 1163-G ISOTOPE : U-238 PCI/L : 3.149E+00	TRACER ID : 1283-E ISOTOPE : U232 NOMINAL : 5.26621 dpm RESULTS : 4.10885 dpm	LIB FILE : ENV_ALPHA_UU.N BKG FILE : B118.CNF;383 BKG DATE : 9-AUG-2009 EFF FILE : W118.CNF;103 CAL DATE : 15-JUL-2009

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/L	TPU 1.96-SIGMA	MDA pCi/L	Lc pCi/L	UNC pCi/L
U-3/4	4763.020	2166.000	2161.778	1.000	1.0000	100.0000	6.00E+00	8.66E-01	2.13E-02	6.46E-03	2.53E-01
U232	5302.100	1069.000	1067.000	2.000	1.4142	100.0000	2.97E+00	4.46E-01	2.66E-02	9.14E-03	1.78E-01
U-235	4391.000	88.000	87.000	1.000	1.0000	80.90000	2.99E-01	7.57E-02	2.63E-02	7.99E-03	6.35E-02
U-238	4184.730	1894.000	1890.000	4.000	2.0000	100.0000	5.25E+00	7.62E-01	3.42E-02	1.29E-02	2.37E-01

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



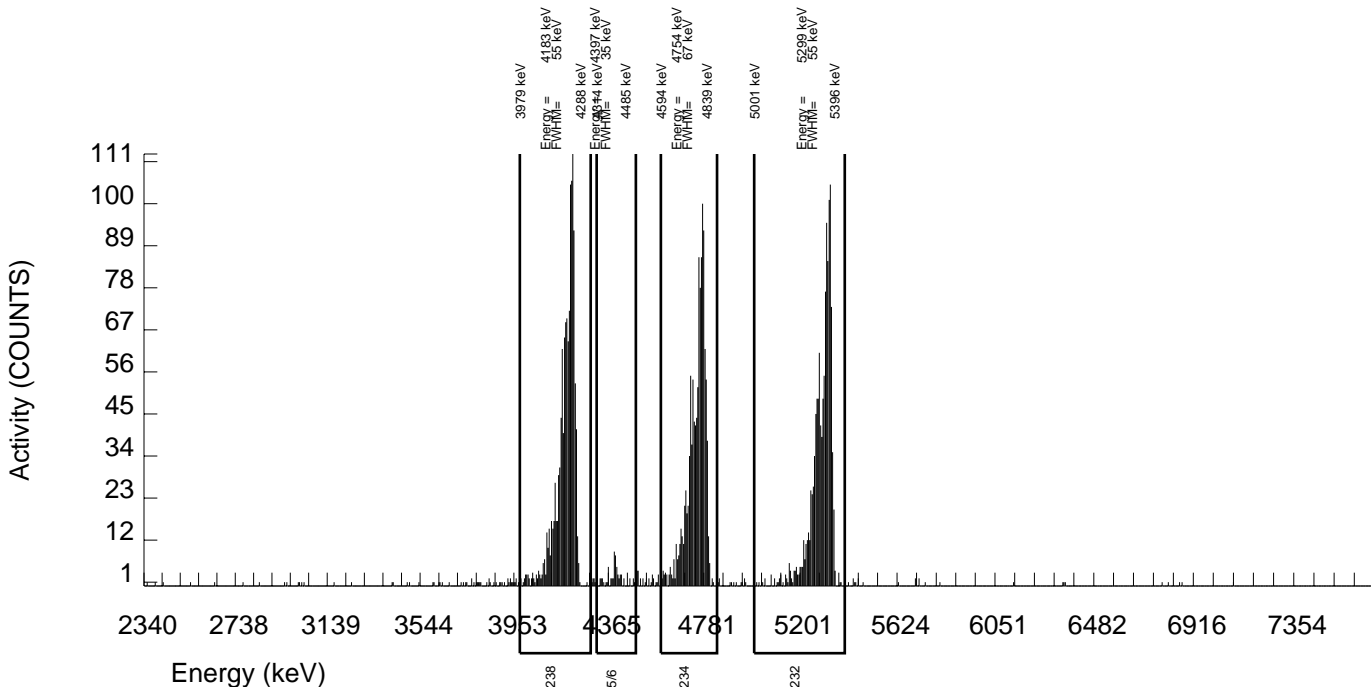
GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 891145 SAMPLE DATE : 5-AUG-2009 00:00:00.		SAMPLE ID : S1201895417_UU SAMPLE QTY: 0.800 L	
DETECTOR NUMBER :75545 AVERAGE %EFFICIENCY :24.8150 % YIELD : 94.342		COUNT DATE:10-AUG-2009 17:20:44 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :JXD2	
MS/MSD ID : 1163-G ISOTOPE : U-238 PCI/L : 3.149E+00	LCS/LCSD ID : 1163-G ISOTOPE : U-238 PCI/L : 3.149E+00	TRACER ID : 1283-E ISOTOPE : U232 NOMINAL : 5.26330 dpm RESULTS : 4.96553 dpm	LIB FILE : ENV_ALPHA_UU.N BKG FILE : B121.CNF;383 BKG DATE : 9-AUG-2009 EFF FILE : W121.CNF;104 CAL DATE : 15-JUL-2009

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/L	TPU 1.96-SIGMA	MDA pCi/L	Lc pCi/L	UNC pCi/L
U-3/4	4763.020	1182.000	1175.280	3.000	1.7321	100.0000	2.83E+00	4.18E-01	2.66E-02	9.69E-03	1.62E-01
U232	5302.100	1235.000	1232.000	3.000	1.7321	100.0000	2.96E+00	4.37E-01	2.66E-02	9.69E-03	1.66E-01
U-235	4391.000	62.000	60.000	2.000	1.4142	80.90000	1.78E-01	5.26E-02	2.85E-02	9.78E-03	4.66E-02
U-238	4184.730	1293.000	1291.000	2.000	1.4142	100.0000	3.10E+00	4.56E-01	2.30E-02	7.91E-03	1.70E-01

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



# RADIUM 228



### Radiochemistry Batch Checklist, Rev 9

Batch# 888878      Product: Ra 228      Date: 8/6/09

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

GEL Laboratories, LLC

revised 8/1/08

Primary Review Performed By: Maury Muzzee

Secondary Review Performed By: [Signature]

KERR  
8/25

# Radium-228 Que Sheet

Batch #: 888878 Analyst: MXS2 Internal Due Date: 08/14/2009  
 Spike Isotope: Radium-228 Spike Code: OS03-B Expiration Date: 9-13-09 Vol: 0.1 mL  
 LCS Isotope: Radium-228 LCS Code: OS03-B Expiration Date: 9-13-09 Vol: 0.1 mL  
 Tracer Isotope: Barium-133 Tracer Code: 0112-J Expiration Date: 2-17-09 Balance ID: 17955160  
 Prep Date: 7-29-09 Initials: JUC Pipet ID: 2160953

Sample ID	Client Description	Type	Hazard Code	Min CRDL	Matrix	Client	Collect Date & Time	Pos. #	Vol (mL)	Ba Yield (%)	Gamma Det. #
233580001-1	M-92BDISS	SAMPLE		3 pCi/L	WATER	KERR003	15-JUL-09 08:45 AM	1	200	80.13	1A
233580002-1	M-97B	SAMPLE		3 pCi/L	WATER	KERR003	16-JUL-09 08:45 AM	2	200	84.74	1B
233580003-1	TR-6B	SAMPLE		3 pCi/L	WATER	KERR003	17-JUL-09 07:50 AM	3	200	101.81	1D
233580004-1	EB-071709-GW	SAMPLE		3 pCi/L	WATER	KERR003	17-JUL-09 09:45 AM	4	200	74.53	2A
233580005-1	M-33B	SAMPLE		3 pCi/L	WATER	KERR003	21-JUL-09 11:15 AM	5	200	97.28	2C
233580006-1	CLD-4RB	SAMPLE		3 pCi/L	WATER	KERR003	22-JUL-09 09:50 AM	6	200	74.43	2D
233580007-1	MW-6RB	SAMPLE		3 pCi/L	WATER	KERR003	23-JUL-09 09:17 AM	7	200	101.81	5A
233580008-1	M-52B	SAMPLE		3 pCi/L	WATER	KERR003	24-JUL-09 08:10 AM	8	200	15.30	6B
233580009-1	M-35B	SAMPLE		3 pCi/L	WATER	KERR003	24-JUL-09 11:10 AM	9	200	80.52	6D
233580010-1	M-11B	SAMPLE		3 pCi/L	WATER	KERR003	27-JUL-09 09:15 AM	10	200	81.98	7A
233580011-1	M-11BDISS	SAMPLE		3 pCi/L	WATER	KERR003	27-JUL-09 09:15 AM	11	200	76.68	7B
233580012-1	M-11009B	SAMPLE		3 pCi/L	WATER	KERR003	27-JUL-09 09:15 AM	12	200	79.61	7C
233580013-1	M-11009BDISS	SAMPLE		3 pCi/L	WATER	KERR003	27-JUL-09 09:15 AM	13	200	90.13	7D
1201890245-1	MB for batch 888878	MB		3 pCi/L	WATER	QC ACCOUNT		14	200	73.71	8A
1201890246-1	M-92BDISS(233580001DUF)	DUP		3 pCi/L	WATER	QC ACCOUNT	15-JUL-09 08:45 AM	15	200	76.21	8C
1201890247-1	M-92BDISS(233580001MS)	MS		3 pCi/L	WATER	QC ACCOUNT	15-JUL-09 08:45 AM	16	200	82.74	9A
1201890248-1	LCS for batch 888878	LCS		3 pCi/L	WATER	QC ACCOUNT		17	200	83.64	9C

Comments: daily

Data Reviewed By: Marymuzzell 8/16/09

Instrument Used: (Circle One) PIC S/N: 00751-4

Page 1 of 1



# Radium-228 Liquid

Filename : RA228.XLS  
 File type : Excel  
 Version # : 1.2.3

Spike S/N : 0503-B  
 Spike Exp Date : 9/13/2009  
 Spike Activity (dpm/ml) : 180.74  
 Spike Volume Added : 0.10

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

Batch : 888878  
 Analyst : MXS2  
 Prep Date : 7/29/2009

Procedure Code : GFC28RAL  
 Parname : Radium-228  
 Required MDA : 3 pCi/L  
 Halflife of Ra-228 : 5.75 years  
 Halflife of Ac-228 : 6.13 hours  
 Batch counted on : PIC  
 BKG Count time : 0 min

LCS S/N : 0503-B  
 LCS Exp Date : 9/13/2009  
 LCS Activity (dpm/ml) : 180.74  
 LCS Volume Added : 0.10

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

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

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

Pos.	Sample Characteristics			Sample Date/Time	Tracer Calculations			Tracer Samp.		
	Sample ID	Sample Aliquot L	Sample Aliquot L StDev.		Tracer Concentration (Ba-133 Ref.) (cpm)	Tracer Ref. Count Uncertainty (cpm)	Tracer Concentration (Ba-133 Samp.) (cpm)	Tracer Count Uncertainty (cpm)	Tracer Aliquot (mL)	Tracer Aliquot StDev. (mL)
1	233580001.1	0.2000	1.6007E-05	7/15/2009 8:45	207.2	4.38%	178.1	4.78%	0.1	0.000701
2	233580002.1	0.2000	1.6007E-05	7/16/2009 8:45	207.2	4.38%	157.2	5.15%	0.1	0.000701
3	233580003.1	0.2000	1.6007E-05	7/17/2009 7:50	206.1	4.39%	153.7	5.22%	0.1	0.000701
4	233580004.1	0.2000	1.6007E-05	7/17/2009 9:45	207.2	4.38%	147.2	5.36%	0.1	0.000701
5	233580005.1	0.2000	1.6007E-05	7/21/2009 11:15	207.2	4.38%	180.9	4.74%	0.1	0.000701
6	233580006.1	0.2000	1.6007E-05	7/22/2009 9:50	207.2	4.38%	170.2	4.91%	0.1	0.000701
7	233580007.1	0.2000	1.6007E-05	7/23/2009 9:17	207.2	4.38%	148.4	5.33%	0.1	0.000701
8	233580008.1	0.2000	1.6007E-05	7/24/2009 8:10	207.2	4.38%	156.0	5.18%	0.1	0.000701
9	233580009.1	0.2000	1.6007E-05	7/24/2009 11:10	207.2	4.38%	165.7	4.99%	0.1	0.000701
10	233580010.1	0.2000	1.6007E-05	7/27/2009 9:15	207.2	4.38%	150.6	5.29%	0.1	0.000701
11	233580011.1	0.2000	1.6007E-05	7/27/2009 9:15	207.2	4.38%	164.7	5.01%	0.1	0.000701
12	233580012.1	0.2000	1.6007E-05	7/27/2009 9:15	207.2	4.38%	151.6	5.26%	0.1	0.000701
13	233580013.1	0.2000	1.6007E-05	7/27/2009 9:15	207.2	4.38%	172.2	4.88%	0.1	0.000701
14	1201890245.1	0.2000	1.6007E-05	7/29/2009 0:00	207.2	4.38%	145.4	5.40%	0.1	0.000701
15	1201890246.1	0.2000	1.6007E-05	7/15/2009 8:45	207.2	4.38%	158.7	5.12%	0.1	0.000701
16	1201890247.1	0.2000	1.6007E-05	7/15/2009 8:45	207.2	4.38%	161.6	5.07%	0.1	0.000701
17	1201890248.1	0.2000	1.6007E-05	7/29/2009 0:00	207.2	4.38%	160.7	5.08%	0.1	0.000701

Pos.	Counting		Gross Counts		Beta cpm	Detector Efficiency (cpm/dpm)	Detector Efficiency Error (cpm/dpm)	Weekly Bkg Count Time (min.)	Separation Date/Time	Count Start Date/Time	Ra-228 Decay	Ac-228 Decay	Ac-228 Count Correction	Calculated Sample Recovery %	Sample Recovery Error %
	Detector ID	Time (min.)	Alpha	Beta											
1	1A	60	5	31	0.517	0.6303	0.00600	1000	8/4/2009 17:20	8/4/2009 19:20	0.993	0.797	1.058	85.96%	3.39%
2	1B	60	0	30	0.500	0.6282	0.00409	1000	8/4/2009 17:20	8/4/2009 19:20	0.994	0.797	1.058	75.87%	3.52%
3	1D	60	11	46	0.767	0.6043	0.00511	1000	8/4/2009 17:20	8/4/2009 19:20	0.994	0.797	1.058	74.58%	3.55%
4	2A	60	3	34	0.567	0.6172	0.00349	1000	8/4/2009 17:20	8/4/2009 19:20	0.994	0.796	1.058	71.04%	3.60%
5	2C	60	3	20	0.333	0.5969	0.00575	1000	8/4/2009 17:20	8/4/2009 19:20	0.995	0.796	1.058	87.31%	3.38%
6	2D	60	5	26	0.433	0.6119	0.00479	1000	8/4/2009 17:20	8/4/2009 19:20	0.996	0.796	1.058	82.14%	3.44%
7	5A	60	7	30	0.500	0.6258	0.00816	1000	8/4/2009 17:20	8/4/2009 19:20	0.996	0.796	1.058	71.62%	3.59%
8	6B	60	11	62	1.033	0.6163	0.00816	1000	8/4/2009 17:20	8/4/2009 19:20	0.996	0.796	1.058	75.29%	3.53%
9	6D	60	3	35	0.583	0.6120	0.00816	1000	8/4/2009 17:20	8/4/2009 19:20	0.996	0.796	1.058	79.97%	3.46%
10	7A	60	10	35	0.583	0.6180	0.00816	1000	8/4/2009 17:20	8/4/2009 19:21	0.997	0.796	1.058	72.68%	3.57%
11	7B	60	13	49	0.817	0.6280	0.00816	1000	8/4/2009 17:20	8/4/2009 19:21	0.997	0.796	1.058	79.49%	3.47%
12	7C	60	2	17	0.283	0.6178	0.00816	1000	8/4/2009 17:20	8/4/2009 19:21	0.997	0.796	1.058	73.17%	3.56%
13	7D	60	4	24	0.400	0.6257	0.00816	1000	8/4/2009 17:20	8/4/2009 19:21	0.997	0.796	1.058	83.11%	3.43%
14	8A	60	3	48	0.800	0.6247	0.00816	1000	8/4/2009 17:20	8/4/2009 19:20	0.998	0.797	1.058	70.17%	3.62%
15	8C	60	11	43	0.717	0.6339	0.00816	1000	8/4/2009 17:20	8/4/2009 19:20	0.993	0.797	1.058	76.59%	3.51%
16	9A	60	5	409	6.817	0.6496	0.00816	1000	8/4/2009 17:20	8/4/2009 19:20	0.993	0.797	1.058	77.99%	3.49%
17	9C	60	4	436	7.267	0.6273	0.00816	1000	8/4/2009 17:20	8/4/2009 19:20	0.998	0.797	1.058	77.56%	3.50%

Notes:

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

\* - RPD changed to 0% due to activity below MDA for 1201890246.1

Pos.	Decision Level		Critical Level	Required MDA	MDA	Sample Act. Conc.	Sample Act. Error	Net Count		Net Count Rate Error	2 SIGMA Counting Uncertainty	2 SIGMA Total Prop. Uncertainty	Sample QC	Sample Type	RPD	RER	Nominal pCi/L	Recovery
	pCi/L	pCi/L						Rate CPM	CPM									
1	0.9886	0.6980	0.6980	3	1.6738	1.0373	0.5077	0.1867	0.0946	0.0946	1.0299	1.0639		SAMPLE				
2	1.1318	0.7990	0.7990	3	1.9138	1.0418	0.5654	0.1650	0.0931	0.0931	1.1522	1.1831		SAMPLE				
3	1.5359	1.0844	1.0844	3	2.5026	1.4330	0.5390	0.2147	0.1155	0.1155	1.5106	1.5553		SAMPLE				
4	1.4460	1.0209	1.0209	3	2.3849	0.7114	0.9608	0.1037	0.0995	0.0995	1.3387	1.3513		SAMPLE				
5	0.8875	0.6266	0.6266	3	1.5414	0.4978	0.8830	0.0863	0.0762	0.0762	0.8609	0.8704		SAMPLE				
6	1.1486	0.8109	0.8109	3	1.9207	0.2889	1.8049	0.0483	0.0872	0.0872	1.0218	1.0245		SAMPLE				
7	1.5379	1.0858	1.0858	3	2.5066	-0.3284	1.9237	-0.0490	0.0942	0.0942	1.2380	1.2383		SAMPLE				
8	1.7748	1.2530	1.2530	3	2.8297	1.6138	0.5394	0.2493	0.1342	0.1342	1.7023	1.7527		SAMPLE				
9	1.2775	0.9019	0.9019	3	2.1106	0.8058	0.7688	0.1313	0.1009	0.1009	1.2130	1.2307		SAMPLE				
10	1.2839	0.9084	0.9084	3	2.1469	1.3251	0.5082	0.1983	0.1005	0.1005	1.3165	1.3604		SAMPLE				
11	1.1893	0.8396	0.8396	3	1.9799	2.4569	0.2919	0.4087	0.1184	0.1184	1.3952	1.5326		SAMPLE				
12	1.0842	0.7654	0.7654	3	1.8628	0.0354	13.2586	0.0053	0.0707	0.0707	0.9202	0.9207		SAMPLE				
13	1.0590	0.7476	0.7476	3	1.7839	0.2828	1.7100	0.0490	0.0838	0.0838	0.9477	0.9505		SAMPLE				
14	1.6878	1.1916	1.1916	3	2.7249	1.1208	0.7216	0.1640	0.1182	0.1182	1.5831	1.6095		MB				
15	1.4275	1.0078	1.0078	3	2.3256	1.0145	0.6840	0.1637	0.1118	0.1118	1.3582	1.3832	233580001.1	DUP	0.0%		40.8909	93.8%
16	1.1023	0.7782	0.7782	3	1.8535	38.3609	0.0634	6.4577	0.3376	0.3376	3.9307	10.6592	233580001.1	MS			40.7073	105.3%
17	1.0551	0.7449	0.7449	3	1.7977	42.8679	0.0616	6.9607	0.3484	0.3484	4.2061	11.8448		LCS				

SampleID	Instr	Time (min.)	Alpha Counts	Beta Counts	Count Start Time	Count End Time	Machine
233580001	1A	60	5	31	8/4/2009 19:20	8/4/2009 20:20	Protean
233580002	1B	60	0	30	8/4/2009 19:20	8/4/2009 20:20	Protean
233580003	1D	60	11	46	8/4/2009 19:20	8/4/2009 20:20	Protean
233580004	2A	60	3	34	8/4/2009 19:20	8/4/2009 20:20	Protean
233580005	2C	60	3	20	8/4/2009 19:20	8/4/2009 20:20	Protean
233580006	2D	60	5	26	8/4/2009 19:20	8/4/2009 20:20	Protean
233580007	5A	60	7	30	8/4/2009 19:20	8/4/2009 20:20	Protean
233580008	6B	60	11	62	8/4/2009 19:20	8/4/2009 20:20	Protean
233580009	6D	60	3	35	8/4/2009 19:20	8/4/2009 20:20	Protean
233580010	7A	60	10	35	8/4/2009 19:21	8/4/2009 20:21	Protean
233580011	7B	60	13	49	8/4/2009 19:21	8/4/2009 20:21	Protean
233580012	7C	60	2	17	8/4/2009 19:21	8/4/2009 20:21	Protean
233580013	7D	60	4	24	8/4/2009 19:21	8/4/2009 20:21	Protean
1201890245	8A	60	3	48	8/4/2009 19:20	8/4/2009 20:20	Protean
1201890246	8C	60	11	43	8/4/2009 19:20	8/4/2009 20:20	Protean
1201890247	9A	60	5	409	8/4/2009 19:20	8/4/2009 20:20	Protean
1201890248	9C	60	4	436	8/4/2009 19:20	8/4/2009 20:20	Protean

ASSAY 4-Aug-09 13:19:48

Protocol id 9 228\_REC2  
Time limit 180  
Count limit 50000  
Isotope Ba-133  
Protocol date 9-Apr-07 10:02:22  
Run id. 38

POS	RACK	BATCH	TIME	COUNTS	CPM	ERROR	% RECOVERY	COUNT TIME
1	90	1	180	713	207.2	4.38		13:19:55
2	90	2	180	626	178.1	4.78	85.96	13:23:07
3	90	3	180	563	157.2	5.15	75.87	13:26:18
<del>4</del>	<del>90</del>	<del>4</del>	<del>180</del>	<del>486</del>	<del>131.4</del>	<del>5.74</del>	<del>63.42</del>	<del>13:29:29</del>
5	90	5	180	533	147.2	5.36	71.04	13:32:41
6	61	6	180	634	180.9	4.74	87.31	13:36:06
7	61	7	180	602	170.2	4.91	82.14	13:39:17
8	61	8	180	537	148.4	5.33	71.62	13:42:28
9	61	9	180	559	156	5.18	75.29	13:45:40
10	61	10	180	588	165.7	4.99	79.97	13:48:51
11	75	11	180	543	150.6	5.29	72.68	13:52:16
12	75	12	180	585	164.7	5.01	79.49	13:55:27
13	75	13	180	546	151.6	5.26	73.17	13:58:39
14	75	14	180	608	172.2	4.88	83.11	14:01:50
15	75	15	180	527	145.4	5.4	70.17	14:05:01
16	66	16	180	567	158.7	5.12	76.59	14:08:25
17	66	17	180	576	161.6	5.07	77.99	14:11:37
18	66	18	180	573	160.7	5.08	77.56	14:14:48

*N 81710*

END OF ASSAY



ASSAY 4-Aug-09 15:58:21

Protocol id 9 228\_REC2  
Time limit 180  
Count limit 50000  
Isotope Ba-133  
Protocol date 9-Apr-07 10:02:22  
Run id. 41

POS	RACK	BATCH	TIME	COUNTS	CPM	ERROR	% RECOVERY	COUNT TIME
1	90	1	180	709	206.1	4.39		15:58:28
2	90	2	180	552	153.7	5.22	74.58	16:01:39

END OF ASSAY

# RADIUM 226

**Radiochemistry Batch Checklist, Rev 9**

Batch# 892562 Product: Ta-226 Date: 8/20/09

Criteria:	Yes	No	Comments
Sample Solids are less than or equal to 100 mg for GAB.			NA
Samples have been blank corrected (if required)			NA
If activity less 10* MDA/ MDC, error is 150% or less of sample activity. If greater 10* MDA/ MDC, error is 40% or less. If below the MDA/ MDC, error is okay.	✓		
Instrument source check is within limits.	✓		
Instrument bkg check is within limits.	✓		
Method RDL/ LLD has been met.	✓		
If duplicate activities are less 5* MDA/ MDC, then RPD is 100% or less. If greater 5* MDA/ MDC, then RPD 20% or less. If below the MDA/ MDC, the RPD is 0%.	✓		
Or meets the client's required RER acceptance criteria.			
Tracer yield is 15-125% . Carrier yield 25-125%.			NA
Or meets the client's contract acceptance criteria.			
Method blank is less than the RDL/ LLD.	✓		
(If rad samples, < 5% of lowest activity)	✓		
Sample was run within hold time.	✓		
Sample was correctly preserved if required.			NA
Smears Taken for Radioactive batches.			NA
Method Spike and LCS are within 75-125% or meets the client's contract acceptance criteria.	✓		
No blank spaces on data forms.	✓		
All line outs initialed and dated.	✓		
No transcription errors are apparent.			
Aux data is correct.			NA
Client Special requirements page has been checked.	✓		
Raw Data and/ or spectrum are included and properly stasured.	✓		
QC data entered into QC database and batch is in REVW	✓		
Hit notification complete (if necessary)			NA
Batch entered into Case Narrative.	✓		
Batch non-conformances completed, if applicable.	✓		NCR 724472
Batch non-conformances second reviewed and disposition verified to be completed.			
Aliquot Correction completed if required.			NA
Review sample historical results if available (If REMP, results above MDC have been verified by historical results, recount or re-analysis.)	✓		

GEL Laboratories, LLC

revised 8/1/08

Primary Review Performed By: Lindsey Pace

Secondary Review Performed By: Lizette Yon

KERTZ 8/25/09

# Radium-226 Que Sheet

08/10/2009 General Engineering Laboratories, Radiochemistry Division

Batch #: 892562 Analyst: KSD1 Internal Due Date: 08/14/2009  
 Spike Code: 003814 Expiration Date: 1/1/10 Vol: 0.1 Nom Conc: 20.8321  
 LCS Code: 003814 Expiration Date: 1/1/10 Vol: 0.1 Nom Conc: 24.1655  
 Prep Date: 8/11/09 Pipet ID: 1415303 Initials: LKJ Witness: DL-81709 Sample Count Time: 30 (Min)  
 Bkg Count Time: 30 (Min)

Sample I	Client Description	Type	Hazard Code Matrix	Min CRDL	Client	Vol (mL)	End Init	End LN	De-em	Start Count	Cell #	Det #	Bkg counts	Total Counts
233580001-1	M-92BDISS	SAMPLE	WATER	1 pCi/L	KERR003/	500	8/11/09 1415	8/20/09 1225	8/20/09 1525	409	4	8	8	26
233580002-1	M-97B	SAMPLE	WATER	1 pCi/L	KERR003/2	500	8/11/09 1415	8/20/09 1225	8/20/09 1525	603	5	4	4	17
233580003-1	TR-6B	SAMPLE	WATER	1 pCi/L	KERR003/3	500	8/11/09 1415	8/20/09 1225	8/20/09 1525	607	6	8	8	40
233580004-1	EB-071709-GW	SAMPLE	WATER	1 pCi/L	KERR003/4	500	8/11/09 1415	8/20/09 1225	8/20/09 1525	111	1	6	6	18
233580005-1	M-33B	SAMPLE	WATER	1 pCi/L	KERR003/5	500	8/11/09 1415	8/20/09 1225	8/20/09 1525	211	2	2	2	16
233580006-1	CLD-4RB	SAMPLE	WATER	1 pCi/L	KERR003/6	500	8/11/09 1415	8/20/09 1225	8/20/09 1525	308	3	6	6	17
233580007-1	MW-6RB	SAMPLE	WATER	1 pCi/L	KERR003/7	500	8/11/09 1415	8/20/09 1225	8/20/09 1525	410	4	8	8	15
233580008-1	M-52B	SAMPLE	WATER	1 pCi/L	KERR003/8	500	8/11/09 1415	8/20/09 1225	8/20/09 1525	504	5	8	8	25
233580009-1	M-35B	SAMPLE	WATER	1 pCi/L	KERR003/9	500	8/11/09 1415	8/20/09 1225	8/20/09 1525	604	6	6	6	20
233580010-1	M-11B	SAMPLE	WATER	1 pCi/L	KERR003/10	500	8/11/09 1415	8/20/09 1225	8/20/09 1525	1069	1	8	8	22
233580011-1	M-11BDISS	SAMPLE	WATER	1 pCi/L	KERR003/11	500	8/11/09 1415	8/20/09 1225	8/20/09 1525	1069	2	3	3	11
233580012-1	M-11009B	SAMPLE	WATER	1 pCi/L	KERR003/12	500	8/11/09 1415	8/20/09 1225	8/20/09 1525	307	3	4	4	15
233580013-1	M-11009BDISS	SAMPLE	WATER	1 pCi/L	KERR003/13	500	8/11/09 1415	8/20/09 1225	8/20/09 1525	404	4	8	8	20
1201898768-1	MB for batch 892562	MB	WATER	1 pCi/L	QC ACCOUNT/14	500	8/11/09 1415	8/20/09 1225	8/20/09 1525	511	5	8	8	21
1201898769-1	M-92BDISS(233580001DUP)	DUP	WATER	1 pCi/L	QC ACCOUNT/15	500	8/11/09 1415	8/20/09 1225	8/20/09 1525	401	4	8	8	34
1201898770-1	M-92BDISS(233580001MS)	MS	WATER	1 pCi/L	QC ACCOUNT/16	500	8/11/09 1415	8/20/09 1225	8/20/09 1525	111	1	8	8	651
1201898771-1	LCS for batch 892562	LCS	WATER	1 pCi/L	QC ACCOUNT/17	500	8/11/09 1415	8/20/09 1225	8/20/09 1525	101	1	8	8	719

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Comments: \_\_\_\_\_  
 Instrument ID's: LUCAS1:90988, LUCAS2:136917, LUCAS3:90989, LUCAS4:102753, LUC5:132286, LUC6:170055  
 Data Reviewed By: Andrew Paul 8/20/09  
 Page 1 of 1

# Radium-226 Liquid

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

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

Spike S/N : 0638-H  
 Spike Exp Date : 7/17/2010  
 Spike Activity (dpm/ml): 268.24  
 Spike Volume Added: 0.10

Batch : 892562

Analyst : KSD1

Prep Date : 8/17/2009

Ra-226 Abundance : 1

Ra-226 Method Uncertainty : 0.0918

Procedure Code : LUC26RAL

Parname : Radium-226

Required MDA : 1 pCi/L

Half-life of Ra-226 : 1600 years

Half-life of Rn-222: 3.823 days

Batch counted on : LUCAS CELL DETECTOR

BKG Count time : 30 min

Pos.	Sample Characteristics		Sample Aliquot L	Sample Aliquot StDev. L	Sample Date/Time	Count Raw Data			Weekly Background			Detector Efficiency (cpm/dpm)
	Sample ID	Aliquot L				Cell Number	Counting Time (min.)	Gross Counts	Gross CPM	Counts	CPM	
1	233580001.1	0.5000	2.0256E-05	7/15/2009 8:45	409	30	26	0.867	8	0.267	30	2.0360
2	233580002.1	0.5000	2.0256E-05	7/16/2009 8:45	503	30	17	0.567	4	0.133	30	1.6010
3	233580003.1	0.5000	2.0256E-05	7/17/2009 7:50	607	30	40	1.333	8	0.267	30	2.4500
4	233580004.1	0.5000	2.0256E-05	7/17/2009 9:45	111	30	18	0.600	6	0.200	30	1.5750
5	233580005.1	0.5000	2.0256E-05	7/21/2009 11:15	211	30	16	0.533	2	0.067	30	2.1710
6	233580006.1	0.5000	2.0256E-05	7/22/2009 9:50	308	30	17	0.567	6	0.200	30	1.9500
7	233580007.1	0.5000	2.0256E-05	7/23/2009 9:17	410	30	15	0.500	8	0.267	30	1.8860
8	233580008.1	0.5000	2.0256E-05	7/24/2009 8:10	504	30	25	0.833	8	0.267	30	1.6150
9	233580009.1	0.5000	2.0256E-05	7/24/2009 11:10	604	30	43	1.433	6	0.200	30	2.1330
10	233580010.1	0.5000	2.0256E-05	7/27/2009 9:15	106	30	22	0.733	8	0.267	30	1.4860
11	233580011.1	0.5000	2.0256E-05	7/27/2009 9:15	209	30	11	0.367	3	0.100	30	2.2910
12	233580012.1	0.5000	2.0256E-05	7/27/2009 9:15	307	30	15	0.500	4	0.133	30	1.9310
13	233580013.1	0.5000	2.0256E-05	7/27/2009 9:15	404	30	20	0.667	8	0.267	30	1.9310
14	1201898768.1	0.5000	2.0256E-05	8/17/2009 0:00	511	30	21	0.700	8	0.267	30	1.9590
15	1201898769.1	0.5000	2.0256E-05	7/15/2009 8:45	601	30	34	1.133	8	0.267	30	2.1810
16	1201898770.1	0.1000	1.1370E-05	7/15/2009 8:45	112	30	651	21.700	8	0.267	30	1.6480
17	1201898771.1	0.5000	2.0256E-05	8/17/2009 0:00	201	30	719	23.967	8	0.267	30	1.9930

Detector Efficiency Error (cpm/dpm)	Cell Calibration Date	Cell Calibration Due Date	De-Gas Date/Time	Rn-222 Ingrow End Date/Time	Count Start Date/Time	De-Gas to Ingrowth	Rn-222 Corrections		Ra-226 Decay
							Ingrowth to Count	During Count	
0.12371	3/2/2009	3/2/2010	8/17/2009 14:15	8/20/2009 12:25	8/20/2009 15:25	0.411	0.978	1.002	1.000
0.14377	3/25/2009	3/25/2010	8/17/2009 14:15	8/20/2009 12:25	8/20/2009 15:25	0.411	0.978	1.002	1.000
0.06605	8/4/2009	8/4/2010	8/17/2009 14:15	8/20/2009 12:25	8/20/2009 15:25	0.411	0.978	1.002	1.000
0.09580	8/29/2008	8/29/2009	8/17/2009 14:15	8/20/2009 12:55	8/20/2009 15:55	0.414	0.978	1.002	1.000
0.07722	12/19/2008	12/19/2009	8/17/2009 14:15	8/20/2009 12:55	8/20/2009 15:55	0.414	0.978	1.002	1.000
0.06082	2/4/2009	2/4/2010	8/17/2009 14:15	8/20/2009 12:55	8/20/2009 15:55	0.414	0.978	1.002	1.000
0.12371	3/2/2009	3/2/2010	8/17/2009 14:15	8/20/2009 12:55	8/20/2009 15:55	0.414	0.978	1.002	1.000
0.14377	3/25/2009	3/25/2010	8/17/2009 14:15	8/20/2009 12:55	8/20/2009 15:55	0.414	0.978	1.002	1.000
0.06605	8/4/2009	8/4/2010	8/17/2009 14:15	8/20/2009 12:55	8/20/2009 15:55	0.414	0.973	1.002	1.000
0.09580	8/29/2008	8/29/2009	8/17/2009 14:15	8/20/2009 13:25	8/20/2009 16:35	0.416	0.976	1.002	1.000
0.07722	12/19/2008	12/19/2009	8/17/2009 14:15	8/20/2009 13:25	8/20/2009 17:20	0.416	0.971	1.002	1.000
0.06082	2/4/2009	2/4/2010	8/17/2009 14:15	8/20/2009 13:25	8/20/2009 16:35	0.416	0.976	1.002	1.000
0.12371	3/2/2009	3/2/2010	8/17/2009 14:15	8/20/2009 13:25	8/20/2009 16:35	0.416	0.976	1.002	1.000
0.14377	3/25/2009	3/25/2010	8/17/2009 14:15	8/20/2009 13:25	8/20/2009 16:35	0.416	0.976	1.002	1.000
0.06605	8/4/2009	8/4/2010	8/17/2009 14:15	8/20/2009 13:25	8/20/2009 16:35	0.416	0.976	1.002	1.000
0.09580	8/29/2008	8/29/2009	8/17/2009 14:15	8/20/2009 13:45	8/20/2009 17:20	0.417	0.973	1.002	1.000
0.07722	12/19/2008	12/19/2009	8/17/2009 14:15	8/20/2009 13:45	8/20/2009 18:05	0.417	0.968	1.002	1.000

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

Pos.	Decision Level pCi/L	Critical Level pCi/L	Required MDA pCi/L	MDA pCi/L	Sample Act. Conc. pCi/L	Sample Act. Error pCi/L	Net Count Rate CPM	Net Count Rate Error CPM	2 SIGMA		Sample QC	Sample Type	RPD	RER	Nominal pCi/L	Recovery
									Counting Uncertainty pCi/L	Total Prop. Uncertainty pCi/L						
1	0.3411	0.2408	1	0.5915	0.6588	0.3468	0.6000	0.1944	0.4183	0.4632		SAMPLE				
2	0.3068	0.2166	1	0.5728	0.6051	0.3807	0.4333	0.1528	0.4181	0.4645		SAMPLE				
3	0.2835	0.2001	1	0.4915	0.9734	0.2264	1.0667	0.2309	0.4130	0.4660		SAMPLE				
4	0.3799	0.2682	1	0.6775	0.5647	0.4193	0.4000	0.1633	0.4519	0.4752		SAMPLE				
5	0.1591	0.1123	1	0.3271	0.4780	0.3127	0.4667	0.1414	0.2839	0.3053		SAMPLE				
6	0.3068	0.2166	1	0.5472	0.4181	0.4402	0.3667	0.1599	0.3573	0.3685		SAMPLE				
7	0.3663	0.2586	1	0.6351	0.2751	0.6962	0.2333	0.1599	0.3694	0.3786		SAMPLE				
8	0.4278	0.3020	1	0.7417	0.7802	0.3672	0.5667	0.1915	0.5168	0.5789		SAMPLE				
9	0.2819	0.1990	1	0.5028	1.2922	0.2004	1.2333	0.2333	0.4792	0.5583		SAMPLE				
10	0.4630	0.3269	1	0.8028	0.6955	0.4028	0.4667	0.1826	0.5333	0.5631		SAMPLE				
11	0.1849	0.1306	1	0.3584	0.2592	0.4740	0.2667	0.1247	0.2376	0.2453		SAMPLE				
12	0.2519	0.1779	1	0.4704	0.4205	0.4009	0.3667	0.1453	0.3266	0.3390		SAMPLE				
13	0.3563	0.2515	1	0.6178	0.4588	0.4580	0.4000	0.1764	0.3965	0.4200		SAMPLE				
14	0.3512	0.2479	1	0.6089	0.4899	0.4385	0.4333	0.1795	0.3977	0.4301		MB				
15	0.3155	0.2227	1	0.5470	0.8800	0.2579	0.8667	0.2160	0.4299	0.4721	233580001.1	DUP	28.7%	120.8321	118.6%	
16	2.0866	1.4732	1	3.6180	143.9604	0.1038	21.4333	0.8557	11.2650	39.0958	233580001.1	MS		24.1655	109.6%	
17	0.3470	0.2450	1	0.6017	26.4744	0.0860	23.7000	0.8988	1.9678	6.5284		LCS				

# METHOD CALIBRATION DATA



# ALPHA SPECTROSCOPY

## Alpha Spectroscopy Calibration Sources

The following is a summary of the procedure performed for preparing mixed alpha calibration standards:

A calibration stock solution was prepared by combining the following in a volumetric flask and diluting to 50 ml (51.4561 grams). These individual standards were first verified by direct precipitation of small aliquots of each standard (as described in Attachment I).

Isotope	Serial #	amount used (g)	dpm (note 1)
Gd-148	64445-278	0.2471	212.159287
Np-237	4341	1.8075	204.438594
Cm-244	4320A	7.2704	240.144737

Note 1: Dpm values are decay corrected to 2/7/2003.

Forty one weighted aliquots were then directly precipitated using Neodymium Fluoride /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  
Stdev = 0

Target = 108.1230 pCi/g  
Lower Limit = 106  
Upper Limit = 106  
Rule 1 Pass/Fail Pass  
Two sigma = 0  
10 % of Mean = 10.6  
Rule 2 (Pass/Fail) Pass

Neptunium-237

Isotope	Value pCi/g
SSTOCK2002A2_AM	90.100
SSTOCK2002B2_AM	87.200
SSTOCK2002C2_AM	93.500

Mean Value (Counting) = 90.267  
Stdev = 3.153305144

Target = 92.0900 pCi/g  
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  
Stdev = 1.503074627

Target = 95.6460 pCi/g  
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.

Robertson 02/20/03

Attachment II

Mixed alpha isotope	Reference date = Source	Stock Dpm/g	Reference date	Half-life (years)	amount used for mixed	Dpm/g mixed	Decay corr dpm/g
Gd-148	64445-278 (0502)	44354.59289	9/5/2002	74.60	0.2471	212.9974853	212.159287
Np-237	Srm 4341 (0493)	5820	3/1/1992	2.14E+06	1.8075	204.4393182	204.438594
Cm-244	SRM 4320a (0490)	2223.6	2/1/1996	18.1	7.2704	314.1796879	240.144737
Source	Amount of standard used	dpm Gd-148	dpm Np-237	dpm Cm-244	dps Gd-148	dps Np-237	dps Cm-244
AESS-001	1.0362	219.839	211.839	248.838	3.664	3.531	4.147
AESS-002	1.0344	219.458	211.471	248.406	3.658	3.525	4.140
AESS-003	1.034	219.373	211.390	248.310	3.656	3.523	4.138
AESS-004	1.0331	219.182	211.206	248.094	3.653	3.520	4.135
AESS-005	1.0353	219.649	211.655	248.622	3.661	3.528	4.144
AESS-006	1.0331	219.182	211.206	248.094	3.653	3.520	4.135
AESS-007	1.0348	219.542	211.553	248.502	3.659	3.526	4.142
AESS-008	1.0363	219.861	211.860	248.862	3.664	3.531	4.148
AESS-009	1.0352	219.627	211.635	248.598	3.660	3.527	4.143
AESS-010	1.0346	219.500	211.512	248.454	3.658	3.525	4.141
AESS-011	1.0353	219.649	211.655	248.622	3.661	3.528	4.144
AESS-012	1.0367	219.946	211.941	248.958	3.666	3.532	4.149
AESS-013	1.0396	220.561	212.534	249.654	3.676	3.542	4.161
AESS-014	1.0368	219.967	211.962	248.982	3.666	3.533	4.150
AESS-015	1.0363	219.861	211.860	248.862	3.664	3.531	4.148
AESS-016	1.0353	219.649	211.655	248.622	3.661	3.528	4.144
AESS-017	1.0356	219.712	211.717	248.694	3.662	3.529	4.145
AESS-018	1.0359	219.776	211.778	248.766	3.663	3.530	4.146
AESS-019	1.0349	219.564	211.574	248.526	3.659	3.526	4.142
AESS-020	1.0361	219.818	211.819	248.814	3.664	3.530	4.147
AESS-021	1.0348	219.542	211.553	248.502	3.659	3.526	4.142
AESS-022	1.0353	219.649	211.655	248.622	3.661	3.528	4.144
AESS-023	1.0353	219.649	211.655	248.622	3.661	3.528	4.144
AESS-024	1.0343	219.436	211.451	248.382	3.657	3.524	4.140
AESS-025	1.0364	219.882	211.880	248.886	3.665	3.531	4.148
AESS-026	1.0336	219.288	211.308	248.214	3.655	3.522	4.137
AESS-027	1.0353	219.649	211.655	248.622	3.661	3.528	4.144
AESS-028	1.0366	219.924	211.921	248.934	3.665	3.532	4.149

Attachment II

AESS-029	1.0355	219.691	211.696	248.670	3.662	3.528	4.144
AESS-030	1.0349	219.564	211.574	248.526	3.659	3.526	4.142
AESS-031	1.0343	219.436	211.451	248.382	3.657	3.524	4.140
AESS-032	1.0326	219.076	211.103	247.973	3.651	3.518	4.133
AESS-033	1.0308	218.694	210.735	247.541	3.645	3.512	4.126
AESS-034	1.0314	218.821	210.858	247.685	3.647	3.514	4.128
AESS-035	1.0303	218.588	210.633	247.421	3.643	3.511	4.124
AESS-036	1.0343	219.436	211.451	248.382	3.657	3.524	4.140
AESS-037	1.0353	219.649	211.655	248.622	3.661	3.528	4.144
AESS-038	1.0373	220.073	212.064	249.102	3.668	3.534	4.152
AESS-039	1.0334	219.245	211.267	248.166	3.654	3.521	4.136
AESS-040	1.0346	219.500	211.512	248.454	3.658	3.525	4.141
AESS-041	1.0352	219.627	211.635	248.598	3.660	3.527	4.143



0490  
0491

# National Institute of Standards & Technology Certificate

## Standard Reference Material 4320A Curium-244 Radioactivity Standard

This Standard Reference Material (SRM) consists of radioactive curium-244 nitrate and nitric acid dissolved in 5 mL of distilled water. The solution is contained in a flame-sealed NIST borosilicate-glass ampoule. The SRM is intended for the calibration of alpha-particle counting instruments and for the monitoring of radiochemical procedures.

### Radiological Hazard

The SRM ampoule contains curium-244 with a total activity of approximately 200 Bq. Curium-244 decays by alpha-particle emission to plutonium-240, which also decays by alpha-particle emission. None of the alpha particles escape from the SRM ampoule. During the decay process X-rays and gamma rays with energies from 40 keV to 1100 keV are also emitted. Most of these photons escape from the SRM ampoule but their intensities are so small that they do not represent a radiation hazard. Approximate unshielded dose rates at several distances (as of the reference time) are given in note [a]\*. The SRM should be used only by persons qualified to handle radioactive material.

### Chemical Hazard

The SRM ampoule contains nitric acid ( $\text{HNO}_3$ ) with a concentration of 1 mole per liter of water. The solution is corrosive and represents a health hazard if it comes in contact with eyes or skin. If the ampoule is to be opened to transfer the solution, the recommended procedure is given on page 2. The ampoule should be opened only by persons qualified to handle both radioactive material and strong acid solution.

### Storage and Handling

The SRM should be stored and used at a temperature between 5 and 65 °C. The solution in an unopened ampoule should remain stable and homogeneous until at least February 2006.

The ampoule (or any subsequent container) should always be clearly marked as containing radioactive material. If the ampoule is transported it should be packed, marked, labeled, and shipped in accordance with the applicable national, international, and carrier regulations. The solution in the ampoule is a dangerous good (hazardous material) both because of the radioactivity and because of the strong acid.

### Preparation

This Standard Reference Material was prepared in the Physics Laboratory, Ionizing Radiation Division, Radioactivity Group, J.M.R. Hutchinson, Group Leader. The overall technical direction and physical measurements leading to certification were provided by L.L. Lucas of the Radioactivity Group.

The support aspects involved in the preparation, certification, and issuance of this SRM were coordinated through the Standard Reference Materials Program by N.M. Trahey.

Gaithersburg, Maryland 20899  
February 1996 (Text only revised November 1997)

Thomas E. Gills, Chief  
Standard Reference Materials Program

### Recommended Procedure for Opening the SRM Ampoule

- 1) If the SRM solution is to be diluted, it is recommended that the diluting solution have a composition comparable to that of the SRM solution.
- 2) Wear eye protection, gloves, and protective clothing and work over a tray with absorbent paper in it. Work in a fume hood. In addition to the radioactive material, the solution contains strong acid and is corrosive.
- 3) Shake the ampoule to wet all of the inside surface of the ampoule. Return the ampoule to the upright position.
- 4) Check that all of the liquid has drained out of the neck of the ampoule. If necessary, gently tap the neck to speed the process.
- 5) Holding the ampoule upright, score the narrowest part of the neck with a scribe or diamond pencil.
- 6) Lightly wet the scored line. This reduces the crack propagation velocity and makes for a cleaner break.
- 7) Hold the ampoule upright with a paper towel, a wiper, or a support jig. Position the scored line away from you. Using a paper towel or wiper to avoid contamination, snap off the top of the ampoule by pressing the narrowest part of the neck away from you while pulling the tip of the ampoule towards you.
- 8) Transfer the solution from the ampoule using a pycnometer or a pipet with dispenser handle.  
**NEVER PIPETTE BY MOUTH**
- 9) Seal any unused SRM solution in a flame-sealed glass ampoule, if possible, to minimize the evaporation loss.

See also reference [4]\*.

PROPERTIES OF SRM 4320A  
(Certified values are shown in bold type)

Source identification number	NIST SRM 4320A		
Physical Properties:			
Source description	Liquid in flame-sealed NIST borosilicate-glass ampoule		
Ampoule specifications	Body outside diameter	(16.5 ± 0.5) mm	
	Wall Thickness	(0.60 ± 0.04) mm	
	Barium content	Less than 2.5%	
	Lead-oxide content	Less than 0.02%	
	Other heavy elements	Trace quantities	
Solution density	(1.030 ± 0.002) g·mL <sup>-1</sup> at 22.8 °C [b]*		
Solution mass	Approximately 5.15 g		
Chemical Properties:			
Solution composition	Chemical Formula	Concentration (mol·L <sup>-1</sup> )	Mass Fraction (g·g <sup>-1</sup> )
	H <sub>2</sub> O	54	0.94
	HNO <sub>3</sub>	1.0	0.06
	HCl	<0.001	<4 × 10 <sup>-5</sup>
	<sup>244</sup> Cm +3	5 × 10 <sup>-11</sup>	1 × 10 <sup>-11</sup>
Radiological Properties:			
Radionuclide	Curium-244		
Reference time	1230 EST, 1 February 1996 [c]		
Massic activity of the solution [d]	37.06 Bq·g <sup>-1</sup> 24.12 Bq·g <sup>-1</sup>		
Relative expanded uncertainty (k=2)	0.68% [e] [f]		
Alpha-particle-emitting daughters	Plutonium-240: (0.22 ± 0.11) Bq·g <sup>-1</sup> [b] [c]		
Alpha-particle-emitting impurities	Curium-243: (0.005 ± 0.004) Bq·g <sup>-1</sup> [b] [g]		
Photon-emitting impurities	None detected [h]		
Half lives used in the decay corrections	Curium-244: (18.10 ± 0.02) a [i] Plutonium-240: (6563 ± 7) a [i]		
Calibration method	Two 4π liquid-scintillation counting systems		

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- [i] The stated uncertainty is the standard uncertainty. See reference [5].
- [j] Relative standard uncertainty of the input quantity  $x_i$ .
- [k] The relative change in the output quantity  $y$  divided by the relative change in the input quantity  $x_i$ . If  $|\partial y/\partial x_i| \cdot (x_i/y) = 1.0$ , then a 1% change in  $x_i$  results in a 1% change in  $y$ . If  $|\partial y/\partial x_i| \cdot (x_i/y) = 0.05$ , then a 1% change in  $x_i$  results in a 0.05% change in  $y$ .
- [m] Relative component of combined standard uncertainty of output quantity  $y$ , rounded to two significant figures or less. The relative component of combined standard uncertainty of  $y$  is given by  $u_i(y)/y = |\partial y/\partial x_i| \cdot u(x_i)/y = |\partial y/\partial x_i| \cdot (x_i/y) \cdot u(x_i)/x_i$ . The numerical values of  $u(x_i)/x_i$ ,  $|\partial y/\partial x_i| \cdot (x_i/y)$ , and  $u_i(y)/y$ , all dimensionless quantities, are listed in columns 3, 4, and 5, respectively. Thus, the value in column 5 is equal to the value in column 4 multiplied by the value in column 3. The input quantities are independent, or very nearly so. Hence the covariances are zero or negligible.
- [n] The relative standard uncertainty of  $\lambda \cdot t$  is determined by the relative standard uncertainty of  $\lambda$  (i.e., of the half life). The relative standard uncertainty of  $t$  is negligible.
- [p]  $|\partial y/\partial x_i| \cdot (x_i/y) = |\lambda \cdot t|$
- [q] The live time is determined by counting the pulses from a gated oscillator.
- [r] The standard uncertainty given is for the detected Cm-243 impurity.  $|\partial y/\partial x_i| \cdot (x_i/y) = \{(\text{response per Bq of impurity})/(\text{response per Bq of Cm-244})\} \cdot \{(\text{Bq of impurity})/(\text{Bq of Cm-244})\}$ .
- [s] The standard uncertainty for each undetected impurity that might reasonably be expected to be present is estimated to be equal to the estimated limit of detection for that impurity, i.e.  $u(x_i)/x_i = 100\%$ .  $|\partial y/\partial x_i| \cdot (x_i/y) = \{(\text{response per Bq of impurity})/(\text{response per Bq of Cm-244})\} \cdot \{(\text{Bq of impurity})/(\text{Bq of Cm-244})\}$ . Thus  $u_i(y)/y$  is the relative change in  $y$  if the impurity were present with a massic activity equal to the estimated limit of detection.

#### REFERENCES

- [1] International Organization for Standardization (ISO), *ISO Standards Handbook - Quantities and Units*, 1993. Available from the American National Standards Institute, 11 West 42nd Street, New York, NY 10036, U.S.A. 1-212-642-4900.
- [2] International Organization for Standardization (ISO), *Guide to the Expression of Uncertainty in Measurement*, 1993. Available from the American National Standards Institute, 11 West 42nd Street, New York, NY 10036, U.S.A. 1-212-642-4900. (Listed under ISO miscellaneous publications as "ISO Guide to the Expression 1993".)
- [3] B. N. Taylor and C. E. Kuyatt, *Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Results*, NIST Technical Note 1297, 1994. Available from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20407, U.S.A.
- [4] National Council on Radiation Protection and Measurements Report No. 58, *A Handbook of Radioactivity Measurements Procedures*, Second Edition, 1985. Available from the National Council on Radiation Protection and Measurements, 7910 Woodmont Avenue, Bethesda, MD 20814 U.S.A.
- [5] Evaluated Nuclear Structure Data File (ENSDF), February 1996.



# CERTIFICATE OF CALIBRATION

Standard Radionuclide Source

64445-278

Gd-148 5 mL Liquid in Flame Sealed Vial

This standard radionuclide source was prepared gravimetrically from a calibrated master liquid radionuclide solution source. The master source was calibrated by liquid scintillation counting.

ANALYTICS maintains traceability to the National Institute of Standards and Technology through Measurements Assurance Programs as described in USNRC Reg. Guide 4.15, Revision 1.

Radionuclide purity and calibration were checked using a germanium gamma spectrometer system. The nuclear decay rate and assay date for this source are given below.

ISOTOPE:	Gd-148
ACTIVITY (dps):	<u>3.759 E3</u>
HALF-LIFE:	<u>74.6 years</u>
CALIBRATION DATE:	September 5, 2002 12:00 EST
TOTAL UNCERTAINTY*:	2.7%
SYSTEMATIC:	1.9%
RANDOM:	0.8%

99% confidence level.

5.08493 grams 0.1M HCl solution.

P O NUMBER 3207RD, Item 1

SOURCE PREPARED BY:

M.D. Currie  
M.D. Currie, Radiochemist

Q A APPROVED:

W.M. [Signature] 9-6-02

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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 <sup>(1)*</sup>
Solution mass	Approximately 5 grams
Solution composition	Neptunium-237 in 2 mol·L <sup>-1</sup> nitric acid
Reference time	March 1992
Radioactivity concentration	97.0 Bq·g <sup>-1</sup>
Overall uncertainty	1.28 percent <sup>(2)</sup>
Photon-emitting impurities	None detected <sup>(3)</sup>
Alpha-particle-emitting impurities	None detected <sup>(4)</sup>
Half life	(2.14 ± 0.11) × 10 <sup>6</sup> years <sup>(5)</sup>
Measuring instrument	NIST "0.8π" α defined-solid-angle counter with scintillation detector

This standard reference material was prepared in the Physics Laboratory, Ionizing Radiation Division, Radioactivity Group, J.M. Robin Hutchinson, Acting Group Leader.

Gaithersburg, MD  
January 1993

William P. Reed, Chief  
Standard Reference Materials Program

\*Notes on back

## NOTES

- (1) Approximately five milliliters of solution. Ampoule specifications:
- |                      |                        |
|----------------------|------------------------|
| body diameter        | $16.5 \pm 0.5$ mm      |
| wall thickness       | $0.60 \pm 0.04$ mm     |
| barium content       | less than 2.5 percent  |
| lead oxide content   | less than 0.02 percent |
| other heavy elements | trace quantities       |
- (2) The overall uncertainty was formed by taking three times the quadratic combination of the standard deviations of the mean, or approximations thereof, for the following:
- |  |              |
|--|--------------|
| a) alpha-particle-emission-rate measurements         | 0.34 percent |
| b) background  | 0.01 percent |
| c) livetime  | 0.10 percent |
| d) detection efficiency                              | 0.16 percent |
| e) count-rate-vs-energy extrapolation to zero energy | 0.10 percent |
| f) half life   | 0.00 percent |
| g) gravimetric measurements                          | 0.10 percent |
| h) alpha-emitting impurities                         | 0.10 percent |
- (3) The protactinium-233 daughter of neptunium-237 is approximately in equilibrium. The limit of detection for photon-emitting impurities is
- $0.19 \text{ } \gamma \cdot \text{s}^{-1} \cdot \text{g}^{-1}$  for energies between 30 and 307 keV and  
 $0.01 \text{ } \gamma \cdot \text{s}^{-1} \cdot \text{g}^{-1}$  for energies between 317 and 1750 keV,  
provided that the impurity photons are separated in energy by 5 keV or more from photons emitted in the decay of neptunium-237 and progeny.
- (4) The limit of detection for alpha-particle-emitting impurities is
- $0.10 \text{ } \alpha \cdot \text{s}^{-1} \cdot \text{g}^{-1}$  for energies between 1.0 and 4.3 MeV and  
 $0.05 \text{ } \alpha \cdot \text{s}^{-1} \cdot \text{g}^{-1}$  for energies between 4.9 and 10 MeV.
- (5) Evaluated Nuclear Structure Data File (ENSDF), February 1990.

For further information please contact Dr. J.M. Robin Hutchinson at NIST.  
Telephone: (301) 975-5532  
FAX: (301) 926-7416

## Subsection 1: Energy Calibration

The Energy Calibration energy=Cal\_Zero+(e1\*C)+(e2\*C^2)

where : Cal\_Zero = Energy Calibration Zero  
 e1 = Energy Calibration Slope  
 e2 = Energy Calibration Quadratic  
 C = Channel

Instrument : CHAMBER 001  
 Detector : 78788  
 Calibration Date/Time : 6-JUL-2009 14:30:47  
 Calibration Source Id : AESS-001

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.307
NP-237	4341	2/28/10	4768.800	4769.611
CM-244	4320A	2/28/10	5795.020	5795.576

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2636.547  
 Energy Calibration Slope : 5.562682  
 Energy Calibration Quadratic : 4.2404264E-04  
 Energy Calibration Range : 8777.000

Instrument : CHAMBER 002  
 Detector : 78266  
 Calibration Date/Time : 6-JUL-2009 14:31:01  
 Calibration Source Id : AESS-002

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.381
NP-237	4341	2/28/10	4768.800	4769.059
CM-244	4320A	2/28/10	5795.020	5795.281

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2457.268  
 Energy Calibration Slope : 5.068144  
 Energy Calibration Quadratic : 3.1073095E-04  
 Energy Calibration Range : 7973.000

Instrument : CHAMBER 003  
 Detector : 67617  
 Calibration Date/Time : 1-JUL-2009 14:34:18  
 Calibration Source Id : AESS-003

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3256.624
NP-237	4341	2/28/10	4768.800	4498.057
CM-244	4320A	2/28/10	5795.020	5643.440

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2303.136  
 Energy Calibration Slope : 5.574179  
 Energy Calibration Quadratic : -3.1479710E-04  
 Energy Calibration Range : 7681.000

Instrument : CHAMBER 004  
 Detector : 64279  
 Calibration Date/Time : 6-JUL-2009 14:31:14  
 Calibration Source Id : AESS-004

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3182.700
NP-237	4341	2/28/10	4768.800	4768.502
CM-244	4320A	2/28/10	5795.020	5794.708

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2548.030  
 Energy Calibration Slope : 5.181645  
 Energy Calibration Quadratic : 3.6983294E-04  
 Energy Calibration Range : 8242.000

Instrument : CHAMBER 005  
 Detector : 67612  
 Calibration Date/Time : 6-JUL-2009 14:31:33  
 Calibration Source Id : AESS-005

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3239.511
NP-237	4341	2/28/10	4768.800	4822.857
CM-244	4320A	2/28/10	5795.020	5760.225

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2540.769  
 Energy Calibration Slope : 4.586285  
 Energy Calibration Quadratic : 1.2606301E-03  
 Energy Calibration Range : 8559.000

Instrument : CHAMBER 006  
 Detector : 67613  
 Calibration Date/Time : 6-JUL-2009 14:31:42  
 Calibration Source Id : AESS-006

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.980
NP-237	4341	2/28/10	4768.800	4771.889
CM-244	4320A	2/28/10	5795.020	5798.332

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2362.189  
 Energy Calibration Slope : 4.968290  
 Energy Calibration Quadratic : 2.9507218E-04  
 Energy Calibration Range : 7759.000

Instrument : CHAMBER 007  
 Detector : 67607  
 Calibration Date/Time : 6-JUL-2009 14:31:52  
 Calibration Source Id : AESS-007  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3182.695  
 NP-237 4341 2/28/10 4768.800 4768.799  
 CM-244 4320A 2/28/10 5795.020 5795.021  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2433.790  
 Energy Calibration Slope : 5.142394  
 Energy Calibration Quadratic : 3.0138035E-04  
 Energy Calibration Range : 8016.000

Instrument : CHAMBER 008  
 Detector : 78788  
 Calibration Date/Time : 6-JUL-2009 14:32:01  
 Calibration Source Id : AESS-008  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.588  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2373.661  
 Energy Calibration Slope : 4.981515  
 Energy Calibration Quadratic : 2.9968601E-04  
 Energy Calibration Range : 7789.000

Instrument : CHAMBER 009  
 Detector : 72528  
 Calibration Date/Time : 6-JUL-2009 14:32:10  
 Calibration Source Id : AESS-009  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.963  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2376.116  
 Energy Calibration Slope : 4.955449  
 Energy Calibration Quadratic : 3.2997411E-04  
 Energy Calibration Range : 7796.000

Instrument : CHAMBER 010  
 Detector : 72529  
 Calibration Date/Time : 6-JUL-2009 14:32:19  
 Calibration Source Id : AESS-010

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.261
NP-237	4341	2/28/10	4768.800	4769.006
CM-244	4320A	2/28/10	5795.020	5795.021

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2373.375  
 Energy Calibration Slope : 4.948005  
 Energy Calibration Quadratic : 2.8748735E-04  
 Energy Calibration Range : 7742.000

Instrument : CHAMBER 011  
 Detector : 72531  
 Calibration Date/Time : 6-JUL-2009 14:32:29  
 Calibration Source Id : AESS-011

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.184
NP-237	4341	2/28/10	4768.800	4768.906
CM-244	4320A	2/28/10	5795.020	5795.321

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2353.106  
 Energy Calibration Slope : 4.984596  
 Energy Calibration Quadratic : 3.1995389E-04  
 Energy Calibration Range : 7793.000

Instrument : CHAMBER 012  
 Detector : 67594  
 Calibration Date/Time : 6-JUL-2009 14:32:37  
 Calibration Source Id : AESS-012

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.008
NP-237	4341	2/28/10	4768.800	4768.801
CM-244	4320A	2/28/10	5795.020	5795.019

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2380.096  
 Energy Calibration Slope : 4.961268  
 Energy Calibration Quadratic : 2.7943935E-04  
 Energy Calibration Range : 7753.000



Instrument : CHAMBER 013  
 Detector : 78790  
 Calibration Date/Time : 6-JUL-2009 14:32:45  
 Calibration Source Id : AESS-013  
 Cal. Isotopes    Source Id    Expiration Date    Standard Energy    Actual Energy  
   GD-148        6445-278      2/28/10            3183.000        3182.992  
   NP-237        4341           2/28/10            4768.800        4768.663  
   CM-244        4320A          2/28/10            5795.020        5795.020

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2357.626  
 Energy Calibration Slope : 4.921106  
 Energy Calibration Quadratic : 2.8607668E-04  
 Energy Calibration Range : 7697.000

Instrument : CHAMBER 014  
 Detector : 67616  
 Calibration Date/Time : 6-JUL-2009 14:32:56  
 Calibration Source Id : AESS-014  
 Cal. Isotopes    Source Id    Expiration Date    Standard Energy    Actual Energy  
   GD-148        6445-278      2/28/10            3183.000        3183.000  
   NP-237        4341           2/28/10            4768.800        4768.800  
   CM-244        4320A          2/28/10            5795.020        5794.876

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2354.365  
 Energy Calibration Slope : 4.948353  
 Energy Calibration Quadratic : 3.2476214E-04  
 Energy Calibration Range : 7762.000

Instrument : CHAMBER 015  
 Detector : 61581  
 Calibration Date/Time : 6-JUL-2009 14:33:12  
 Calibration Source Id : AESS-015  
 Cal. Isotopes    Source Id    Expiration Date    Standard Energy    Actual Energy  
   GD-148        6445-278      2/28/10            3183.000        3182.620  
   NP-237        4341           2/28/10            4768.800        4768.609  
   CM-244        4320A          2/28/10            5795.020        5794.858

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2344.469  
 Energy Calibration Slope : 4.895294  
 Energy Calibration Quadratic : 3.0532407E-04  
 Energy Calibration Range : 7677.000

Instrument : CHAMBER 016  
 Detector : 78774  
 Calibration Date/Time : 6-JUL-2009 14:33:38  
 Calibration Source Id : AESS-016  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.282  
 NP-237 4341 2/28/10 4768.800 4769.068  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2356.850  
 Energy Calibration Slope : 4.876907  
 Energy Calibration Quadratic : 3.2479633E-04  
 Energy Calibration Range : 7691.000

Instrument : CHAMBER 017  
 Detector : 78791  
 Calibration Date/Time : 6-JUL-2009 14:33:47  
 Calibration Source Id : AESS-017  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.882  
 CM-244 4320A 2/28/10 5795.020 5795.156  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2369.181  
 Energy Calibration Slope : 4.952589  
 Energy Calibration Quadratic : 3.2460166E-04  
 Energy Calibration Range : 7781.000

Instrument : CHAMBER 018  
 Detector : 21063  
 Calibration Date/Time : 15-JUL-2009 07:50:05  
 Calibration Source Id : AESS-018  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.276  
 NP-237 4341 2/28/10 4768.800 4768.965  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2350.011  
 Energy Calibration Slope : 4.971119  
 Energy Calibration Quadratic : 3.1396872E-04  
 Energy Calibration Range : 7770.000

Instrument : CHAMBER 019  
 Detector : 78786  
 Calibration Date/Time : 6-JUL-2009 14:34:03  
 Calibration Source Id : AESS-019  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.635  
 NP-237 4341 2/28/10 4768.800 4769.628  
 CM-244 4320A 2/28/10 5795.020 5795.798  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2346.014  
 Energy Calibration Slope : 5.054453  
 Energy Calibration Quadratic : 2.2688090E-04  
 Energy Calibration Range : 7760.000

Instrument : CHAMBER 020  
 Detector : 78787  
 Calibration Date/Time : 6-JUL-2009 14:34:12  
 Calibration Source Id : AESS-020  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.800  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2339.467  
 Energy Calibration Slope : 4.972310  
 Energy Calibration Quadratic : 3.0532698E-04  
 Energy Calibration Range : 7751.000

Instrument : CHAMBER 021  
 Detector : 67047  
 Calibration Date/Time : 6-JUL-2009 14:34:21  
 Calibration Source Id : AESS-021  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.800  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2271.765  
 Energy Calibration Slope : 4.961651  
 Energy Calibration Quadratic : 2.7429842E-04  
 Energy Calibration Range : 7640.000

Instrument : CHAMBER 022  
 Detector : 72530  
 Calibration Date/Time : 6-JUL-2009 14:34:44  
 Calibration Source Id : AESS-022

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.024
NP-237	4341	2/28/10	4768.800	4769.027
CM-244	4320A	2/28/10	5795.020	5795.021

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2380.245  
 Energy Calibration Slope : 4.952941  
 Energy Calibration Quadratic : 3.0796995E-04  
 Energy Calibration Range : 7775.000

Instrument : CHAMBER 023  
 Detector : 78264  
 Calibration Date/Time : 6-JUL-2009 14:34:52  
 Calibration Source Id : AESS-023

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.366
NP-237	4341	2/28/10	4768.800	4768.800
CM-244	4320A	2/28/10	5795.020	5795.020

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2380.600  
 Energy Calibration Slope : 5.002743  
 Energy Calibration Quadratic : 2.8062947E-04  
 Energy Calibration Range : 7798.000

Instrument : CHAMBER 024  
 Detector : 76542  
 Calibration Date/Time : 6-JUL-2009 14:35:01  
 Calibration Source Id : AESS-024

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.799
CM-244	4320A	2/28/10	5795.020	5795.021

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2346.716  
 Energy Calibration Slope : 4.980215  
 Energy Calibration Quadratic : 2.5087653E-04  
 Energy Calibration Range : 7710.000

Instrument : CHAMBER 025  
 Detector : 45-149AA5  
 Calibration Date/Time : 6-JUL-2009 14:35:10  
 Calibration Source Id : AESS-025  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.237  
 NP-237 4341 2/28/10 4768.800 4769.932  
 CM-244 4320A 2/28/10 5795.020 5795.518  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2322.042  
 Energy Calibration Slope : 4.860308  
 Energy Calibration Quadratic : 3.0488655E-04  
 Energy Calibration Range : 7619.000

Instrument : CHAMBER 026  
 Detector : 78204  
 Calibration Date/Time : 6-JUL-2009 14:35:19  
 Calibration Source Id : AESS-026  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3182.984  
 NP-237 4341 2/28/10 4768.800 4768.684  
 CM-244 4320A 2/28/10 5795.020 5794.748  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2360.724  
 Energy Calibration Slope : 4.928299  
 Energy Calibration Quadratic : 3.4985787E-04  
 Energy Calibration Range : 7774.000

Instrument : CHAMBER 027  
 Detector : 42484  
 Calibration Date/Time : 6-JUL-2009 14:35:28  
 Calibration Source Id : AESS-027  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3182.621  
 NP-237 4341 2/28/10 4768.800 4767.888  
 CM-244 4320A 2/28/10 5795.020 5793.806  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2398.616  
 Energy Calibration Slope : 5.038840  
 Energy Calibration Quadratic : 3.1374834E-04  
 Energy Calibration Range : 7887.000

Instrument : CHAMBER 028  
 Detector : 78792  
 Calibration Date/Time : 6-JUL-2009 14:35:37  
 Calibration Source Id : AESS-028

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.799
CM-244	4320A	2/28/10	5795.020	5795.021

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2321.462  
 Energy Calibration Slope : 4.941727  
 Energy Calibration Quadratic : 3.3650306E-04  
 Energy Calibration Range : 7735.000

Instrument : CHAMBER 029  
 Detector : 33454  
 Calibration Date/Time : 6-JUL-2009 14:35:45  
 Calibration Source Id : AESS-029

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.895
CM-244	4320A	2/28/10	5795.020	5795.021

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2356.431  
 Energy Calibration Slope : 4.907866  
 Energy Calibration Quadratic : 3.0104505E-04  
 Energy Calibration Range : 7698.000

Instrument : CHAMBER 030  
 Detector : 33447  
 Calibration Date/Time : 6-JUL-2009 14:35:54  
 Calibration Source Id : AESS-030

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.338
CM-244	4320A	2/28/10	5795.020	5794.792

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2374.233  
 Energy Calibration Slope : 4.948391  
 Energy Calibration Quadratic : 3.0175908E-04  
 Energy Calibration Range : 7758.000

Instrument : CHAMBER 031  
 Detector : 67042  
 Calibration Date/Time : 15-JUL-2009 07:50:24  
 Calibration Source Id : AESS-031

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3182.352
NP-237	4341	2/28/10	4768.800	4768.800
CM-244	4320A	2/28/10	5795.020	5795.020

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2369.164  
 Energy Calibration Slope : 4.941464  
 Energy Calibration Quadratic : 3.3644502E-04  
 Energy Calibration Range : 7782.000

Instrument : CHAMBER 032  
 Detector : 67041  
 Calibration Date/Time : 15-JUL-2009 07:50:35  
 Calibration Source Id : AESS-032

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3182.693
NP-237	4341	2/28/10	4768.800	4768.915
CM-244	4320A	2/28/10	5795.020	5795.021

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2370.431  
 Energy Calibration Slope : 4.915299  
 Energy Calibration Quadratic : 3.7063286E-04  
 Energy Calibration Range : 7792.000

Instrument : CHAMBER 033  
 Detector : 78785  
 Calibration Date/Time : 6-JUL-2009 14:36:20  
 Calibration Source Id : AESS-033

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.822
CM-244	4320A	2/28/10	5795.020	5795.221

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2378.215  
 Energy Calibration Slope : 4.936105  
 Energy Calibration Quadratic : 3.4599172E-04  
 Energy Calibration Range : 7796.000

Instrument : CHAMBER 034  
 Detector : 61586  
 Calibration Date/Time : 15-JUL-2009 07:50:46  
 Calibration Source Id : AESS-034

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3182.661
NP-237	4341	2/28/10	4768.800	4768.799
CM-244	4320A	2/28/10	5795.020	5795.021

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2338.228  
 Energy Calibration Slope : 4.969683  
 Energy Calibration Quadratic : 3.5388564E-04  
 Energy Calibration Range : 7798.000

Instrument : CHAMBER 035  
 Detector : 78202  
 Calibration Date/Time : 6-JUL-2009 14:36:36  
 Calibration Source Id : AESS-035

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.571
CM-244	4320A	2/28/10	5795.020	5794.874

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2334.698  
 Energy Calibration Slope : 4.957491  
 Energy Calibration Quadratic : 3.3283085E-04  
 Energy Calibration Range : 7760.000

Instrument : CHAMBER 036  
 Detector : 78203  
 Calibration Date/Time : 6-JUL-2009 14:36:45  
 Calibration Source Id : AESS-036

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.768
CM-244	4320A	2/28/10	5795.020	5795.020

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2354.938  
 Energy Calibration Slope : 4.922945  
 Energy Calibration Quadratic : 3.4444858E-04  
 Energy Calibration Range : 7757.000



Instrument : CHAMBER 037  
 Detector : 45-149BB5  
 Calibration Date/Time : 6-JUL-2009 14:36:53  
 Calibration Source Id : AESS-037

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.484
NP-237	4341	2/28/10	4768.800	4769.580
CM-244	4320A	2/28/10	5795.020	5795.541

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2384.709  
 Energy Calibration Slope : 4.946308  
 Energy Calibration Quadratic : 2.5989802E-04  
 Energy Calibration Range : 7722.000

Instrument : CHAMBER 038  
 Detector : 72532  
 Calibration Date/Time : 8-JUL-2009 07:31:06  
 Calibration Source Id : AESS-038

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.361
NP-237	4341	2/28/10	4768.800	4769.277
CM-244	4320A	2/28/10	5795.020	5795.217

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2373.087  
 Energy Calibration Slope : 4.930811  
 Energy Calibration Quadratic : 3.3542284E-04  
 Energy Calibration Range : 7774.000

Instrument : CHAMBER 039  
 Detector : 45-149BB2  
 Calibration Date/Time : 6-JUL-2009 14:37:12  
 Calibration Source Id : AESS-039

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3182.536
NP-237	4341	2/28/10	4768.800	4768.350
CM-244	4320A	2/28/10	5795.020	5794.833

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2383.948  
 Energy Calibration Slope : 4.914604  
 Energy Calibration Quadratic : 3.1003577E-04  
 Energy Calibration Range : 7742.000

Instrument : CHAMBER 040  
 Detector : 78773  
 Calibration Date/Time : 6-JUL-2009 14:37:21  
 Calibration Source Id : AESS-040  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.799  
 CM-244 4320A 2/28/10 5795.020 5795.021  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2353.545  
 Energy Calibration Slope : 4.888068  
 Energy Calibration Quadratic : 3.4239746E-04  
 Energy Calibration Range : 7718.000

Instrument : CHAMBER 041  
 Detector : 78205  
 Calibration Date/Time : 6-JUL-2009 14:37:34  
 Calibration Source Id : AESS-041  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3182.714  
 NP-237 4341 2/28/10 4768.800 4768.652  
 CM-244 4320A 2/28/10 5795.020 5794.887  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2361.504  
 Energy Calibration Slope : 4.933050  
 Energy Calibration Quadratic : 3.6094084E-04  
 Energy Calibration Range : 7791.000

Instrument : CHAMBER 042  
 Detector : 78793  
 Calibration Date/Time : 6-JUL-2009 14:37:44  
 Calibration Source Id : AESS-042  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.799  
 CM-244 4320A 2/28/10 5795.020 5795.021  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2376.865  
 Energy Calibration Slope : 4.914897  
 Energy Calibration Quadratic : 3.2152777E-04  
 Energy Calibration Range : 7747.000

Instrument : CHAMBER 043  
 Detector : 76543  
 Calibration Date/Time : 6-JUL-2009 14:37:56  
 Calibration Source Id : AESS-043  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.800  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2368.689  
 Energy Calibration Slope : 4.938226  
 Energy Calibration Quadratic : 3.2137471E-04  
 Energy Calibration Range : 7762.000

Instrument : CHAMBER 044  
 Detector : 79459  
 Calibration Date/Time : 7-JUL-2009 13:33:56  
 Calibration Source Id : AESS-044  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.945  
 CM-244 4320A 2/28/10 5795.020 5795.104  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2362.983  
 Energy Calibration Slope : 4.923144  
 Energy Calibration Quadratic : 3.4992688E-04  
 Energy Calibration Range : 7771.000

Instrument : CHAMBER 045  
 Detector : 67601  
 Calibration Date/Time : 15-JUL-2009 07:50:59  
 Calibration Source Id : AESS-045  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.800  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2360.907  
 Energy Calibration Slope : 4.934806  
 Energy Calibration Quadratic : 3.2861135E-04  
 Energy Calibration Range : 7759.000

Instrument : CHAMBER 046  
 Detector : 76544  
 Calibration Date/Time : 6-JUL-2009 14:38:21  
 Calibration Source Id : AESS-046  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.832  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2363.131  
 Energy Calibration Slope : 4.885582  
 Energy Calibration Quadratic : 3.3954665E-04  
 Energy Calibration Range : 7722.000

Instrument : CHAMBER 047  
 Detector : 46-089B1  
 Calibration Date/Time : 6-JUL-2009 14:38:30  
 Calibration Source Id : AESS-047  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.917  
 CM-244 4320A 2/28/10 5795.020 5795.028  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2358.735  
 Energy Calibration Slope : 4.953376  
 Energy Calibration Quadratic : 3.2229861E-04  
 Energy Calibration Range : 7769.000

Instrument : CHAMBER 048  
 Detector : 42483  
 Calibration Date/Time : 6-JUL-2009 14:38:39  
 Calibration Source Id : AESS-048  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3182.757  
 NP-237 4341 2/28/10 4768.800 4768.527  
 CM-244 4320A 2/28/10 5795.020 5794.876  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2379.156  
 Energy Calibration Slope : 4.959531  
 Energy Calibration Quadratic : 2.8168198E-04  
 Energy Calibration Range : 7753.000

Instrument : CHAMBER 065  
 Detector : 68551  
 Calibration Date/Time : 9-JUL-2009 13:06:51  
 Calibration Source Id : AESS-001

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3181.934
NP-237	4341	2/28/10	4768.800	4768.222
CM-244	4320A	2/28/10	5795.020	5794.627

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2383.031  
 Energy Calibration Slope : 4.912300  
 Energy Calibration Quadratic : 3.2574762E-04  
 Energy Calibration Range : 7755.000

Instrument : CHAMBER 066  
 Detector : 46-089C1  
 Calibration Date/Time : 9-JUL-2009 13:07:05  
 Calibration Source Id : AESS-002

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3182.612
NP-237	4341	2/28/10	4768.800	4768.619
CM-244	4320A	2/28/10	5795.020	5794.832

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2375.985  
 Energy Calibration Slope : 4.975531  
 Energy Calibration Quadratic : 2.7539468E-04  
 Energy Calibration Range : 7760.000

Instrument : CHAMBER 067  
 Detector : 46-089B4  
 Calibration Date/Time : 9-JUL-2009 13:07:16  
 Calibration Source Id : AESS-003

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3182.025
NP-237	4341	2/28/10	4768.800	4768.287
CM-244	4320A	2/28/10	5795.020	5794.643

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2392.470  
 Energy Calibration Slope : 4.972788  
 Energy Calibration Quadratic : 2.7622253E-04  
 Energy Calibration Range : 7774.000

Instrument : CHAMBER 068  
 Detector : 78794  
 Calibration Date/Time : 9-JUL-2009 13:07:28  
 Calibration Source Id : AESS-004

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3182.711
NP-237	4341	2/28/10	4768.800	4768.483
CM-244	4320A	2/28/10	5795.020	5794.734

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2363.543  
 Energy Calibration Slope : 4.977541  
 Energy Calibration Quadratic : 3.1141064E-04  
 Energy Calibration Range : 7787.000

Instrument : CHAMBER 069  
 Detector : 78795  
 Calibration Date/Time : 9-JUL-2009 13:07:42  
 Calibration Source Id : AESS-005

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3182.689
NP-237	4341	2/28/10	4768.800	4768.583
CM-244	4320A	2/28/10	5795.020	5794.896

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2376.120  
 Energy Calibration Slope : 4.922992  
 Energy Calibration Quadratic : 3.4665639E-04  
 Energy Calibration Range : 7781.000

Instrument : CHAMBER 070  
 Detector : 46-089B2  
 Calibration Date/Time : 9-JUL-2009 13:07:53  
 Calibration Source Id : AESS-006

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3182.107
NP-237	4341	2/28/10	4768.800	4768.384
CM-244	4320A	2/28/10	5795.020	5794.512

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2386.604  
 Energy Calibration Slope : 4.939598  
 Energy Calibration Quadratic : 2.9686227E-04  
 Energy Calibration Range : 7756.000

Instrument : CHAMBER 071  
 Detector : 64259  
 Calibration Date/Time : 9-JUL-2009 13:08:07  
 Calibration Source Id : AESS-007

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3182.519
NP-237	4341	2/28/10	4768.800	4768.421
CM-244	4320A	2/28/10	5795.020	5794.714

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2381.008  
 Energy Calibration Slope : 4.974834  
 Energy Calibration Quadratic : 3.0491504E-04  
 Energy Calibration Range : 7795.000

Instrument : CHAMBER 072  
 Detector : 45-149AA3  
 Calibration Date/Time : 9-JUL-2009 13:08:19  
 Calibration Source Id : AESS-008

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3182.621
NP-237	4341	2/28/10	4768.800	4768.489
CM-244	4320A	2/28/10	5795.020	5794.766

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2365.531  
 Energy Calibration Slope : 4.947875  
 Energy Calibration Quadratic : 2.9255319E-04  
 Energy Calibration Range : 7739.000

Instrument : CHAMBER 073  
 Detector : 78775  
 Calibration Date/Time : 9-JUL-2009 13:08:30  
 Calibration Source Id : AESS-009

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3182.442
NP-237	4341	2/28/10	4768.800	4768.180
CM-244	4320A	2/28/10	5795.020	5794.629

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2339.856  
 Energy Calibration Slope : 4.937759  
 Energy Calibration Quadratic : 3.0114278E-04  
 Energy Calibration Range : 7712.000

Instrument : CHAMBER 074  
 Detector : 78266  
 Calibration Date/Time : 9-JUL-2009 13:08:42  
 Calibration Source Id : AESS-010

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3182.764
NP-237	4341	2/28/10	4768.800	4768.637
CM-244	4320A	2/28/10	5795.020	5795.020

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2353.120  
 Energy Calibration Slope : 4.981784  
 Energy Calibration Quadratic : 2.9874133E-04  
 Energy Calibration Range : 7768.000

Instrument : CHAMBER 075  
 Detector : 68550  
 Calibration Date/Time : 9-JUL-2009 13:08:53  
 Calibration Source Id : AESS-011

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3182.163
NP-237	4341	2/28/10	4768.800	4768.299
CM-244	4320A	2/28/10	5795.020	5794.726

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2364.223  
 Energy Calibration Slope : 4.955623  
 Energy Calibration Quadratic : 3.1275101E-04  
 Energy Calibration Range : 7767.000

Instrument : CHAMBER 076  
 Detector : 78779  
 Calibration Date/Time : 9-JUL-2009 13:09:04  
 Calibration Source Id : AESS-012

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3182.983
NP-237	4341	2/28/10	4768.800	4768.736
CM-244	4320A	2/28/10	5795.020	5794.908

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2353.316  
 Energy Calibration Slope : 4.951778  
 Energy Calibration Quadratic : 3.2127454E-04  
 Energy Calibration Range : 7761.000



Instrument : CHAMBER 077  
 Detector : 67576  
 Calibration Date/Time : 9-JUL-2009 13:09:15  
 Calibration Source Id : AESS-013

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.001
NP-237	4341	2/28/10	4768.800	4768.613
CM-244	4320A	2/28/10	5795.020	5795.021

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2361.225  
 Energy Calibration Slope : 4.943738  
 Energy Calibration Quadratic : 2.9529908E-04  
 Energy Calibration Range : 7733.000

Instrument : CHAMBER 078  
 Detector : 67577  
 Calibration Date/Time : 9-JUL-2009 13:09:25  
 Calibration Source Id : AESS-014

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3182.605
NP-237	4341	2/28/10	4768.800	4768.392
CM-244	4320A	2/28/10	5795.020	5794.652

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2395.349  
 Energy Calibration Slope : 4.935272  
 Energy Calibration Quadratic : 3.3427982E-04  
 Energy Calibration Range : 7800.000

Instrument : CHAMBER 079  
 Detector : 67598  
 Calibration Date/Time : 9-JUL-2009 13:09:33  
 Calibration Source Id : AESS-015

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3182.660
NP-237	4341	2/28/10	4768.800	4768.547
CM-244	4320A	2/28/10	5795.020	5794.894

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2369.373  
 Energy Calibration Slope : 4.904424  
 Energy Calibration Quadratic : 3.2698381E-04  
 Energy Calibration Range : 7734.000

Instrument : CHAMBER 080  
 Detector : 78197  
 Calibration Date/Time : 9-JUL-2009 13:09:43  
 Calibration Source Id : AESS-016

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3184.302
NP-237	4341	2/28/10	4768.800	4771.069
CM-244	4320A	2/28/10	5795.020	5795.787

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2345.798  
 Energy Calibration Slope : 5.019492  
 Energy Calibration Quadratic : 2.4690092E-04  
 Energy Calibration Range : 7745.000

Instrument : CHAMBER 081  
 Detector : 72533  
 Calibration Date/Time : 9-JUL-2009 13:09:58  
 Calibration Source Id : AESS-017

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3128.274
NP-237	4341	2/28/10	4768.800	4679.048
CM-244	4320A	2/28/10	5795.020	5545.961

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2299.761  
 Energy Calibration Slope : 8.847325  
 Energy Calibration Quadratic : -4.6356809E-03  
 Energy Calibration Range : 6499.000

Instrument : CHAMBER 082  
 Detector : 64263  
 Calibration Date/Time : 9-JUL-2009 13:10:11  
 Calibration Source Id : AESS-018

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3182.523
NP-237	4341	2/28/10	4768.800	4768.330
CM-244	4320A	2/28/10	5795.020	5794.746

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2391.756  
 Energy Calibration Slope : 4.946808  
 Energy Calibration Quadratic : 3.5040258E-04  
 Energy Calibration Range : 7825.000

Instrument : CHAMBER 083  
 Detector : 64278  
 Calibration Date/Time : 9-JUL-2009 13:10:22  
 Calibration Source Id : AESS-019  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4769.394  
 CM-244 4320A 2/28/10 5795.020 5795.019  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2373.863  
 Energy Calibration Slope : 5.042446  
 Energy Calibration Quadratic : 2.3603256E-04  
 Energy Calibration Range : 7785.000

Instrument : CHAMBER 084  
 Detector : 78265  
 Calibration Date/Time : 9-JUL-2009 13:10:32  
 Calibration Source Id : AESS-020  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.800  
 CM-244 4320A 2/28/10 5795.020 5795.274  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2362.172  
 Energy Calibration Slope : 5.013323  
 Energy Calibration Quadratic : 2.8020472E-04  
 Energy Calibration Range : 7790.000

Instrument : CHAMBER 085  
 Detector : 78776  
 Calibration Date/Time : 9-JUL-2009 13:10:43  
 Calibration Source Id : AESS-021  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.799  
 CM-244 4320A 2/28/10 5795.020 5795.021  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2367.102  
 Energy Calibration Slope : 4.983326  
 Energy Calibration Quadratic : 2.9771921E-04  
 Energy Calibration Range : 7782.000

Instrument : CHAMBER 086  
 Detector : 78198  
 Calibration Date/Time : 9-JUL-2009 13:10:52  
 Calibration Source Id : AESS-022

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.643
CM-244	4320A	2/28/10	5795.020	5795.021

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2354.748  
 Energy Calibration Slope : 5.010773  
 Energy Calibration Quadratic : 2.3814633E-04  
 Energy Calibration Range : 7735.000

Instrument : CHAMBER 087  
 Detector : 78199  
 Calibration Date/Time : 9-JUL-2009 13:11:02  
 Calibration Source Id : AESS-023

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.799
CM-244	4320A	2/28/10	5795.020	5795.021

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2338.424  
 Energy Calibration Slope : 4.984921  
 Energy Calibration Quadratic : 2.3201770E-04  
 Energy Calibration Range : 7686.000

Instrument : CHAMBER 088  
 Detector : 33452  
 Calibration Date/Time : 9-JUL-2009 13:11:13  
 Calibration Source Id : AESS-024

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.001
NP-237	4341	2/28/10	4768.800	4768.468
CM-244	4320A	2/28/10	5795.020	5795.021

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2351.689  
 Energy Calibration Slope : 4.964746  
 Energy Calibration Quadratic : 2.3151403E-04  
 Energy Calibration Range : 7678.000

Instrument : CHAMBER 089  
 Detector : 78262  
 Calibration Date/Time : 9-JUL-2009 13:11:23  
 Calibration Source Id : AESS-025

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3182.808
NP-237	4341	2/28/10	4768.800	4768.497
CM-244	4320A	2/28/10	5795.020	5794.868

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2357.358  
 Energy Calibration Slope : 4.998539  
 Energy Calibration Quadratic : 3.0872814E-04  
 Energy Calibration Range : 7800.000

Instrument : CHAMBER 090  
 Detector : 78263  
 Calibration Date/Time : 9-JUL-2009 13:11:39  
 Calibration Source Id : AESS-026

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3182.574
NP-237	4341	2/28/10	4768.800	4768.547
CM-244	4320A	2/28/10	5795.020	5794.930

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2367.561  
 Energy Calibration Slope : 4.900284  
 Energy Calibration Quadratic : 3.4428819E-04  
 Energy Calibration Range : 7746.000

Instrument : CHAMBER 091  
 Detector : 78259  
 Calibration Date/Time : 9-JUL-2009 13:11:52  
 Calibration Source Id : AESS-027

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3182.675
NP-237	4341	2/28/10	4768.800	4768.729
CM-244	4320A	2/28/10	5795.020	5794.997

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2370.658  
 Energy Calibration Slope : 4.954311  
 Energy Calibration Quadratic : 3.4313111E-04  
 Energy Calibration Range : 7804.000

Instrument : CHAMBER 092  
 Detector : 79457  
 Calibration Date/Time : 10-JUL-2009 08:15:23  
 Calibration Source Id : AESS-028

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.799
CM-244	4320A	2/28/10	5795.020	5795.021

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2351.067  
 Energy Calibration Slope : 4.974295  
 Energy Calibration Quadratic : 2.6989207E-04  
 Energy Calibration Range : 7728.000

Instrument : CHAMBER 093  
 Detector : 33206  
 Calibration Date/Time : 9-JUL-2009 13:12:10  
 Calibration Source Id : AESS-029

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3182.697
NP-237	4341	2/28/10	4768.800	4768.674
CM-244	4320A	2/28/10	5795.020	5794.907

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2369.563  
 Energy Calibration Slope : 4.914497  
 Energy Calibration Quadratic : 3.2562285E-04  
 Energy Calibration Range : 7743.000

Instrument : CHAMBER 094  
 Detector : 78267  
 Calibration Date/Time : 9-JUL-2009 13:12:19  
 Calibration Source Id : AESS-030

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3182.761
NP-237	4341	2/28/10	4768.800	4768.682
CM-244	4320A	2/28/10	5795.020	5794.852

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2363.085  
 Energy Calibration Slope : 4.944716  
 Energy Calibration Quadratic : 3.0186711E-04  
 Energy Calibration Range : 7743.000

Instrument : CHAMBER 095  
 Detector : 64279  
 Calibration Date/Time : 9-JUL-2009 13:12:27  
 Calibration Source Id : AESS-031

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3182.666
NP-237	4341	2/28/10	4768.800	4768.801
CM-244	4320A	2/28/10	5795.020	5795.020

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2355.533  
 Energy Calibration Slope : 4.950543  
 Energy Calibration Quadratic : 2.9788527E-04  
 Energy Calibration Range : 7737.000

Instrument : CHAMBER 096  
 Detector : 67605  
 Calibration Date/Time : 9-JUL-2009 13:12:36  
 Calibration Source Id : AESS-032

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.747
CM-244	4320A	2/28/10	5795.020	5795.020

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2347.386  
 Energy Calibration Slope : 4.941090  
 Energy Calibration Quadratic : 3.3197468E-04  
 Energy Calibration Range : 7755.000

Instrument : CHAMBER 097  
 Detector : 67599  
 Calibration Date/Time : 9-JUL-2009 13:12:44  
 Calibration Source Id : AESS-033

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4769.290
CM-244	4320A	2/28/10	5795.020	5795.020

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2363.267  
 Energy Calibration Slope : 4.928224  
 Energy Calibration Quadratic : 3.4786455E-04  
 Energy Calibration Range : 7775.000

Instrument : CHAMBER 098  
 Detector : 68644  
 Calibration Date/Time : 9-JUL-2009 13:12:53  
 Calibration Source Id : AESS-034  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3182.282  
 NP-237 4341 2/28/10 4768.800 4768.479  
 CM-244 4320A 2/28/10 5795.020 5794.637  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2385.389  
 Energy Calibration Slope : 4.950438  
 Energy Calibration Quadratic : 3.5501088E-04  
 Energy Calibration Range : 7827.000

Instrument : CHAMBER 099  
 Detector : 70317  
 Calibration Date/Time : 9-JUL-2009 13:13:03  
 Calibration Source Id : AESS-035  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.752  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2368.685  
 Energy Calibration Slope : 4.893388  
 Energy Calibration Quadratic : 3.5426160E-04  
 Energy Calibration Range : 7751.000

Instrument : CHAMBER 100  
 Detector : 79456  
 Calibration Date/Time : 9-JUL-2009 13:13:12  
 Calibration Source Id : AESS-046  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.705  
 CM-244 4320A 2/28/10 5795.020 5794.913  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2354.623  
 Energy Calibration Slope : 4.898829  
 Energy Calibration Quadratic : 3.4345602E-04  
 Energy Calibration Range : 7731.000



Instrument : CHAMBER 101  
 Detector : 64253  
 Calibration Date/Time : 9-JUL-2009 13:13:22  
 Calibration Source Id : AESS-037  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3182.469  
 NP-237 4341 2/28/10 4768.800 4767.637  
 CM-244 4320A 2/28/10 5795.020 5794.300  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2410.698  
 Energy Calibration Slope : 4.933665  
 Energy Calibration Quadratic : 3.2843428E-04  
 Energy Calibration Range : 7807.000

Instrument : CHAMBER 102  
 Detector : 72525  
 Calibration Date/Time : 9-JUL-2009 13:13:31  
 Calibration Source Id : AESS-038  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.443  
 CM-244 4320A 2/28/10 5795.020 5794.909  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2363.658  
 Energy Calibration Slope : 4.864605  
 Energy Calibration Quadratic : 3.5245687E-04  
 Energy Calibration Range : 7715.000

Instrument : CHAMBER 103  
 Detector : 79461  
 Calibration Date/Time : 9-JUL-2009 13:13:40  
 Calibration Source Id : AESS-039  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.789  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2389.068  
 Energy Calibration Slope : 4.916300  
 Energy Calibration Quadratic : 3.4528042E-04  
 Energy Calibration Range : 7785.000

Instrument : CHAMBER 104  
 Detector : 72524  
 Calibration Date/Time : 9-JUL-2009 13:13:48  
 Calibration Source Id : AESS-040

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.800
CM-244	4320A	2/28/10	5795.020	5794.853

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2353.445  
 Energy Calibration Slope : 4.898041  
 Energy Calibration Quadratic : 3.2613348E-04  
 Energy Calibration Range : 7711.000

Instrument : CHAMBER 105  
 Detector : 78777  
 Calibration Date/Time : 9-JUL-2009 13:13:56  
 Calibration Source Id : AESS-041

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3182.693
NP-237	4341	2/28/10	4768.800	4768.750
CM-244	4320A	2/28/10	5795.020	5794.773

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2376.710  
 Energy Calibration Slope : 4.874049  
 Energy Calibration Quadratic : 3.5893198E-04  
 Energy Calibration Range : 7744.000

Instrument : CHAMBER 106  
 Detector : 64274  
 Calibration Date/Time : 9-JUL-2009 13:14:04  
 Calibration Source Id : AESS-042

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.001
NP-237	4341	2/28/10	4768.800	4768.799
CM-244	4320A	2/28/10	5795.020	5795.021

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2388.689  
 Energy Calibration Slope : 4.927028  
 Energy Calibration Quadratic : 3.4706845E-04  
 Energy Calibration Range : 7798.000

Instrument : CHAMBER 107  
 Detector : 67578  
 Calibration Date/Time : 9-JUL-2009 13:14:15  
 Calibration Source Id : AESS-043

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3182.693
NP-237	4341	2/28/10	4768.800	4768.881
CM-244	4320A	2/28/10	5795.020	5795.021

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2362.860  
 Energy Calibration Slope : 4.955241  
 Energy Calibration Quadratic : 3.3647806E-04  
 Energy Calibration Range : 7790.000

Instrument : CHAMBER 108  
 Detector : 78778  
 Calibration Date/Time : 10-JUL-2009 08:15:33  
 Calibration Source Id : AESS-044

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.799
CM-244	4320A	2/28/10	5795.020	5795.021

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2360.573  
 Energy Calibration Slope : 4.897293  
 Energy Calibration Quadratic : 3.3521929E-04  
 Energy Calibration Range : 7727.000

Instrument : CHAMBER 109  
 Detector : 79463  
 Calibration Date/Time : 9-JUL-2009 13:14:36  
 Calibration Source Id : AESS-045

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.800
CM-244	4320A	2/28/10	5795.020	5795.020

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2361.218  
 Energy Calibration Slope : 4.898855  
 Energy Calibration Quadratic : 3.6102085E-04  
 Energy Calibration Range : 7756.000

Instrument : CHAMBER 110  
 Detector : 67602  
 Calibration Date/Time : 9-JUL-2009 13:15:06  
 Calibration Source Id : AESS-046

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3151.318
NP-237	4341	2/28/10	4768.800	4743.843
CM-244	4320A	2/28/10	5795.020	5748.494

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2393.627  
 Energy Calibration Slope : 5.263870  
 Energy Calibration Quadratic : 7.2507857E-05  
 Energy Calibration Range : 7860.000

Instrument : CHAMBER 111  
 Detector : 79462  
 Calibration Date/Time : 9-JUL-2009 13:15:22  
 Calibration Source Id : AESS-047

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.800
CM-244	4320A	2/28/10	5795.020	5795.021

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2359.279  
 Energy Calibration Slope : 4.970932  
 Energy Calibration Quadratic : 3.2777866E-04  
 Energy Calibration Range : 7793.000

Instrument : CHAMBER 112  
 Detector : 78261  
 Calibration Date/Time : 9-JUL-2009 13:15:42  
 Calibration Source Id : AESS-048

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4769.029
CM-244	4320A	2/28/10	5795.020	5795.070

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2372.776  
 Energy Calibration Slope : 4.930915  
 Energy Calibration Quadratic : 3.0952421E-04  
 Energy Calibration Range : 7747.000

Instrument : CHAMBER 113  
 Detector : 45-111B4  
 Calibration Date/Time : 15-JUL-2009 13:43:32  
 Calibration Source Id : AESS-001

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.143
NP-237	4341	2/28/10	4768.800	4769.352
CM-244	4320A	2/28/10	5795.020	5795.169

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2384.808  
 Energy Calibration Slope : 5.000635  
 Energy Calibration Quadratic : 2.7049560E-04  
 Energy Calibration Range : 7789.000

Instrument : CHAMBER 114  
 Detector : 78258  
 Calibration Date/Time : 15-JUL-2009 13:43:44  
 Calibration Source Id : AESS-007

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.317
NP-237	4341	2/28/10	4768.800	4768.936
CM-244	4320A	2/28/10	5795.020	5795.187

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2334.310  
 Energy Calibration Slope : 4.976188  
 Energy Calibration Quadratic : 2.4765823E-04  
 Energy Calibration Range : 7690.000

Instrument : CHAMBER 115  
 Detector : 45-132FF4  
 Calibration Date/Time : 15-JUL-2009 13:43:54  
 Calibration Source Id : AESS-002

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.299
NP-237	4341	2/28/10	4768.800	4768.906
CM-244	4320A	2/28/10	5795.020	5795.021

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2362.743  
 Energy Calibration Slope : 4.999947  
 Energy Calibration Quadratic : 2.6256693E-04  
 Energy Calibration Range : 7758.000

Instrument : CHAMBER 116  
 Detector : 45-132FF2  
 Calibration Date/Time : 15-JUL-2009 13:44:05  
 Calibration Source Id : AESS-008  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.799  
 CM-244 4320A 2/28/10 5795.020 5795.021  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2361.201  
 Energy Calibration Slope : 4.980864  
 Energy Calibration Quadratic : 2.6853522E-04  
 Energy Calibration Range : 7743.000

Instrument : CHAMBER 117  
 Detector : 33450  
 Calibration Date/Time : 15-JUL-2009 13:44:15  
 Calibration Source Id : AESS-003  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.341  
 NP-237 4341 2/28/10 4768.800 4769.249  
 CM-244 4320A 2/28/10 5795.020 5795.149  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2372.642  
 Energy Calibration Slope : 4.960156  
 Energy Calibration Quadratic : 2.9082331E-04  
 Energy Calibration Range : 7757.000

Instrument : CHAMBER 118  
 Detector : 75544  
 Calibration Date/Time : 15-JUL-2009 13:44:26  
 Calibration Source Id : AESS-009  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.240  
 NP-237 4341 2/28/10 4768.800 4768.906  
 CM-244 4320A 2/28/10 5795.020 5795.021  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2335.434  
 Energy Calibration Slope : 4.978148  
 Energy Calibration Quadratic : 2.6964993E-04  
 Energy Calibration Range : 7716.000

Instrument : CHAMBER 119  
 Detector : 74429  
 Calibration Date/Time : 2-FEB-2009 15:15:38  
 Calibration Source Id : AESS-004

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3069.001
NP-237	4341	2/28/10	4768.800	4669.281
CM-244	4320A	2/28/10	5795.020	5706.875

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2437.949  
 Energy Calibration Slope : 5.036866  
 Energy Calibration Quadratic :  
 Energy Calibration Range : 7596.000

Instrument : CHAMBER 120  
 Detector : 74430  
 Calibration Date/Time : 16-JUL-2009 09:29:36  
 Calibration Source Id : AESS-010

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.243
NP-237	4341	2/28/10	4768.800	4768.978
CM-244	4320A	2/28/10	5795.020	5795.142

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2311.106  
 Energy Calibration Slope : 4.960131  
 Energy Calibration Quadratic : 2.6160042E-04  
 Energy Calibration Range : 7665.000

Instrument : CHAMBER 121  
 Detector : 75545  
 Calibration Date/Time : 15-JUL-2009 13:44:36  
 Calibration Source Id : AESS-005

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.799
CM-244	4320A	2/28/10	5795.020	5795.188

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2334.679  
 Energy Calibration Slope : 4.950221  
 Energy Calibration Quadratic : 2.8347687E-04  
 Energy Calibration Range : 7701.000

Instrument : CHAMBER 122  
 Detector : 75546  
 Calibration Date/Time : 15-JUL-2009 13:44:46  
 Calibration Source Id : AESS-011

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.172
NP-237	4341	2/28/10	4768.800	4769.003
CM-244	4320A	2/28/10	5795.020	5795.020

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2330.980  
 Energy Calibration Slope : 4.960747  
 Energy Calibration Quadratic : 2.7343398E-04  
 Energy Calibration Range : 7698.000

Instrument : CHAMBER 123  
 Detector : 45-142V3  
 Calibration Date/Time : 15-JUL-2009 13:44:55  
 Calibration Source Id : AESS-006

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.316
NP-237	4341	2/28/10	4768.800	4769.249
CM-244	4320A	2/28/10	5795.020	5795.021

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2374.720  
 Energy Calibration Slope : 4.978360  
 Energy Calibration Quadratic : 2.5058995E-04  
 Energy Calibration Range : 7735.000

Instrument : CHAMBER 124  
 Detector : 45-142V2  
 Calibration Date/Time : 15-JUL-2009 13:45:05  
 Calibration Source Id : AESS-012

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3182.701
NP-237	4341	2/28/10	4768.800	4768.518
CM-244	4320A	2/28/10	5795.020	5794.902

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2382.371  
 Energy Calibration Slope : 5.018754  
 Energy Calibration Quadratic : 2.4640319E-04  
 Energy Calibration Range : 7780.000



Instrument : CHAMBER 125  
 Detector : 75547  
 Calibration Date/Time : 17-JUL-2009 14:23:54  
 Calibration Source Id : AESS-013

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.386
NP-237	4341	2/28/10	4768.800	4768.801
CM-244	4320A	2/28/10	5795.020	5795.165

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2338.781  
 Energy Calibration Slope : 4.955306  
 Energy Calibration Quadratic : 2.6291917E-04  
 Energy Calibration Range : 7689.000

Instrument : CHAMBER 126  
 Detector : 75548  
 Calibration Date/Time : 17-JUL-2009 14:24:06  
 Calibration Source Id : AESS-019

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.801
CM-244	4320A	2/28/10	5795.020	5795.019

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2345.216  
 Energy Calibration Slope : 5.042264  
 Energy Calibration Quadratic : 1.8960494E-04  
 Energy Calibration Range : 7707.000

Instrument : CHAMBER 127  
 Detector : 78770  
 Calibration Date/Time : 17-JUL-2009 14:24:19  
 Calibration Source Id : AESS-014

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.168
NP-237	4341	2/28/10	4768.800	4769.036
CM-244	4320A	2/28/10	5795.020	5795.095

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2333.395  
 Energy Calibration Slope : 4.961254  
 Energy Calibration Quadratic : 2.6867207E-04  
 Energy Calibration Range : 7695.000

Instrument : CHAMBER 128  
 Detector : 75549  
 Calibration Date/Time : 17-JUL-2009 14:24:31  
 Calibration Source Id : AESS-020

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.449
NP-237	4341	2/28/10	4768.800	4769.095
CM-244	4320A	2/28/10	5795.020	5795.020

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2323.424  
 Energy Calibration Slope : 5.017115  
 Energy Calibration Quadratic : 2.1570176E-04  
 Energy Calibration Range : 7687.000

Instrument : CHAMBER 129  
 Detector : 76227  
 Calibration Date/Time : 17-JUL-2009 14:24:41  
 Calibration Source Id : AESS-015

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.112
NP-237	4341	2/28/10	4768.800	4768.800
CM-244	4320A	2/28/10	5795.020	5795.020

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2343.567  
 Energy Calibration Slope : 4.949915  
 Energy Calibration Quadratic : 2.7041257E-04  
 Energy Calibration Range : 7696.000

Instrument : CHAMBER 130  
 Detector : 76228  
 Calibration Date/Time : 17-JUL-2009 14:24:51  
 Calibration Source Id : AESS-021

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3182.758
NP-237	4341	2/28/10	4768.800	4768.607
CM-244	4320A	2/28/10	5795.020	5795.020

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2336.361  
 Energy Calibration Slope : 4.980415  
 Energy Calibration Quadratic : 2.3134552E-04  
 Energy Calibration Range : 7679.000

Instrument : CHAMBER 131  
 Detector : 33448  
 Calibration Date/Time : 17-JUL-2009 14:25:01  
 Calibration Source Id : AESS-016  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3182.605  
 NP-237 4341 2/28/10 4768.800 4768.573  
 CM-244 4320A 2/28/10 5795.020 5795.021  
  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2388.756  
 Energy Calibration Slope : 4.931267  
 Energy Calibration Quadratic : 3.1428930E-04  
 Energy Calibration Range : 7768.000

Instrument : CHAMBER 132  
 Detector : 67579  
 Calibration Date/Time : 17-JUL-2009 14:25:11  
 Calibration Source Id : AESS-022  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3181.074  
 NP-237 4341 2/28/10 4768.800 4765.688  
 CM-244 4320A 2/28/10 5795.020 5788.063  
  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2375.917  
 Energy Calibration Slope : 5.056964  
 Energy Calibration Quadratic : 2.6723032E-04  
 Energy Calibration Range : 7834.000

Instrument : CHAMBER 133  
 Detector : 76229  
 Calibration Date/Time : 17-JUL-2009 14:25:22  
 Calibration Source Id : AESS-017  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.235  
 NP-237 4341 2/28/10 4768.800 4768.799  
 CM-244 4320A 2/28/10 5795.020 5795.021  
  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2304.280  
 Energy Calibration Slope : 4.909981  
 Energy Calibration Quadratic : 2.5969208E-04  
 Energy Calibration Range : 7604.000

Instrument : CHAMBER 134  
 Detector : 76230  
 Calibration Date/Time : 17-JUL-2009 14:25:32  
 Calibration Source Id : AESS-023

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.428
NP-237	4341	2/28/10	4768.800	4769.138
CM-244	4320A	2/28/10	5795.020	5795.114

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2323.771  
 Energy Calibration Slope : 4.983015  
 Energy Calibration Quadratic : 2.2696581E-04  
 Energy Calibration Range : 7664.000

Instrument : CHAMBER 135  
 Detector : 64270  
 Calibration Date/Time : 17-JUL-2009 14:25:42  
 Calibration Source Id : AESS-018

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3182.580
NP-237	4341	2/28/10	4768.800	4768.589
CM-244	4320A	2/28/10	5795.020	5794.911

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2342.408  
 Energy Calibration Slope : 4.931945  
 Energy Calibration Quadratic : 2.7902660E-04  
 Energy Calibration Range : 7685.000

Instrument : CHAMBER 136  
 Detector : 68549  
 Calibration Date/Time : 17-JUL-2009 14:25:52  
 Calibration Source Id : AESS-024

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3181.940
NP-237	4341	2/28/10	4768.800	4766.491
CM-244	4320A	2/28/10	5795.020	5789.976

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2353.642  
 Energy Calibration Slope : 5.024161  
 Energy Calibration Quadratic : 2.3099547E-04  
 Energy Calibration Range : 7741.000

Instrument : CHAMBER 137  
 Detector : 64288  
 Calibration Date/Time : 17-JUL-2009 14:26:02  
 Calibration Source Id : AESS-025

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4769.015
CM-244	4320A	2/28/10	5795.020	5795.229

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2378.044  
 Energy Calibration Slope : 5.009023  
 Energy Calibration Quadratic : 3.1443321E-04  
 Energy Calibration Range : 7837.000

Instrument : CHAMBER 138  
 Detector : 65877  
 Calibration Date/Time : 17-JUL-2009 14:26:11  
 Calibration Source Id : AESS-031

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.798
CM-244	4320A	2/28/10	5795.020	5795.021

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2377.362  
 Energy Calibration Slope : 4.981610  
 Energy Calibration Quadratic : 2.9931843E-04  
 Energy Calibration Range : 7792.000

Instrument : CHAMBER 139  
 Detector : 76231  
 Calibration Date/Time : 17-JUL-2009 14:26:21  
 Calibration Source Id : AESS-026

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.896
CM-244	4320A	2/28/10	5795.020	5795.211

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2343.572  
 Energy Calibration Slope : 4.954267  
 Energy Calibration Quadratic : 2.9043874E-04  
 Energy Calibration Range : 7721.000

Instrument : CHAMBER 140  
 Detector : 78771  
 Calibration Date/Time : 17-JUL-2009 14:26:31  
 Calibration Source Id : AESS-032

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.831
CM-244	4320A	2/28/10	5795.020	5795.069

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2342.367  
 Energy Calibration Slope : 4.948852  
 Energy Calibration Quadratic : 3.0391497E-04  
 Energy Calibration Range : 7729.000

Instrument : CHAMBER 141  
 Detector : 76232  
 Calibration Date/Time : 17-JUL-2009 14:26:40  
 Calibration Source Id : AESS-027

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.179
NP-237	4341	2/28/10	4768.800	4768.885
CM-244	4320A	2/28/10	5795.020	5795.021

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2351.966  
 Energy Calibration Slope : 4.956621  
 Energy Calibration Quadratic : 2.8871323E-04  
 Energy Calibration Range : 7730.000

Instrument : CHAMBER 142  
 Detector : 64261  
 Calibration Date/Time : 17-JUL-2009 14:26:50  
 Calibration Source Id : AESS-033

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3182.815
NP-237	4341	2/28/10	4768.800	4768.706
CM-244	4320A	2/28/10	5795.020	5794.924

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2381.651  
 Energy Calibration Slope : 4.957265  
 Energy Calibration Quadratic : 2.9752569E-04  
 Energy Calibration Range : 7770.000

Instrument : CHAMBER 143  
 Detector : 65882  
 Calibration Date/Time : 17-JUL-2009 14:27:11  
 Calibration Source Id : AESS-028  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3198.011  
 NP-237 4341 2/28/10 4768.800 4793.655  
 CM-244 4320A 2/28/10 5795.020 5843.728  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2400.594  
 Energy Calibration Slope : 4.866200  
 Energy Calibration Quadratic : 5.6703738E-04  
 Energy Calibration Range : 7978.000

Instrument : CHAMBER 144  
 Detector : 75551  
 Calibration Date/Time : 17-JUL-2009 14:27:26  
 Calibration Source Id : AESS-034  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3182.828  
 NP-237 4341 2/28/10 4768.800 4768.697  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2348.318  
 Energy Calibration Slope : 4.957791  
 Energy Calibration Quadratic : 2.7922410E-04  
 Energy Calibration Range : 7718.000

Instrument : CHAMBER 145  
 Detector : 72526  
 Calibration Date/Time : 17-JUL-2009 14:27:37  
 Calibration Source Id : AESS-029  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.094  
 NP-237 4341 2/28/10 4768.800 4768.886  
 CM-244 4320A 2/28/10 5795.020 5795.045  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2353.360  
 Energy Calibration Slope : 4.971958  
 Energy Calibration Quadratic : 2.8320373E-04  
 Energy Calibration Range : 7742.000

Instrument : CHAMBER 146  
 Detector : 72527  
 Calibration Date/Time : 17-JUL-2009 14:27:48  
 Calibration Source Id : AESS-035

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.175
NP-237	4341	2/28/10	4768.800	4768.922
CM-244	4320A	2/28/10	5795.020	5795.021

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2350.571  
 Energy Calibration Slope : 4.930733  
 Energy Calibration Quadratic : 2.9194859E-04  
 Energy Calibration Range : 7706.000

Instrument : CHAMBER 147  
 Detector : 75550  
 Calibration Date/Time : 17-JUL-2009 14:27:59  
 Calibration Source Id : AESS-030

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.209
NP-237	4341	2/28/10	4768.800	4769.018
CM-244	4320A	2/28/10	5795.020	5795.333

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2343.476  
 Energy Calibration Slope : 4.959011  
 Energy Calibration Quadratic : 2.7492910E-04  
 Energy Calibration Range : 7710.000

Instrument : CHAMBER 148  
 Detector : 74429  
 Calibration Date/Time : 17-JUL-2009 14:28:08  
 Calibration Source Id : AESS-036

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.165
NP-237	4341	2/28/10	4768.800	4768.865
CM-244	4320A	2/28/10	5795.020	5795.167

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2342.407  
 Energy Calibration Slope : 4.941724  
 Energy Calibration Quadratic : 3.0098064E-04  
 Energy Calibration Range : 7718.000



Instrument : CHAMBER 149  
 Detector : 33449  
 Calibration Date/Time : 17-JUL-2009 14:28:21  
 Calibration Source Id : AESS-037

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.800
CM-244	4320A	2/28/10	5795.020	5795.020

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2388.292  
 Energy Calibration Slope : 4.935481  
 Energy Calibration Quadratic : 3.1694383E-04  
 Energy Calibration Range : 7775.000

Instrument : CHAMBER 150  
 Detector : 75552  
 Calibration Date/Time : 17-JUL-2009 14:28:35  
 Calibration Source Id : AESS-043

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.748
CM-244	4320A	2/28/10	5795.020	5795.020

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2354.055  
 Energy Calibration Slope : 4.971218  
 Energy Calibration Quadratic : 2.7575236E-04  
 Energy Calibration Range : 7734.000

Instrument : CHAMBER 151  
 Detector : 75556  
 Calibration Date/Time : 17-JUL-2009 14:28:46  
 Calibration Source Id : AESS-038

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.936
CM-244	4320A	2/28/10	5795.020	5795.020

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2341.373  
 Energy Calibration Slope : 4.941175  
 Energy Calibration Quadratic : 2.6452926E-04  
 Energy Calibration Range : 7679.000

Instrument : CHAMBER 152  
 Detector : 76222  
 Calibration Date/Time : 17-JUL-2009 14:28:57  
 Calibration Source Id : AESS-044

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.140
NP-237	4341	2/28/10	4768.800	4768.855
CM-244	4320A	2/28/10	5795.020	5795.046

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2338.705  
 Energy Calibration Slope : 4.955201  
 Energy Calibration Quadratic : 2.6211896E-04  
 Energy Calibration Range : 7688.000

Instrument : CHAMBER 153  
 Detector : 76223  
 Calibration Date/Time : 17-JUL-2009 14:29:06  
 Calibration Source Id : AESS-039

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.799
CM-244	4320A	2/28/10	5795.020	5795.045

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2333.099  
 Energy Calibration Slope : 4.935291  
 Energy Calibration Quadratic : 2.9876101E-04  
 Energy Calibration Range : 7700.000

Instrument : CHAMBER 154  
 Detector : 76224  
 Calibration Date/Time : 17-JUL-2009 14:29:15  
 Calibration Source Id : AESS-045

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.651
CM-244	4320A	2/28/10	5795.020	5795.020

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2341.465  
 Energy Calibration Slope : 4.948726  
 Energy Calibration Quadratic : 2.8072123E-04  
 Energy Calibration Range : 7703.000

Instrument : CHAMBER 155  
 Detector : 75553  
 Calibration Date/Time : 17-JUL-2009 14:29:25  
 Calibration Source Id : AESS-040

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.160
NP-237	4341	2/28/10	4768.800	4768.857
CM-244	4320A	2/28/10	5795.020	5795.116

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2365.986  
 Energy Calibration Slope : 4.960846  
 Energy Calibration Quadratic : 3.0533157E-04  
 Energy Calibration Range : 7766.000

Instrument : CHAMBER 156  
 Detector : 75554  
 Calibration Date/Time : 17-JUL-2009 14:29:35  
 Calibration Source Id : AESS-046

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.180
NP-237	4341	2/28/10	4768.800	4768.829
CM-244	4320A	2/28/10	5795.020	5795.020

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2358.748  
 Energy Calibration Slope : 4.995668  
 Energy Calibration Quadratic : 2.7021556E-04  
 Energy Calibration Range : 7758.000

Instrument : CHAMBER 157  
 Detector : 75555  
 Calibration Date/Time : 17-JUL-2009 14:29:49  
 Calibration Source Id : AESS-041

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.132
NP-237	4341	2/28/10	4768.800	4768.802
CM-244	4320A	2/28/10	5795.020	5795.161

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2355.714  
 Energy Calibration Slope : 4.974587  
 Energy Calibration Quadratic : 2.8556405E-04  
 Energy Calibration Range : 7749.000

Instrument : CHAMBER 158  
 Detector : 33451  
 Calibration Date/Time : 17-JUL-2009 14:30:01  
 Calibration Source Id : AESS-047  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.110  
 NP-237 4341 2/28/10 4768.800 4768.800  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2380.269  
 Energy Calibration Slope : 4.995139  
 Energy Calibration Quadratic : 3.1028705E-04  
 Energy Calibration Range : 7821.000

Instrument : CHAMBER 159  
 Detector : 76225  
 Calibration Date/Time : 17-JUL-2009 14:30:14  
 Calibration Source Id : AESS-042  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.190  
 NP-237 4341 2/28/10 4768.800 4768.913  
 CM-244 4320A 2/28/10 5795.020 5795.044  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2353.142  
 Energy Calibration Slope : 4.981561  
 Energy Calibration Quadratic : 2.9250194E-04  
 Energy Calibration Range : 7761.000

Instrument : CHAMBER 160  
 Detector : 76226  
 Calibration Date/Time : 17-JUL-2009 14:30:32  
 Calibration Source Id : AESS-048  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3182.999  
 NP-237 4341 2/28/10 4768.800 4768.958  
 CM-244 4320A 2/28/10 5795.020 5795.070  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2355.931  
 Energy Calibration Slope : 4.980661  
 Energy Calibration Quadratic : 2.9644801E-04  
 Energy Calibration Range : 7767.000

Instrument : CHAMBER 161  
 Detector : 70321  
 Calibration Date/Time : 22-JUN-2009 14:58:45  
 Calibration Source Id : AESS-001  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.800  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2376.262  
 Energy Calibration Slope : 4.896393  
 Energy Calibration Quadratic : 3.3797286E-04  
 Energy Calibration Range : 7745.000

Instrument : CHAMBER 162  
 Detector : 70323  
 Calibration Date/Time : 22-JUN-2009 14:59:02  
 Calibration Source Id : AESS-007  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.662  
 NP-237 4341 2/28/10 4768.800 4769.615  
 CM-244 4320A 2/28/10 5795.020 5795.417  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2370.305  
 Energy Calibration Slope : 4.919915  
 Energy Calibration Quadratic : 3.0847988E-04  
 Energy Calibration Range : 7732.000

Instrument : CHAMBER 163  
 Detector : 70324  
 Calibration Date/Time : 22-JUN-2009 14:59:20  
 Calibration Source Id : AESS-002  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.798  
 CM-244 4320A 2/28/10 5795.020 5795.021  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2381.293  
 Energy Calibration Slope : 4.927099  
 Energy Calibration Quadratic : 3.2329891E-04  
 Energy Calibration Range : 7766.000

Instrument : CHAMBER 164  
 Detector : 70325  
 Calibration Date/Time : 22-JUN-2009 14:59:35  
 Calibration Source Id : AESS-008  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3182.405  
 NP-237 4341 2/28/10 4768.800 4768.212  
 CM-244 4320A 2/28/10 5795.020 5795.019  
  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2382.304  
 Energy Calibration Slope : 4.931757  
 Energy Calibration Quadratic : 3.2424228E-04  
 Energy Calibration Range : 7772.000

Instrument : CHAMBER 165  
 Detector : 72544  
 Calibration Date/Time : 22-JUN-2009 15:00:00  
 Calibration Source Id : AESS-003  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.801  
 CM-244 4320A 2/28/10 5795.020 5794.717  
  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2386.365  
 Energy Calibration Slope : 4.964369  
 Energy Calibration Quadratic : 2.8651269E-04  
 Energy Calibration Range : 7770.000

Instrument : CHAMBER 166  
 Detector : 74545  
 Calibration Date/Time : 22-JUN-2009 15:00:15  
 Calibration Source Id : AESS-009  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3182.357  
 NP-237 4341 2/28/10 4768.800 4768.476  
 CM-244 4320A 2/28/10 5795.020 5794.620  
  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2377.530  
 Energy Calibration Slope : 4.930614  
 Energy Calibration Quadratic : 3.2020407E-04  
 Energy Calibration Range : 7762.000

Instrument : CHAMBER 167  
 Detector : 72546  
 Calibration Date/Time : 22-JUN-2009 15:00:26  
 Calibration Source Id : AESS-004

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.798
CM-244	4320A	2/28/10	5795.020	5795.021

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2378.454  
 Energy Calibration Slope : 4.916844  
 Energy Calibration Quadratic : 3.3378412E-04  
 Energy Calibration Range : 7763.000

Instrument : CHAMBER 168  
 Detector : 72547  
 Calibration Date/Time : 22-JUN-2009 15:00:38  
 Calibration Source Id : AESS-010

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.481
NP-237	4341	2/28/10	4768.800	4769.733
CM-244	4320A	2/28/10	5795.020	5795.360

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2378.216  
 Energy Calibration Slope : 4.943952  
 Energy Calibration Quadratic : 3.0569665E-04  
 Energy Calibration Range : 7761.000

Instrument : CHAMBER 169  
 Detector : 72548  
 Calibration Date/Time : 22-JUN-2009 15:00:51  
 Calibration Source Id : AESS-005

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.437
NP-237	4341	2/28/10	4768.800	4768.801
CM-244	4320A	2/28/10	5795.020	5795.019

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2381.692  
 Energy Calibration Slope : 4.923065  
 Energy Calibration Quadratic : 3.2510224E-04  
 Energy Calibration Range : 7764.000

Instrument : CHAMBER 170  
 Detector : 72549  
 Calibration Date/Time : 22-JUN-2009 15:01:02  
 Calibration Source Id : AESS-011

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.574
NP-237	4341	2/28/10	4768.800	4769.165
CM-244	4320A	2/28/10	5795.020	5795.548

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2379.378  
 Energy Calibration Slope : 4.940187  
 Energy Calibration Quadratic : 3.2377098E-04  
 Energy Calibration Range : 7778.000

Instrument : CHAMBER 171  
 Detector : 78260  
 Calibration Date/Time : 22-JUN-2009 15:01:15  
 Calibration Source Id : AESS-006

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.011
NP-237	4341	2/28/10	4768.800	4768.799
CM-244	4320A	2/28/10	5795.020	5795.025

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2367.143  
 Energy Calibration Slope : 4.905009  
 Energy Calibration Quadratic : 3.4086173E-04  
 Energy Calibration Range : 7747.000

Instrument : CHAMBER 172  
 Detector : 78772  
 Calibration Date/Time : 22-JUN-2009 15:01:28  
 Calibration Source Id : AESS-012

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.800
CM-244	4320A	2/28/10	5795.020	5795.020

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2364.889  
 Energy Calibration Slope : 4.905996  
 Energy Calibration Quadratic : 3.5168754E-04  
 Energy Calibration Range : 7757.000



Instrument : CHAMBER 173  
 Detector : 74431  
 Calibration Date/Time : 22-JUN-2009 15:01:41  
 Calibration Source Id : AESS-013

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.716
CM-244	4320A	2/28/10	5795.020	5795.020

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2362.857  
 Energy Calibration Slope : 4.989556  
 Energy Calibration Quadratic : 2.6047556E-04  
 Energy Calibration Range : 7745.000

Instrument : CHAMBER 174  
 Detector : 74432  
 Calibration Date/Time : 22-JUN-2009 15:01:51  
 Calibration Source Id : AESS-019

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.008
NP-237	4341	2/28/10	4768.800	4768.801
CM-244	4320A	2/28/10	5795.020	5795.020

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2361.090  
 Energy Calibration Slope : 5.020361  
 Energy Calibration Quadratic : 2.1951902E-04  
 Energy Calibration Range : 7732.000

Instrument : CHAMBER 175  
 Detector : 74433  
 Calibration Date/Time : 22-JUN-2009 15:02:01  
 Calibration Source Id : AESS-014

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.800
CM-244	4320A	2/28/10	5795.020	5795.021

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2356.841  
 Energy Calibration Slope : 4.985576  
 Energy Calibration Quadratic : 2.6544777E-04  
 Energy Calibration Range : 7740.000

Instrument : CHAMBER 176  
 Detector : 74434  
 Calibration Date/Time : 22-JUN-2009 15:02:12  
 Calibration Source Id : AESS-020

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.343
NP-237	4341	2/28/10	4768.800	4768.800
CM-244	4320A	2/28/10	5795.020	5795.020

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2354.481  
 Energy Calibration Slope : 5.029559  
 Energy Calibration Quadratic : 2.1999818E-04  
 Energy Calibration Range : 7735.000

Instrument : CHAMBER 177  
 Detector : 74435  
 Calibration Date/Time : 22-JUN-2009 15:02:24  
 Calibration Source Id : AESS-015

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.799
CM-244	4320A	2/28/10	5795.020	5795.020

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2360.728  
 Energy Calibration Slope : 4.966811  
 Energy Calibration Quadratic : 2.8411727E-04  
 Energy Calibration Range : 7745.000

Instrument : CHAMBER 178  
 Detector : 74436  
 Calibration Date/Time : 22-JUN-2009 15:02:37  
 Calibration Source Id : AESS-021

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.016
NP-237	4341	2/28/10	4768.800	4768.800
CM-244	4320A	2/28/10	5795.020	5795.021

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2350.840  
 Energy Calibration Slope : 5.018156  
 Energy Calibration Quadratic : 2.2526548E-04  
 Energy Calibration Range : 7726.000

Instrument : CHAMBER 179  
 Detector : 74437  
 Calibration Date/Time : 22-JUN-2009 15:02:54  
 Calibration Source Id : AESS-016

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.008
NP-237	4341	2/28/10	4768.800	4768.694
CM-244	4320A	2/28/10	5795.020	5795.021

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2358.137  
 Energy Calibration Slope : 4.971311  
 Energy Calibration Quadratic : 2.7695790E-04  
 Energy Calibration Range : 7739.000

Instrument : CHAMBER 180  
 Detector : 74438  
 Calibration Date/Time : 22-JUN-2009 15:03:14  
 Calibration Source Id : AESS-022

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.801
CM-244	4320A	2/28/10	5795.020	5795.026

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2352.778  
 Energy Calibration Slope : 5.029830  
 Energy Calibration Quadratic : 2.1214969E-04  
 Energy Calibration Range : 7726.000

Instrument : CHAMBER 181  
 Detector : 74439  
 Calibration Date/Time : 22-JUN-2009 15:03:27  
 Calibration Source Id : AESS-017

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.903
CM-244	4320A	2/28/10	5795.020	5795.074

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2356.310  
 Energy Calibration Slope : 4.974973  
 Energy Calibration Quadratic : 2.7404417E-04  
 Energy Calibration Range : 7738.000

Instrument : CHAMBER 182  
 Detector : 74440  
 Calibration Date/Time : 22-JUN-2009 15:03:39  
 Calibration Source Id : AESS-023

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.403
NP-237	4341	2/28/10	4768.800	4768.970
CM-244	4320A	2/28/10	5795.020	5795.165

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2349.923  
 Energy Calibration Slope : 4.986344  
 Energy Calibration Quadratic : 2.5572060E-04  
 Energy Calibration Range : 7724.000

Instrument : CHAMBER 183  
 Detector : 74441  
 Calibration Date/Time : 22-JUN-2009 15:03:53  
 Calibration Source Id : AESS-018

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.799
CM-244	4320A	2/28/10	5795.020	5795.021

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2359.238  
 Energy Calibration Slope : 4.971895  
 Energy Calibration Quadratic : 2.8019695E-04  
 Energy Calibration Range : 7744.000

Instrument : CHAMBER 184  
 Detector : 74442  
 Calibration Date/Time : 22-JUN-2009 15:04:06  
 Calibration Source Id : AESS-024

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.799
CM-244	4320A	2/28/10	5795.020	5795.021

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2353.759  
 Energy Calibration Slope : 5.027183  
 Energy Calibration Quadratic : 2.1329588E-04  
 Energy Calibration Range : 7725.000

Instrument : CHAMBER 185  
 Detector : 68615  
 Calibration Date/Time : 22-JUN-2009 15:04:16  
 Calibration Source Id : AESS-025  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.801  
 CM-244 4320A 2/28/10 5795.020 5795.019  
  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2356.756  
 Energy Calibration Slope : 4.942091  
 Energy Calibration Quadratic : 2.7517328E-04  
 Energy Calibration Range : 7706.000

Instrument : CHAMBER 186  
 Detector : 68616  
 Calibration Date/Time : 22-JUN-2009 15:04:28  
 Calibration Source Id : AESS-031  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3182.797  
 NP-237 4341 2/28/10 4768.800 4768.799  
 CM-244 4320A 2/28/10 5795.020 5795.021  
  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2360.497  
 Energy Calibration Slope : 4.943951  
 Energy Calibration Quadratic : 2.8680658E-04  
 Energy Calibration Range : 7724.000

Instrument : CHAMBER 187  
 Detector : 68620  
 Calibration Date/Time : 22-JUN-2009 15:04:38  
 Calibration Source Id : AESS-026  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.853  
 CM-244 4320A 2/28/10 5795.020 5795.115  
  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2371.605  
 Energy Calibration Slope : 4.963061  
 Energy Calibration Quadratic : 3.0924208E-04  
 Energy Calibration Range : 7778.000

Instrument : CHAMBER 188  
 Detector : 68621  
 Calibration Date/Time : 22-JUN-2009 15:04:49  
 Calibration Source Id : AESS-032

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.832
CM-244	4320A	2/28/10	5795.020	5795.021

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2367.401  
 Energy Calibration Slope : 4.951802  
 Energy Calibration Quadratic : 3.1090144E-04  
 Energy Calibration Range : 7764.000

Instrument : CHAMBER 189  
 Detector : 68622  
 Calibration Date/Time : 22-JUN-2009 15:05:00  
 Calibration Source Id : AESS-027

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.746
CM-244	4320A	2/28/10	5795.020	5795.021

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2356.776  
 Energy Calibration Slope : 4.949914  
 Energy Calibration Quadratic : 2.7563065E-04  
 Energy Calibration Range : 7715.000

Instrument : CHAMBER 190  
 Detector : 68623  
 Calibration Date/Time : 22-JUN-2009 15:05:13  
 Calibration Source Id : AESS-033

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3182.750
NP-237	4341	2/28/10	4768.800	4768.800
CM-244	4320A	2/28/10	5795.020	5795.020

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2355.469  
 Energy Calibration Slope : 4.940720  
 Energy Calibration Quadratic : 2.9352074E-04  
 Energy Calibration Range : 7723.000

Instrument : CHAMBER 191  
 Detector : 68624  
 Calibration Date/Time : 22-JUN-2009 15:05:24  
 Calibration Source Id : AESS-028

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.750
CM-244	4320A	2/28/10	5795.020	5794.952

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2370.162  
 Energy Calibration Slope : 4.969944  
 Energy Calibration Quadratic : 3.0237788E-04  
 Energy Calibration Range : 7776.000

Instrument : CHAMBER 192  
 Detector : 74430  
 Calibration Date/Time : 22-JUN-2009 15:05:39  
 Calibration Source Id : AESS-034

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.800
CM-244	4320A	2/28/10	5795.020	5795.020

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2364.866  
 Energy Calibration Slope : 4.974655  
 Energy Calibration Quadratic : 2.9466255E-04  
 Energy Calibration Range : 7768.000

Instrument : CHAMBER 193  
 Detector : 68627  
 Calibration Date/Time : 22-JUN-2009 15:05:50  
 Calibration Source Id : AESS-029

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.252
NP-237	4341	2/28/10	4768.800	4768.799
CM-244	4320A	2/28/10	5795.020	5795.021

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2361.004  
 Energy Calibration Slope : 4.933344  
 Energy Calibration Quadratic : 3.0485235E-04  
 Energy Calibration Range : 7732.000

Instrument : CHAMBER 194  
 Detector : 68635  
 Calibration Date/Time : 22-JUN-2009 15:06:02  
 Calibration Source Id : AESS-035  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.956  
 CM-244 4320A 2/28/10 5795.020 5795.088  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2356.275  
 Energy Calibration Slope : 4.943244  
 Energy Calibration Quadratic : 2.9090239E-04  
 Energy Calibration Range : 7723.000

Instrument : CHAMBER 195  
 Detector : 68636  
 Calibration Date/Time : 22-JUN-2009 15:06:11  
 Calibration Source Id : AESS-030  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.227  
 NP-237 4341 2/28/10 4768.800 4769.136  
 CM-244 4320A 2/28/10 5795.020 5795.021  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2361.543  
 Energy Calibration Slope : 4.955566  
 Energy Calibration Quadratic : 2.8235061E-04  
 Energy Calibration Range : 7732.000

Instrument : CHAMBER 196  
 Detector : 68637  
 Calibration Date/Time : 22-JUN-2009 15:06:21  
 Calibration Source Id : AESS-036  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.800  
 CM-244 4320A 2/28/10 5795.020 5795.134  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2361.497  
 Energy Calibration Slope : 4.932623  
 Energy Calibration Quadratic : 2.9964585E-04  
 Energy Calibration Range : 7727.000



Instrument : CHAMBER 197  
 Detector : 78894  
 Calibration Date/Time : 23-JUN-2009 13:40:27  
 Calibration Source Id : AESS-037

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.236
NP-237	4341	2/28/10	4768.800	4768.958
CM-244	4320A	2/28/10	5795.020	5795.067

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2365.861  
 Energy Calibration Slope : 4.977748  
 Energy Calibration Quadratic : 2.8034966E-04  
 Energy Calibration Range : 7757.000

Instrument : CHAMBER 198  
 Detector : 78895  
 Calibration Date/Time : 22-JUN-2009 15:06:54  
 Calibration Source Id : AESS-043

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.801
CM-244	4320A	2/28/10	5795.020	5795.020

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2365.894  
 Energy Calibration Slope : 4.963814  
 Energy Calibration Quadratic : 2.8298626E-04  
 Energy Calibration Range : 7746.000

Instrument : CHAMBER 199  
 Detector : 78896  
 Calibration Date/Time : 22-JUN-2009 15:07:05  
 Calibration Source Id : AESS-038

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.091
NP-237	4341	2/28/10	4768.800	4768.800
CM-244	4320A	2/28/10	5795.020	5795.020

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2364.930  
 Energy Calibration Slope : 4.986914  
 Energy Calibration Quadratic : 2.6706583E-04  
 Energy Calibration Range : 7752.000

Instrument : CHAMBER 200  
 Detector : 78900  
 Calibration Date/Time : 22-JUN-2009 15:07:19  
 Calibration Source Id : AESS-044  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.799  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2368.921  
 Energy Calibration Slope : 4.942559  
 Energy Calibration Quadratic : 3.1796028E-04  
 Energy Calibration Range : 7764.000

Instrument : CHAMBER 201  
 Detector : 78902  
 Calibration Date/Time : 22-JUN-2009 15:07:30  
 Calibration Source Id : AESS-039  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.799  
 CM-244 4320A 2/28/10 5795.020 5795.093  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2363.354  
 Energy Calibration Slope : 4.963643  
 Energy Calibration Quadratic : 3.0018482E-04  
 Energy Calibration Range : 7761.000

Instrument : CHAMBER 202  
 Detector : 78903  
 Calibration Date/Time : 22-JUN-2009 15:07:41  
 Calibration Source Id : AESS-045  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.121  
 NP-237 4341 2/28/10 4768.800 4768.801  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2352.562  
 Energy Calibration Slope : 4.948048  
 Energy Calibration Quadratic : 3.0442388E-04  
 Energy Calibration Range : 7739.000

Instrument : CHAMBER 203  
 Detector : 78905  
 Calibration Date/Time : 22-JUN-2009 15:07:50  
 Calibration Source Id : AESS-040  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.175  
 NP-237 4341 2/28/10 4768.800 4768.800  
 CM-244 4320A 2/28/10 5795.020 5795.021  
  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2359.840  
 Energy Calibration Slope : 4.964388  
 Energy Calibration Quadratic : 2.9003547E-04  
 Energy Calibration Range : 7747.000

Instrument : CHAMBER 204  
 Detector : 78907  
 Calibration Date/Time : 22-JUN-2009 15:08:00  
 Calibration Source Id : AESS-046  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.082  
 NP-237 4341 2/28/10 4768.800 4768.826  
 CM-244 4320A 2/28/10 5795.020 5795.021  
  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2361.510  
 Energy Calibration Slope : 4.952772  
 Energy Calibration Quadratic : 3.0013063E-04  
 Energy Calibration Range : 7748.000

Instrument : CHAMBER 205  
 Detector : 78908  
 Calibration Date/Time : 22-JUN-2009 15:08:10  
 Calibration Source Id : AESS-041  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.169  
 NP-237 4341 2/28/10 4768.800 4768.800  
 CM-244 4320A 2/28/10 5795.020 5795.027  
  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2362.907  
 Energy Calibration Slope : 4.968532  
 Energy Calibration Quadratic : 2.9018772E-04  
 Energy Calibration Range : 7755.000

Instrument : CHAMBER 206  
 Detector : 78909  
 Calibration Date/Time : 22-JUN-2009 15:08:23  
 Calibration Source Id : AESS-047  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.146  
 NP-237 4341 2/28/10 4768.800 4768.801  
 CM-244 4320A 2/28/10 5795.020 5795.042  
  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2357.156  
 Energy Calibration Slope : 4.978078  
 Energy Calibration Quadratic : 2.6590825E-04  
 Energy Calibration Range : 7734.000

Instrument : CHAMBER 207  
 Detector : 78910  
 Calibration Date/Time : 22-JUN-2009 15:08:36  
 Calibration Source Id : AESS-042  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.800  
 CM-244 4320A 2/28/10 5795.020 5795.020  
  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2367.255  
 Energy Calibration Slope : 4.968539  
 Energy Calibration Quadratic : 2.9294274E-04  
 Energy Calibration Range : 7762.000

Instrument : CHAMBER 208  
 Detector : 78911  
 Calibration Date/Time : 22-JUN-2009 15:08:47  
 Calibration Source Id : AESS-048  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.799  
 CM-244 4320A 2/28/10 5795.020 5795.021  
  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2364.810  
 Energy Calibration Slope : 4.972878  
 Energy Calibration Quadratic : 2.8153346E-04  
 Energy Calibration Range : 7752.000

Instrument : CHAMBER 209  
 Detector : 79188  
 Calibration Date/Time : 30-JUN-2009 13:25:14  
 Calibration Source Id : AESS-001

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.801
CM-244	4320A	2/28/10	5795.020	5795.020

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2387.726  
 Energy Calibration Slope : 4.931397  
 Energy Calibration Quadratic : 3.2478853E-04  
 Energy Calibration Range : 7778.000

Instrument : CHAMBER 210  
 Detector : 79189  
 Calibration Date/Time : 30-JUN-2009 13:25:32  
 Calibration Source Id : AESS-002

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.801
CM-244	4320A	2/28/10	5795.020	5795.020

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2383.637  
 Energy Calibration Slope : 4.939270  
 Energy Calibration Quadratic : 3.1113683E-04  
 Energy Calibration Range : 7768.000

Instrument : CHAMBER 211  
 Detector : 79190  
 Calibration Date/Time : 30-JUN-2009 13:25:46  
 Calibration Source Id : AESS-003

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.799
CM-244	4320A	2/28/10	5795.020	5795.021

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2389.518  
 Energy Calibration Slope : 4.955431  
 Energy Calibration Quadratic : 3.0932875E-04  
 Energy Calibration Range : 7788.000

Instrument : CHAMBER 212  
 Detector : 79191  
 Calibration Date/Time : 30-JUN-2009 13:25:56  
 Calibration Source Id : AESS-004

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.800
CM-244	4320A	2/28/10	5795.020	5795.021

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2387.357  
 Energy Calibration Slope : 4.935492  
 Energy Calibration Quadratic : 3.2339373E-04  
 Energy Calibration Range : 7780.000

Instrument : CHAMBER 213  
 Detector : 79192  
 Calibration Date/Time : 30-JUN-2009 13:26:06  
 Calibration Source Id : AESS-005

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.800
CM-244	4320A	2/28/10	5795.020	5795.021

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2392.713  
 Energy Calibration Slope : 4.948073  
 Energy Calibration Quadratic : 3.1151611E-04  
 Energy Calibration Range : 7786.000

Instrument : CHAMBER 214  
 Detector : 79193  
 Calibration Date/Time : 30-JUN-2009 13:26:15  
 Calibration Source Id : AESS-006

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.799
CM-244	4320A	2/28/10	5795.020	5795.021

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2381.982  
 Energy Calibration Slope : 4.949060  
 Energy Calibration Quadratic : 3.1146532E-04  
 Energy Calibration Range : 7776.000

Instrument : CHAMBER 215  
 Detector : 79194  
 Calibration Date/Time : 30-JUN-2009 13:26:24  
 Calibration Source Id : AESS-007  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.800  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2392.654  
 Energy Calibration Slope : 4.938601  
 Energy Calibration Quadratic : 3.3165864E-04  
 Energy Calibration Range : 7798.000

Instrument : CHAMBER 216  
 Detector : 79195  
 Calibration Date/Time : 30-JUN-2009 13:26:33  
 Calibration Source Id : AESS-008  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.800  
 CM-244 4320A 2/28/10 5795.020 5795.021  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2383.258  
 Energy Calibration Slope : 4.954875  
 Energy Calibration Quadratic : 3.0062834E-04  
 Energy Calibration Range : 7772.000

Instrument : CHAMBER 217  
 Detector : 79410  
 Calibration Date/Time : 30-JUN-2009 13:26:43  
 Calibration Source Id : AESS-009  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.800  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2389.657  
 Energy Calibration Slope : 4.940731  
 Energy Calibration Quadratic : 3.2290843E-04  
 Energy Calibration Range : 7788.000

Instrument : CHAMBER 218  
 Detector : 79411  
 Calibration Date/Time : 30-JUN-2009 13:26:51  
 Calibration Source Id : AESS-010  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.801  
 CM-244 4320A 2/28/10 5795.020 5795.019  
  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2387.484  
 Energy Calibration Slope : 4.945539  
 Energy Calibration Quadratic : 3.2147722E-04  
 Energy Calibration Range : 7789.000

Instrument : CHAMBER 219  
 Detector : 79412  
 Calibration Date/Time : 30-JUN-2009 13:27:01  
 Calibration Source Id : AESS-011  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.001  
 NP-237 4341 2/28/10 4768.800 4768.799  
 CM-244 4320A 2/28/10 5795.020 5795.021  
  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2385.324  
 Energy Calibration Slope : 4.953215  
 Energy Calibration Quadratic : 3.0849627E-04  
 Energy Calibration Range : 7781.000

Instrument : CHAMBER 220  
 Detector : 79413  
 Calibration Date/Time : 30-JUN-2009 13:27:10  
 Calibration Source Id : AESS-012  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.800  
 CM-244 4320A 2/28/10 5795.020 5795.020  
  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2383.523  
 Energy Calibration Slope : 4.935628  
 Energy Calibration Quadratic : 3.2036271E-04  
 Energy Calibration Range : 7774.000



Instrument : CHAMBER 221  
 Detector : 79414  
 Calibration Date/Time : 30-JUN-2009 13:27:19  
 Calibration Source Id : AESS-013  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.801  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2386.554  
 Energy Calibration Slope : 4.965968  
 Energy Calibration Quadratic : 3.1077291E-04  
 Energy Calibration Range : 7798.000

Instrument : CHAMBER 222  
 Detector : 79415  
 Calibration Date/Time : 30-JUN-2009 13:27:29  
 Calibration Source Id : AESS-014  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.799  
 CM-244 4320A 2/28/10 5795.020 5794.573  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2380.427  
 Energy Calibration Slope : 5.024710  
 Energy Calibration Quadratic : 2.4253939E-04  
 Energy Calibration Range : 7780.000

Instrument : CHAMBER 223  
 Detector : 79416  
 Calibration Date/Time : 30-JUN-2009 13:27:39  
 Calibration Source Id : AESS-015  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.800  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2391.487  
 Energy Calibration Slope : 4.944519  
 Energy Calibration Quadratic : 3.4526619E-04  
 Energy Calibration Range : 7817.000

Instrument : CHAMBER 224  
 Detector : 79417  
 Calibration Date/Time : 30-JUN-2009 13:27:48  
 Calibration Source Id : AESS-016  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.801  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2389.036  
 Energy Calibration Slope : 4.998024  
 Energy Calibration Quadratic : 2.7591022E-04  
 Energy Calibration Range : 7796.000

Instrument : CHAMBER 225  
 Detector : 79418  
 Calibration Date/Time : 30-JUN-2009 13:28:00  
 Calibration Source Id : AESS-017  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.800  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2391.820  
 Energy Calibration Slope : 4.947299  
 Energy Calibration Quadratic : 3.2222894E-04  
 Energy Calibration Range : 7796.000

Instrument : CHAMBER 226  
 Detector : 79419  
 Calibration Date/Time : 30-JUN-2009 13:28:10  
 Calibration Source Id : AESS-018  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.001  
 NP-237 4341 2/28/10 4768.800 4768.798  
 CM-244 4320A 2/28/10 5795.020 5795.021  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2384.017  
 Energy Calibration Slope : 4.975819  
 Energy Calibration Quadratic : 2.9400751E-04  
 Energy Calibration Range : 7788.000

Instrument : CHAMBER 227  
 Detector : 79420  
 Calibration Date/Time : 30-JUN-2009 13:28:21  
 Calibration Source Id : AESS-019  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.800  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2390.902  
 Energy Calibration Slope : 4.944205  
 Energy Calibration Quadratic : 3.2253028E-04  
 Energy Calibration Range : 7792.000

Instrument : CHAMBER 228  
 Detector : 79421  
 Calibration Date/Time : 30-JUN-2009 13:28:30  
 Calibration Source Id : AESS-020  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.799  
 CM-244 4320A 2/28/10 5795.020 5795.021  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2382.530  
 Energy Calibration Slope : 4.981592  
 Energy Calibration Quadratic : 2.8075394E-04  
 Energy Calibration Range : 7778.000

Instrument : CHAMBER 229  
 Detector : 79422  
 Calibration Date/Time : 30-JUN-2009 13:28:39  
 Calibration Source Id : AESS-021  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.800  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2388.282  
 Energy Calibration Slope : 4.954379  
 Energy Calibration Quadratic : 3.1871718E-04  
 Energy Calibration Range : 7796.000

Instrument : CHAMBER 230  
 Detector : 79423  
 Calibration Date/Time : 30-JUN-2009 13:28:51  
 Calibration Source Id : AESS-022  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.798  
 CM-244 4320A 2/28/10 5795.020 5795.021  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2384.651  
 Energy Calibration Slope : 4.970551  
 Energy Calibration Quadratic : 2.9692691E-04  
 Energy Calibration Range : 7786.000

Instrument : CHAMBER 231  
 Detector : 79424  
 Calibration Date/Time : 30-JUN-2009 13:29:03  
 Calibration Source Id : AESS-023  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.801  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2387.183  
 Energy Calibration Slope : 4.959881  
 Energy Calibration Quadratic : 3.0125881E-04  
 Energy Calibration Range : 7782.000

Instrument : CHAMBER 232  
 Detector : 79425  
 Calibration Date/Time : 30-JUN-2009 13:29:13  
 Calibration Source Id : AESS-024  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.799  
 CM-244 4320A 2/28/10 5795.020 5795.021  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2384.233  
 Energy Calibration Slope : 5.017519  
 Energy Calibration Quadratic : 2.4404455E-04  
 Energy Calibration Range : 7778.000

Instrument : CHAMBER 233  
 Detector : 79426  
 Calibration Date/Time : 30-JUN-2009 13:29:22  
 Calibration Source Id : AESS-025

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.801
CM-244	4320A	2/28/10	5795.020	5795.019

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2383.418  
 Energy Calibration Slope : 4.917979  
 Energy Calibration Quadratic : 3.4538476E-04  
 Energy Calibration Range : 7782.000

Instrument : CHAMBER 234  
 Detector : 79427  
 Calibration Date/Time : 30-JUN-2009 13:29:34  
 Calibration Source Id : AESS-026

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.800
CM-244	4320A	2/28/10	5795.020	5795.020

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2382.356  
 Energy Calibration Slope : 4.914772  
 Energy Calibration Quadratic : 3.4141311E-04  
 Energy Calibration Range : 7773.000

Instrument : CHAMBER 235  
 Detector : 79428  
 Calibration Date/Time : 30-JUN-2009 13:29:43  
 Calibration Source Id : AESS-027

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.799
CM-244	4320A	2/28/10	5795.020	5795.021

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2387.058  
 Energy Calibration Slope : 4.936741  
 Energy Calibration Quadratic : 3.3184959E-04  
 Energy Calibration Range : 7790.000

Instrument : CHAMBER 236  
 Detector : 79429  
 Calibration Date/Time : 30-JUN-2009 13:29:51  
 Calibration Source Id : AESS-028  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.801  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2387.647  
 Energy Calibration Slope : 4.918993  
 Energy Calibration Quadratic : 3.4496849E-04  
 Energy Calibration Range : 7786.000

Instrument : CHAMBER 237  
 Detector : 79430  
 Calibration Date/Time : 30-JUN-2009 13:30:00  
 Calibration Source Id : AESS-029  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.799  
 CM-244 4320A 2/28/10 5795.020 5795.021  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2389.033  
 Energy Calibration Slope : 4.937141  
 Energy Calibration Quadratic : 3.3584173E-04  
 Energy Calibration Range : 7797.000

Instrument : CHAMBER 238  
 Detector : 79431  
 Calibration Date/Time : 30-JUN-2009 13:30:09  
 Calibration Source Id : AESS-030  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.800  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2383.856  
 Energy Calibration Slope : 4.918208  
 Energy Calibration Quadratic : 3.4156963E-04  
 Energy Calibration Range : 7778.000

Instrument : CHAMBER 239  
 Detector : 79432  
 Calibration Date/Time : 30-JUN-2009 13:30:18  
 Calibration Source Id : AESS-031

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.799
CM-244	4320A	2/28/10	5795.020	5795.021

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2389.888  
 Energy Calibration Slope : 4.920895  
 Energy Calibration Quadratic : 3.5708703E-04  
 Energy Calibration Range : 7803.000

Instrument : CHAMBER 240  
 Detector : 79433  
 Calibration Date/Time : 30-JUN-2009 13:30:27  
 Calibration Source Id : AESS-032

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.798
CM-244	4320A	2/28/10	5795.020	5795.021

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2386.559  
 Energy Calibration Slope : 4.907694  
 Energy Calibration Quadratic : 3.6268227E-04  
 Energy Calibration Range : 7792.000

Instrument : CHAMBER 241  
 Detector : 79434  
 Calibration Date/Time : 30-JUN-2009 13:30:36  
 Calibration Source Id : AESS-033

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.799
CM-244	4320A	2/28/10	5795.020	5795.021

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2384.510  
 Energy Calibration Slope : 4.923378  
 Energy Calibration Quadratic : 3.4127611E-04  
 Energy Calibration Range : 7784.000

Instrument : CHAMBER 242  
 Detector : 79435  
 Calibration Date/Time : 30-JUN-2009 13:30:45  
 Calibration Source Id : AESS-034

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.798
CM-244	4320A	2/28/10	5795.020	5795.021

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2390.047  
 Energy Calibration Slope : 4.916013  
 Energy Calibration Quadratic : 3.5139045E-04  
 Energy Calibration Range : 7793.000

Instrument : CHAMBER 243  
 Detector : 79436  
 Calibration Date/Time : 30-JUN-2009 13:30:54  
 Calibration Source Id : AESS-035

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.799
CM-244	4320A	2/28/10	5795.020	5795.021

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2388.583  
 Energy Calibration Slope : 4.932609  
 Energy Calibration Quadratic : 3.3716374E-04  
 Energy Calibration Range : 7793.000

Instrument : CHAMBER 244  
 Detector : 79437  
 Calibration Date/Time : 30-JUN-2009 13:31:04  
 Calibration Source Id : AESS-036

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.799
CM-244	4320A	2/28/10	5795.020	5795.020

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2389.087  
 Energy Calibration Slope : 4.916673  
 Energy Calibration Quadratic : 3.5015366E-04  
 Energy Calibration Range : 7791.000



Instrument : CHAMBER 245  
 Detector : 79438  
 Calibration Date/Time : 30-JUN-2009 13:31:18  
 Calibration Source Id : AESS-037  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4769.036  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2390.120  
 Energy Calibration Slope : 4.932529  
 Energy Calibration Quadratic : 3.4877865E-04  
 Energy Calibration Range : 7807.000

Instrument : CHAMBER 246  
 Detector : 78912  
 Calibration Date/Time : 30-JUN-2009 13:31:31  
 Calibration Source Id : AESS-038  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4769.115  
 CM-244 4320A 2/28/10 5795.020 5795.021  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2391.179  
 Energy Calibration Slope : 4.943339  
 Energy Calibration Quadratic : 3.2214838E-04  
 Energy Calibration Range : 7791.000

Instrument : CHAMBER 247  
 Detector : 79440  
 Calibration Date/Time : 30-JUN-2009 13:31:41  
 Calibration Source Id : AESS-039  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.799  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2391.692  
 Energy Calibration Slope : 4.933953  
 Energy Calibration Quadratic : 3.4777186E-04  
 Energy Calibration Range : 7809.000

Instrument : CHAMBER 248  
 Detector : 79441  
 Calibration Date/Time : 30-JUN-2009 13:31:51  
 Calibration Source Id : AESS-040

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.799
CM-244	4320A	2/28/10	5795.020	5795.021

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2387.938  
 Energy Calibration Slope : 4.919151  
 Energy Calibration Quadratic : 3.5771105E-04  
 Energy Calibration Range : 7800.000

Instrument : CHAMBER 249  
 Detector : 79442  
 Calibration Date/Time : 30-JUN-2009 13:32:04  
 Calibration Source Id : AESS-041

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.800
CM-244	4320A	2/28/10	5795.020	5795.020

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2387.381  
 Energy Calibration Slope : 4.922509  
 Energy Calibration Quadratic : 3.6959481E-04  
 Energy Calibration Range : 7816.000

Instrument : CHAMBER 250  
 Detector : 79443  
 Calibration Date/Time : 30-JUN-2009 13:32:16  
 Calibration Source Id : AESS-042

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.799
CM-244	4320A	2/28/10	5795.020	5795.021

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2381.157  
 Energy Calibration Slope : 4.929844  
 Energy Calibration Quadratic : 3.4039136E-04  
 Energy Calibration Range : 7786.000

Instrument : CHAMBER 251  
 Detector : 79444  
 Calibration Date/Time : 30-JUN-2009 13:32:48  
 Calibration Source Id : AESS-043  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.800  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2387.225  
 Energy Calibration Slope : 4.925405  
 Energy Calibration Quadratic : 3.6185942E-04  
 Energy Calibration Range : 7810.000

Instrument : CHAMBER 252  
 Detector : 79445  
 Calibration Date/Time : 30-JUN-2009 13:33:09  
 Calibration Source Id : AESS-044  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.800  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2382.012  
 Energy Calibration Slope : 4.929501  
 Energy Calibration Quadratic : 3.4806953E-04  
 Energy Calibration Range : 7795.000

Instrument : CHAMBER 253  
 Detector : 79446  
 Calibration Date/Time : 30-JUN-2009 13:33:20  
 Calibration Source Id : AESS-045  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.800  
 CM-244 4320A 2/28/10 5795.020 5795.021  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2394.239  
 Energy Calibration Slope : 4.943881  
 Energy Calibration Quadratic : 3.5968810E-04  
 Energy Calibration Range : 7834.000

Instrument : CHAMBER 254  
 Detector : 79447  
 Calibration Date/Time : 30-JUN-2009 13:33:32  
 Calibration Source Id : AESS-046  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.800  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2390.188  
 Energy Calibration Slope : 4.926832  
 Energy Calibration Quadratic : 3.5614919E-04  
 Energy Calibration Range : 7809.000

Instrument : CHAMBER 255  
 Detector : 79448  
 Calibration Date/Time : 30-JUN-2009 13:33:42  
 Calibration Source Id : AESS-047  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.800  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2390.725  
 Energy Calibration Slope : 4.926145  
 Energy Calibration Quadratic : 3.6522237E-04  
 Energy Calibration Range : 7818.000

Instrument : CHAMBER 256  
 Detector : 79449  
 Calibration Date/Time : 30-JUN-2009 13:33:53  
 Calibration Source Id : AESS-048  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.801  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2387.915  
 Energy Calibration Slope : 4.925013  
 Energy Calibration Quadratic : 3.5367915E-04  
 Energy Calibration Range : 7802.000

## Subsection 2: Background Calibration

Instrument : CHAMBER 001  
 Detector : 78788  
 Background Analysis Date/Time : 5-JUL-2009 15:11:54  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.679	3298.848	2.000000	0.4799997	70.71068	95.00000
NP-237	4436.698	4905.866	9.000000	2.159999	33.33334	95.00000
CM-244	5535.874	5884.629	8.000000	1.919999	35.35534	95.00000

Instrument : CHAMBER 002  
 Detector : 78266  
 Background Analysis Date/Time : 5-JUL-2009 15:11:54  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2987.715	3301.971	9.000000	2.159999	33.33334	95.00000
NP-237	4433.336	4902.576	8.000000	1.919999	35.35534	95.00000
CM-244	5533.904	5882.845	1.000000	0.2399998	100.0000	95.00000

Instrument : CHAMBER 003  
 Detector : 67617  
 Background Analysis Date/Time : 5-JUL-2009 15:11:54  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.494	3301.750	234063.0	56175.08	0.2066967	95.00000
NP-237	4434.514	4906.213	77237.00	18536.87	0.3598217	95.00000
CM-244	5534.317	5886.218	1459.000	350.1598	2.618016	95.00000

Instrument : CHAMBER 004  
 Detector : 64279  
 Background Analysis Date/Time : 5-JUL-2009 15:11:54  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2991.142	3301.855	1.000000	0.2399998	100.0000	95.00000
NP-237	4434.122	4905.061	9.000000	2.159999	33.33334	95.00000
CM-244	5532.169	5885.896	4.000000	0.9599994	50.00000	95.00000

Instrument : CHAMBER 005  
 Detector : 67612  
 Background Analysis Date/Time : 5-JUL-2009 15:11:54  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2987.844	3301.859	6.000000	1.439999	40.82483	95.00000
NP-237	4432.372	4905.723	7.000000	1.679999	37.79645	95.00000
CM-244	5534.445	5887.312	11.000000	2.639998	30.15113	95.00000

Instrument : CHAMBER 006  
 Detector : 67613  
 Background Analysis Date/Time : 5-JUL-2009 15:11:54  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2987.836	3301.578	1.000000	0.2399998	100.0000	95.00000
NP-237	4433.162	4904.315	5.000000	1.199999	44.72136	95.00000
CM-244	5534.623	5882.438	4.000000	0.9599994	50.00000	95.00000

Instrument : CHAMBER 007  
 Detector : 67607  
 Background Analysis Date/Time : 5-JUL-2009 15:11:55  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2987.476	3300.975	5.000000	1.199999	44.72136	95.00000
NP-237	4436.790	4906.439	13.000000	3.119998	27.73501	95.00000
CM-244	5534.241	5887.079	16.000000	3.839998	25.00000	95.00000

Instrument : CHAMBER 008  
 Detector : 78788  
 Background Analysis Date/Time : 5-JUL-2009 15:11:55  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.921	3300.406	4.000000	0.9599994	50.00000	95.00000
NP-237	4435.107	4902.387	10.000000	2.399998	31.62278	95.00000
CM-244	5534.594	5883.502	2.000000	0.4799997	70.71068	95.00000

Instrument : CHAMBER 009  
 Detector : 72528  
 Background Analysis Date/Time : 5-JUL-2009 15:11:55  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.628	3299.090	3.000000	0.7199996	57.73503	95.00000
NP-237	4437.197	4904.633	13.000000	3.119998	27.73501	95.00000
CM-244	5532.440	5887.594	10.000000	2.399998	31.62278	95.00000

Instrument : CHAMBER 010  
 Detector : 72529  
 Background Analysis Date/Time : 5-JUL-2009 15:11:55  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2991.348	3298.595	1.000000	0.2399998	100.0000	95.00000
NP-237	4434.835	4903.545	8.000000	1.919999	35.35534	95.00000
CM-244	5530.435	5886.972	9.000000	2.159999	33.33334	95.00000

Instrument : CHAMBER 011  
 Detector : 72531  
 Background Analysis Date/Time : 5-JUL-2009 15:11:55  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2991.311	3301.519	2.000000	0.4799997	70.71068	95.00000
NP-237	4434.837	4904.180	7.000000	1.679999	37.79645	95.00000
CM-244	5534.270	5885.159	6.000000	1.439999	40.82483	95.00000

Instrument : CHAMBER 012  
 Detector : 67594  
 Background Analysis Date/Time : 5-JUL-2009 15:11:55  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.530	3302.430	7.000000	1.679999	37.79645	95.00000
NP-237	4435.245	4904.394	9.000000	2.159999	33.33334	95.00000
CM-244	5531.663	5882.971	9.000000	2.159999	33.33334	95.00000

Instrument : CHAMBER 013  
 Detector : 78790  
 Background Analysis Date/Time : 5-JUL-2009 15:11:56  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2992.215	3297.934	1.000000	0.2400001	100.0000	95.00000
NP-237	4433.681	4905.322	9.000000	2.160001	33.33334	95.00000
CM-244	5534.510	5884.075	1.000000	0.2400001	100.0000	95.00000

Instrument : CHAMBER 014  
 Detector : 67616  
 Background Analysis Date/Time : 5-JUL-2009 15:11:56  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.044	3301.205	4.000000	0.9600002	50.00000	95.00000
NP-237	4432.568	4904.459	8.000000	1.920000	35.35534	95.00000
CM-244	5531.132	5885.588	19.00000	4.560001	22.94157	95.00000

Instrument : CHAMBER 015  
 Detector : 61581  
 Background Analysis Date/Time : 5-JUL-2009 15:11:56  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.992	3300.634	1.000000	0.2400001	100.0000	95.00000
NP-237	4433.750	4904.866	3.000000	0.7200001	57.73503	95.00000
CM-244	5533.850	5883.539	18.00000	4.320001	23.57022	95.00000

Instrument : CHAMBER 016  
 Detector : 78774  
 Background Analysis Date/Time : 5-JUL-2009 15:11:56  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2991.376	3300.188	2.000000	0.4800001	70.71068	95.00000
NP-237	4436.705	4902.519	8.000000	1.920000	35.35534	95.00000
CM-244	5531.791	5887.203	1.000000	0.2400001	100.0000	95.00000



Instrument : CHAMBER 017  
 Detector : 78791  
 Background Analysis Date/Time : 5-JUL-2009 15:11:56  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.293	3301.593	4.000000	0.9600002	50.00000	95.00000
NP-237	4433.438	4905.522	3.000000	0.7200001	57.73503	95.00000
CM-244	5532.444	5887.037	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000

Instrument : CHAMBER 018  
 Detector : 21063  
 Background Analysis Date/Time : 13-JUL-2009 21:54:51  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2991.459	3300.768	2.000000	0.4800001	70.71068	95.00000
NP-237	4435.720	4903.495	7.000000	1.680000	37.79645	95.00000
CM-244	5531.358	5886.349	4.000000	0.9600002	50.00000	95.00000

Instrument : CHAMBER 019  
 Detector : 78786  
 Background Analysis Date/Time : 5-JUL-2009 15:11:57  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2991.589	3299.131	2.000000	0.4800001	70.71068	95.00000
NP-237	4435.520	4903.560	5.000000	1.200000	44.72136	95.00000
CM-244	5534.981	5882.589	1.000000	0.2400001	100.0000	95.00000

Instrument : CHAMBER 020  
 Detector : 78787  
 Background Analysis Date/Time : 5-JUL-2009 15:11:57  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2991.028	3300.317	3.000000	0.7200001	57.73503	95.00000
NP-237	4434.663	4901.954	7.000000	1.680000	37.79645	95.00000
CM-244	5534.316	5883.376	3.000000	0.7200001	57.73503	95.00000

Instrument : CHAMBER 021  
 Detector : 67047  
 Background Analysis Date/Time : 5-JUL-2009 15:11:57  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2991.930	3300.431	3.000000	0.7200001	57.73503	95.00000
NP-237	4435.207	4905.011	8.000000	1.920000	35.35534	95.00000
CM-244	5533.018	5884.673	17.00000	4.080001	24.25356	95.00000

Instrument : CHAMBER 022  
 Detector : 72530  
 Background Analysis Date/Time : 5-JUL-2009 15:11:57  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.087	3302.012	33.00000	7.920002	17.40777	95.00000
NP-237	4436.701	4902.154	23.00000	5.520001	20.85144	95.00000
CM-244	5532.124	5885.279	12.00000	2.880001	28.86751	95.00000

Instrument : CHAMBER 023  
 Detector : 78264  
 Background Analysis Date/Time : 5-JUL-2009 15:11:57  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.041	3300.395	2.000000	0.4800001	70.71068	95.00000
NP-237	4437.054	4904.602	10.00000	2.400001	31.62278	95.00000
CM-244	5531.351	5885.314	5.000000	1.200000	44.72136	95.00000

Instrument : CHAMBER 024  
 Detector : 76542  
 Background Analysis Date/Time : 5-JUL-2009 15:11:57  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.294	3302.013	10.00000	2.400001	31.62278	95.00000
NP-237	4435.963	4904.774	26.00000	6.240001	19.61161	95.00000
CM-244	5530.886	5886.529	5.000000	1.200000	44.72136	95.00000

Instrument : CHAMBER 025  
 Detector : 45-149AA5  
 Background Analysis Date/Time : 5-JUL-2009 15:11:58  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.683	3301.317	3.000000	0.7200001	57.73503	95.00000
NP-237	4432.505	4905.964	7.000000	1.680000	37.79645	95.00000
CM-244	5531.275	5884.228	21.00000	5.040001	21.82179	95.00000

Instrument : CHAMBER 026  
 Detector : 78204  
 Background Analysis Date/Time : 5-JUL-2009 15:11:58  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2992.261	3299.610	2.000000	0.4800001	70.71068	95.00000
NP-237	4434.923	4901.784	5.000000	1.200000	44.72136	95.00000
CM-244	5534.672	5884.552	5.000000	1.200000	44.72136	95.00000

Instrument : CHAMBER 027  
 Detector : 42484  
 Background Analysis Date/Time : 5-JUL-2009 15:11:58  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2992.456	3300.321	2.000000	0.4800001	70.71068	95.00000
NP-237	4432.625	4905.570	12.00000	2.880001	28.86751	95.00000
CM-244	5534.870	5882.737	23.00000	5.520001	20.85144	95.00000

Instrument : CHAMBER 028  
 Detector : 78792  
 Background Analysis Date/Time : 5-JUL-2009 15:11:58  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.695	3297.894	3.000000	0.7200001	57.73503	95.00000
NP-237	4435.454	4902.851	4.000000	0.9600002	50.00000	95.00000
CM-244	5530.764	5886.057	5.000000	1.200000	44.72136	95.00000

Instrument : CHAMBER 029  
 Detector : 33454  
 Background Analysis Date/Time : 5-JUL-2009 15:11:58  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.570	3299.793	4.000000	0.9600002	50.00000	95.00000
NP-237	4434.729	4906.466	6.000000	1.440000	40.82483	95.00000
CM-244	5530.876	5886.187	7.000000	1.680000	37.79645	95.00000

Instrument : CHAMBER 030  
 Detector : 33447  
 Background Analysis Date/Time : 5-JUL-2009 15:11:58  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2992.473	3300.013	5.000000	1.200000	44.72136	95.00000
NP-237	4433.021	4902.873	11.00000	2.640000	30.15113	95.00000
CM-244	5531.626	5884.032	17.00000	4.080001	24.25356	95.00000

Instrument : CHAMBER 031  
 Detector : 67042  
 Background Analysis Date/Time : 13-JUL-2009 21:54:52  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2992.104	3299.916	5.000000	1.200000	44.72136	95.00000
NP-237	4436.072	4902.901	16.00000	3.840001	25.00000	95.00000
CM-244	5535.417	5884.932	11.00000	2.640001	30.15113	95.00000

Instrument : CHAMBER 032  
 Detector : 67041  
 Background Analysis Date/Time : 13-JUL-2009 21:54:52  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.634	3297.499	1.000000	0.2400001	100.0000	95.00000
NP-237	4437.570	4904.884	14.00000	3.360001	26.72612	95.00000
CM-244	5533.522	5884.215	16.00000	3.840001	25.00000	95.00000

Instrument : CHAMBER 033  
 Detector : 78785  
 Background Analysis Date/Time : 5-JUL-2009 15:11:58  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.591	3298.173	1.000000	0.2400000	100.0000	95.00000
NP-237	4434.089	4906.364	9.000000	2.160000	33.33334	95.00000
CM-244	5534.061	5883.941	2.000000	0.4800001	70.71068	95.00000

Instrument : CHAMBER 034  
 Detector : 61586  
 Background Analysis Date/Time : 13-JUL-2009 21:54:52  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.268	3300.348	1.000000	0.2400001	100.0000	95.00000
NP-237	4435.287	4906.218	9.000000	2.160001	33.33334	95.00000
CM-244	5533.837	5886.701	12.00000	2.880001	28.86751	95.00000

Instrument : CHAMBER 035  
 Detector : 78202  
 Background Analysis Date/Time : 5-JUL-2009 15:11:58  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.841	3298.805	1.000000	0.2400000	100.0000	95.00000
NP-237	4433.680	4901.942	20.00000	4.800001	22.36068	95.00000
CM-244	5530.913	5886.751	8.000000	1.920000	35.35534	95.00000

Instrument : CHAMBER 036  
 Detector : 78203  
 Background Analysis Date/Time : 5-JUL-2009 15:11:58  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.719	3297.679	1.000000	0.2400000	100.0000	95.00000
NP-237	4436.454	4902.523	2.000000	0.4800001	70.71068	95.00000
CM-244	5534.221	5883.385	6.000000	1.440000	40.82483	95.00000

Instrument : CHAMBER 037  
 Detector : 45-149BB5  
 Background Analysis Date/Time : 5-JUL-2009 15:12:00  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2992.027	3298.587	4.000000	0.9600002	50.00000	95.00000
NP-237	4435.750	4902.017	14.00000	3.360001	26.72612	95.00000
CM-244	5535.521	5884.277	18.00000	4.320001	23.57022	95.00000

Instrument : CHAMBER 038  
 Detector : 72532  
 Background Analysis Date/Time : 5-JUL-2009 15:12:00  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.665	3301.822	6.000000	1.440000	40.82483	95.00000
NP-237	4435.489	4906.553	18.00000	4.320001	23.57022	95.00000
CM-244	5532.401	5886.525	16.00000	3.840001	25.00000	95.00000

Instrument : CHAMBER 039  
 Detector : 45-149BB2  
 Background Analysis Date/Time : 5-JUL-2009 15:12:00  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.145	3298.732	3.000000	0.7200001	57.73503	95.00000
NP-237	4435.549	4903.088	5.000000	1.200000	44.72136	95.00000
CM-244	5534.287	5885.251	15.00000	3.600001	25.81989	95.00000

Instrument : CHAMBER 040  
 Detector : 78773  
 Background Analysis Date/Time : 5-JUL-2009 15:12:00  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.803	3299.657	3.000000	0.7200001	57.73503	95.00000
NP-237	4435.891	4904.106	7.000000	1.680000	37.79645	95.00000
CM-244	5531.706	5883.967	1.000000	0.2400001	100.0000	95.00000

Instrument : CHAMBER 041  
 Detector : 78205  
 Background Analysis Date/Time : 5-JUL-2009 15:12:00  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.799	3301.675	4.000000	0.9600002	50.00000	95.00000
NP-237	4434.272	4902.386	12.00000	2.880001	28.86751	95.00000
CM-244	5531.847	5882.877	5.000000	1.200000	44.72136	95.00000

Instrument : CHAMBER 042  
 Detector : 78793  
 Background Analysis Date/Time : 5-JUL-2009 15:12:00  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2991.257	3302.160	1.000000	0.2400001	100.0000	95.00000
NP-237	4435.667	4904.225	11.00000	2.640001	30.15113	95.00000
CM-244	5531.759	5883.730	3.000000	0.7200001	57.73503	95.00000

Instrument : CHAMBER 043  
 Detector : 76543  
 Background Analysis Date/Time : 5-JUL-2009 15:12:00  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.989	3298.318	1.000000	0.2399998	100.0000	95.00000
NP-237	4436.983	4902.370	4.000000	0.9599994	50.00000	95.00000
CM-244	5532.584	5886.039	3.000000	0.7199996	57.73503	95.00000

Instrument : CHAMBER 044  
 Detector : 79459  
 Background Analysis Date/Time : 5-JUL-2009 15:12:00  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.854	3300.902	4.000000	0.9600002	50.00000	95.00000
NP-237	4435.084	4901.492	10.00000	2.400001	31.62278	95.00000
CM-244	5533.776	5883.326	6.000000	1.440000	40.82483	95.00000

Instrument : CHAMBER 045  
 Detector : 67601  
 Background Analysis Date/Time : 13-JUL-2009 21:54:53  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2987.909	3300.265	1.000000	0.2400000	100.0000	95.00000
NP-237	4434.212	4905.200	7.000000	1.680000	37.79645	95.00000
CM-244	5530.781	5884.673	1.000000	0.2400000	100.0000	95.00000

Instrument : CHAMBER 046  
 Detector : 76544  
 Background Analysis Date/Time : 5-JUL-2009 15:12:00  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.077	3298.635	2.000000	0.4799997	70.71068	95.00000
NP-237	4433.627	4906.487	10.00000	2.399998	31.62278	95.00000
CM-244	5533.329	5885.134	8.000000	1.919999	35.35534	95.00000

Instrument : CHAMBER 047  
 Detector : 46-089B1  
 Background Analysis Date/Time : 5-JUL-2009 15:12:00  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2987.977	3301.361	2.000000	0.4799997	70.71068	95.00000
NP-237	4433.363	4905.447	8.000000	1.919999	35.35534	95.00000
CM-244	5532.313	5886.846	6.000000	1.439999	40.82483	95.00000

Instrument : CHAMBER 048  
 Detector : 42483  
 Background Analysis Date/Time : 5-JUL-2009 15:12:00  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.411	3301.246	4.000000	0.9599994	50.00000	95.00000
NP-237	4433.969	4903.143	12.00000	2.879998	28.86751	95.00000
CM-244	5530.501	5887.230	14.00000	3.359998	26.72612	95.00000



Instrument : CHAMBER 065  
 Detector : 68551  
 Background Analysis Date/Time : 5-JUL-2009 15:12:01  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2992.172	3297.923	12.00000	2.879998	28.86751	95.00000
NP-237	4436.297	4904.907	10.00000	2.399998	31.62278	95.00000
CM-244	5532.615	5884.733	17.00000	4.079998	24.25356	95.00000

Instrument : CHAMBER 066  
 Detector : 46-089C1  
 Background Analysis Date/Time : 5-JUL-2009 15:12:01  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2992.142	3300.807	4.000000	0.9599994	50.00000	95.00000
NP-237	4436.247	4906.352	9.000000	2.159999	33.33334	95.00000
CM-244	5534.784	5886.688	18.00000	4.319997	23.57022	95.00000

Instrument : CHAMBER 067  
 Detector : 46-089B4  
 Background Analysis Date/Time : 5-JUL-2009 15:12:01  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.144	3301.594	1.000000	0.2399998	100.0000	95.00000
NP-237	4436.169	4905.946	11.00000	2.639998	30.15113	95.00000
CM-244	5533.963	5885.648	7.000000	1.679999	37.79645	95.00000

Instrument : CHAMBER 068  
 Detector : 78794  
 Background Analysis Date/Time : 5-JUL-2009 15:12:01  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.601	3300.139	1.000000	0.2399998	100.0000	95.00000
NP-237	4435.756	4903.729	4.000000	0.9599994	50.00000	95.00000
CM-244	5531.794	5886.867	4.000000	0.9599994	50.00000	95.00000

Instrument : CHAMBER 069  
 Detector : 78795  
 Background Analysis Date/Time : 5-JUL-2009 15:12:01  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2991.901	3298.738	5.000000	1.199999	44.72136	95.00000
NP-237	4437.201	4903.207	6.000000	1.439999	40.82483	95.00000
CM-244	5534.874	5884.048	9.000000	2.159999	33.33334	95.00000

Instrument : CHAMBER 070  
 Detector : 46-089B2  
 Background Analysis Date/Time : 5-JUL-2009 15:12:01  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.641	3300.492	4.000000	0.9599994	50.00000	95.00000
NP-237	4435.833	4904.443	11.00000	2.639998	30.15113	95.00000
CM-244	5531.433	5882.799	7.000000	1.679999	37.79645	95.00000

Instrument : CHAMBER 071  
 Detector : 64259  
 Background Analysis Date/Time : 5-JUL-2009 15:12:02  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2992.476	3301.614	1.000000	0.2399998	100.0000	95.00000
NP-237	4435.387	4902.436	6.000000	1.439999	40.82483	95.00000
CM-244	5534.462	5883.334	12.00000	2.879998	28.86751	95.00000

Instrument : CHAMBER 072  
 Detector : 45-149AA3  
 Background Analysis Date/Time : 5-JUL-2009 15:12:02  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.586	3301.014	2.000000	0.4799997	70.71068	95.00000
NP-237	4432.963	4902.126	5.000000	1.199999	44.72136	95.00000
CM-244	5535.050	5886.750	14.00000	3.359998	26.72612	95.00000

Instrument : CHAMBER 073  
 Detector : 78775  
 Background Analysis Date/Time : 5-JUL-2009 15:12:02  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2991.870	3299.007	2.000000	0.4799997	70.71068	95.00000
NP-237	4435.703	4904.982	6.000000	1.439999	40.82483	95.00000
CM-244	5532.962	5884.931	1.000000	0.2399998	100.0000	95.00000

Instrument : CHAMBER 074  
 Detector : 78266  
 Background Analysis Date/Time : 5-JUL-2009 15:12:02  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.625	3300.254	2.000000	0.4799997	70.71068	95.00000
NP-237	4435.417	4902.858	9.000000	2.159999	33.33334	95.00000
CM-244	5535.258	5884.259	6.000000	1.439999	40.82483	95.00000

Instrument : CHAMBER 075  
 Detector : 68550  
 Background Analysis Date/Time : 5-JUL-2009 15:12:02  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.563	3301.861	2.000000	0.4799997	70.71068	95.00000
NP-237	4432.969	4904.420	19.00000	4.559997	22.94157	95.00000
CM-244	5535.562	5884.044	7.000000	1.679999	37.79645	95.00000

Instrument : CHAMBER 076  
 Detector : 78779  
 Background Analysis Date/Time : 5-JUL-2009 15:12:02  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2992.408	3300.679	2.000000	0.4799997	70.71068	95.00000
NP-237	4437.552	4904.251	7.000000	1.679999	37.79645	95.00000
CM-244	5530.870	5885.252	1.000000	0.2399998	100.0000	95.00000

Instrument : CHAMBER 077  
 Detector : 67576  
 Background Analysis Date/Time : 5-JUL-2009 15:12:03  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.825	3301.085	2.000000	0.4800001	70.71068	95.00000
NP-237	4432.612	4901.681	5.000000	1.200000	44.72136	95.00000
CM-244	5534.546	5886.248	8.000000	1.920000	35.35534	95.00000

Instrument : CHAMBER 078  
 Detector : 67577  
 Background Analysis Date/Time : 5-JUL-2009 15:12:03  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2992.395	3299.584	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000
NP-237	4433.349	4904.419	5.000000	1.200000	44.72136	95.00000
CM-244	5535.593	5884.350	7.000000	1.680000	37.79645	95.00000

Instrument : CHAMBER 079  
 Detector : 67598  
 Background Analysis Date/Time : 5-JUL-2009 15:12:03  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2987.535	3297.935	1.000000	0.2400000	100.0000	95.00000
NP-237	4435.153	4903.332	3.000000	0.7200001	57.73503	95.00000
CM-244	5530.500	5882.333	4.000000	0.9600002	50.00000	95.00000

Instrument : CHAMBER 080  
 Detector : 78197  
 Background Analysis Date/Time : 5-JUL-2009 15:12:03  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2992.338	3298.189	3.000000	0.7200001	57.73503	95.00000
NP-237	4434.851	4901.472	10.00000	2.400000	31.62278	95.00000
CM-244	5531.493	5883.930	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000

Instrument : CHAMBER 081  
 Detector : 72533  
 Background Analysis Date/Time : 5-JUL-2009 15:12:03  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2985.980	3302.417	1.000000	0.2400000	100.0000	95.00000
NP-237	4432.287	4905.979	5.000000	1.200000	44.72136	95.00000
CM-244	5534.795	5885.572	2.000000	0.4800001	70.71068	95.00000

Instrument : CHAMBER 082  
 Detector : 64263  
 Background Analysis Date/Time : 5-JUL-2009 15:12:03  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.419	3298.608	1.000000	0.2400000	100.0000	95.00000
NP-237	4437.000	4905.115	7.000000	1.680000	37.79645	95.00000
CM-244	5534.320	5885.085	9.000000	2.160000	33.33334	95.00000

Instrument : CHAMBER 083  
 Detector : 64278  
 Background Analysis Date/Time : 5-JUL-2009 15:12:04  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2987.455	3299.407	2.000000	0.4800001	70.71068	95.00000
NP-237	4433.838	4906.607	13.00000	3.120001	27.73501	95.00000
CM-244	5532.253	5885.057	13.00000	3.120001	27.73501	95.00000

Instrument : CHAMBER 084  
 Detector : 78265  
 Background Analysis Date/Time : 5-JUL-2009 15:12:04  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.133	3299.227	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000
NP-237	4433.289	4901.844	8.000000	1.920000	35.35534	95.00000
CM-244	5535.275	5884.618	2.000000	0.4800001	70.71068	95.00000

Instrument : CHAMBER 085  
 Detector : 78776  
 Background Analysis Date/Time : 5-JUL-2009 15:12:04  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.612	3299.207	2.000000	0.4800001	70.71068	95.00000
NP-237	4434.183	4901.520	9.000000	2.160001	33.33334	95.00000
CM-244	5533.754	5882.654	3.000000	0.7200001	57.73503	95.00000

Instrument : CHAMBER 086  
 Detector : 78198  
 Background Analysis Date/Time : 5-JUL-2009 15:12:04  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.886	3300.091	3.000000	0.7200001	57.73503	95.00000
NP-237	4433.582	4903.927	6.000000	1.440000	40.82483	95.00000
CM-244	5531.751	5882.863	5.000000	1.200000	44.72136	95.00000

Instrument : CHAMBER 087  
 Detector : 78199  
 Background Analysis Date/Time : 5-JUL-2009 15:12:04  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.385	3299.009	4.000000	0.9600002	50.00000	95.00000
NP-237	4436.772	4904.542	10.00000	2.400001	31.62278	95.00000
CM-244	5534.083	5883.178	2.000000	0.4800001	70.71068	95.00000

Instrument : CHAMBER 088  
 Detector : 33452  
 Background Analysis Date/Time : 5-JUL-2009 15:12:04  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.970	3298.296	0.000000E+00	0.000000E+00	0.000000E+00	95.00000
NP-237	4436.463	4902.334	8.000000	1.920000	35.35534	95.00000
CM-244	5534.583	5887.587	9.000000	2.160001	33.33334	95.00000

Instrument : CHAMBER 089  
 Detector : 78262  
 Background Analysis Date/Time : 5-JUL-2009 15:12:04  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2992.075	3297.767	4.000000	0.9599994	50.00000	95.00000
NP-237	4432.406	4901.978	7.000000	1.679999	37.79645	95.00000
CM-244	5532.097	5882.869	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000

Instrument : CHAMBER 090  
 Detector : 78263  
 Background Analysis Date/Time : 5-JUL-2009 15:12:04  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.462	3300.982	1.000000	0.2399998	100.0000	95.00000
NP-237	4434.552	4903.775	8.000000	1.919999	35.35534	95.00000
CM-244	5532.754	5885.804	3.000000	0.7199996	57.73503	95.00000

Instrument : CHAMBER 091  
 Detector : 78259  
 Background Analysis Date/Time : 5-JUL-2009 15:12:04  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.268	3298.949	1.000000	0.2399998	100.0000	95.00000
NP-237	4433.436	4901.824	7.000000	1.679999	37.79645	95.00000
CM-244	5531.214	5887.413	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000

Instrument : CHAMBER 092  
 Detector : 79457  
 Background Analysis Date/Time : 5-JUL-2009 15:12:04  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2992.198	3300.849	49.00000	11.75999	14.28572	95.00000
NP-237	4435.896	4905.687	19.00000	4.559997	22.94157	95.00000
CM-244	5533.567	5885.099	6.000000	1.439999	40.82483	95.00000

Instrument : CHAMBER 093  
 Detector : 33206  
 Background Analysis Date/Time : 5-JUL-2009 15:12:04  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.963	3299.960	1.000000	0.2399998	100.0000	95.00000
NP-237	4434.063	4902.978	9.000000	2.159999	33.33334	95.00000
CM-244	5531.085	5883.424	2.000000	0.4799997	70.71068	95.00000

Instrument : CHAMBER 094  
 Detector : 78267  
 Background Analysis Date/Time : 5-JUL-2009 15:12:04  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.912	3298.303	4.000000	0.9599994	50.00000	95.00000
NP-237	4435.971	4905.664	4.000000	0.9599994	50.00000	95.00000
CM-244	5534.211	5886.502	4.000000	0.9599994	50.00000	95.00000

Instrument : CHAMBER 095  
 Detector : 64279  
 Background Analysis Date/Time : 5-JUL-2009 15:12:05  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.056	3301.826	3.000000	0.7199996	57.73503	95.00000
NP-237	4435.330	4905.275	10.00000	2.399998	31.62278	95.00000
CM-244	5534.057	5886.430	24.00000	5.759996	20.41241	95.00000

Instrument : CHAMBER 096  
 Detector : 67605  
 Background Analysis Date/Time : 8-JUL-2009 15:03:56  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.311	3298.177	2.000000	0.4799997	70.71068	95.00000
NP-237	4434.251	4906.198	29.00000	6.959996	18.56953	95.00000
CM-244	5533.120	5882.408	2.000000	0.4799997	70.71068	95.00000



Instrument : CHAMBER 097  
 Detector : 67599  
 Background Analysis Date/Time : 5-JUL-2009 15:12:05  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.746	3302.068	2.000000	0.4799997	70.71068	95.00000
NP-237	4437.101	4903.794	1.000000	0.2399998	100.0000	95.00000
CM-244	5531.052	5886.116	14.00000	3.359998	26.72612	95.00000

Instrument : CHAMBER 098  
 Detector : 68644  
 Background Analysis Date/Time : 5-JUL-2009 15:12:05  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.589	3298.128	1.000000	0.2399998	100.0000	95.00000
NP-237	4432.836	4901.640	12.00000	2.879998	28.86751	95.00000
CM-244	5531.873	5883.257	2.000000	0.4799997	70.71068	95.00000

Instrument : CHAMBER 099  
 Detector : 70317  
 Background Analysis Date/Time : 5-JUL-2009 15:12:05  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.876	3301.163	3.000000	0.7199996	57.73503	95.00000
NP-237	4434.526	4903.945	4.000000	0.9599994	50.00000	95.00000
CM-244	5533.432	5886.885	7.000000	1.679999	37.79645	95.00000

Instrument : CHAMBER 100  
 Detector : 79456  
 Background Analysis Date/Time : 5-JUL-2009 15:12:05  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2992.287	3297.799	2.000000	0.4799997	70.71068	95.00000
NP-237	4436.422	4905.631	13.00000	3.119998	27.73501	95.00000
CM-244	5534.572	5887.590	7.000000	1.679999	37.79645	95.00000

Instrument : CHAMBER 101  
 Detector : 64253  
 Background Analysis Date/Time : 5-JUL-2009 15:12:06  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2992.433	3299.297	2.000000	0.4800001	70.71068	95.00000
NP-237	4436.714	4901.796	4.000000	0.9600002	50.00000	95.00000
CM-244	5531.777	5885.188	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000

Instrument : CHAMBER 102  
 Detector : 72525  
 Background Analysis Date/Time : 5-JUL-2009 15:12:06  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2992.102	3300.657	3.000000	0.7200001	57.73503	95.00000
NP-237	4432.858	4904.949	7.000000	1.680000	37.79645	95.00000
CM-244	5531.106	5882.690	2.000000	0.4800001	70.71068	95.00000

Instrument : CHAMBER 103  
 Detector : 79461  
 Background Analysis Date/Time : 5-JUL-2009 15:12:06  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.996	3300.314	1.000000	0.2400000	100.0000	95.00000
NP-237	4436.805	4901.981	2.000000	0.4800001	70.71068	95.00000
CM-244	5532.506	5886.425	3.000000	0.7200001	57.73503	95.00000

Instrument : CHAMBER 104  
 Detector : 72524  
 Background Analysis Date/Time : 5-JUL-2009 15:12:06  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.719	3300.868	1.000000	0.2400000	100.0000	95.00000
NP-237	4437.132	4904.901	12.00000	2.880001	28.86751	95.00000
CM-244	5531.506	5883.017	4.000000	0.9600002	50.00000	95.00000

Instrument : CHAMBER 105  
 Detector : 78777  
 Background Analysis Date/Time : 5-JUL-2009 15:12:06  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2991.574	3300.708	1.000000	0.2400000	100.0000	95.00000
NP-237	4435.406	4903.467	4.000000	0.9600002	50.00000	95.00000
CM-244	5531.275	5883.854	1.000000	0.2400000	100.0000	95.00000

Instrument : CHAMBER 106  
 Detector : 64274  
 Background Analysis Date/Time : 5-JUL-2009 15:12:06  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.941	3301.958	4.000000	0.9600002	50.00000	95.00000
NP-237	4435.855	4902.069	6.000000	1.440000	40.82483	95.00000
CM-244	5534.023	5883.359	3.000000	0.7200001	57.73503	95.00000

Instrument : CHAMBER 107  
 Detector : 67578  
 Background Analysis Date/Time : 5-JUL-2009 15:12:07  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2987.523	3301.257	5.000000	1.199999	44.72136	95.00000
NP-237	4435.381	4903.438	5.000000	1.199999	44.72136	95.00000
CM-244	5532.229	5882.600	2.000000	0.4799997	70.71068	95.00000

Instrument : CHAMBER 108  
 Detector : 78778  
 Background Analysis Date/Time : 5-JUL-2009 15:12:07  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2987.937	3298.136	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000
NP-237	4435.160	4903.491	6.000000	1.439999	40.82483	95.00000
CM-244	5531.067	5883.227	1.000000	0.2399998	100.0000	95.00000

Instrument : CHAMBER 109  
 Detector : 79463  
 Background Analysis Date/Time : 5-JUL-2009 15:12:07  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.195	3299.997	2.000000	0.4799997	70.71068	95.00000
NP-237	4435.631	4906.161	7.000000	1.679999	37.79645	95.00000
CM-244	5531.938	5886.333	2.000000	0.4799997	70.71068	95.00000

Instrument : CHAMBER 110  
 Detector : 67602  
 Background Analysis Date/Time : 5-JUL-2009 15:12:07  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.370	3301.157	2.000000	0.4799997	70.71068	95.00000
NP-237	4436.284	4904.992	4.000000	0.9599993	50.00000	95.00000
CM-244	5535.250	5883.287	6.000000	1.439999	40.82483	95.00000

Instrument : CHAMBER 111  
 Detector : 79462  
 Background Analysis Date/Time : 5-JUL-2009 15:12:07  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.820	3300.305	5.000000	1.199999	44.72136	95.00000
NP-237	4436.744	4905.500	6.000000	1.439999	40.82483	95.00000
CM-244	5535.002	5885.661	0.000000E+00	0.000000E+00	0.000000E+00	95.00000

Instrument : CHAMBER 112  
 Detector : 78261  
 Background Analysis Date/Time : 5-JUL-2009 15:12:07  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.969	3300.635	3.000000	0.7199995	57.73503	95.00000
NP-237	4436.114	4905.135	7.000000	1.679999	37.79645	95.00000
CM-244	5532.983	5884.981	1.000000	0.2399998	100.0000	95.00000

Instrument : CHAMBER 113  
 Detector : 45-111B4  
 Background Analysis Date/Time : 12-JUL-2009 18:14:41  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.779	3298.785	1.000000	0.3000000	100.0000	95.00000
NP-237	4433.559	4905.331	6.000000	1.800000	40.82483	95.00000
CM-244	5530.517	5883.481	3.000000	0.9000000	57.73503	95.00000

Instrument : CHAMBER 114  
 Detector : 78258  
 Background Analysis Date/Time : 12-JUL-2009 18:14:46  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.441	3298.868	1.000000	0.3000000	100.0000	95.00000
NP-237	4436.900	4905.218	5.000000	1.500000	44.72136	95.00000
CM-244	5530.599	5885.790	4.000000	1.200000	50.00000	95.00000

Instrument : CHAMBER 115  
 Detector : 45-132FF4  
 Background Analysis Date/Time : 12-JUL-2009 18:14:50  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2991.839	3301.816	2.000000	0.6000000	70.71068	95.00000
NP-237	4436.001	4902.052	1.000000	0.3000000	100.0000	95.00000
CM-244	5531.697	5884.118	11.00000	3.300000	30.15113	95.00000

Instrument : CHAMBER 116  
 Detector : 45-132FF2  
 Background Analysis Date/Time : 12-JUL-2009 18:14:55  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.005	3302.013	1.000000	0.3000000	100.0000	95.00000
NP-237	4432.895	4903.021	6.000000	1.800000	40.82483	95.00000
CM-244	5531.311	5883.052	3.000000	0.9000000	57.73503	95.00000

Instrument : CHAMBER 117  
 Detector : 33450  
 Background Analysis Date/Time : 12-JUL-2009 18:15:00  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2992.173	3300.224	2.000000	0.6000000	70.71068	95.00000
NP-237	4434.403	4904.427	5.000000	1.500000	44.72136	95.00000
CM-244	5533.135	5885.381	8.000000	2.400000	35.35534	95.00000

Instrument : CHAMBER 118  
 Detector : 75544  
 Background Analysis Date/Time : 12-JUL-2009 18:15:04  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2992.199	3301.179	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000
NP-237	4437.404	4902.417	2.000000	0.6000000	70.71068	95.00000
CM-244	5530.853	5882.689	4.000000	1.200000	50.00000	95.00000

Instrument : CHAMBER 119  
 Detector : 74429  
 Background Analysis Date/Time : 12-JUL-2009 18:15:09  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2992.004	3299.253	3.000000	0.9000000	57.73503	95.00000
NP-237	4432.548	4906.013	1.000000	0.3000000	100.0000	95.00000
CM-244	5530.584	5883.165	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000

Instrument : CHAMBER 120  
 Detector : 74430  
 Background Analysis Date/Time : 12-JUL-2009 18:15:13  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.522	3298.404	3.000000	0.9000000	57.73503	95.00000
NP-237	4435.328	4903.588	4.000000	1.200000	50.00000	95.00000
CM-244	5534.528	5884.756	3.000000	0.9000000	57.73503	95.00000

Instrument : CHAMBER 121  
 Detector : 75545  
 Background Analysis Date/Time : 12-JUL-2009 18:15:18  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.023	3300.631	0.000000E+00	0.000000E+00	0.000000E+00	95.00000
NP-237	4432.658	4901.599	1.000000	0.3000000	100.0000	95.00000
CM-244	5533.997	5885.295	6.000000	1.800000	40.82483	95.00000

Instrument : CHAMBER 122  
 Detector : 75546  
 Background Analysis Date/Time : 12-JUL-2009 18:15:22  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.563	3298.589	1.000000	0.3000000	100.0000	95.00000
NP-237	4436.782	4905.890	5.000000	1.500000	44.72136	95.00000
CM-244	5532.955	5884.078	11.00000	3.300000	30.15113	95.00000

Instrument : CHAMBER 123  
 Detector : 45-142V3  
 Background Analysis Date/Time : 12-JUL-2009 18:15:27  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.850	3299.223	0.000000E+00	0.000000E+00	0.000000E+00	95.00000
NP-237	4437.241	4905.636	4.000000	1.200000	50.00000	95.00000
CM-244	5531.191	5886.517	5.000000	1.500000	44.72136	95.00000

Instrument : CHAMBER 124  
 Detector : 45-142V2  
 Background Analysis Date/Time : 12-JUL-2009 18:15:31  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.169	3298.838	1.000000	0.3000000	100.0000	95.00000
NP-237	4434.514	4905.983	2.000000	0.6000000	70.71068	95.00000
CM-244	5535.498	5887.649	6.000000	1.800000	40.82483	95.00000

Instrument : CHAMBER 125  
 Detector : 75547  
 Background Analysis Date/Time : 12-JUL-2009 18:15:35  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2992.438	3299.892	1.000000	0.3000000	100.0000	95.00000
NP-237	4435.342	4903.042	3.000000	0.9000000	57.73503	95.00000
CM-244	5533.267	5883.118	2.000000	0.6000000	70.71068	95.00000

Instrument : CHAMBER 126  
 Detector : 75548  
 Background Analysis Date/Time : 12-JUL-2009 18:15:39  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.642	3299.863	2.000000	0.6000000	70.71068	95.00000
NP-237	4434.022	4903.287	10.00000	3.000000	31.62278	95.00000
CM-244	5533.750	5882.833	3.000000	0.9000000	57.73503	95.00000

Instrument : CHAMBER 127  
 Detector : 78770  
 Background Analysis Date/Time : 12-JUL-2009 18:15:43  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2987.930	3300.925	0.000000E+00	0.000000E+00	0.000000E+00	95.00000
NP-237	4433.404	4902.114	4.000000	1.200000	50.00000	95.00000
CM-244	5533.832	5884.575	3.000000	0.9000000	57.73503	95.00000

Instrument : CHAMBER 128  
 Detector : 75549  
 Background Analysis Date/Time : 12-JUL-2009 18:15:48  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.441	3299.762	3.000000	0.9000000	57.73503	95.00000
NP-237	4437.479	4901.607	5.000000	1.500000	44.72136	95.00000
CM-244	5532.807	5882.614	1.000000	0.3000000	100.0000	95.00000



Instrument : CHAMBER 129  
 Detector : 76227  
 Background Analysis Date/Time : 12-JUL-2009 18:15:53  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2991.626	3298.866	1.000000	0.3000000	100.0000	95.00000
NP-237	4434.006	4901.792	4.000000	1.200000	50.00000	95.00000
CM-244	5532.320	5882.430	1.000000	0.3000000	100.0000	95.00000

Instrument : CHAMBER 130  
 Detector : 76228  
 Background Analysis Date/Time : 12-JUL-2009 18:15:58  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2987.724	3301.129	4.000000	1.200000	50.00000	95.00000
NP-237	4432.733	4905.256	8.000000	2.400000	35.35534	95.00000
CM-244	5534.221	5882.991	1.000000	0.3000000	100.0000	95.00000

Instrument : CHAMBER 131  
 Detector : 33448  
 Background Analysis Date/Time : 12-JUL-2009 18:16:03  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.041	3301.703	1.000000	0.3000000	100.0000	95.00000
NP-237	4437.470	4901.500	6.000000	1.800000	40.82483	95.00000
CM-244	5535.040	5887.344	7.000000	2.100000	37.79645	95.00000

Instrument : CHAMBER 132  
 Detector : 67579  
 Background Analysis Date/Time : 12-JUL-2009 18:16:07  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2991.722	3299.982	1.000000	0.3000000	100.0000	95.00000
NP-237	4436.189	4902.037	8.000000	2.400000	35.35534	95.00000
CM-244	5533.193	5884.042	5.000000	1.500000	44.72136	95.00000

Instrument : CHAMBER 133  
 Detector : 76229  
 Background Analysis Date/Time : 12-JUL-2009 18:16:11  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2991.784	3301.677	2.000000	0.6000000	70.71068	95.00000
NP-237	4432.798	4901.797	5.000000	1.500000	44.72136	95.00000
CM-244	5532.072	5884.338	3.000000	0.9000000	57.73503	95.00000

Instrument : CHAMBER 134  
 Detector : 76230  
 Background Analysis Date/Time : 12-JUL-2009 18:16:16  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.526	3299.017	3.000000	0.9000000	57.73503	95.00000
NP-237	4435.982	4903.287	19.00000	5.700000	22.94157	95.00000
CM-244	5532.080	5886.000	3.000000	0.9000000	57.73503	95.00000

Instrument : CHAMBER 135  
 Detector : 64270  
 Background Analysis Date/Time : 12-JUL-2009 18:16:20  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.277	3299.628	1.000000	0.3000000	100.0000	95.00000
NP-237	4437.221	4904.200	5.000000	1.500000	44.72136	95.00000
CM-244	5533.869	5883.613	3.000000	0.9000000	57.73503	95.00000

Instrument : CHAMBER 136  
 Detector : 68549  
 Background Analysis Date/Time : 12-JUL-2009 18:16:24  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.353	3301.238	2.000000	0.6000000	70.71068	95.00000
NP-237	4436.739	4902.455	15.00000	4.500000	25.81989	95.00000
CM-244	5530.869	5887.561	6.000000	1.800000	40.82483	95.00000

Instrument : CHAMBER 137  
 Detector : 64288  
 Background Analysis Date/Time : 12-JUL-2009 18:16:27  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.740	3300.102	3.000000	0.9000000	57.73503	95.00000
NP-237	4437.224	4902.644	2.000000	0.6000000	70.71068	95.00000
CM-244	5534.374	5886.101	13.00000	3.900000	27.73501	95.00000

Instrument : CHAMBER 138  
 Detector : 65877  
 Background Analysis Date/Time : 12-JUL-2009 18:16:31  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.573	3299.020	2.000000	0.6000000	70.71068	95.00000
NP-237	4433.563	4906.044	32.00000	9.600000	17.67767	95.00000
CM-244	5532.867	5887.098	10.00000	3.000000	31.62278	95.00000

Instrument : CHAMBER 139  
 Detector : 76231  
 Background Analysis Date/Time : 12-JUL-2009 18:16:35  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2987.505	3300.432	2.000000	0.6000000	70.71068	95.00000
NP-237	4434.030	4903.806	6.000000	1.800000	40.82483	95.00000
CM-244	5532.176	5884.231	9.000000	2.700000	33.33334	95.00000

Instrument : CHAMBER 140  
 Detector : 78771  
 Background Analysis Date/Time : 12-JUL-2009 18:16:39  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.854	3298.685	2.000000	0.6000000	70.71068	95.00000
NP-237	4432.882	4903.279	10.00000	3.000000	31.62278	95.00000
CM-244	5532.806	5885.667	3.000000	0.9000000	57.73503	95.00000

Instrument : CHAMBER 141  
 Detector : 76232  
 Background Analysis Date/Time : 12-JUL-2009 18:16:43  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2991.144	3299.081	4.000000	1.200000	50.00000	95.00000
NP-237	4432.714	4902.455	11.00000	3.300000	30.15113	95.00000
CM-244	5530.738	5882.724	5.000000	1.500000	44.72136	95.00000

Instrument : CHAMBER 142  
 Detector : 64261  
 Background Analysis Date/Time : 12-JUL-2009 18:16:47  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.865	3298.794	2.000000	0.6000000	70.71068	95.00000
NP-237	4432.947	4903.147	17.00000	5.100000	24.25356	95.00000
CM-244	5532.255	5884.805	10.00000	3.000000	31.62278	95.00000

Instrument : CHAMBER 143  
 Detector : 65882  
 Background Analysis Date/Time : 12-JUL-2009 18:16:51  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2987.701	3299.952	4.000000	1.200000	50.00000	95.00000
NP-237	4432.480	4904.917	14.00000	4.200000	26.72612	95.00000
CM-244	5535.542	5887.375	15.00000	4.500000	25.81989	95.00000

Instrument : CHAMBER 144  
 Detector : 75551  
 Background Analysis Date/Time : 12-JUL-2009 18:16:55  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2987.490	3300.379	2.000000	0.6000000	70.71068	95.00000
NP-237	4433.137	4902.257	6.000000	1.800000	40.82483	95.00000
CM-244	5534.787	5886.106	11.00000	3.300000	30.15113	95.00000

Instrument : CHAMBER 145  
 Detector : 72526  
 Background Analysis Date/Time : 12-JUL-2009 18:16:59  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.366	3298.098	0.000000E+00	0.000000E+00	0.000000E+00	95.00000
NP-237	4434.265	4904.885	7.000000	2.100000	37.79645	95.00000
CM-244	5534.192	5886.678	8.000000	2.400000	35.35534	95.00000

Instrument : CHAMBER 146  
 Detector : 72527  
 Background Analysis Date/Time : 12-JUL-2009 18:17:03  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2991.494	3297.950	2.000000	0.6000000	70.71068	95.00000
NP-237	4436.761	4904.596	6.000000	1.800000	40.82483	95.00000
CM-244	5530.438	5886.440	7.000000	2.100000	37.79645	95.00000

Instrument : CHAMBER 147  
 Detector : 75550  
 Background Analysis Date/Time : 12-JUL-2009 18:17:07  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2987.763	3300.677	8.000000	2.400000	35.35534	95.00000
NP-237	4433.256	4902.183	15.00000	4.500000	25.81989	95.00000
CM-244	5534.346	5885.412	5.000000	1.500000	44.72136	95.00000

Instrument : CHAMBER 148  
 Detector : 74429  
 Background Analysis Date/Time : 12-JUL-2009 18:17:10  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.918	3302.313	6.000000	1.800000	40.82483	95.00000
NP-237	4434.677	4904.245	11.00000	3.300000	30.15113	95.00000
CM-244	5532.604	5884.780	9.000000	2.700000	33.33334	95.00000

Instrument : CHAMBER 149  
 Detector : 33449  
 Background Analysis Date/Time : 12-JUL-2009 18:17:14  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.126	3302.099	3.000000	0.9000000	57.73503	95.00000
NP-237	4433.957	4903.766	6.000000	1.800000	40.82483	95.00000
CM-244	5532.840	5885.608	7.000000	2.100000	37.79645	95.00000

Instrument : CHAMBER 150  
 Detector : 75552  
 Background Analysis Date/Time : 12-JUL-2009 18:17:18  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.847	3298.390	5.000000	1.500000	44.72136	95.00000
NP-237	4433.411	4903.355	5.000000	1.500000	44.72136	95.00000
CM-244	5531.584	5883.380	3.000000	0.9000000	57.73503	95.00000

Instrument : CHAMBER 151  
 Detector : 75556  
 Background Analysis Date/Time : 12-JUL-2009 18:17:22  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.196	3299.830	1.000000	0.3000000	100.0000	95.00000
NP-237	4437.520	4904.128	2.000000	0.6000000	70.71068	95.00000
CM-244	5532.939	5887.339	7.000000	2.100000	37.79645	95.00000

Instrument : CHAMBER 152  
 Detector : 76222  
 Background Analysis Date/Time : 12-JUL-2009 18:17:26  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2992.335	3299.767	2.000000	0.6000000	70.71068	95.00000
NP-237	4435.085	4902.709	1.000000	0.3000000	100.0000	95.00000
CM-244	5532.813	5882.589	7.000000	2.100000	37.79645	95.00000

Instrument : CHAMBER 153  
 Detector : 76223  
 Background Analysis Date/Time : 12-JUL-2009 18:17:30  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.763	3301.789	7.000000	2.100000	37.79645	95.00000
NP-237	4432.699	4901.612	7.000000	2.100000	37.79645	95.00000
CM-244	5534.359	5886.038	11.00000	3.300000	30.15113	95.00000

Instrument : CHAMBER 154  
 Detector : 76224  
 Background Analysis Date/Time : 12-JUL-2009 18:17:34  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.543	3301.969	2.000000	0.6000000	70.71068	95.00000
NP-237	4433.171	4901.699	2.000000	0.6000000	70.71068	95.00000
CM-244	5533.478	5884.401	4.000000	1.200000	50.00000	95.00000

Instrument : CHAMBER 155  
 Detector : 75553  
 Background Analysis Date/Time : 12-JUL-2009 18:17:38  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.863	3299.267	2.000000	0.6000000	70.71068	95.00000
NP-237	4435.628	4901.683	4.000000	1.200000	50.00000	95.00000
CM-244	5532.390	5885.923	1.000000	0.3000000	100.0000	95.00000

Instrument : CHAMBER 156  
 Detector : 75554  
 Background Analysis Date/Time : 12-JUL-2009 18:17:42  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2992.492	3302.387	4.000000	1.200000	50.00000	95.00000
NP-237	4436.746	4903.077	15.00000	4.500000	25.81989	95.00000
CM-244	5533.286	5886.114	9.000000	2.700000	33.33334	95.00000

Instrument : CHAMBER 157  
 Detector : 75555  
 Background Analysis Date/Time : 12-JUL-2009 18:17:46  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2992.092	3301.029	5.000000	1.500000	44.72136	95.00000
NP-237	4432.881	4903.879	12.000000	3.600000	28.86751	95.00000
CM-244	5533.745	5886.569	13.000000	3.900000	27.73501	95.00000

Instrument : CHAMBER 158  
 Detector : 33451  
 Background Analysis Date/Time : 12-JUL-2009 18:17:50  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.224	3299.662	4.000000	1.200000	50.00000	95.00000
NP-237	4433.214	4902.387	14.000000	4.200000	26.72612	95.00000
CM-244	5532.016	5882.536	8.000000	2.400000	35.35534	95.00000

Instrument : CHAMBER 159  
 Detector : 76225  
 Background Analysis Date/Time : 12-JUL-2009 18:17:54  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.518	3300.013	1.000000	0.3000000	100.0000	95.00000
NP-237	4434.310	4906.501	6.000000	1.800000	40.82483	95.00000
CM-244	5532.775	5886.617	7.000000	2.100000	37.79645	95.00000

Instrument : CHAMBER 160  
 Detector : 76226  
 Background Analysis Date/Time : 12-JUL-2009 18:17:58  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.201	3297.681	1.000000	0.3000000	100.0000	95.00000
NP-237	4437.389	4904.545	8.000000	2.400000	35.35534	95.00000
CM-244	5531.162	5885.243	3.000000	0.9000000	57.73503	95.00000



Instrument : CHAMBER 161  
 Detector : 70321  
 Background Analysis Date/Time : 21-JUN-2009 15:55:13  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.612	3298.684	3.000000	0.9000000	57.73503	95.00000
NP-237	4435.424	4903.719	10.00000	3.000000	31.62278	95.00000
CM-244	5531.313	5883.518	18.00000	5.400000	23.57022	95.00000

Instrument : CHAMBER 162  
 Detector : 70323  
 Background Analysis Date/Time : 21-JUN-2009 15:55:18  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.114	3301.116	2.000000	0.6000000	70.71068	95.00000
NP-237	4434.153	4902.154	3.000000	0.9000000	57.73503	95.00000
CM-244	5533.930	5885.193	11.00000	3.300000	30.15113	95.00000

Instrument : CHAMBER 163  
 Detector : 70324  
 Background Analysis Date/Time : 21-JUN-2009 15:55:23  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2992.217	3298.824	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000
NP-237	4434.987	4904.671	13.00000	3.900000	27.73501	95.00000
CM-244	5533.739	5886.581	11.00000	3.300000	30.15113	95.00000

Instrument : CHAMBER 164  
 Detector : 70325  
 Background Analysis Date/Time : 21-JUN-2009 15:55:27  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.804	3300.725	3.000000	0.9000000	57.73503	95.00000
NP-237	4432.850	4902.971	5.000000	1.500000	44.72136	95.00000
CM-244	5532.641	5885.829	4.000000	1.200000	50.00000	95.00000

Instrument : CHAMBER 165  
 Detector : 72544  
 Background Analysis Date/Time : 21-JUN-2009 15:55:31  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2991.249	3299.371	4.000000	1.200000	50.00000	95.00000
NP-237	4433.539	4903.436	6.000000	1.800000	40.82483	95.00000
CM-244	5531.871	5883.913	10.00000	3.000000	31.62278	95.00000

Instrument : CHAMBER 166  
 Detector : 74545  
 Background Analysis Date/Time : 21-JUN-2009 15:55:36  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.840	3300.652	1.000000	0.3000000	100.0000	95.00000
NP-237	4437.331	4901.890	3.000000	0.9000000	57.73503	95.00000
CM-244	5530.967	5883.776	6.000000	1.800000	40.82483	95.00000

Instrument : CHAMBER 167  
 Detector : 72546  
 Background Analysis Date/Time : 21-JUN-2009 15:55:40  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.275	3299.494	3.000000	0.9000000	57.73503	95.00000
NP-237	4434.900	4904.573	2.000000	0.6000000	70.71068	95.00000
CM-244	5533.886	5886.993	7.000000	2.100000	37.79645	95.00000

Instrument : CHAMBER 168  
 Detector : 72547  
 Background Analysis Date/Time : 21-JUN-2009 15:55:45  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.947	3298.253	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000
NP-237	4435.851	4905.623	7.000000	2.100000	37.79645	95.00000
CM-244	5534.369	5886.817	6.000000	1.800000	40.82483	95.00000

Instrument : CHAMBER 169  
 Detector : 72548  
 Background Analysis Date/Time : 21-JUN-2009 15:55:49  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2992.147	3298.542	3.000000	0.9000000	57.73503	95.00000
NP-237	4434.044	4903.513	27.00000	8.100000	19.24501	95.00000
CM-244	5532.339	5885.069	7.000000	2.100000	37.79645	95.00000

Instrument : CHAMBER 170  
 Detector : 72549  
 Background Analysis Date/Time : 21-JUN-2009 15:55:53  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2991.920	3299.334	2.000000	0.6000000	70.71068	95.00000
NP-237	4433.260	4904.103	11.00000	3.300000	30.15113	95.00000
CM-244	5534.714	5883.037	6.000000	1.800000	40.82483	95.00000

Instrument : CHAMBER 171  
 Detector : 78260  
 Background Analysis Date/Time : 21-JUN-2009 15:55:59  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.586	3301.332	3.000000	0.9000000	57.73503	95.00000
NP-237	4435.496	4904.863	5.000000	1.500000	44.72136	95.00000
CM-244	5533.949	5887.016	4.000000	1.200000	50.00000	95.00000

Instrument : CHAMBER 172  
 Detector : 78772  
 Background Analysis Date/Time : 21-JUN-2009 15:56:03  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.628	3299.646	2.000000	0.6000000	70.71068	95.00000
NP-237	4435.466	4905.809	6.000000	1.800000	40.82483	95.00000
CM-244	5531.112	5885.129	4.000000	1.200000	50.00000	95.00000

Instrument : CHAMBER 173  
 Detector : 74431  
 Background Analysis Date/Time : 21-JUN-2009 15:56:08  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.621	3299.926	3.000000	0.9000000	57.73503	95.00000
NP-237	4436.753	4901.757	3.000000	0.9000000	57.73503	95.00000
CM-244	5535.262	5886.887	17.00000	5.100000	24.25356	95.00000

Instrument : CHAMBER 174  
 Detector : 74432  
 Background Analysis Date/Time : 21-JUN-2009 15:56:12  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2992.065	3302.471	1.000000	0.3000000	100.0000	95.00000
NP-237	4435.541	4905.194	4.000000	1.200000	50.00000	95.00000
CM-244	5531.639	5887.080	14.00000	4.200000	26.72612	95.00000

Instrument : CHAMBER 175  
 Detector : 74433  
 Background Analysis Date/Time : 21-JUN-2009 15:56:17  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.238	3298.426	0.000000E+00	0.000000E+00	0.000000E+00	95.00000
NP-237	4435.144	4905.490	4.000000	1.200000	50.00000	95.00000
CM-244	5533.995	5885.818	7.000000	2.100000	37.79645	95.00000

Instrument : CHAMBER 176  
 Detector : 74434  
 Background Analysis Date/Time : 21-JUN-2009 15:56:21  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2991.698	3297.590	1.000000	0.3000000	100.0000	95.00000
NP-237	4432.745	4903.265	5.000000	1.500000	44.72136	95.00000
CM-244	5530.868	5886.966	5.000000	1.500000	44.72136	95.00000

Instrument : CHAMBER 177  
 Detector : 74435  
 Background Analysis Date/Time : 21-JUN-2009 15:56:26  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2991.057	3299.457	2.000000	0.6000000	70.71068	95.00000
NP-237	4434.482	4904.663	3.000000	0.9000000	57.73503	95.00000
CM-244	5533.411	5885.598	15.00000	4.500000	25.81989	95.00000

Instrument : CHAMBER 178  
 Detector : 74436  
 Background Analysis Date/Time : 21-JUN-2009 15:56:30  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2991.779	3302.215	1.000000	0.3000000	100.0000	95.00000
NP-237	4435.746	4905.748	7.000000	2.100000	37.79645	95.00000
CM-244	5532.798	5883.324	9.000000	2.700000	33.33334	95.00000

Instrument : CHAMBER 179  
 Detector : 74437  
 Background Analysis Date/Time : 21-JUN-2009 15:56:35  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.919	3302.532	2.000000	0.6000000	70.71068	95.00000
NP-237	4432.536	4902.537	2.000000	0.6000000	70.71068	95.00000
CM-244	5530.871	5882.740	14.00000	4.200000	26.72612	95.00000

Instrument : CHAMBER 180  
 Detector : 74438  
 Background Analysis Date/Time : 21-JUN-2009 15:56:39  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.905	3300.775	2.000000	0.6000000	70.71068	95.00000
NP-237	4435.062	4905.007	6.000000	1.800000	40.82483	95.00000
CM-244	5531.655	5887.118	16.00000	4.800000	25.00000	95.00000

Instrument : CHAMBER 181  
 Detector : 74439  
 Background Analysis Date/Time : 21-JUN-2009 15:56:44  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2987.507	3301.291	2.000000	0.6000000	70.71068	95.00000
NP-237	4436.916	4901.810	8.000000	2.400000	35.35534	95.00000
CM-244	5535.507	5887.405	26.00000	7.800000	19.61161	95.00000

Instrument : CHAMBER 182  
 Detector : 74440  
 Background Analysis Date/Time : 21-JUN-2009 15:56:48  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2992.364	3301.476	1.000000	0.3000000	100.0000	95.00000
NP-237	4437.311	4901.783	4.000000	1.200000	50.00000	95.00000
CM-244	5534.452	5885.559	16.00000	4.800000	25.00000	95.00000

Instrument : CHAMBER 183  
 Detector : 74441  
 Background Analysis Date/Time : 21-JUN-2009 15:56:53  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.145	3298.781	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000
NP-237	4434.414	4904.732	8.000000	2.400000	35.35534	95.00000
CM-244	5533.565	5885.751	14.00000	4.200000	26.72612	95.00000

Instrument : CHAMBER 184  
 Detector : 74442  
 Background Analysis Date/Time : 21-JUN-2009 15:56:57  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.570	3301.301	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000
NP-237	4435.154	4904.955	5.000000	1.500000	44.72136	95.00000
CM-244	5531.440	5886.825	18.00000	5.400000	23.57022	95.00000

Instrument : CHAMBER 185  
 Detector : 68615  
 Background Analysis Date/Time : 21-JUN-2009 15:57:01  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.840	3300.640	2.000000	0.6000000	70.71068	95.00000
NP-237	4434.438	4901.812	3.000000	0.9000000	57.73503	95.00000
CM-244	5531.912	5887.166	16.00000	4.800000	25.00000	95.00000

Instrument : CHAMBER 186  
 Detector : 68616  
 Background Analysis Date/Time : 21-JUN-2009 15:57:05  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2987.988	3300.097	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000
NP-237	4435.729	4904.174	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000
CM-244	5530.696	5887.018	17.00000	5.100000	24.25356	95.00000

Instrument : CHAMBER 187  
 Detector : 68620  
 Background Analysis Date/Time : 21-JUN-2009 15:57:10  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2991.780	3300.355	3.000000	0.9000000	57.73503	95.00000
NP-237	4437.583	4904.093	7.000000	2.100000	37.79645	95.00000
CM-244	5535.508	5884.097	16.00000	4.800000	25.00000	95.00000

Instrument : CHAMBER 188  
 Detector : 68621  
 Background Analysis Date/Time : 21-JUN-2009 15:57:14  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2991.235	3299.192	1.000000	0.3000000	100.0000	95.00000
NP-237	4434.285	4905.242	2.000000	0.6000000	70.71068	95.00000
CM-244	5530.351	5883.763	15.00000	4.500000	25.81989	95.00000

Instrument : CHAMBER 189  
 Detector : 68622  
 Background Analysis Date/Time : 21-JUN-2009 15:57:17  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.861	3302.155	2.000000	0.6000000	70.71068	95.00000
NP-237	4432.574	4905.866	1.000000	0.3000000	100.0000	95.00000
CM-244	5531.675	5887.456	13.00000	3.900000	27.73501	95.00000

Instrument : CHAMBER 190  
 Detector : 68623  
 Background Analysis Date/Time : 21-JUN-2009 15:57:21  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2987.675	3299.750	2.000000	0.6000000	70.71068	95.00000
NP-237	4435.687	4904.443	33.00000	9.900001	17.40777	95.00000
CM-244	5531.545	5882.933	33.00000	9.900001	17.40777	95.00000

Instrument : CHAMBER 191  
 Detector : 68624  
 Background Analysis Date/Time : 21-JUN-2009 15:57:25  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2991.084	3299.950	2.000000	0.6000000	70.71068	95.00000
NP-237	4432.587	4904.375	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000
CM-244	5530.362	5884.163	2.000000	0.6000000	70.71068	95.00000

Instrument : CHAMBER 192  
 Detector : 74430  
 Background Analysis Date/Time : 21-JUN-2009 15:57:29  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2991.302	3300.346	1.000000	0.3000000	100.0000	95.00000
NP-237	4433.147	4904.787	1.000000	0.3000000	100.0000	95.00000
CM-244	5530.391	5883.883	7.000000	2.100000	37.79645	95.00000



Instrument : CHAMBER 193  
 Detector : 68627  
 Background Analysis Date/Time : 21-JUN-2009 15:57:33  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2992.456	3299.248	0.000000E+00	0.000000E+00	0.000000E+00	95.00000
NP-237	4434.921	4903.889	1.000000	0.3000000	100.0000	95.00000
CM-244	5531.552	5883.390	5.000000	1.500000	44.72136	95.00000

Instrument : CHAMBER 194  
 Detector : 68635  
 Background Analysis Date/Time : 21-JUN-2009 15:57:37  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.759	3300.939	0.000000E+00	0.000000E+00	0.000000E+00	95.00000
NP-237	4437.087	4905.856	9.000000	2.700000	33.33334	95.00000
CM-244	5532.909	5884.238	18.00000	5.400000	23.57022	95.00000

Instrument : CHAMBER 195  
 Detector : 68636  
 Background Analysis Date/Time : 21-JUN-2009 15:57:41  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.427	3298.108	5.000000	1.500000	44.72136	95.00000
NP-237	4435.602	4904.677	9.000000	2.700000	33.33334	95.00000
CM-244	5531.920	5883.250	12.00000	3.600000	28.86751	95.00000

Instrument : CHAMBER 196  
 Detector : 68637  
 Background Analysis Date/Time : 21-JUN-2009 15:57:46  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2987.764	3299.421	2.000000	0.6000000	70.71068	95.00000
NP-237	4434.243	4902.720	4.000000	1.200000	50.00000	95.00000
CM-244	5534.908	5886.289	16.00000	4.800000	25.00000	95.00000

Instrument : CHAMBER 197  
 Detector : 78894  
 Background Analysis Date/Time : 21-JUN-2009 15:57:50  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2992.459	3301.421	4.000000	1.200000	50.00000	95.00000
NP-237	4433.039	4903.794	0.000000E+00	0.000000E+00	0.000000E+00	95.00000
CM-244	5533.211	5885.723	10.00000	3.000000	31.62278	95.00000

Instrument : CHAMBER 198  
 Detector : 78895  
 Background Analysis Date/Time : 21-JUN-2009 15:57:54  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.792	3298.953	2.000000	0.6000000	70.71068	95.00000
NP-237	4433.042	4902.810	1.000000	0.3000000	100.0000	95.00000
CM-244	5530.984	5882.838	25.00000	7.500000	20.00000	95.00000

Instrument : CHAMBER 199  
 Detector : 78896  
 Background Analysis Date/Time : 21-JUN-2009 15:57:58  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2992.467	3301.736	1.000000	0.3000000	100.0000	95.00000
NP-237	4433.639	4904.142	6.000000	1.800000	40.82483	95.00000
CM-244	5532.893	5884.873	13.00000	3.900000	27.73501	95.00000

Instrument : CHAMBER 200  
 Detector : 78900  
 Background Analysis Date/Time : 21-JUN-2009 15:58:02  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2991.709	3299.237	1.000000	0.3000000	100.0000	95.00000
NP-237	4433.212	4903.912	12.00000	3.600000	28.86751	95.00000
CM-244	5534.189	5887.638	19.00000	5.700000	22.94157	95.00000

Instrument : CHAMBER 201  
 Detector : 78902  
 Background Analysis Date/Time : 21-JUN-2009 15:58:05  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.500	3302.053	1.000000	0.3000000	100.0000	95.00000
NP-237	4433.282	4904.434	4.000000	1.200000	50.00000	95.00000
CM-244	5534.865	5882.809	21.00000	6.300000	21.82179	95.00000

Instrument : CHAMBER 202  
 Detector : 78903  
 Background Analysis Date/Time : 21-JUN-2009 15:58:09  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.900	3298.618	1.000000	0.3000000	100.0000	95.00000
NP-237	4432.436	4902.692	1.000000	0.3000000	100.0000	95.00000
CM-244	5532.047	5884.818	15.00000	4.500000	25.81989	95.00000

Instrument : CHAMBER 203  
 Detector : 78905  
 Background Analysis Date/Time : 21-JUN-2009 15:58:13  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.958	3298.323	6.000000	1.800000	40.82483	95.00000
NP-237	4433.591	4904.036	9.000000	2.700000	33.33334	95.00000
CM-244	5533.281	5885.816	21.00000	6.300000	21.82179	95.00000

Instrument : CHAMBER 204  
 Detector : 78907  
 Background Analysis Date/Time : 21-JUN-2009 15:58:17  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.324	3298.173	16.00000	4.800000	25.00000	95.00000
NP-237	4437.399	4902.424	14.00000	4.200000	26.72612	95.00000
CM-244	5531.626	5884.261	27.00000	8.100000	19.24501	95.00000

Instrument : CHAMBER 205  
 Detector : 78908  
 Background Analysis Date/Time : 21-JUN-2009 15:58:22  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.508	3302.170	4.000000	1.200000	50.00000	95.00000
NP-237	4433.168	4903.946	2.000000	0.6000000	70.71068	95.00000
CM-244	5533.636	5886.419	11.00000	3.300000	30.15113	95.00000

Instrument : CHAMBER 206  
 Detector : 78909  
 Background Analysis Date/Time : 21-JUN-2009 15:58:26  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.616	3302.433	2.000000	0.6000000	70.71068	95.00000
NP-237	4432.477	4902.186	2.000000	0.6000000	70.71068	95.00000
CM-244	5535.166	5886.569	8.000000	2.400000	35.35534	95.00000

Instrument : CHAMBER 207  
 Detector : 78910  
 Background Analysis Date/Time : 21-JUN-2009 15:58:30  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2987.858	3301.538	2.000000	0.6000000	70.71068	95.00000
NP-237	4432.769	4903.719	4.000000	1.200000	50.00000	95.00000
CM-244	5533.705	5886.686	13.00000	3.900000	27.73501	95.00000

Instrument : CHAMBER 208  
 Detector : 78911  
 Background Analysis Date/Time : 21-JUN-2009 15:58:34  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.819	3299.505	1.000000	0.3000000	100.0000	95.00000
NP-237	4435.407	4905.872	8.000000	2.400000	35.35534	95.00000
CM-244	5534.932	5887.260	15.00000	4.500000	25.81989	95.00000

Instrument : CHAMBER 209  
 Detector : 79188  
 Background Analysis Date/Time : 28-JUN-2009 17:00:00  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.181	3301.049	0.000000E+00	0.000000E+00	0.000000E+00	95.00000
NP-237	4433.021	4903.097	0.000000E+00	0.000000E+00	0.000000E+00	95.00000
CM-244	5532.718	5885.886	0.000000E+00	0.000000E+00	0.000000E+00	95.00000

Instrument : CHAMBER 210  
 Detector : 79189  
 Background Analysis Date/Time : 28-JUN-2009 17:00:05  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.859	3297.943	1.000000	0.3000000	100.0000	95.00000
NP-237	4435.076	4904.812	0.000000E+00	0.000000E+00	0.000000E+00	95.00000
CM-244	5533.646	5886.210	0.000000E+00	0.000000E+00	0.000000E+00	95.00000

Instrument : CHAMBER 211  
 Detector : 79190  
 Background Analysis Date/Time : 28-JUN-2009 17:00:09  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.624	3301.653	0.000000E+00	0.000000E+00	0.000000E+00	95.00000
NP-237	4436.794	4902.468	1.000000	0.3000000	100.0000	95.00000
CM-244	5532.766	5886.120	0.000000E+00	0.000000E+00	0.000000E+00	95.00000

Instrument : CHAMBER 212  
 Detector : 79191  
 Background Analysis Date/Time : 28-JUN-2009 17:00:13  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.287	3301.382	0.000000E+00	0.000000E+00	0.000000E+00	95.00000
NP-237	4434.079	4904.410	2.000000	0.6000000	70.71068	95.00000
CM-244	5534.335	5887.654	0.000000E+00	0.000000E+00	0.000000E+00	95.00000

Instrument : CHAMBER 213  
 Detector : 79192  
 Background Analysis Date/Time : 28-JUN-2009 17:00:17  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.968	3298.520	0.000000E+00	0.000000E+00	0.000000E+00	95.00000
NP-237	4437.380	4902.572	2.000000	0.6000000	70.71068	95.00000
CM-244	5532.282	5885.336	0.000000E+00	0.000000E+00	0.000000E+00	95.00000

Instrument : CHAMBER 214  
 Detector : 79193  
 Background Analysis Date/Time : 28-JUN-2009 17:00:21  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.403	3298.091	1.000000	0.3000000	100.0000	95.00000
NP-237	4437.439	4902.827	0.000000E+00	0.000000E+00	0.000000E+00	95.00000
CM-244	5532.795	5885.993	0.000000E+00	0.000000E+00	0.000000E+00	95.00000

Instrument : CHAMBER 215  
 Detector : 79194  
 Background Analysis Date/Time : 28-JUN-2009 17:00:25  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.062	3302.465	0.000000E+00	0.000000E+00	0.000000E+00	95.00000
NP-237	4436.774	4902.728	1.000000	0.3000000	100.0000	95.00000
CM-244	5533.954	5882.708	1.000000	0.3000000	100.0000	95.00000

Instrument : CHAMBER 216  
 Detector : 79195  
 Background Analysis Date/Time : 28-JUN-2009 17:00:29  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2992.227	3300.068	2.000000	0.6000000	70.71068	95.00000
NP-237	4434.095	4904.331	0.000000E+00	0.000000E+00	0.000000E+00	95.00000
CM-244	5533.563	5886.220	0.000000E+00	0.000000E+00	0.000000E+00	95.00000

Instrument : CHAMBER 217  
 Detector : 79410  
 Background Analysis Date/Time : 28-JUN-2009 17:00:33  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2992.213	3299.566	1.000000	0.3000000	100.0000	95.00000
NP-237	4433.215	4903.920	1.000000	0.3000000	100.0000	95.00000
CM-244	5534.328	5882.531	1.000000	0.3000000	100.0000	95.00000

Instrument : CHAMBER 218  
 Detector : 79411  
 Background Analysis Date/Time : 28-JUN-2009 17:00:38  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.601	3298.221	1.000000	0.3000000	100.0000	95.00000
NP-237	4432.747	4903.769	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000
CM-244	5534.561	5882.956	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000

Instrument : CHAMBER 219  
 Detector : 79412  
 Background Analysis Date/Time : 28-JUN-2009 17:00:42  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.180	3302.094	4.000000	1.200000	50.00000	95.00000
NP-237	4436.774	4902.239	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000
CM-244	5532.237	5885.415	1.000000	0.3000000	100.0000	95.00000

Instrument : CHAMBER 220  
 Detector : 79413  
 Background Analysis Date/Time : 28-JUN-2009 17:00:46  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.438	3302.525	1.000000	0.3000000	100.0000	95.00000
NP-237	4435.000	4905.156	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000
CM-244	5534.774	5882.515	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000

Instrument : CHAMBER 221  
 Detector : 79414  
 Background Analysis Date/Time : 28-JUN-2009 17:00:50  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2991.987	3300.655	1.000000	0.3000000	100.0000	95.00000
NP-237	4433.096	4905.038	1.000000	0.3000000	100.0000	95.00000
CM-244	5531.434	5885.564	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000

Instrument : CHAMBER 222  
 Detector : 79415  
 Background Analysis Date/Time : 28-JUN-2009 17:00:54  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2991.968	3297.845	1.000000	0.3000000	100.0000	95.00000
NP-237	4434.336	4906.032	2.000000	0.6000000	70.71068	95.00000
CM-244	5530.429	5882.613	1.000000	0.3000000	100.0000	95.00000

Instrument : CHAMBER 223  
 Detector : 79416  
 Background Analysis Date/Time : 28-JUN-2009 17:00:59  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.801	3297.756	2.000000	0.6000000	70.71068	95.00000
NP-237	4434.980	4902.483	1.000000	0.3000000	100.0000	95.00000
CM-244	5530.752	5886.350	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000

Instrument : CHAMBER 224  
 Detector : 79417  
 Background Analysis Date/Time : 28-JUN-2009 17:01:03  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2987.708	3297.620	2.000000	0.6000000	70.71068	95.00000
NP-237	4432.391	4904.314	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000
CM-244	5535.163	5883.043	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000



Instrument : CHAMBER 225  
 Detector : 79418  
 Background Analysis Date/Time : 28-JUN-2009 17:01:07  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.136	3297.838	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000
NP-237	4432.708	4903.892	2.000000	0.6000000	70.71068	95.00000
CM-244	5534.915	5883.445	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000

Instrument : CHAMBER 226  
 Detector : 79419  
 Background Analysis Date/Time : 28-JUN-2009 17:01:11  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.396	3299.355	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000
NP-237	4437.021	4903.289	1.000000	0.3000000	100.0000	95.00000
CM-244	5534.002	5887.398	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000

Instrument : CHAMBER 227  
 Detector : 79420  
 Background Analysis Date/Time : 28-JUN-2009 17:01:15  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.851	3301.430	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000
NP-237	4435.798	4901.523	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000
CM-244	5532.218	5885.954	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000

Instrument : CHAMBER 228  
 Detector : 79421  
 Background Analysis Date/Time : 28-JUN-2009 17:01:19  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.413	3298.479	2.000000	0.6000000	70.71068	95.00000
NP-237	4435.708	4901.434	2.000000	0.6000000	70.71068	95.00000
CM-244	5531.094	5883.745	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000

Instrument : CHAMBER 229  
 Detector : 79422  
 Background Analysis Date/Time : 28-JUN-2009 17:01:24  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2992.428	3300.536	0.000000E+00	0.000000E+00	0.000000E+00	95.00000
NP-237	4436.659	4902.986	1.000000	0.3000000	100.0000	95.00000
CM-244	5534.392	5883.088	0.000000E+00	0.000000E+00	0.000000E+00	95.00000

Instrument : CHAMBER 230  
 Detector : 79423  
 Background Analysis Date/Time : 28-JUN-2009 17:01:28  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.435	3299.126	1.000000	0.3000000	100.0000	95.00000
NP-237	4436.006	4902.037	0.000000E+00	0.000000E+00	0.000000E+00	95.00000
CM-244	5532.506	5885.804	1.000000	0.3000000	100.0000	95.00000

Instrument : CHAMBER 231  
 Detector : 79424  
 Background Analysis Date/Time : 28-JUN-2009 17:01:32  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2991.739	3299.860	2.000000	0.6000000	70.71068	95.00000
NP-237	4434.942	4905.625	0.000000E+00	0.000000E+00	0.000000E+00	95.00000
CM-244	5535.464	5883.098	3.000000	0.9000000	57.73503	95.00000

Instrument : CHAMBER 232  
 Detector : 79425  
 Background Analysis Date/Time : 28-JUN-2009 17:01:36  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.849	3300.399	0.000000E+00	0.000000E+00	0.000000E+00	95.00000
NP-237	4435.500	4901.412	1.000000	0.3000000	100.0000	95.00000
CM-244	5530.414	5887.598	0.000000E+00	0.000000E+00	0.000000E+00	95.00000

Instrument : CHAMBER 233  
 Detector : 79426  
 Background Analysis Date/Time : 28-JUN-2009 17:01:40  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.552	3300.019	3.000000	0.9000000	57.73503	95.00000
NP-237	4437.049	4902.445	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000
CM-244	5533.265	5887.350	1.000000	0.3000000	100.0000	95.00000

Instrument : CHAMBER 234  
 Detector : 79427  
 Background Analysis Date/Time : 28-JUN-2009 17:01:43  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2992.038	3298.233	1.000000	0.3000000	100.0000	95.00000
NP-237	4434.030	4904.076	1.000000	0.3000000	100.0000	95.00000
CM-244	5534.071	5887.649	1.000000	0.3000000	100.0000	95.00000

Instrument : CHAMBER 235  
 Detector : 79428  
 Background Analysis Date/Time : 28-JUN-2009 17:01:48  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.263	3301.595	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000
NP-237	4435.665	4901.527	1.000000	0.3000000	100.0000	95.00000
CM-244	5532.636	5886.715	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000

Instrument : CHAMBER 236  
 Detector : 79429  
 Background Analysis Date/Time : 28-JUN-2009 17:01:52  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2987.896	3299.376	3.000000	0.9000000	57.73503	95.00000
NP-237	4436.423	4901.814	3.000000	0.9000000	57.73503	95.00000
CM-244	5532.618	5886.688	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000

Instrument : CHAMBER 237  
 Detector : 79430  
 Background Analysis Date/Time : 28-JUN-2009 17:01:56  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2991.344	3298.717	1.000000	0.3000000	100.0000	95.00000
NP-237	4433.245	4904.669	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000
CM-244	5531.003	5885.403	1.000000	0.3000000	100.0000	95.00000

Instrument : CHAMBER 238  
 Detector : 79431  
 Background Analysis Date/Time : 28-JUN-2009 17:02:00  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.961	3300.370	1.000000	0.3000000	100.0000	95.00000
NP-237	4436.951	4902.062	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000
CM-244	5532.406	5886.179	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000

Instrument : CHAMBER 239  
 Detector : 79432  
 Background Analysis Date/Time : 28-JUN-2009 17:02:04  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.544	3302.370	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000
NP-237	4436.212	4902.679	6.000000	1.800000	40.82483	95.00000
CM-244	5535.220	5884.998	1.000000	0.3000000	100.0000	95.00000

Instrument : CHAMBER 240  
 Detector : 79433  
 Background Analysis Date/Time : 28-JUN-2009 17:02:08  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.696	3301.853	3.000000	0.9000000	57.73503	95.00000
NP-237	4433.664	4904.733	3.000000	0.9000000	57.73503	95.00000
CM-244	5531.260	5886.094	2.000000	0.6000000	70.71068	95.00000

Instrument : CHAMBER 241  
 Detector : 79434  
 Background Analysis Date/Time : 28-JUN-2009 17:02:12  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.242	3301.966	1.000000	0.3000000	100.0000	95.00000
NP-237	4434.457	4905.204	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000
CM-244	5530.782	5884.826	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000

Instrument : CHAMBER 242  
 Detector : 79435  
 Background Analysis Date/Time : 28-JUN-2009 17:02:17  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.030	3301.446	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000
NP-237	4433.469	4904.310	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000
CM-244	5535.605	5884.633	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000

Instrument : CHAMBER 243  
 Detector : 79436  
 Background Analysis Date/Time : 28-JUN-2009 17:02:21  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.365	3297.486	2.000000	0.6000000	70.71068	95.00000
NP-237	4436.388	4902.306	1.000000	0.3000000	100.0000	95.00000
CM-244	5533.622	5882.491	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000

Instrument : CHAMBER 244  
 Detector : 79437  
 Background Analysis Date/Time : 28-JUN-2009 17:02:26  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.131	3300.564	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000
NP-237	4432.574	4903.374	3.000000	0.9000000	57.73503	95.00000
CM-244	5534.584	5883.551	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000

Instrument : CHAMBER 245  
 Detector : 79438  
 Background Analysis Date/Time : 28-JUN-2009 17:02:30  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2992.063	3299.394	1.000000	0.3000000	100.0000	95.00000
NP-237	4434.575	4906.628	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000
CM-244	5534.102	5883.894	2.000000	0.6000000	70.71068	95.00000

Instrument : CHAMBER 246  
 Detector : 78912  
 Background Analysis Date/Time : 28-JUN-2009 17:02:34  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.019	3301.538	2.000000	0.6000000	70.71068	95.00000
NP-237	4435.665	4906.544	1.000000	0.3000000	100.0000	95.00000
CM-244	5531.825	5885.470	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000

Instrument : CHAMBER 247  
 Detector : 79440  
 Background Analysis Date/Time : 28-JUN-2009 17:02:38  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.774	3301.191	1.000000	0.3000000	100.0000	95.00000
NP-237	4436.556	4903.380	3.000000	0.9000000	57.73503	95.00000
CM-244	5530.809	5885.967	2.000000	0.6000000	70.71068	95.00000

Instrument : CHAMBER 248  
 Detector : 79441  
 Background Analysis Date/Time : 28-JUN-2009 17:02:43  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.392	3300.122	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000
NP-237	4433.659	4905.293	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000
CM-244	5532.437	5887.556	8.000000	2.400000	35.35534	95.00000

Instrument : CHAMBER 249  
 Detector : 79442  
 Background Analysis Date/Time : 28-JUN-2009 17:02:46  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.416	3300.577	1.000000	0.3000000	100.0000	95.00000
NP-237	4436.398	4904.007	2.000000	0.6000000	70.71068	95.00000
CM-244	5533.011	5883.893	1.000000	0.3000000	100.0000	95.00000

Instrument : CHAMBER 250  
 Detector : 79443  
 Background Analysis Date/Time : 28-JUN-2009 17:02:50  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2987.664	3299.772	1.000000	0.3000000	100.0000	95.00000
NP-237	4433.576	4904.834	2.000000	0.6000000	70.71068	95.00000
CM-244	5531.060	5885.456	3.000000	0.9000000	57.73503	95.00000

Instrument : CHAMBER 251  
 Detector : 79444  
 Background Analysis Date/Time : 28-JUN-2009 17:02:54  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.497	3300.693	1.000000	0.3000000	100.0000	95.00000
NP-237	4436.150	4903.399	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000
CM-244	5531.737	5887.575	1.000000	0.3000000	100.0000	95.00000

Instrument : CHAMBER 252  
 Detector : 79445  
 Background Analysis Date/Time : 28-JUN-2009 17:02:58  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.592	3300.825	3.000000	0.9000000	57.73503	95.00000
NP-237	4435.553	4902.127	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000
CM-244	5534.590	5884.216	1.000000	0.3000000	100.0000	95.00000

Instrument : CHAMBER 253  
 Detector : 79446  
 Background Analysis Date/Time : 28-JUN-2009 17:03:02  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2987.654	3300.865	1.000000	0.3000000	100.0000	95.00000
NP-237	4434.573	4903.102	2.000000	0.6000000	70.71068	95.00000
CM-244	5533.082	5884.383	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000

Instrument : CHAMBER 254  
 Detector : 79447  
 Background Analysis Date/Time : 28-JUN-2009 17:03:06  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2991.549	3298.669	2.000000	0.6000000	70.71068	95.00000
NP-237	4433.543	4905.678	6.000000	1.800000	40.82483	95.00000
CM-244	5533.440	5883.478	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000

Instrument : CHAMBER 255  
 Detector : 79448  
 Background Analysis Date/Time : 28-JUN-2009 17:03:11  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2992.136	3299.381	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000
NP-237	4435.277	4902.796	1.000000	0.3000000	100.0000	95.00000
CM-244	5531.573	5887.697	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000

Instrument : CHAMBER 256  
 Detector : 79449  
 Background Analysis Date/Time : 28-JUN-2009 17:03:15  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.020	3301.037	2.000000	0.6000000	70.71068	95.00000
NP-237	4435.346	4901.908	2.000000	0.6000000	70.71068	95.00000
CM-244	5534.491	5884.250	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000



### Subsection 3: Efficiency Calibration

Instrument : CHAMBER 001  
 Detector : 78788  
 Standard ID : AESS-001  
 Standard Reference Date : 20-FEB-2008 09:54:53  
 Calibration Analysis Date/Time : 6-JUL-2009 09:46:09  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 6-JUL-2009 14:30:47  
 Average Efficiency : 0.2968604  
 Average Efficiency Error : 8.1920959E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	208.6698	28-FEB-2010	2988.679	3298.848	14368.00	0.2905553	1.2499626E-02	54.37264
NP-237	171.0024	28-FEB-2010	4436.698	4905.866	12378.00	0.3015518	1.5319364E-02	65.40276
CM-244	158.1060	28-FEB-2010	5535.874	5884.629	10862.00	0.3016641	1.5358537E-02	54.23344

Instrument : CHAMBER 002  
 Detector : 78266  
 Standard ID : AESS-002  
 Standard Reference Date : 19-FEB-2008 11:05:22  
 Calibration Analysis Date/Time : 6-JUL-2009 09:46:09  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 6-JUL-2009 14:31:01  
 Average Efficiency : 0.3091908  
 Average Efficiency Error : 8.5140709E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	200.1144	28-FEB-2010	2987.715	3301.971	14528.00	0.3063232	1.3175298E-02	49.84956
NP-237	200.4990	28-FEB-2010	4433.336	4902.576	15147.00	0.3147377	1.5943376E-02	61.42959
CM-244	196.5558	28-FEB-2010	5533.904	5882.845	13779.00	0.3078977	1.5616762E-02	53.40513

Instrument : CHAMBER 003  
 Detector : 67617  
 Standard ID : AESS-003  
 Standard Reference Date : 15-FEB-2008 13:12:27  
 Calibration Analysis Date/Time : 6-JUL-2009 09:46:09  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 1-JUL-2009 14:34:18  
 Average Efficiency : 0.3600250  
 Average Efficiency Error : 1.0207428E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	202.9740	28-FEB-2010	2989.494	3301.750	51088.00	0.5304641	2.2688475E-02	17.25958
NP-237	203.2080	28-FEB-2010	4434.514	4906.213	23507.00	0.2944960	1.5031389E-02	23.33439
CM-244	197.2236	28-FEB-2010	5534.317	5886.218	303.0000	0.3473051	1.7597629E-02	23.27553

Instrument : CHAMBER 004  
 Detector : 64279  
 Standard ID : AESS-004  
 Standard Reference Date : 14-FEB-2008 09:35:18  
 Calibration Analysis Date/Time : 6-JUL-2009 09:46:09  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 6-JUL-2009 14:31:14  
 Average Efficiency : 0.3320934  
 Average Efficiency Error : 9.1318591E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	206.1222	28-FEB-2010	2991.142	3301.855	16052.00	0.3286779	1.4111746E-02	51.04387
NP-237	204.2586	28-FEB-2010	4434.122	4905.061	16497.00	0.3364784	1.7026719E-02	57.46174
CM-244	198.8100	28-FEB-2010	5532.169	5885.896	15051.00	0.3326688	1.6853061E-02	54.96896

Instrument : CHAMBER 005  
 Detector : 67612  
 Standard ID : AESS-005  
 Standard Reference Date : 14-FEB-2008 09:35:18  
 Calibration Analysis Date/Time : 6-JUL-2009 09:46:09  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 6-JUL-2009 14:31:33  
 Average Efficiency : 6.5707625E-03  
 Average Efficiency Error : 3.8320033E-04  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	210.7452	28-FEB-2010	2987.844	3301.859	3508.000	7.0225731E-02	1.923207E-03	0.0000000E+00
NP-237	209.5938	28-FEB-2010	4432.372	4905.723	2125.000	4.2211074E-02	3.009577E-03	0.0000000E+00
CM-244	202.7478	28-FEB-2010	5534.445	5887.312	214.0000	4.5812004E-03	9.153980E-04	0.0000000E+00

Instrument : CHAMBER 006  
 Detector : 67613  
 Standard ID : AESS-006  
 Standard Reference Date : 14-FEB-2008 09:35:18  
 Calibration Analysis Date/Time : 6-JUL-2009 09:46:09  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 6-JUL-2009 14:31:42  
 Average Efficiency : 0.3023717  
 Average Efficiency Error : 8.3279395E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	203.6952	28-FEB-2010	2987.836	3301.578	14382.00	0.2979915	1.2819309E-02	52.92189
NP-237	204.7038	28-FEB-2010	4433.162	4904.315	14912.00	0.3035040	1.5377419E-02	64.79807
CM-244	195.0060	28-FEB-2010	5534.623	5882.438	13655.00	0.3076988	1.5608697E-02	55.89266

Instrument : CHAMBER 007  
 Detector : 67607  
 Standard ID : AESS-007  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 6-JUL-2009 09:46:11  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 6-JUL-2009 14:31:52  
 Average Efficiency : 0.2957362  
 Average Efficiency Error : 8.1475200E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	206.7342	28-FEB-2010	2987.476	3300.975	14142.00	0.2886904	1.2423181E-02	50.35310
NP-237	205.0260	28-FEB-2010	4436.790	4906.439	14907.00	0.3028864	1.5346253E-02	60.44886
CM-244	199.6806	28-FEB-2010	5534.241	5887.079	13602.00	0.2992603	1.5181582E-02	51.78771

Instrument : CHAMBER 008  
 Detector : 78788  
 Standard ID : AESS-008  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 6-JUL-2009 09:46:11  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 6-JUL-2009 14:32:01  
 Average Efficiency : 0.3188090  
 Average Efficiency Error : 8.7708440E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	206.0418	28-FEB-2010	2990.921	3300.406	15479.00	0.3170527	1.3621154E-02	48.62412
NP-237	209.2716	28-FEB-2010	4435.107	4902.387	15876.00	0.3160491	1.6000355E-02	65.04717
CM-244	199.6488	28-FEB-2010	5534.594	5883.502	14733.00	0.3242763	1.6432470E-02	50.70723

Instrument : CHAMBER 009  
 Detector : 72528  
 Standard ID : AESS-009  
 Standard Reference Date : 19-FEB-2008 11:05:22  
 Calibration Analysis Date/Time : 6-JUL-2009 09:46:11  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 6-JUL-2009 14:32:10  
 Average Efficiency : 0.3375995  
 Average Efficiency Error : 9.2831012E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	203.3736	28-FEB-2010	2990.628	3299.090	15971.00	0.3313866	1.4229259E-02	50.85649
NP-237	204.0192	28-FEB-2010	4437.197	4904.633	16709.00	0.3411832	1.7262230E-02	60.63605
CM-244	197.2128	28-FEB-2010	5532.440	5887.594	15414.00	0.3432376	1.7383220E-02	53.31252

Instrument : CHAMBER 010  
 Detector : 72529  
 Standard ID : AESS-010  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 6-JUL-2009 09:46:11  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 6-JUL-2009 14:32:19  
 Average Efficiency : 0.3172926  
 Average Efficiency Error : 8.7324297E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	202.0008	28-FEB-2010	2991.348	3298.595	15125.00	0.3160139	1.3582063E-02	48.55328
NP-237	202.9926	28-FEB-2010	4434.835	4903.545	15667.00	0.3215450	1.6281251E-02	62.71636
CM-244	196.2330	28-FEB-2010	5530.435	5886.972	14067.00	0.3149689	1.5970867E-02	52.28595

Instrument : CHAMBER 011  
 Detector : 72531  
 Standard ID : AESS-011  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 6-JUL-2009 09:46:11  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 6-JUL-2009 14:32:29  
 Average Efficiency : 0.2985433  
 Average Efficiency Error : 8.2169101E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	212.8284	28-FEB-2010	2991.311	3301.519	14980.00	0.2970565	1.2769507E-02	51.39855
NP-237	214.4868	28-FEB-2010	4434.837	4904.180	15445.00	0.3000057	1.5193330E-02	59.19451
CM-244	208.4184	28-FEB-2010	5534.270	5885.159	14191.00	0.2991836	1.5168598E-02	51.74621

Instrument : CHAMBER 012  
 Detector : 67594  
 Standard ID : AESS-012  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 6-JUL-2009 09:46:11  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 6-JUL-2009 14:32:37  
 Average Efficiency : 0.2994599  
 Average Efficiency Error : 8.2469108E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	206.2200	28-FEB-2010	2989.530	3302.430	14453.00	0.2957655	1.2722428E-02	49.93941
NP-237	205.8930	28-FEB-2010	4435.245	4904.394	15165.00	0.3068516	1.5543667E-02	68.21289
CM-244	203.1954	28-FEB-2010	5531.663	5882.971	13767.00	0.2976886	1.5099200E-02	52.18476

Instrument : CHAMBER 013  
 Detector : 78790  
 Standard ID : AESS-013  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 6-JUL-2009 09:46:12  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 6-JUL-2009 14:32:45  
 Average Efficiency : 0.3386290  
 Average Efficiency Error : 9.3077216E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	203.6544	28-FEB-2010	2992.215	3297.934	16446.00	0.3408228	1.4627260E-02	48.82562
NP-237	210.2526	28-FEB-2010	4433.681	4905.322	17035.00	0.3375474	1.7074423E-02	66.72312
CM-244	201.9108	28-FEB-2010	5534.510	5884.075	15472.00	0.3367262	1.7052578E-02	51.74340

Instrument : CHAMBER 014  
 Detector : 67616  
 Standard ID : AESS-014  
 Standard Reference Date : 19-FEB-2008 11:05:22  
 Calibration Analysis Date/Time : 6-JUL-2009 09:46:12  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 6-JUL-2009 14:32:56  
 Average Efficiency : 0.3118280  
 Average Efficiency Error : 8.5774874E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	214.7088	28-FEB-2010	2988.044	3301.205	15708.00	0.3087174	1.3259654E-02	54.69494
NP-237	211.7160	28-FEB-2010	4432.568	4904.459	16091.00	0.3166406	1.6027654E-02	64.49153
CM-244	207.3882	28-FEB-2010	5531.132	5885.588	14716.00	0.3115681	1.5788864E-02	58.20748

Instrument : CHAMBER 015  
 Detector : 61581  
 Standard ID : AESS-015  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 6-JUL-2009 09:46:12  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 6-JUL-2009 14:33:12  
 Average Efficiency : 0.3223390  
 Average Efficiency Error : 8.8713039E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	204.0270	28-FEB-2010	2990.992	3300.634	15182.00	0.3140531	1.3496879E-02	59.83858
NP-237	200.6460	28-FEB-2010	4433.750	4904.866	15926.00	0.3307087	1.6741820E-02	75.43053
CM-244	195.9270	28-FEB-2010	5533.850	5883.539	14567.00	0.3266208	1.6553897E-02	63.39113

Instrument : CHAMBER 016  
 Detector : 78774  
 Standard ID : AESS-016  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 6-JUL-2009 09:46:12  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 6-JUL-2009 14:33:38  
 Average Efficiency : 0.3364573  
 Average Efficiency Error : 9.2521459E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	204.0534	28-FEB-2010	2991.376	3300.188	16062.00	0.3322090	1.4263208E-02	47.94983
NP-237	199.3962	28-FEB-2010	4436.705	4902.519	16457.00	0.3438525	1.7400362E-02	59.25246
CM-244	198.6402	28-FEB-2010	5531.791	5887.203	15163.00	0.3354346	1.6991531E-02	53.20901

Instrument : CHAMBER 017  
 Detector : 78791  
 Standard ID : AESS-017  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 6-JUL-2009 09:46:12  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 6-JUL-2009 14:33:47  
 Average Efficiency : 0.2933579  
 Average Efficiency Error : 8.0790650E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	210.0798	28-FEB-2010	2988.293	3301.593	14424.00	0.2897618	1.2464617E-02	48.04712
NP-237	208.5846	28-FEB-2010	4433.438	4905.522	14920.00	0.2980264	1.5099768E-02	63.18722
CM-244	205.5828	28-FEB-2010	5532.444	5887.037	13752.00	0.2939516	1.4909811E-02	52.23705

Instrument : CHAMBER 018  
 Detector : 21063  
 Standard ID : AESS-018  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 14-JUL-2009 15:04:40  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 15-JUL-2009 07:50:05  
 Average Efficiency : 0.3223269  
 Average Efficiency Error : 8.8674370E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	202.1856	28-FEB-2010	2991.459	3300.768	15427.00	0.3220896	1.3838380E-02	41.77474
NP-237	208.8990	28-FEB-2010	4435.720	4903.495	16011.00	0.3193196	1.6164232E-02	59.35002
CM-244	198.1458	28-FEB-2010	5531.358	5886.349	14679.00	0.3258023	1.6510617E-02	49.83286

Instrument : CHAMBER 019  
 Detector : 78786  
 Standard ID : AESS-019  
 Standard Reference Date : 19-FEB-2008 11:05:22  
 Calibration Analysis Date/Time : 6-JUL-2009 09:46:13  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 6-JUL-2009 14:34:03  
 Average Efficiency : 0.2886755  
 Average Efficiency Error : 7.9575144E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	204.6468	28-FEB-2010	2991.589	3299.131	13636.00	0.2811793	1.2108484E-02	45.78609
NP-237	202.9140	28-FEB-2010	4435.520	4903.560	14455.00	0.2967967	1.5043795E-02	63.86615
CM-244	199.3140	28-FEB-2010	5534.981	5882.589	13252.00	0.2920234	1.4819912E-02	48.96563

Instrument : CHAMBER 020  
 Detector : 78787  
 Standard ID : AESS-020  
 Standard Reference Date : 14-FEB-2008 21:55:55  
 Calibration Analysis Date/Time : 6-JUL-2009 09:46:13  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 6-JUL-2009 14:34:12  
 Average Efficiency : 0.3430721  
 Average Efficiency Error : 9.4324267E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	205.5870	28-FEB-2010	2991.028	3300.317	16260.00	0.3337892	1.4328116E-02	49.41795
NP-237	203.4984	28-FEB-2010	4434.663	4901.954	17092.00	0.3499276	1.7699974E-02	68.09825
CM-244	197.1096	28-FEB-2010	5534.316	5883.376	15719.00	0.3504178	1.7742448E-02	47.75075

Instrument : CHAMBER 021  
 Detector : 67047  
 Standard ID : AESS-021  
 Standard Reference Date : 19-FEB-2008 15:31:52  
 Calibration Analysis Date/Time : 6-JUL-2009 09:46:13  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 6-JUL-2009 14:34:21  
 Average Efficiency : 0.3007418  
 Average Efficiency Error : 8.2816491E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	208.3608	28-FEB-2010	2991.930	3300.431	14520.00	0.2940652	1.2648145E-02	54.30077
NP-237	210.1548	28-FEB-2010	4435.207	4905.011	15253.00	0.3023781	1.5315918E-02	63.06406
CM-244	200.7390	28-FEB-2010	5533.018	5884.673	14140.00	0.3092899	1.5681855E-02	54.78833

Instrument : CHAMBER 022  
 Detector : 72530  
 Standard ID : AESS-022  
 Standard Reference Date : 14-FEB-2008 21:55:55  
 Calibration Analysis Date/Time : 6-JUL-2009 09:46:13  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 6-JUL-2009 14:34:44  
 Average Efficiency : 0.3177471  
 Average Efficiency Error : 8.7433932E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	209.6724	28-FEB-2010	2989.087	3302.012	15372.00	0.3092707	1.3288673E-02	50.08852
NP-237	206.8830	28-FEB-2010	4436.701	4902.154	16304.00	0.3282550	1.6613014E-02	63.36660
CM-244	203.0208	28-FEB-2010	5532.124	5885.279	14804.00	0.3203634	1.6233236E-02	52.02282

Instrument : CHAMBER 023  
 Detector : 78264  
 Standard ID : AESS-023  
 Standard Reference Date : 14-FEB-2008 21:55:55  
 Calibration Analysis Date/Time : 6-JUL-2009 09:46:13  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 6-JUL-2009 14:34:52  
 Average Efficiency : 0.3327100  
 Average Efficiency Error : 9.1472948E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	207.4764	28-FEB-2010	2990.041	3300.395	16228.00	0.3301035	1.4170360E-02	46.67713
NP-237	207.4998	28-FEB-2010	4437.054	4904.602	16550.00	0.3322816	1.6813723E-02	63.18299
CM-244	199.8804	28-FEB-2010	5531.351	5885.314	15327.00	0.3369316	1.7065044E-02	50.76911

Instrument : CHAMBER 024  
 Detector : 76542  
 Standard ID : AESS-024  
 Standard Reference Date : 14-FEB-2008 21:55:55  
 Calibration Analysis Date/Time : 6-JUL-2009 09:46:13  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 6-JUL-2009 14:35:01  
 Average Efficiency : 0.3278600  
 Average Efficiency Error : 9.0207923E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	203.5218	28-FEB-2010	2988.294	3302.013	15351.00	0.3182911	1.3676404E-02	53.01509
NP-237	205.6662	28-FEB-2010	4435.963	4904.774	16397.00	0.3320666	1.6804798E-02	66.65491
CM-244	198.3060	28-FEB-2010	5530.886	5886.529	15278.00	0.3385208	1.7146233E-02	56.84327



Instrument : CHAMBER 025  
 Detector : 45-149AA5  
 Standard ID : AESS-025  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 6-JUL-2009 09:46:14  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 6-JUL-2009 14:35:10  
 Average Efficiency : 0.3244141  
 Average Efficiency Error : 8.9428928E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	195.5670	28-FEB-2010	2988.683	3301.317	15182.00	0.3276230	1.4080081E-02	58.08860
NP-237	167.9916	28-FEB-2010	4432.505	4905.964	12934.00	0.3207583	1.6284095E-02	71.50992
CM-244	157.2432	28-FEB-2010	5531.275	5884.228	11591.00	0.3237635	1.6465405E-02	65.55542

Instrument : CHAMBER 026  
 Detector : 78204  
 Standard ID : AESS-026  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 6-JUL-2009 09:46:14  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 6-JUL-2009 14:35:19  
 Average Efficiency : 0.3149063  
 Average Efficiency Error : 9.2313625E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	199.5072	28-FEB-2010	2992.261	3299.610	15024.00	0.3178152	1.6101750E-02	48.28163
NP-237	168.0294	28-FEB-2010	4434.923	4901.784	12780.00	0.3168793	1.6090054E-02	60.42010
CM-244	160.5822	28-FEB-2010	5534.672	5884.552	11338.00	0.3102135	1.5781984E-02	48.50001

Instrument : CHAMBER 027  
 Detector : 42484  
 Standard ID : AESS-027  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 6-JUL-2009 09:46:14  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 6-JUL-2009 14:35:28  
 Average Efficiency : 0.3410775  
 Average Efficiency Error : 9.9962037E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	193.4238	28-FEB-2010	2992.456	3300.321	15132.00	0.3301674	1.6726010E-02	62.71494
NP-237	161.6154	28-FEB-2010	4432.625	4905.570	13412.00	0.3457057	1.7541273E-02	89.17722
CM-244	148.1754	28-FEB-2010	5534.870	5882.737	11761.00	0.3486037	1.7724430E-02	78.01683

Instrument : CHAMBER 028  
 Detector : 78792  
 Standard ID : AESS-028  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 6-JUL-2009 09:46:14  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 6-JUL-2009 14:35:37  
 Average Efficiency : 0.3059801  
 Average Efficiency Error : 8.9743091E-03  
 Confidence : 95.00000

Cal. Istds	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	199.6542	28-FEB-2010	2989.695	3297.894	14335.00	0.3030114	1.5361304E-02	46.74673
NP-237	168.1992	28-FEB-2010	4435.454	4902.851	12365.00	0.3062848	1.5560016E-02	61.29473
CM-244	156.7614	28-FEB-2010	5530.764	5886.057	11017.00	0.3087767	1.5716689E-02	48.99289

Instrument : CHAMBER 029  
 Detector : 33454  
 Standard ID : AESS-029  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 6-JUL-2009 09:46:14  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 6-JUL-2009 14:35:45  
 Average Efficiency : 0.3133109  
 Average Efficiency Error : 9.1862464E-03  
 Confidence : 95.00000

Cal. Istds	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	201.5742	28-FEB-2010	2989.570	3299.793	14696.00	0.3076786	1.5592718E-02	62.98538
NP-237	169.7700	28-FEB-2010	4434.729	4906.466	12891.00	0.3163488	1.6061027E-02	66.74791
CM-244	154.8234	28-FEB-2010	5530.876	5886.187	11145.00	0.3162610	1.6094424E-02	59.70258

Instrument : CHAMBER 030  
 Detector : 33447  
 Standard ID : AESS-030  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 6-JUL-2009 09:46:14  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 6-JUL-2009 14:35:54  
 Average Efficiency : 0.3190225  
 Average Efficiency Error : 9.3542365E-03  
 Confidence : 95.00000

Cal. Istds	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	198.9792	28-FEB-2010	2992.473	3300.013	14522.00	0.3079955	1.5611262E-02	56.22778
NP-237	166.3758	28-FEB-2010	4433.021	4902.873	13108.00	0.3282070	1.6658967E-02	66.10047
CM-244	157.1856	28-FEB-2010	5531.626	5884.032	11533.00	0.3222875	1.6391672E-02	59.45288

Instrument : CHAMBER 031  
 Detector : 67042  
 Standard ID : AESS-031  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 14-JUL-2009 15:04:42  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 15-JUL-2009 07:50:24  
 Average Efficiency : 0.3338314  
 Average Efficiency Error : 9.2027988E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	193.6650	28-FEB-2010	2992.104	3299.916	15053.00	0.3280614	1.4101115E-02	64.46095
NP-237	162.9186	28-FEB-2010	4436.072	4902.901	13435.00	0.3435040	1.7429167E-02	93.20530
CM-244	153.1968	28-FEB-2010	5535.417	5884.932	11607.00	0.3330215	1.6935715E-02	63.05283

Instrument : CHAMBER 032  
 Detector : 67041  
 Standard ID : AESS-032  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 14-JUL-2009 15:04:42  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 15-JUL-2009 07:50:35  
 Average Efficiency : 0.3120490  
 Average Efficiency Error : 8.6091449E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	195.2364	28-FEB-2010	2990.634	3297.499	14436.00	0.3121021	1.3425405E-02	53.99254
NP-237	165.9822	28-FEB-2010	4437.570	4904.884	12360.00	0.3101901	1.5758617E-02	64.26519
CM-244	153.7938	28-FEB-2010	5533.522	5884.215	10984.00	0.3138851	1.5977694E-02	52.03965

Instrument : CHAMBER 033  
 Detector : 78785  
 Standard ID : AESS-033  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 6-JUL-2009 09:46:15  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 6-JUL-2009 14:36:20  
 Average Efficiency : 0.3132727  
 Average Efficiency Error : 8.6470284E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	192.4158	28-FEB-2010	2990.591	3298.173	14059.00	0.3083428	1.3270319E-02	45.02124
NP-237	161.7816	28-FEB-2010	4434.089	4906.364	12264.00	0.3158025	1.6045660E-02	60.74144
CM-244	147.2670	28-FEB-2010	5534.061	5883.941	10663.00	0.3180395	1.6197534E-02	44.95700

Instrument : CHAMBER 034  
 Detector : 61586  
 Standard ID : AESS-034  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 14-JUL-2009 15:04:42  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 15-JUL-2009 07:50:46  
 Average Efficiency : 0.3171561  
 Average Efficiency Error : 8.7465709E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	200.5488	28-FEB-2010	2990.268	3300.348	14798.00	0.3114539	1.3391386E-02	50.21013
NP-237	167.2962	28-FEB-2010	4435.287	4906.218	12784.00	0.3183437	1.6164379E-02	67.44197
CM-244	154.4388	28-FEB-2010	5533.837	5886.701	11405.00	0.3245862	1.6511625E-02	55.32959

Instrument : CHAMBER 035  
 Detector : 78202  
 Standard ID : AESS-035  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 6-JUL-2009 09:46:15  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 6-JUL-2009 14:36:36  
 Average Efficiency : 0.3039385  
 Average Efficiency Error : 8.3862301E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	198.6666	28-FEB-2010	2989.841	3298.805	14385.00	0.3055661	1.3145097E-02	44.60017
NP-237	168.2934	28-FEB-2010	4433.680	4901.942	12309.00	0.3046319	1.5477315E-02	57.84991
CM-244	158.8128	28-FEB-2010	5530.913	5886.751	10886.00	0.3010460	1.5326467E-02	49.59610

Instrument : CHAMBER 036  
 Detector : 78203  
 Standard ID : AESS-036  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 6-JUL-2009 09:46:15  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 6-JUL-2009 14:36:45  
 Average Efficiency : 0.3217056  
 Average Efficiency Error : 8.8684531E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	201.3204	28-FEB-2010	2990.719	3297.679	15140.00	0.3173648	1.3639865E-02	54.98193
NP-237	167.4312	28-FEB-2010	4436.454	4902.523	13140.00	0.3269882	1.6596414E-02	66.33447
CM-244	156.4188	28-FEB-2010	5534.221	5883.385	11497.00	0.3228255	1.6419753E-02	57.03784

Instrument : CHAMBER 037  
 Detector : 45-149BB5  
 Standard ID : AESS-037  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 6-JUL-2009 09:46:16  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 6-JUL-2009 14:36:53  
 Average Efficiency : 0.3609357  
 Average Efficiency Error : 9.9339429E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	197.7372	28-FEB-2010	2992.027	3298.587	16638.00	0.3550694	1.5235793E-02	70.66451
NP-237	167.1294	28-FEB-2010	4435.750	4902.017	14747.00	0.3675707	1.8626243E-02	87.35378
CM-244	154.7664	28-FEB-2010	5535.521	5884.277	12795.00	0.3630245	1.8432988E-02	72.91970

Instrument : CHAMBER 038  
 Detector : 72532  
 Standard ID : AESS-038  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 7-JUL-2009 20:14:26  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 8-JUL-2009 07:31:06  
 Average Efficiency : 0.3440174  
 Average Efficiency Error : 9.4721830E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	200.1408	28-FEB-2010	2989.665	3301.822	16315.00	0.3439969	1.4765469E-02	56.35861
NP-237	170.0886	28-FEB-2010	4435.489	4906.553	14189.00	0.3474887	1.7617788E-02	67.43947
CM-244	157.7460	28-FEB-2010	5532.401	5886.525	12237.00	0.3406941	1.7311083E-02	58.94252

Instrument : CHAMBER 039  
 Detector : 45-149BB2  
 Standard ID : AESS-039  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 6-JUL-2009 09:46:16  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 6-JUL-2009 14:37:12  
 Average Efficiency : 0.3633558  
 Average Efficiency Error : 1.0003410E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	192.2418	28-FEB-2010	2988.145	3298.732	16409.00	0.3601976	1.5459352E-02	56.41948
NP-237	159.1506	28-FEB-2010	4435.549	4903.088	13988.00	0.3661838	1.8569179E-02	74.12836
CM-244	151.7142	28-FEB-2010	5534.287	5885.251	12613.00	0.3650793	1.8541345E-02	65.99350

Instrument : CHAMBER 040  
 Detector : 78773  
 Standard ID : AESS-040  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 6-JUL-2009 09:46:16  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 6-JUL-2009 14:37:21  
 Average Efficiency : 0.3236358  
 Average Efficiency Error : 8.9229112E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	194.4828	28-FEB-2010	2989.803	3299.657	15035.00	0.3262324	1.4022750E-02	46.94137
NP-237	166.8174	28-FEB-2010	4435.891	4904.106	12881.00	0.3216923	1.6332518E-02	63.17031
CM-244	155.0100	28-FEB-2010	5531.706	5883.967	11365.00	0.3220472	1.6383301E-02	50.43327

Instrument : CHAMBER 041  
 Detector : 78205  
 Standard ID : AESS-041  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 6-JUL-2009 09:46:16  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 6-JUL-2009 14:37:34  
 Average Efficiency : 0.3271760  
 Average Efficiency Error : 9.0137199E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	203.9034	28-FEB-2010	2988.799	3301.675	15672.00	0.3243389	1.3931162E-02	49.27284
NP-237	171.2268	28-FEB-2010	4434.272	4902.386	13569.00	0.3301208	1.6747680E-02	61.97926
CM-244	159.5796	28-FEB-2010	5531.847	5882.877	11929.00	0.3283235	1.6689207E-02	48.64401

Instrument : CHAMBER 042  
 Detector : 78793  
 Standard ID : AESS-042  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 6-JUL-2009 09:46:16  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 6-JUL-2009 14:37:44  
 Average Efficiency : 0.3312008  
 Average Efficiency Error : 9.1335429E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	188.7090	28-FEB-2010	2991.257	3302.160	14934.00	0.3339659	1.4356897E-02	46.01327
NP-237	159.6558	28-FEB-2010	4435.667	4904.225	12775.00	0.3333308	1.6925573E-02	66.93758
CM-244	150.5208	28-FEB-2010	5531.759	5883.730	11154.00	0.3254806	1.6563315E-02	47.72076

Instrument : CHAMBER 043  
 Detector : 76543  
 Standard ID : AESS-043  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 6-JUL-2009 09:46:17  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 6-JUL-2009 14:37:56  
 Average Efficiency : 0.3406220  
 Average Efficiency Error : 9.3815317E-03  
 Confidence : 95.00000

Cal. Istds	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	197.7708	28-FEB-2010	2990.989	3298.318	15838.00	0.3379508	1.4513168E-02	53.32027
NP-237	168.7422	28-FEB-2010	4436.983	4902.370	13848.00	0.3419185	1.7341113E-02	70.53008
CM-244	156.3252	28-FEB-2010	5532.584	5886.039	12214.00	0.3431670	1.7437097E-02	50.59512

Instrument : CHAMBER 044  
 Detector : 79459  
 Standard ID : AESS-044  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 7-JUL-2009 08:06:38  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 7-JUL-2009 13:33:56  
 Average Efficiency : 0.3539364  
 Average Efficiency Error : 9.7440388E-03  
 Confidence : 95.00000

Cal. Istds	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	194.4510	28-FEB-2010	2988.854	3300.902	16237.00	0.3523722	1.5126155E-02	49.91737
NP-237	166.6248	28-FEB-2010	4435.084	4901.492	14193.00	0.3548543	1.7991094E-02	62.49409
CM-244	155.8290	28-FEB-2010	5533.776	5883.326	12603.00	0.3552387	1.8041683E-02	52.59266

Instrument : CHAMBER 045  
 Detector : 67601  
 Standard ID : AESS-045  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 14-JUL-2009 15:04:44  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 15-JUL-2009 07:50:59  
 Average Efficiency : 0.3430506  
 Average Efficiency Error : 9.4568562E-03  
 Confidence : 95.00000

Cal. Istds	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	186.9936	28-FEB-2010	2987.909	3300.265	15299.00	0.3453356	1.4839282E-02	39.68650
NP-237	160.8066	28-FEB-2010	4434.212	4905.200	12955.00	0.3356342	1.7038893E-02	56.79002
CM-244	145.8384	28-FEB-2010	5530.781	5884.673	11538.00	0.3477968	1.7688734E-02	40.32752

Instrument : CHAMBER 046  
 Detector : 76544  
 Standard ID : AESS-046  
 Standard Reference Date : 19-FEB-2008 19:35:48  
 Calibration Analysis Date/Time : 6-JUL-2009 09:46:17  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 6-JUL-2009 14:38:21  
 Average Efficiency : 0.3406382  
 Average Efficiency Error : 9.3857087E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	194.7474	28-FEB-2010	2989.077	3298.635	15535.00	0.3366195	1.4460829E-02	49.62128
NP-237	164.6658	28-FEB-2010	4433.627	4906.487	13519.00	0.3420215	1.7352322E-02	69.09070
CM-244	151.3824	28-FEB-2010	5533.329	5885.134	11898.00	0.3451394	1.7544771E-02	55.17302

Instrument : CHAMBER 047  
 Detector : 46-089B1  
 Standard ID : AESS-047  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 6-JUL-2009 09:46:17  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 6-JUL-2009 14:38:30  
 Average Efficiency : 0.3442340  
 Average Efficiency Error : 9.4810873E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	197.4804	28-FEB-2010	2987.977	3301.361	15865.00	0.3390196	1.4558652E-02	55.57606
NP-237	168.3948	28-FEB-2010	4433.363	4905.447	13899.00	0.3438680	1.7439116E-02	74.62081
CM-244	154.6032	28-FEB-2010	5532.313	5886.846	12409.00	0.3525089	1.7907353E-02	58.04284

Instrument : CHAMBER 048  
 Detector : 42483  
 Standard ID : AESS-048  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 6-JUL-2009 09:46:17  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 6-JUL-2009 14:38:39  
 Average Efficiency : 0.3178092  
 Average Efficiency Error : 8.7683024E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	191.8350	28-FEB-2010	2988.411	3301.246	14378.00	0.3162740	1.3605888E-02	55.68159
NP-237	161.5530	28-FEB-2010	4433.969	4903.143	12372.00	0.3190103	1.6206456E-02	67.40500
CM-244	151.1856	28-FEB-2010	5530.501	5887.230	10976.00	0.3187887	1.6227484E-02	60.96161



Instrument : CHAMBER 065  
 Detector : 68551  
 Standard ID : AESS-001  
 Standard Reference Date : 20-FEB-2008 09:54:53  
 Calibration Analysis Date/Time : 9-JUL-2009 08:08:10  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 9-JUL-2009 13:06:51  
 Average Efficiency : 0.3167298  
 Average Efficiency Error : 8.7357797E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	208.6698	28-FEB-2010	2992.172	3297.923	15001.00	0.3033305	1.3038947E-02	62.70693
NP-237	171.0024	28-FEB-2010	4436.297	4904.907	13337.00	0.3249072	1.6487280E-02	73.64597
CM-244	158.1060	28-FEB-2010	5532.615	5884.733	11898.00	0.3304830	1.6799837E-02	62.05407

Instrument : CHAMBER 066  
 Detector : 46-089C1  
 Standard ID : AESS-002  
 Standard Reference Date : 19-FEB-2008 11:05:22  
 Calibration Analysis Date/Time : 9-JUL-2009 08:08:10  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 9-JUL-2009 13:07:05  
 Average Efficiency : 0.3104099  
 Average Efficiency Error : 8.5468190E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	200.1144	28-FEB-2010	2992.142	3300.807	14611.00	0.3081217	1.3251217E-02	57.90394
NP-237	200.4990	28-FEB-2010	4436.247	4906.352	15119.00	0.3141508	1.5914036E-02	71.36474
CM-244	196.5558	28-FEB-2010	5534.784	5886.688	13872.00	0.3099799	1.5721031E-02	60.13244

Instrument : CHAMBER 067  
 Detector : 46-089B4  
 Standard ID : AESS-003  
 Standard Reference Date : 15-FEB-2008 13:12:27  
 Calibration Analysis Date/Time : 9-JUL-2009 08:08:10  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 9-JUL-2009 13:07:16  
 Average Efficiency : 0.3225107  
 Average Efficiency Error : 8.8746333E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	202.9740	28-FEB-2010	2988.144	3301.594	15198.00	0.3160322	1.3581690E-02	73.87538
NP-237	203.2080	28-FEB-2010	4436.169	4905.946	16027.00	0.3285710	1.6632373E-02	84.27850
CM-244	197.2236	28-FEB-2010	5533.963	5885.648	14635.00	0.3261202	1.6527411E-02	74.53841

Instrument : CHAMBER 068  
 Detector : 78794  
 Standard ID : AESS-004  
 Standard Reference Date : 14-FEB-2008 09:35:18  
 Calibration Analysis Date/Time : 9-JUL-2009 08:08:10  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 9-JUL-2009 13:07:28  
 Average Efficiency : 0.3018608  
 Average Efficiency Error : 8.3120642E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	206.1222	28-FEB-2010	2990.601	3300.139	14643.00	0.2998493	1.2894920E-02	46.91775
NP-237	204.2586	28-FEB-2010	4435.756	4903.729	14909.00	0.3041092	1.5408116E-02	62.03638
CM-244	198.8100	28-FEB-2010	5531.794	5886.867	13681.00	0.3024790	1.5343496E-02	51.78417

Instrument : CHAMBER 069  
 Detector : 78795  
 Standard ID : AESS-005  
 Standard Reference Date : 14-FEB-2008 09:35:18  
 Calibration Analysis Date/Time : 9-JUL-2009 08:08:10  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 9-JUL-2009 13:07:42  
 Average Efficiency : 0.3159011  
 Average Efficiency Error : 8.6903321E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	210.7452	28-FEB-2010	2991.901	3298.738	15562.00	0.3116586	1.3388185E-02	51.55959
NP-237	209.5938	28-FEB-2010	4437.201	4903.207	15965.00	0.3173516	1.6065169E-02	63.95503
CM-244	202.7478	28-FEB-2010	5534.874	5884.048	14792.00	0.3206663	1.6248737E-02	52.59375

Instrument : CHAMBER 070  
 Detector : 46-089B2  
 Standard ID : AESS-006  
 Standard Reference Date : 14-FEB-2008 09:35:18  
 Calibration Analysis Date/Time : 9-JUL-2009 08:08:10  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 9-JUL-2009 13:07:53  
 Average Efficiency : 0.3520789  
 Average Efficiency Error : 9.6757710E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	203.6952	28-FEB-2010	2988.641	3300.492	16713.00	0.3463008	1.4858479E-02	61.95700
NP-237	204.7038	28-FEB-2010	4435.833	4904.443	17344.00	0.3529772	1.7851282E-02	74.78303
CM-244	195.0060	28-FEB-2010	5531.433	5882.799	15964.00	0.3598273	1.8215435E-02	68.73500

Instrument : CHAMBER 071  
 Detector : 64259  
 Standard ID : AESS-007  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 9-JUL-2009 08:08:11  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 9-JUL-2009 13:08:07  
 Average Efficiency : 0.3163752  
 Average Efficiency Error : 8.7076994E-03  
 Confidence : 95.00000

Cal. Isteps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	206.7342	28-FEB-2010	2992.476	3301.614	15079.00	0.3078622	1.3232440E-02	56.06450
NP-237	205.0260	28-FEB-2010	4435.387	4902.436	15763.00	0.3203167	1.6217813E-02	68.61439
CM-244	199.6806	28-FEB-2010	5534.462	5883.334	14790.00	0.3255263	1.6495051E-02	58.90277

Instrument : CHAMBER 072  
 Detector : 45-149AA3  
 Standard ID : AESS-008  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 9-JUL-2009 08:08:11  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 9-JUL-2009 13:08:19  
 Average Efficiency : 0.3234064  
 Average Efficiency Error : 8.8950237E-03  
 Confidence : 95.00000

Cal. Isteps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	206.0418	28-FEB-2010	2988.586	3301.014	15743.00	0.3224942	1.3850860E-02	54.24233
NP-237	209.2716	28-FEB-2010	4432.963	4902.126	16207.00	0.3226633	1.6331071E-02	69.06731
CM-244	199.6488	28-FEB-2010	5535.050	5886.750	14785.00	0.3254575	1.6491652E-02	56.72540

Instrument : CHAMBER 073  
 Detector : 78775  
 Standard ID : AESS-009  
 Standard Reference Date : 19-FEB-2008 11:05:22  
 Calibration Analysis Date/Time : 9-JUL-2009 08:08:11  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 9-JUL-2009 13:08:30  
 Average Efficiency : 0.3320738  
 Average Efficiency Error : 9.1329338E-03  
 Confidence : 95.00000

Cal. Isteps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	203.3736	28-FEB-2010	2991.870	3299.007	15813.00	0.3281374	1.4092137E-02	50.25317
NP-237	204.0192	28-FEB-2010	4435.703	4904.982	16193.00	0.3306793	1.6736971E-02	68.87427
CM-244	197.2128	28-FEB-2010	5532.962	5884.931	15235.00	0.3394034	1.7191524E-02	49.27633

Instrument : CHAMBER 074  
 Detector : 78266  
 Standard ID : AESS-010  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 9-JUL-2009 08:08:11  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 9-JUL-2009 13:08:42  
 Average Efficiency : 0.3124804  
 Average Efficiency Error : 8.6027775E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	202.0008	28-FEB-2010	2990.625	3300.254	14705.00	0.3072563	1.3212435E-02	51.15489
NP-237	202.9926	28-FEB-2010	4435.417	4902.858	15345.00	0.3149306	1.5950510E-02	57.41002
CM-244	196.2330	28-FEB-2010	5535.258	5884.259	14186.00	0.3177475	1.6109865E-02	49.01177

Instrument : CHAMBER 075  
 Detector : 68550  
 Standard ID : AESS-011  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 9-JUL-2009 08:08:11  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 9-JUL-2009 13:08:53  
 Average Efficiency : 0.2973897  
 Average Efficiency Error : 8.1859389E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	212.8284	28-FEB-2010	2988.563	3301.861	14863.00	0.2947582	1.2672522E-02	56.94482
NP-237	214.4868	28-FEB-2010	4432.969	4904.420	15483.00	0.3006926	1.5227719E-02	69.06491
CM-244	208.4184	28-FEB-2010	5535.562	5884.044	14125.00	0.2978785	1.5103404E-02	58.86678

Instrument : CHAMBER 076  
 Detector : 78779  
 Standard ID : AESS-012  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 9-JUL-2009 08:08:11  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 9-JUL-2009 13:09:04  
 Average Efficiency : 0.3059446  
 Average Efficiency Error : 8.4217470E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	206.2200	28-FEB-2010	2992.408	3300.679	14839.00	0.3037126	1.3057882E-02	46.65081
NP-237	205.8930	28-FEB-2010	4437.552	4904.251	15221.00	0.3079897	1.5600574E-02	59.39308
CM-244	203.1954	28-FEB-2010	5530.870	5885.252	14195.00	0.3070807	1.5568880E-02	50.95067

Instrument : CHAMBER 077  
 Detector : 67576  
 Standard ID : AESS-013  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 9-JUL-2009 08:08:11  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 9-JUL-2009 13:09:15  
 Average Efficiency : 0.3220192  
 Average Efficiency Error : 8.8578872E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	203.6544	28-FEB-2010	2988.825	3301.085	15444.00	0.3200761	1.3751586E-02	52.27526
NP-237	210.2526	28-FEB-2010	4432.612	4901.681	16184.00	0.3207017	1.6232070E-02	64.77522
CM-244	201.9108	28-FEB-2010	5534.546	5886.248	14985.00	0.3261909	1.6525861E-02	54.87537

Instrument : CHAMBER 078  
 Detector : 67577  
 Standard ID : AESS-014  
 Standard Reference Date : 19-FEB-2008 11:05:22  
 Calibration Analysis Date/Time : 9-JUL-2009 08:08:11  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 9-JUL-2009 13:09:25  
 Average Efficiency : 0.3269402  
 Average Efficiency Error : 8.9888843E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	214.7088	28-FEB-2010	2992.395	3299.584	16294.00	0.3202777	1.3747618E-02	52.02948
NP-237	211.7160	28-FEB-2010	4433.349	4904.419	17152.00	0.3375357	1.7072473E-02	63.87207
CM-244	207.3882	28-FEB-2010	5535.593	5884.350	15420.00	0.3266392	1.6542494E-02	56.64688

Instrument : CHAMBER 079  
 Detector : 67598  
 Standard ID : AESS-015  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 9-JUL-2009 08:08:11  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 9-JUL-2009 13:09:33  
 Average Efficiency : 0.3269641  
 Average Efficiency Error : 8.9949844E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	204.0270	28-FEB-2010	2987.535	3297.935	15565.00	0.3219998	1.3832338E-02	51.91238
NP-237	200.6460	28-FEB-2010	4435.153	4903.332	15964.00	0.3314978	1.6781278E-02	65.57870
CM-244	195.9270	28-FEB-2010	5530.500	5882.333	14697.00	0.3297131	1.6708534E-02	52.00982

Instrument : CHAMBER 080  
 Detector : 78197  
 Standard ID : AESS-016  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 9-JUL-2009 08:08:11  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 9-JUL-2009 13:09:43  
 Average Efficiency : 0.3342651  
 Average Efficiency Error : 9.1930544E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	204.0534	28-FEB-2010	2992.338	3298.189	15890.00	0.3286708	1.4113899E-02	49.39791
NP-237	199.3962	28-FEB-2010	4434.851	4901.472	16357.00	0.3417528	1.7295377E-02	67.37957
CM-244	198.6402	28-FEB-2010	5531.493	5883.930	15145.00	0.3351447	1.6977096E-02	53.36457

Instrument : CHAMBER 081  
 Detector : 72533  
 Standard ID : AESS-017  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 9-JUL-2009 08:08:11  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 9-JUL-2009 13:09:58  
 Average Efficiency : 1.0059110E-03  
 Average Efficiency Error : 1.4002950E-04  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	210.0798	28-FEB-2010	2985.980	3302.417	45.00000	8.9930405E-04	4.4010404E-04	0.0000000E+00
NP-237	208.5846	28-FEB-2010	4432.287	4905.979	16296.00	0.3255036	1.6473748E-02	140.8390
CM-244	205.5828	28-FEB-2010	5534.795	5885.572	3965.000	8.4768414E-02	4.4471347E-03	0.0000000E+00

Instrument : CHAMBER 082  
 Detector : 64263  
 Standard ID : AESS-018  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 9-JUL-2009 08:08:11  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 9-JUL-2009 13:10:11  
 Average Efficiency : 0.3262649  
 Average Efficiency Error : 8.9742821E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	202.1856	28-FEB-2010	2990.419	3298.608	15507.00	0.3237216	1.3907208E-02	58.84102
NP-237	208.8990	28-FEB-2010	4437.000	4905.115	16371.00	0.3264953	1.6523048E-02	77.98001
CM-244	198.1458	28-FEB-2010	5534.320	5885.085	14864.00	0.3296992	1.6705383E-02	70.67408

Instrument : CHAMBER 083  
 Detector : 64278  
 Standard ID : AESS-019  
 Standard Reference Date : 19-FEB-2008 11:05:22  
 Calibration Analysis Date/Time : 9-JUL-2009 08:08:12  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 9-JUL-2009 13:10:22  
 Average Efficiency : 0.3331127  
 Average Efficiency Error : 9.1688316E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	204.6468	28-FEB-2010	2987.455	3299.407	15432.00	0.3182384	1.3672802E-02	55.81121
NP-237	202.9140	28-FEB-2010	4433.838	4906.607	17206.00	0.3532467	1.7866544E-02	69.77620
CM-244	199.3140	28-FEB-2010	5532.253	5885.057	15334.00	0.3379439	1.7116275E-02	60.81681

Instrument : CHAMBER 084  
 Detector : 78265  
 Standard ID : AESS-020  
 Standard Reference Date : 14-FEB-2008 21:55:55  
 Calibration Analysis Date/Time : 9-JUL-2009 08:08:12  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 9-JUL-2009 13:10:32  
 Average Efficiency : 0.3434564  
 Average Efficiency Error : 9.4431741E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	205.5870	28-FEB-2010	2988.133	3299.227	16254.00	0.3337056	1.4324601E-02	49.70576
NP-237	203.4984	28-FEB-2010	4433.289	4901.844	17176.00	0.3516426	1.7785732E-02	63.55498
CM-244	197.1096	28-FEB-2010	5535.275	5884.618	15707.00	0.3502632	1.7734783E-02	51.80883

Instrument : CHAMBER 085  
 Detector : 78776  
 Standard ID : AESS-021  
 Standard Reference Date : 19-FEB-2008 15:31:52  
 Calibration Analysis Date/Time : 9-JUL-2009 08:08:12  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 9-JUL-2009 13:10:43  
 Average Efficiency : 0.3254945  
 Average Efficiency Error : 8.9515289E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	208.3608	28-FEB-2010	2989.612	3299.207	15817.00	0.3203625	1.3758179E-02	45.89981
NP-237	210.1548	28-FEB-2010	4434.183	4901.520	16560.00	0.3282868	1.6611453E-02	60.08111
CM-244	200.7390	28-FEB-2010	5533.754	5882.654	15090.00	0.3302506	1.6729988E-02	50.06017

Instrument : CHAMBER 086  
 Detector : 78198  
 Standard ID : AESS-022  
 Standard Reference Date : 14-FEB-2008 21:55:55  
 Calibration Analysis Date/Time : 9-JUL-2009 08:08:12  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 9-JUL-2009 13:10:52  
 Average Efficiency : 0.2987570  
 Average Efficiency Error : 8.2268827E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	209.6724	28-FEB-2010	2989.886	3300.091	14561.00	0.2931078	1.2606329E-02	46.08396
NP-237	206.8830	28-FEB-2010	4433.582	4903.927	15096.00	0.3040077	1.5400495E-02	61.33533
CM-244	203.0208	28-FEB-2010	5531.751	5882.863	13945.00	0.3018999	1.5310007E-02	49.24375

Instrument : CHAMBER 087  
 Detector : 78199  
 Standard ID : AESS-023  
 Standard Reference Date : 14-FEB-2008 21:55:55  
 Calibration Analysis Date/Time : 9-JUL-2009 08:08:12  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 9-JUL-2009 13:11:02  
 Average Efficiency : 0.3162691  
 Average Efficiency Error : 8.7025622E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	207.4764	28-FEB-2010	2990.385	3299.009	15285.00	0.3109341	1.3361266E-02	44.58315
NP-237	207.4998	28-FEB-2010	4436.772	4904.542	15818.00	0.3175828	1.6078727E-02	57.63754
CM-244	199.8804	28-FEB-2010	5534.083	5883.178	14684.00	0.3229105	1.6363984E-02	49.88237

Instrument : CHAMBER 088  
 Detector : 33452  
 Standard ID : AESS-024  
 Standard Reference Date : 14-FEB-2008 21:55:55  
 Calibration Analysis Date/Time : 9-JUL-2009 08:08:12  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 9-JUL-2009 13:11:13  
 Average Efficiency : 0.2998269  
 Average Efficiency Error : 8.2606915E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	203.5218	28-FEB-2010	2990.970	3298.296	14025.00	0.2908646	1.2518696E-02	52.96125
NP-237	205.6662	28-FEB-2010	4436.463	4902.334	15055.00	0.3049660	1.5449598E-02	63.94186
CM-244	198.3060	28-FEB-2010	5534.583	5887.587	13923.00	0.3085581	1.5648056E-02	61.30964



Instrument : CHAMBER 089  
 Detector : 78262  
 Standard ID : AESS-025  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 9-JUL-2009 08:08:13  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 9-JUL-2009 13:11:23  
 Average Efficiency : 0.2963288  
 Average Efficiency Error : 8.1822695E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	195.5670	28-FEB-2010	2992.075	3297.767	13916.00	0.3003191	1.2927603E-02	50.98783
NP-237	167.9916	28-FEB-2010	4432.406	4901.978	12013.00	0.2979151	1.5141796E-02	61.57396
CM-244	157.2432	28-FEB-2010	5532.097	5882.869	10361.00	0.2896218	1.4757983E-02	57.67693

Instrument : CHAMBER 090  
 Detector : 78263  
 Standard ID : AESS-026  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 9-JUL-2009 08:08:13  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 9-JUL-2009 13:11:39  
 Average Efficiency : 0.3241549  
 Average Efficiency Error : 9.4982684E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	199.5072	28-FEB-2010	2990.462	3300.982	15417.00	0.3261584	1.6518990E-02	52.53284
NP-237	168.0294	28-FEB-2010	4434.552	4903.775	13172.00	0.3265822	1.6575273E-02	66.40552
CM-244	160.5822	28-FEB-2010	5532.754	5885.804	11687.00	0.3198750	1.6265199E-02	57.74523

Instrument : CHAMBER 091  
 Detector : 78259  
 Standard ID : AESS-027  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 9-JUL-2009 08:08:13  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 9-JUL-2009 13:11:52  
 Average Efficiency : 0.3403451  
 Average Efficiency Error : 9.9735688E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	193.4238	28-FEB-2010	2990.268	3298.949	15270.00	0.3332087	1.6878121E-02	49.79137
NP-237	161.6154	28-FEB-2010	4433.436	4901.824	13289.00	0.3425658	1.7384235E-02	66.53712
CM-244	148.1754	28-FEB-2010	5531.214	5887.413	11658.00	0.3458194	1.7585119E-02	55.76472

Instrument : CHAMBER 092  
 Detector : 79457  
 Standard ID : AESS-028  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 9-JUL-2009 08:08:13  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 10-JUL-2009 08:15:23  
 Average Efficiency : 0.3244753  
 Average Efficiency Error : 9.5090605E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	199.6542	28-FEB-2010	2992.198	3300.849	15511.00	0.3276620	1.6594216E-02	50.13194
NP-237	168.1992	28-FEB-2010	4435.896	4905.687	13201.00	0.3269055	1.6591255E-02	61.53701
CM-244	156.7614	28-FEB-2010	5533.567	5885.099	11382.00	0.3190994	1.6232992E-02	50.67320

Instrument : CHAMBER 093  
 Detector : 33206  
 Standard ID : AESS-029  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 9-JUL-2009 08:08:13  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 9-JUL-2009 13:12:10  
 Average Efficiency : 0.3253579  
 Average Efficiency Error : 9.5347259E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	201.5742	28-FEB-2010	2988.963	3299.960	15194.00	0.3181445	1.6116098E-02	50.56812
NP-237	169.7700	28-FEB-2010	4434.063	4902.978	13286.00	0.3260259	1.6544953E-02	75.56580
CM-244	154.8234	28-FEB-2010	5531.085	5883.424	11716.00	0.3326032	1.6911702E-02	57.95201

Instrument : CHAMBER 094  
 Detector : 78267  
 Standard ID : AESS-030  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 9-JUL-2009 08:08:13  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 9-JUL-2009 13:12:19  
 Average Efficiency : 0.3085452  
 Average Efficiency Error : 9.0499781E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	198.9792	28-FEB-2010	2990.912	3298.303	14487.00	0.3072813	1.5575566E-02	44.68866
NP-237	166.3758	28-FEB-2010	4435.971	4905.664	12598.00	0.3154770	1.6022354E-02	64.16422
CM-244	157.1856	28-FEB-2010	5534.211	5886.502	10849.00	0.3033472	1.5444501E-02	48.21400

Instrument : CHAMBER 095  
 Detector : 64279  
 Standard ID : AESS-031  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 9-JUL-2009 08:08:14  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 9-JUL-2009 13:12:27  
 Average Efficiency : 0.3068112  
 Average Efficiency Error : 8.4704254E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	193.6650	28-FEB-2010	2989.056	3301.826	13965.00	0.3043179	1.3098821E-02	55.82520
NP-237	162.9186	28-FEB-2010	4435.330	4905.275	12386.00	0.3167128	1.6089419E-02	68.30973
CM-244	153.1968	28-FEB-2010	5534.057	5886.430	10508.00	0.3012262	1.5345651E-02	56.59253

Instrument : CHAMBER 096  
 Detector : 67605  
 Standard ID : AESS-032  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 9-JUL-2009 08:08:14  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 9-JUL-2009 13:12:36  
 Average Efficiency : 0.3103104  
 Average Efficiency Error : 8.5620275E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	195.2364	28-FEB-2010	2990.311	3298.177	14291.00	0.3089209	1.3291076E-02	50.28194
NP-237	165.9822	28-FEB-2010	4434.251	4906.198	12426.00	0.3117568	1.5837051E-02	61.11779
CM-244	153.7938	28-FEB-2010	5533.120	5882.408	10880.00	0.3108360	1.5824955E-02	51.23636

Instrument : CHAMBER 097  
 Detector : 67599  
 Standard ID : AESS-033  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 9-JUL-2009 08:08:14  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 9-JUL-2009 13:12:44  
 Average Efficiency : 0.3440487  
 Average Efficiency Error : 9.4836140E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	192.4158	28-FEB-2010	2989.746	3302.068	15243.00	0.3343306	1.4367314E-02	49.90135
NP-237	161.7816	28-FEB-2010	4437.101	4903.794	13519.00	0.3481746	1.7664408E-02	69.66666
CM-244	147.2670	28-FEB-2010	5531.052	5886.116	11904.00	0.3550793	1.8049983E-02	57.03643

Instrument : CHAMBER 098  
 Detector : 68644  
 Standard ID : AESS-034  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 9-JUL-2009 08:08:14  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 9-JUL-2009 13:12:53  
 Average Efficiency : 0.3341772  
 Average Efficiency Error : 9.2099942E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	200.5488	28-FEB-2010	2989.589	3298.128	15405.00	0.3241865	1.3928778E-02	51.17890
NP-237	167.2962	28-FEB-2010	4432.836	4901.640	13623.00	0.3392162	1.7208137E-02	68.23425
CM-244	154.4388	28-FEB-2010	5531.873	5883.257	12118.00	0.3447607	1.7520264E-02	52.08022

Instrument : CHAMBER 099  
 Detector : 70317  
 Standard ID : AESS-035  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 9-JUL-2009 08:08:14  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 9-JUL-2009 13:13:03  
 Average Efficiency : 0.3431231  
 Average Efficiency Error : 9.4483467E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	198.6666	28-FEB-2010	2990.876	3301.163	16106.00	0.3421397	1.4688905E-02	50.68632
NP-237	168.2934	28-FEB-2010	4434.526	4903.945	13954.00	0.3454547	1.7518591E-02	61.64373
CM-244	158.8128	28-FEB-2010	5533.432	5886.885	12370.00	0.3422045	1.7384758E-02	52.31840

Instrument : CHAMBER 100  
 Detector : 79456  
 Standard ID : AESS-046  
 Standard Reference Date : 19-FEB-2008 19:35:48  
 Calibration Analysis Date/Time : 9-JUL-2009 08:08:14  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 9-JUL-2009 13:13:12  
 Average Efficiency : 0.3427027  
 Average Efficiency Error : 9.4427206E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	194.7474	28-FEB-2010	2992.287	3297.799	15520.00	0.3363194	1.4448194E-02	50.00877
NP-237	164.6658	28-FEB-2010	4436.422	4905.631	13582.00	0.3435974	1.7431144E-02	61.98585
CM-244	151.3824	28-FEB-2010	5534.572	5887.590	12114.00	0.3515212	1.7863980E-02	52.94975

Instrument : CHAMBER 101  
 Detector : 64253  
 Standard ID : AESS-037  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 9-JUL-2009 08:08:15  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 9-JUL-2009 13:13:22  
 Average Efficiency : 0.3390052  
 Average Efficiency Error : 9.3409885E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	197.7372	28-FEB-2010	2992.433	3299.297	15460.00	0.3299631	1.4176095E-02	61.39046
NP-237	167.1294	28-FEB-2010	4436.714	4901.796	13907.00	0.3466887	1.7581994E-02	74.45712
CM-244	154.7664	28-FEB-2010	5531.777	5885.188	12159.00	0.3452022	1.7541731E-02	61.78313

Instrument : CHAMBER 102  
 Detector : 72525  
 Standard ID : AESS-038  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 9-JUL-2009 08:08:15  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 9-JUL-2009 13:13:31  
 Average Efficiency : 0.3328035  
 Average Efficiency Error : 9.1680549E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	200.1408	28-FEB-2010	2992.102	3300.657	15781.00	0.3327644	1.4291358E-02	57.28693
NP-237	170.0886	28-FEB-2010	4432.858	4904.949	13683.00	0.3351520	1.7000843E-02	70.05949
CM-244	157.7460	28-FEB-2010	5531.106	5882.690	11868.00	0.3305628	1.6804401E-02	60.52639

Instrument : CHAMBER 103  
 Detector : 79461  
 Standard ID : AESS-039  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 9-JUL-2009 08:08:15  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 9-JUL-2009 13:13:40  
 Average Efficiency : 0.3354990  
 Average Efficiency Error : 9.2500327E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	192.2418	28-FEB-2010	2988.996	3300.314	15148.00	0.3325511	1.4292428E-02	46.53494
NP-237	159.1506	28-FEB-2010	4436.805	4901.981	13231.00	0.3463839	1.7579062E-02	65.39693
CM-244	151.7142	28-FEB-2010	5532.506	5886.425	11383.00	0.3296518	1.6769741E-02	53.08098

Instrument : CHAMBER 104  
 Detector : 72524  
 Standard ID : AESS-040  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 9-JUL-2009 08:08:15  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 9-JUL-2009 13:13:48  
 Average Efficiency : 0.3172685  
 Average Efficiency Error : 8.7505886E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	194.4828	28-FEB-2010	2990.719	3300.868	14808.00	0.3213409	1.3816299E-02	52.43279
NP-237	166.8174	28-FEB-2010	4437.132	4904.901	12602.00	0.3146936	1.5982572E-02	60.08082
CM-244	155.0100	28-FEB-2010	5531.506	5883.017	11092.00	0.3143873	1.6000355E-02	48.93826

Instrument : CHAMBER 105  
 Detector : 78777  
 Standard ID : AESS-041  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 9-JUL-2009 08:08:15  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 9-JUL-2009 13:13:56  
 Average Efficiency : 0.3238136  
 Average Efficiency Error : 8.9225518E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	203.9034	28-FEB-2010	2991.574	3300.708	15632.00	0.3235499	1.3897874E-02	47.98710
NP-237	171.2268	28-FEB-2010	4435.406	4903.467	13447.00	0.3271988	1.6601518E-02	65.57580
CM-244	159.5796	28-FEB-2010	5531.275	5883.854	11655.00	0.3209064	1.6318357E-02	49.59695

Instrument : CHAMBER 106  
 Detector : 64274  
 Standard ID : AESS-042  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 9-JUL-2009 08:08:15  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 9-JUL-2009 13:14:04  
 Average Efficiency : 0.3300298  
 Average Efficiency Error : 9.1015678E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	188.7090	28-FEB-2010	2989.941	3301.958	14641.00	0.3274217	1.4080711E-02	51.04536
NP-237	159.6558	28-FEB-2010	4435.855	4902.069	12766.00	0.3331273	1.6915364E-02	68.33770
CM-244	150.5208	28-FEB-2010	5534.023	5883.359	11329.00	0.3306891	1.6823869E-02	57.44720

Instrument : CHAMBER 107  
 Detector : 67578  
 Standard ID : AESS-043  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 9-JUL-2009 08:08:16  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 9-JUL-2009 13:14:15  
 Average Efficiency : 0.3045647  
 Average Efficiency Error : 8.4048761E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	197.7708	28-FEB-2010	2987.523	3301.257	14050.00	0.2997997	1.2902850E-02	50.05696
NP-237	168.7422	28-FEB-2010	4435.381	4903.438	12388.00	0.3058615	1.5538067E-02	64.39712
CM-244	156.3252	28-FEB-2010	5532.229	5882.600	11043.00	0.3103665	1.5796915E-02	54.52126

Instrument : CHAMBER 108  
 Detector : 78778  
 Standard ID : AESS-044  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 9-JUL-2009 08:08:16  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 10-JUL-2009 08:15:33  
 Average Efficiency : 0.3360237  
 Average Efficiency Error : 9.2592761E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	194.4510	28-FEB-2010	2987.937	3298.136	15260.00	0.3312062	1.4232747E-02	47.91920
NP-237	166.6248	28-FEB-2010	4435.160	4903.491	13641.00	0.3410752	1.7302046E-02	70.19518
CM-244	155.8290	28-FEB-2010	5531.067	5883.227	11990.00	0.3380632	1.7182823E-02	49.11132

Instrument : CHAMBER 109  
 Detector : 79463  
 Standard ID : AESS-045  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 9-JUL-2009 08:08:16  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 9-JUL-2009 13:14:36  
 Average Efficiency : 0.3557599  
 Average Efficiency Error : 9.8008178E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	186.9936	28-FEB-2010	2989.195	3299.997	15695.00	0.3542219	1.5214318E-02	44.90919
NP-237	160.8066	28-FEB-2010	4435.631	4906.161	13634.00	0.3532281	1.7918682E-02	60.71558
CM-244	145.8384	28-FEB-2010	5531.938	5886.333	11971.00	0.3606424	1.8330947E-02	47.40115

Instrument : CHAMBER 110  
 Detector : 67602  
 Standard ID : AESS-046  
 Standard Reference Date : 8-JAN-2007 09:29:00  
 Calibration Analysis Date/Time : 9-JUL-2009 08:08:16  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 9-JUL-2009 13:15:06  
 Average Efficiency : 0.3174780  
 Average Efficiency Error : 8.7590944E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	197.6531	28-FEB-2010	2989.370	3301.157	14395.00	0.3105389	1.3360999E-02	53.22070
NP-237	164.3834	28-FEB-2010	4436.284	4904.992	12802.00	0.3244717	1.6475134E-02	64.57879
CM-244	159.4253	28-FEB-2010	5535.250	5883.287	11162.00	0.3209743	1.6333863E-02	56.77616

Instrument : CHAMBER 111  
 Detector : 79462  
 Standard ID : AESS-047  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 9-JUL-2009 08:08:16  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 9-JUL-2009 13:15:22  
 Average Efficiency : 0.3410317  
 Average Efficiency Error : 9.3937013E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	197.4804	28-FEB-2010	2990.820	3300.305	15891.00	0.3395850	1.4582562E-02	46.16263
NP-237	168.3948	28-FEB-2010	4436.744	4905.500	13621.00	0.3369952	1.7095437E-02	61.95173
CM-244	154.6032	28-FEB-2010	5535.002	5885.661	12226.00	0.3474574	1.7654790E-02	55.37262

Instrument : CHAMBER 112  
 Detector : 78261  
 Standard ID : AESS-048  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 9-JUL-2009 08:08:16  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 9-JUL-2009 13:15:42  
 Average Efficiency : 0.3101838  
 Average Efficiency Error : 8.5619837E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	191.8350	28-FEB-2010	2988.969	3300.635	14006.00	0.3081187	1.3261668E-02	44.59222
NP-237	161.5530	28-FEB-2010	4436.114	4905.135	12212.00	0.3149208	1.6001921E-02	60.98758
CM-244	151.1856	28-FEB-2010	5532.983	5884.981	10616.00	0.3085150	1.5713703E-02	48.71024



Instrument : CHAMBER 113  
 Detector : 45-111B4  
 Standard ID : AESS-001  
 Standard Reference Date : 20-FEB-2008 09:54:53  
 Calibration Analysis Date/Time : 15-JUL-2009 08:37:50  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 15-JUL-2009 13:43:32  
 Average Efficiency : 0.2519916  
 Average Efficiency Error : 6.9467155E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	208.6698	28-FEB-2010	2988.779	3298.785	15298.00	0.2475491	1.0637350E-02	69.86681
NP-237	171.0024	28-FEB-2010	4433.559	4905.331	12963.00	0.2526515	1.2826058E-02	72.30716
CM-244	158.1060	28-FEB-2010	5530.517	5883.481	11603.00	0.2580627	1.3123710E-02	68.28992

Instrument : CHAMBER 114  
 Detector : 78258  
 Standard ID : AESS-007  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 15-JUL-2009 08:37:55  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 15-JUL-2009 13:43:44  
 Average Efficiency : 0.2556549  
 Average Efficiency Error : 7.0340075E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	206.7342	28-FEB-2010	2990.441	3298.868	15389.00	0.2513953	1.0801502E-02	44.39313
NP-237	205.0260	28-FEB-2010	4436.900	4905.218	15927.00	0.2589234	1.3107756E-02	58.50210
CM-244	199.6806	28-FEB-2010	5530.599	5885.790	14679.00	0.2586593	1.3108032E-02	49.91982

Instrument : CHAMBER 115  
 Detector : 45-132FF4  
 Standard ID : AESS-002  
 Standard Reference Date : 19-FEB-2008 11:05:22  
 Calibration Analysis Date/Time : 15-JUL-2009 08:37:59  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 15-JUL-2009 13:43:54  
 Average Efficiency : 0.2654886  
 Average Efficiency Error : 7.3024337E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	200.1144	28-FEB-2010	2991.839	3301.816	15791.00	0.2664527	1.1443332E-02	55.36104
NP-237	200.4990	28-FEB-2010	4436.001	4902.052	15786.00	0.2624403	1.3287230E-02	64.95200
CM-244	196.5558	28-FEB-2010	5531.697	5884.118	14942.00	0.2673051	1.3543067E-02	65.53946

Instrument : CHAMBER 116  
 Detector : 45-132FF2  
 Standard ID : AESS-008  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 15-JUL-2009 08:38:03  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 15-JUL-2009 13:44:05  
 Average Efficiency : 0.2629267  
 Average Efficiency Error : 7.2302124E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	206.0418	28-FEB-2010	2988.005	3302.013	16058.00	0.2632007	1.1300448E-02	59.26229
NP-237	209.2716	28-FEB-2010	4432.895	4903.021	16270.00	0.2591243	1.3114552E-02	68.78876
CM-244	199.6488	28-FEB-2010	5531.311	5883.052	15125.00	0.2665666	1.3503457E-02	63.98270

Instrument : CHAMBER 117  
 Detector : 33450  
 Standard ID : AESS-003  
 Standard Reference Date : 15-FEB-2008 13:12:27  
 Calibration Analysis Date/Time : 15-JUL-2009 08:38:07  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 15-JUL-2009 13:44:15  
 Average Efficiency : 0.2535850  
 Average Efficiency Error : 6.9797374E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	202.9740	28-FEB-2010	2992.173	3300.224	14948.00	0.2486987	1.0691201E-02	65.60831
NP-237	203.2080	28-FEB-2010	4434.403	4904.427	15595.00	0.2557888	1.2952457E-02	67.83129
CM-244	197.2236	28-FEB-2010	5533.135	5885.381	14502.00	0.2586756	1.3111014E-02	62.53085

Instrument : CHAMBER 118  
 Detector : 75544  
 Standard ID : AESS-009  
 Standard Reference Date : 19-FEB-2008 11:05:22  
 Calibration Analysis Date/Time : 15-JUL-2009 08:38:11  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 15-JUL-2009 13:44:26  
 Average Efficiency : 0.2598683  
 Average Efficiency Error : 7.1489667E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	203.3736	28-FEB-2010	2992.199	3301.179	15535.00	0.2579420	1.1080938E-02	44.86411
NP-237	204.0192	28-FEB-2010	4437.404	4902.417	15842.00	0.2588220	1.3103474E-02	58.11101
CM-244	197.2128	28-FEB-2010	5530.853	5882.689	14791.00	0.2637591	1.3365132E-02	41.32130

Instrument : CHAMBER 119  
 Detector : 74429  
 Standard ID : AESS-004  
 Standard Reference Date : 14-FEB-2008 09:35:18  
 Calibration Analysis Date/Time : 15-JUL-2009 08:38:16  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 2-FEB-2009 15:15:38  
 Average Efficiency : 0.2936279  
 Average Efficiency Error : 1.2630888E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	206.1222	28-FEB-2010	2992.004	3299.253	9998.000	0.2936279	1.2630888E-02	0.0000000E+00
NP-237	204.2586	28-FEB-2010	4432.548	4906.013	0.0000000E+00	0.0000000E+00	0.0000000E+00	0.0000000E+00
CM-244	198.8100	28-FEB-2010	5530.584	5883.165	0.0000000E+00	0.0000000E+00	0.0000000E+00	0.0000000E+00

Instrument : CHAMBER 120  
 Detector : 74430  
 Standard ID : AESS-010  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 15-JUL-2009 08:38:20  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 16-JUL-2009 09:29:36  
 Average Efficiency : 0.2329810  
 Average Efficiency Error : 6.4206291E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	202.0008	28-FEB-2010	2990.522	3298.404	13848.00	0.2315074	9.9664843E-03	47.05631
NP-237	202.9926	28-FEB-2010	4435.328	4903.588	14182.00	0.2328624	1.1806204E-02	59.86080
CM-244	196.2330	28-FEB-2010	5534.528	5884.756	13118.00	0.2352170	1.1938849E-02	50.37906

Instrument : CHAMBER 121  
 Detector : 75545  
 Standard ID : AESS-005  
 Standard Reference Date : 14-FEB-2008 09:35:18  
 Calibration Analysis Date/Time : 15-JUL-2009 08:38:24  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 15-JUL-2009 13:44:36  
 Average Efficiency : 0.2481502  
 Average Efficiency Error : 6.8278033E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	210.7452	28-FEB-2010	2988.023	3300.631	15450.00	0.2475892	1.0637230E-02	49.92188
NP-237	209.5938	28-FEB-2010	4432.658	4901.599	15670.00	0.2492075	1.2618415E-02	57.40462
CM-244	202.7478	28-FEB-2010	5533.997	5885.295	14284.00	0.2478847	1.2566634E-02	53.21548

Instrument : CHAMBER 122  
 Detector : 75546  
 Standard ID : AESS-011  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 15-JUL-2009 08:38:29  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 15-JUL-2009 13:44:46  
 Average Efficiency : 0.2535488  
 Average Efficiency Error : 6.9723255E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	212.8284	28-FEB-2010	2990.563	3298.589	16028.00	0.2543318	1.0920011E-02	51.38880
NP-237	214.4868	28-FEB-2010	4436.782	4905.890	16182.00	0.2514608	1.2727518E-02	56.55112
CM-244	208.4184	28-FEB-2010	5532.955	5884.078	15083.00	0.2546007	1.2897825E-02	50.53276

Instrument : CHAMBER 123  
 Detector : 45-142V3  
 Standard ID : AESS-006  
 Standard Reference Date : 14-FEB-2008 09:35:18  
 Calibration Analysis Date/Time : 15-JUL-2009 08:38:33  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 15-JUL-2009 13:44:55  
 Average Efficiency : 0.2599957  
 Average Efficiency Error : 7.1522635E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	203.6952	28-FEB-2010	2990.850	3299.223	15663.00	0.2596899	1.1154454E-02	71.05709
NP-237	204.7038	28-FEB-2010	4437.241	4905.636	15899.00	0.2588749	1.3105587E-02	67.04378
CM-244	195.0060	28-FEB-2010	5531.191	5886.517	14497.00	0.2615748	1.3257999E-02	62.26140

Instrument : CHAMBER 124  
 Detector : 45-142V2  
 Standard ID : AESS-012  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 15-JUL-2009 08:38:38  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 15-JUL-2009 13:45:05  
 Average Efficiency : 0.2587920  
 Average Efficiency Error : 7.1179173E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	206.2200	28-FEB-2010	2988.169	3298.838	15692.00	0.2569794	1.1037684E-02	70.68444
NP-237	205.8930	28-FEB-2010	4434.514	4905.983	16135.00	0.2612102	1.3221423E-02	71.87656
CM-244	203.1954	28-FEB-2010	5535.498	5887.649	14956.00	0.2589717	1.3120654E-02	72.67943

Instrument : CHAMBER 125  
 Detector : 75547  
 Standard ID : AESS-013  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 17-JUL-2009 09:11:36  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-JUL-2009 14:23:54  
 Average Efficiency : 0.2576947  
 Average Efficiency Error : 7.0884591E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	203.6544	28-FEB-2010	2992.438	3299.892	15734.00	0.2609255	1.1206666E-02	46.30545
NP-237	210.2526	28-FEB-2010	4435.342	4903.042	16013.00	0.2538552	1.2850333E-02	59.85715
CM-244	201.9108	28-FEB-2010	5533.267	5883.118	14760.00	0.2572743	1.3036882E-02	47.93466

Instrument : CHAMBER 126  
 Detector : 75548  
 Standard ID : AESS-019  
 Standard Reference Date : 19-FEB-2008 11:05:22  
 Calibration Analysis Date/Time : 17-JUL-2009 09:11:44  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-JUL-2009 14:24:06  
 Average Efficiency : 0.2541045  
 Average Efficiency Error : 6.9944067E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	204.6468	28-FEB-2010	2988.642	3299.863	14987.00	0.2472976	1.0630463E-02	48.38591
NP-237	202.9140	28-FEB-2010	4434.022	4903.287	15977.00	0.2624101	1.3283804E-02	54.76476
CM-244	199.3140	28-FEB-2010	5533.750	5882.833	14524.00	0.2563267	1.2991657E-02	55.65510

Instrument : CHAMBER 127  
 Detector : 78770  
 Standard ID : AESS-014  
 Standard Reference Date : 19-FEB-2008 11:05:22  
 Calibration Analysis Date/Time : 17-JUL-2009 09:11:52  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-JUL-2009 14:24:19  
 Average Efficiency : 0.2465067  
 Average Efficiency Error : 6.7814202E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	214.7088	28-FEB-2010	2987.930	3300.925	15708.00	0.2470578	1.0611333E-02	45.78584
NP-237	211.7160	28-FEB-2010	4433.404	4902.114	15685.00	0.2469317	1.2503051E-02	55.80547
CM-244	207.3882	28-FEB-2010	5533.832	5884.575	14464.00	0.2453295	1.2434963E-02	52.15766

Instrument : CHAMBER 128  
 Detector : 75549  
 Standard ID : AESS-020  
 Standard Reference Date : 14-FEB-2008 21:55:55  
 Calibration Analysis Date/Time : 17-JUL-2009 09:11:58  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-JUL-2009 14:24:31  
 Average Efficiency : 0.2568552  
 Average Efficiency Error : 7.0680329E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	205.5870	28-FEB-2010	2989.441	3299.762	15295.00	0.2512498	1.0796450E-02	45.99468
NP-237	203.4984	28-FEB-2010	4437.479	4901.607	16011.00	0.2622381	1.3274715E-02	55.45222
CM-244	197.1096	28-FEB-2010	5532.807	5882.614	14556.00	0.2598990	1.3172311E-02	50.77409

Instrument : CHAMBER 129  
 Detector : 76227  
 Standard ID : AESS-015  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 17-JUL-2009 09:12:03  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-JUL-2009 14:24:41  
 Average Efficiency : 0.2644528  
 Average Efficiency Error : 7.2740684E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	204.0270	28-FEB-2010	2991.626	3298.866	15762.00	0.2609125	1.1205764E-02	46.80607
NP-237	200.6460	28-FEB-2010	4434.006	4901.792	16185.00	0.2688618	1.3608224E-02	54.56116
CM-244	195.9270	28-FEB-2010	5532.320	5882.430	14766.00	0.2652449	1.3440695E-02	49.47559

Instrument : CHAMBER 130  
 Detector : 76228  
 Standard ID : AESS-021  
 Standard Reference Date : 19-FEB-2008 15:31:52  
 Calibration Analysis Date/Time : 17-JUL-2009 09:12:07  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-JUL-2009 14:24:51  
 Average Efficiency : 0.2468057  
 Average Efficiency Error : 6.7924876E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	208.3608	28-FEB-2010	2987.724	3301.129	15063.00	0.2441104	1.0492519E-02	52.03590
NP-237	210.1548	28-FEB-2010	4432.733	4905.256	15645.00	0.2481126	1.2563273E-02	57.61189
CM-244	200.7390	28-FEB-2010	5534.221	5882.991	14232.00	0.2493957	1.2643824E-02	52.52812

Instrument : CHAMBER 131  
 Detector : 33448  
 Standard ID : AESS-016  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 17-JUL-2009 09:12:11  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-JUL-2009 14:25:01  
 Average Efficiency : 0.2570197  
 Average Efficiency Error : 7.0734182E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	204.0534	28-FEB-2010	2990.041	3301.703	15183.00	0.2512954	1.0799803E-02	73.19037
NP-237	199.3962	28-FEB-2010	4437.470	4901.500	15793.00	0.2639839	1.3365344E-02	77.05526
CM-244	198.6402	28-FEB-2010	5535.040	5887.344	14606.00	0.2587552	1.3113786E-02	69.05248

Instrument : CHAMBER 132  
 Detector : 67579  
 Standard ID : AESS-022  
 Standard Reference Date : 14-FEB-2008 21:55:55  
 Calibration Analysis Date/Time : 17-JUL-2009 09:12:16  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-JUL-2009 14:25:11  
 Average Efficiency : 0.2430298  
 Average Efficiency Error : 6.6918936E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	209.6724	28-FEB-2010	2991.722	3299.982	14858.00	0.2393249	1.0289361E-02	82.35345
NP-237	206.8830	28-FEB-2010	4436.189	4902.037	15718.00	0.2532126	1.2820771E-02	110.8838
CM-244	203.0208	28-FEB-2010	5533.193	5884.042	13792.00	0.2390666	1.2125478E-02	95.32550

Instrument : CHAMBER 133  
 Detector : 76229  
 Standard ID : AESS-017  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 17-JUL-2009 09:12:20  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-JUL-2009 14:25:22  
 Average Efficiency : 0.2443746  
 Average Efficiency Error : 6.7256871E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	210.0798	28-FEB-2010	2991.784	3301.677	15064.00	0.2421688	1.0409047E-02	50.61230
NP-237	208.5846	28-FEB-2010	4432.798	4901.797	15477.00	0.2473098	1.2524300E-02	59.86257
CM-244	205.5828	28-FEB-2010	5532.072	5884.338	14290.00	0.2446276	1.2401419E-02	51.55180

Instrument : CHAMBER 134  
 Detector : 76230  
 Standard ID : AESS-023  
 Standard Reference Date : 14-FEB-2008 21:55:55  
 Calibration Analysis Date/Time : 17-JUL-2009 09:12:25  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-JUL-2009 14:25:32  
 Average Efficiency : 0.2446093  
 Average Efficiency Error : 6.7343172E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	207.4764	28-FEB-2010	2990.526	3299.017	14780.00	0.2405785	1.0344269E-02	47.58438
NP-237	207.4998	28-FEB-2010	4435.982	4903.287	15238.00	0.2446961	1.2394482E-02	57.76377
CM-244	199.8804	28-FEB-2010	5532.080	5886.000	14233.00	0.2505983	1.2704798E-02	45.62634

Instrument : CHAMBER 135  
 Detector : 64270  
 Standard ID : AESS-018  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 17-JUL-2009 09:12:30  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-JUL-2009 14:25:42  
 Average Efficiency : 0.2559817  
 Average Efficiency Error : 7.0438967E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	202.1856	28-FEB-2010	2988.277	3299.628	15593.00	0.2604657	1.1188660E-02	51.52015
NP-237	208.8990	28-FEB-2010	4437.221	4904.200	15580.00	0.2485812	1.2587634E-02	59.07031
CM-244	198.1458	28-FEB-2010	5533.869	5883.613	14517.00	0.2578413	1.3068504E-02	58.17161

Instrument : CHAMBER 136  
 Detector : 68549  
 Standard ID : AESS-024  
 Standard Reference Date : 14-FEB-2008 21:55:55  
 Calibration Analysis Date/Time : 17-JUL-2009 09:12:34  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-JUL-2009 14:25:52  
 Average Efficiency : 0.2467655  
 Average Efficiency Error : 6.7935060E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	203.5218	28-FEB-2010	2990.353	3301.238	14853.00	0.2464695	1.0596607E-02	65.72455
NP-237	205.6662	28-FEB-2010	4436.739	4902.455	15465.00	0.2505761	1.2689904E-02	90.78280
CM-244	198.3060	28-FEB-2010	5530.869	5887.561	13725.00	0.2435561	1.2354044E-02	84.13201



Instrument : CHAMBER 137  
 Detector : 64288  
 Standard ID : AESS-025  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 17-JUL-2009 09:12:39  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-JUL-2009 14:26:02  
 Average Efficiency : 0.2552701  
 Average Efficiency Error : 7.0390012E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	195.5670	28-FEB-2010	2988.740	3300.102	14923.00	0.2576955	1.1078311E-02	64.99760
NP-237	167.9916	28-FEB-2010	4437.224	4902.644	12892.00	0.2557947	1.2986653E-02	75.28851
CM-244	157.2432	28-FEB-2010	5534.374	5886.101	11242.00	0.2515239	1.2798158E-02	68.25955

Instrument : CHAMBER 138  
 Detector : 65877  
 Standard ID : AESS-031  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 17-JUL-2009 09:12:44  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-JUL-2009 14:26:11  
 Average Efficiency : 0.2546351  
 Average Efficiency Error : 7.0242025E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	193.6650	28-FEB-2010	2989.573	3299.020	14588.00	0.2543695	1.0939864E-02	53.70593
NP-237	162.9186	28-FEB-2010	4433.563	4906.044	12608.00	0.2577648	1.3091444E-02	63.94941
CM-244	153.1968	28-FEB-2010	5532.867	5887.098	10976.00	0.2519955	1.2827461E-02	58.23169

Instrument : CHAMBER 139  
 Detector : 76231  
 Standard ID : AESS-026  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 17-JUL-2009 09:12:48  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-JUL-2009 14:26:21  
 Average Efficiency : 0.2504273  
 Average Efficiency Error : 7.3419176E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	199.5072	28-FEB-2010	2987.505	3300.432	14828.00	0.2510030	1.2718994E-02	48.79321
NP-237	168.0294	28-FEB-2010	4434.030	4903.806	12788.00	0.2536503	1.2879401E-02	56.03834
CM-244	160.5822	28-FEB-2010	5532.176	5884.231	11264.00	0.2468024	1.2557442E-02	47.42265

Instrument : CHAMBER 140  
 Detector : 78771  
 Standard ID : AESS-032  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 17-JUL-2009 09:12:53  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-JUL-2009 14:26:31  
 Average Efficiency : 0.2551487  
 Average Efficiency Error : 7.0366412E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	195.2364	28-FEB-2010	2990.854	3298.685	14731.00	0.2547957	1.0956220E-02	48.77175
NP-237	165.9822	28-FEB-2010	4432.882	4903.279	12676.00	0.2545053	1.2924591E-02	56.74310
CM-244	153.7938	28-FEB-2010	5532.806	5885.667	11205.00	0.2563040	1.3041983E-02	50.50342

Instrument : CHAMBER 141  
 Detector : 76232  
 Standard ID : AESS-027  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 17-JUL-2009 09:12:58  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-JUL-2009 14:26:40  
 Average Efficiency : 0.2558747  
 Average Efficiency Error : 7.5053386E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	193.4238	28-FEB-2010	2991.144	3299.081	14344.00	0.2504358	1.2695894E-02	52.97828
NP-237	161.6154	28-FEB-2010	4432.714	4902.455	12501.00	0.2577664	1.3093018E-02	59.69727
CM-244	148.1754	28-FEB-2010	5530.738	5882.724	10942.00	0.2598479	1.3227826E-02	52.14254

Instrument : CHAMBER 142  
 Detector : 64261  
 Standard ID : AESS-033  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 17-JUL-2009 09:13:03  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-JUL-2009 14:26:50  
 Average Efficiency : 0.2578609  
 Average Efficiency Error : 7.1141319E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	192.4158	28-FEB-2010	2990.865	3298.794	14538.00	0.2551434	1.0973847E-02	59.26533
NP-237	161.7816	28-FEB-2010	4432.947	4903.147	12416.00	0.2557132	1.2990172E-02	60.24754
CM-244	147.2670	28-FEB-2010	5532.255	5884.805	11064.00	0.2642446	1.3449099E-02	59.08084

Instrument : CHAMBER 143  
 Detector : 65882  
 Standard ID : AESS-028  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 17-JUL-2009 09:13:09  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-JUL-2009 14:27:11  
 Average Efficiency : 0.2247539  
 Average Efficiency Error : 6.6391113E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	199.6542	28-FEB-2010	2987.701	3299.952	14717.00	0.2489303	1.2615234E-02	59.75106
NP-237	168.1992	28-FEB-2010	4432.480	4904.917	12257.00	0.2428234	1.2337844E-02	78.49762
CM-244	156.7614	28-FEB-2010	5535.542	5887.375	8790.000	0.1972357	1.0083942E-02	0.0000000E+00

Instrument : CHAMBER 144  
 Detector : 75551  
 Standard ID : AESS-034  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 17-JUL-2009 09:13:14  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-JUL-2009 14:27:26  
 Average Efficiency : 0.2489190  
 Average Efficiency Error : 6.8659927E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	200.5488	28-FEB-2010	2987.490	3300.379	14854.00	0.2501176	1.0753425E-02	46.53134
NP-237	167.2962	28-FEB-2010	4433.137	4902.257	12414.00	0.2473100	1.2563203E-02	59.28743
CM-244	154.4388	28-FEB-2010	5534.787	5886.106	10929.00	0.2488915	1.2670427E-02	55.09279

Instrument : CHAMBER 145  
 Detector : 72526  
 Standard ID : AESS-029  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 17-JUL-2009 09:13:19  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-JUL-2009 14:27:37  
 Average Efficiency : 0.2495571  
 Average Efficiency Error : 7.3171528E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	201.5742	28-FEB-2010	2989.366	3298.098	14915.00	0.2498968	1.2661957E-02	51.73314
NP-237	169.7700	28-FEB-2010	4434.265	4904.885	12751.00	0.2503173	1.2710736E-02	57.53227
CM-244	154.8234	28-FEB-2010	5534.192	5886.678	10933.00	0.2484652	1.2648602E-02	48.31667

Instrument : CHAMBER 146  
 Detector : 72527  
 Standard ID : AESS-035  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 17-JUL-2009 09:13:24  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-JUL-2009 14:27:48  
 Average Efficiency : 0.2495693  
 Average Efficiency Error : 6.8829530E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	198.6666	28-FEB-2010	2991.494	3297.950	14697.00	0.2498184	1.0742654E-02	54.01461
NP-237	168.2934	28-FEB-2010	4436.761	4904.596	12650.00	0.2505190	1.2722510E-02	56.99129
CM-244	158.8128	28-FEB-2010	5530.438	5886.440	11210.00	0.2482881	1.2634057E-02	52.12059

Instrument : CHAMBER 147  
 Detector : 75550  
 Standard ID : AESS-030  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 17-JUL-2009 09:13:29  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-JUL-2009 14:27:59  
 Average Efficiency : 0.2449156  
 Average Efficiency Error : 7.1838433E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	198.9792	28-FEB-2010	2987.763	3300.677	14416.00	0.2446455	1.2401544E-02	44.93960
NP-237	166.3758	28-FEB-2010	4433.256	4902.183	12106.00	0.2424534	1.2321484E-02	55.16415
CM-244	157.1856	28-FEB-2010	5534.346	5885.412	11068.00	0.2477740	1.2610656E-02	48.98204

Instrument : CHAMBER 148  
 Detector : 74429  
 Standard ID : AESS-036  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 17-JUL-2009 09:13:34  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-JUL-2009 14:28:08  
 Average Efficiency : 0.2454490  
 Average Efficiency Error : 6.7716590E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	201.3204	28-FEB-2010	2989.918	3302.313	14456.00	0.2424625	1.0429571E-02	47.34021
NP-237	167.4312	28-FEB-2010	4434.677	4904.245	12395.00	0.2467024	1.2532696E-02	55.78803
CM-244	156.4188	28-FEB-2010	5532.604	5884.780	11054.00	0.2485659	1.2651297E-02	54.50585

Instrument : CHAMBER 149  
 Detector : 33449  
 Standard ID : AESS-037  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 17-JUL-2009 09:13:39  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-JUL-2009 14:28:21  
 Average Efficiency : 0.2457679  
 Average Efficiency Error : 6.7815189E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	197.7372	28-FEB-2010	2990.126	3302.099	14274.00	0.2437622	1.0487950E-02	64.38747
NP-237	167.1294	28-FEB-2010	4433.957	4903.766	12301.00	0.2453031	1.2463043E-02	67.00629
CM-244	154.7664	28-FEB-2010	5532.840	5885.608	10964.00	0.2491831	1.2684503E-02	59.86861

Instrument : CHAMBER 150  
 Detector : 75552  
 Standard ID : AESS-043  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 17-JUL-2009 09:13:44  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-JUL-2009 14:28:35  
 Average Efficiency : 0.2487296  
 Average Efficiency Error : 6.8612574E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	197.7708	28-FEB-2010	2989.847	3298.390	14400.00	0.2458598	1.0576462E-02	51.08628
NP-237	168.7422	28-FEB-2010	4433.411	4903.355	12733.00	0.2514980	1.2770942E-02	58.74739
CM-244	156.3252	28-FEB-2010	5531.584	5883.380	11116.00	0.2501363	1.2729902E-02	54.38089

Instrument : CHAMBER 151  
 Detector : 75556  
 Standard ID : AESS-038  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 17-JUL-2009 09:13:48  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-JUL-2009 14:28:46  
 Average Efficiency : 0.2462034  
 Average Efficiency Error : 6.7912084E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	200.1408	28-FEB-2010	2988.196	3299.830	14661.00	0.2473749	1.0638047E-02	50.47650
NP-237	170.0886	28-FEB-2010	4437.520	4904.128	12488.00	0.2447234	1.2430614E-02	54.82476
CM-244	157.7460	28-FEB-2010	5532.939	5887.339	11036.00	0.2460822	1.2525211E-02	55.11473

Instrument : CHAMBER 152  
 Detector : 76222  
 Standard ID : AESS-044  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 17-JUL-2009 09:13:54  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-JUL-2009 14:28:57  
 Average Efficiency : 0.2424625  
 Average Efficiency Error : 6.6924468E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	194.4510	28-FEB-2010	2992.335	3299.767	14031.00	0.2436645	1.0487170E-02	49.42483
NP-237	166.6248	28-FEB-2010	4435.085	4902.709	12138.00	0.2428150	1.2339183E-02	57.89848
CM-244	155.8290	28-FEB-2010	5532.813	5882.589	10654.00	0.2404757	1.2247530E-02	56.10107

Instrument : CHAMBER 153  
 Detector : 76223  
 Standard ID : AESS-039  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 17-JUL-2009 09:13:59  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-JUL-2009 14:29:06  
 Average Efficiency : 0.2537628  
 Average Efficiency Error : 7.0021353E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	192.2418	28-FEB-2010	2989.763	3301.789	14281.00	0.2508323	1.0792080E-02	43.74009
NP-237	159.1506	28-FEB-2010	4432.699	4901.612	12218.00	0.2558562	1.3000614E-02	52.94971
CM-244	151.7142	28-FEB-2010	5534.359	5886.038	11040.00	0.2559308	1.3026465E-02	50.96056

Instrument : CHAMBER 154  
 Detector : 76224  
 Standard ID : AESS-045  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 17-JUL-2009 09:14:04  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-JUL-2009 14:29:15  
 Average Efficiency : 0.2562141  
 Average Efficiency Error : 7.0709228E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	186.9936	28-FEB-2010	2989.543	3301.969	14237.00	0.2571022	1.1062440E-02	44.63987
NP-237	160.8066	28-FEB-2010	4433.171	4901.699	12222.00	0.2533354	1.2872400E-02	53.13824
CM-244	145.8384	28-FEB-2010	5533.478	5884.401	10695.00	0.2579601	1.3137060E-02	43.14489

Instrument : CHAMBER 155  
 Detector : 75553  
 Standard ID : AESS-040  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 17-JUL-2009 09:14:09  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-JUL-2009 14:29:25  
 Average Efficiency : 0.2566149  
 Average Efficiency Error : 7.0761675E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	194.4828	28-FEB-2010	2990.863	3299.267	14869.00	0.2581782	1.1099775E-02	49.42255
NP-237	166.8174	28-FEB-2010	4435.628	4901.683	12765.00	0.2550453	1.2950568E-02	57.37749
CM-244	155.0100	28-FEB-2010	5532.390	5885.923	11282.00	0.2560498	1.3027489E-02	54.62441

Instrument : CHAMBER 156  
 Detector : 75554  
 Standard ID : AESS-046  
 Standard Reference Date : 19-FEB-2008 19:35:48  
 Calibration Analysis Date/Time : 17-JUL-2009 09:14:14  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-JUL-2009 14:29:35  
 Average Efficiency : 0.2473153  
 Average Efficiency Error : 6.8258164E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	194.7474	28-FEB-2010	2992.492	3302.387	14104.00	0.2445442	1.0524000E-02	51.31209
NP-237	164.6658	28-FEB-2010	4436.746	4903.077	12183.00	0.2465298	1.2527379E-02	60.35096
CM-244	151.3824	28-FEB-2010	5533.286	5886.114	10859.00	0.2522683	1.2843768E-02	55.38654

Instrument : CHAMBER 157  
 Detector : 75555  
 Standard ID : AESS-041  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 17-JUL-2009 09:14:19  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-JUL-2009 14:29:49  
 Average Efficiency : 0.2476787  
 Average Efficiency Error : 6.8296832E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	203.9034	28-FEB-2010	2992.092	3301.029	14898.00	0.2467154	1.0606610E-02	50.26978
NP-237	171.2268	28-FEB-2010	4432.881	4903.879	12754.00	0.2482167	1.2604078E-02	60.14729
CM-244	159.5796	28-FEB-2010	5533.745	5886.569	11276.00	0.2485061	1.2643948E-02	50.54896

Instrument : CHAMBER 158  
 Detector : 33451  
 Standard ID : AESS-047  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 17-JUL-2009 09:14:24  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-JUL-2009 14:30:01  
 Average Efficiency : 0.2485719  
 Average Efficiency Error : 6.8571796E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	197.4804	28-FEB-2010	2989.224	3299.662	14546.00	0.2487231	1.0697613E-02	60.48595
NP-237	168.3948	28-FEB-2010	4433.214	4902.387	12467.00	0.2466980	1.2531369E-02	67.30831
CM-244	154.6032	28-FEB-2010	5532.016	5882.536	11002.00	0.2502942	1.2740301E-02	63.12125

Instrument : CHAMBER 159  
 Detector : 76225  
 Standard ID : AESS-042  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 17-JUL-2009 09:14:28  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-JUL-2009 14:30:14  
 Average Efficiency : 0.2532322  
 Average Efficiency Error : 6.9885729E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	188.7090	28-FEB-2010	2990.518	3300.013	14150.00	0.2532160	1.0896488E-02	50.25048
NP-237	159.6558	28-FEB-2010	4434.310	4906.501	12068.00	0.2519211	1.2803175E-02	54.85251
CM-244	150.5208	28-FEB-2010	5532.775	5886.617	10895.00	0.2545989	1.2961634E-02	49.59791

Instrument : CHAMBER 160  
 Detector : 76226  
 Standard ID : AESS-048  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 17-JUL-2009 09:14:34  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-JUL-2009 14:30:32  
 Average Efficiency : 0.2469152  
 Average Efficiency Error : 6.8162913E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	191.8350	28-FEB-2010	2988.201	3297.681	13856.00	0.2439119	1.0500359E-02	46.45536
NP-237	161.5530	28-FEB-2010	4437.389	4904.545	12040.00	0.2483725	1.2623324E-02	55.48813
CM-244	151.1856	28-FEB-2010	5531.162	5885.243	10738.00	0.2498441	1.2722801E-02	48.70280



Instrument : CHAMBER 161  
 Detector : 70321  
 Standard ID : AESS-001  
 Standard Reference Date : 20-FEB-2008 09:54:53  
 Calibration Analysis Date/Time : 22-JUN-2009 09:48:54  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 22-JUN-2009 14:58:45  
 Average Efficiency : 0.3680447  
 Average Efficiency Error : 1.0097147E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	208.6698	28-FEB-2010	2988.612	3298.684	21898.00	0.3541356	1.5135950E-02	64.95872
NP-237	171.0024	28-FEB-2010	4435.424	4903.719	19609.00	0.3821778	1.9302875E-02	80.01273
CM-244	158.1060	28-FEB-2010	5531.313	5883.518	16964.00	0.3762999	1.9035701E-02	66.25313

Instrument : CHAMBER 162  
 Detector : 70323  
 Standard ID : AESS-007  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 22-JUN-2009 09:49:01  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 22-JUN-2009 14:59:02  
 Average Efficiency : 0.3669952  
 Average Efficiency Error : 1.0053982E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	206.7342	28-FEB-2010	2990.114	3301.116	21863.00	0.3569376	1.5256034E-02	61.57318
NP-237	205.0260	28-FEB-2010	4434.153	4902.154	23087.00	0.3753361	1.8928697E-02	74.80619
CM-244	199.6806	28-FEB-2010	5533.930	5885.193	21283.00	0.3741003	1.8880047E-02	63.50636

Instrument : CHAMBER 163  
 Detector : 70324  
 Standard ID : AESS-002  
 Standard Reference Date : 19-FEB-2008 11:05:22  
 Calibration Analysis Date/Time : 22-JUN-2009 09:49:05  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 22-JUN-2009 14:59:20  
 Average Efficiency : 0.3822009  
 Average Efficiency Error : 1.0467267E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	200.1144	28-FEB-2010	2992.217	3298.824	22246.00	0.3751688	1.6031768E-02	61.52280
NP-237	200.4990	28-FEB-2010	4434.987	4904.671	23472.00	0.3901615	1.9673660E-02	79.06695
CM-244	196.5558	28-FEB-2010	5533.739	5886.581	21558.00	0.3847618	1.9415820E-02	63.58135

Instrument : CHAMBER 164  
 Detector : 70325  
 Standard ID : AESS-008  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 22-JUN-2009 09:49:10  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 22-JUN-2009 14:59:35  
 Average Efficiency : 0.3786111  
 Average Efficiency Error : 1.0367543E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	206.0418	28-FEB-2010	2988.804	3300.725	22607.00	0.3703200	1.5821498E-02	54.52739
NP-237	209.2716	28-FEB-2010	4432.850	4902.971	23978.00	0.3819043	1.9253852E-02	71.96546
CM-244	199.6488	28-FEB-2010	5532.641	5885.829	22062.00	0.3878940	1.9569764E-02	60.11813

Instrument : CHAMBER 165  
 Detector : 72544  
 Standard ID : AESS-003  
 Standard Reference Date : 15-FEB-2008 13:12:27  
 Calibration Analysis Date/Time : 22-JUN-2009 09:49:16  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 22-JUN-2009 15:00:00  
 Average Efficiency : 0.3793618  
 Average Efficiency Error : 1.0392112E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	202.9740	28-FEB-2010	2991.249	3299.371	22074.00	0.3670397	1.5685942E-02	75.43552
NP-237	203.2080	28-FEB-2010	4433.539	4903.436	23735.00	0.3893091	1.9628821E-02	89.50409
CM-244	197.2236	28-FEB-2010	5531.871	5883.913	21843.00	0.3886937	1.9611897E-02	67.83678

Instrument : CHAMBER 166  
 Detector : 74545  
 Standard ID : AESS-009  
 Standard Reference Date : 19-FEB-2008 11:05:22  
 Calibration Analysis Date/Time : 22-JUN-2009 09:49:22  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 22-JUN-2009 15:00:15  
 Average Efficiency : 0.3891973  
 Average Efficiency Error : 1.0658387E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	203.3736	28-FEB-2010	2988.840	3300.652	22711.00	0.3768678	1.6100317E-02	54.68238
NP-237	204.0192	28-FEB-2010	4437.331	4901.890	24296.00	0.3969417	2.0009808E-02	77.78448
CM-244	197.2128	28-FEB-2010	5530.967	5883.776	22526.00	0.4007283	2.0213576E-02	56.93469

Instrument : CHAMBER 167  
 Detector : 72546  
 Standard ID : AESS-004  
 Standard Reference Date : 14-FEB-2008 09:35:18  
 Calibration Analysis Date/Time : 22-JUN-2009 09:49:28  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 22-JUN-2009 15:00:26  
 Average Efficiency : 0.3907633  
 Average Efficiency Error : 1.0697938E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	206.1222	28-FEB-2010	2988.275	3299.494	23296.00	0.3814596	1.6291581E-02	55.56178
NP-237	204.2586	28-FEB-2010	4434.900	4904.573	24286.00	0.3963182	1.9978439E-02	75.18340
CM-244	198.8100	28-FEB-2010	5533.886	5886.993	22618.00	0.3993391	2.0142792E-02	60.08310

Instrument : CHAMBER 168  
 Detector : 72547  
 Standard ID : AESS-010  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 22-JUN-2009 09:49:33  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 22-JUN-2009 15:00:38  
 Average Efficiency : 0.3861204  
 Average Efficiency Error : 1.0573328E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	202.0008	28-FEB-2010	2990.947	3298.253	22591.00	0.3774759	1.6127346E-02	61.24447
NP-237	202.9926	28-FEB-2010	4435.851	4905.623	23946.00	0.3931818	1.9822638E-02	73.08669
CM-244	196.2330	28-FEB-2010	5534.369	5886.817	21920.00	0.3920950	1.9782864E-02	60.02387

Instrument : CHAMBER 169  
 Detector : 72548  
 Standard ID : AESS-005  
 Standard Reference Date : 14-FEB-2008 09:35:18  
 Calibration Analysis Date/Time : 22-JUN-2009 09:49:39  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 22-JUN-2009 15:00:51  
 Average Efficiency : 0.3767878  
 Average Efficiency Error : 1.0317106E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	210.7452	28-FEB-2010	2992.147	3298.542	22931.00	0.3672459	1.5687475E-02	58.28659
NP-237	209.5938	28-FEB-2010	4434.044	4903.513	24256.00	0.3856335	1.9440131E-02	72.53197
CM-244	202.7478	28-FEB-2010	5532.339	5885.069	22094.00	0.3825103	1.9297916E-02	57.36194

Instrument : CHAMBER 170  
 Detector : 72549  
 Standard ID : AESS-011  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 22-JUN-2009 09:49:44  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 22-JUN-2009 15:01:02  
 Average Efficiency : 0.3672283  
 Average Efficiency Error : 1.0055818E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	212.8284	28-FEB-2010	2991.920	3299.334	22602.00	0.3584369	1.5313840E-02	55.24641
NP-237	214.4868	28-FEB-2010	4433.260	4904.103	24108.00	0.3746104	1.8885318E-02	73.41397
CM-244	208.4184	28-FEB-2010	5534.714	5883.037	22158.00	0.3731794	1.8826678E-02	58.17384

Instrument : CHAMBER 171  
 Detector : 78260  
 Standard ID : AESS-006  
 Standard Reference Date : 14-FEB-2008 09:35:18  
 Calibration Analysis Date/Time : 22-JUN-2009 09:49:50  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 22-JUN-2009 15:01:15  
 Average Efficiency : 0.3843338  
 Average Efficiency Error : 1.0524615E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	203.6952	28-FEB-2010	2990.586	3301.332	22712.00	0.3763276	1.6077265E-02	51.07104
NP-237	204.7038	28-FEB-2010	4435.496	4904.863	23664.00	0.3853128	1.9427808E-02	72.98476
CM-244	195.0060	28-FEB-2010	5533.949	5887.016	21979.00	0.3956421	1.9961338E-02	55.64689

Instrument : CHAMBER 172  
 Detector : 78772  
 Standard ID : AESS-012  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 22-JUN-2009 09:49:55  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 22-JUN-2009 15:01:28  
 Average Efficiency : 0.3826092  
 Average Efficiency Error : 1.0474577E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	206.2200	28-FEB-2010	2988.628	3299.646	23148.00	0.3788596	1.6181752E-02	48.41407
NP-237	205.8930	28-FEB-2010	4435.466	4905.809	24139.00	0.3907726	1.9699879E-02	75.41741
CM-244	203.1954	28-FEB-2010	5531.112	5885.129	22005.00	0.3801389	1.9178953E-02	52.17172

Instrument : CHAMBER 173  
 Detector : 74431  
 Standard ID : AESS-013  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 22-JUN-2009 09:50:01  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 22-JUN-2009 15:01:41  
 Average Efficiency : 0.2593230  
 Average Efficiency Error : 7.1322038E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	203.6544	28-FEB-2010	2990.621	3299.926	15676.00	0.2597894	1.1158522E-02	50.69847
NP-237	210.2526	28-FEB-2010	4436.753	4901.757	16312.00	0.2585954	1.3087362E-02	58.81396
CM-244	201.9108	28-FEB-2010	5535.262	5886.887	14926.00	0.2594097	1.3143276E-02	55.15737

Instrument : CHAMBER 174  
 Detector : 74432  
 Standard ID : AESS-019  
 Standard Reference Date : 19-FEB-2008 11:05:22  
 Calibration Analysis Date/Time : 22-JUN-2009 09:50:07  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 22-JUN-2009 15:01:51  
 Average Efficiency : 0.2561836  
 Average Efficiency Error : 7.0509571E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	204.6468	28-FEB-2010	2992.065	3302.471	15121.00	0.2493561	1.0717154E-02	52.25386
NP-237	202.9140	28-FEB-2010	4435.541	4905.194	16194.00	0.2660043	1.3463500E-02	57.47507
CM-244	199.3140	28-FEB-2010	5531.639	5887.080	14608.00	0.2570774	1.3028788E-02	54.29767

Instrument : CHAMBER 175  
 Detector : 74433  
 Standard ID : AESS-014  
 Standard Reference Date : 19-FEB-2008 11:05:22  
 Calibration Analysis Date/Time : 22-JUN-2009 09:50:12  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 22-JUN-2009 15:02:01  
 Average Efficiency : 0.2515986  
 Average Efficiency Error : 6.9203642E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	214.7088	28-FEB-2010	2989.238	3298.426	15722.00	0.2471218	1.0613844E-02	45.29536
NP-237	211.7160	28-FEB-2010	4435.144	4905.490	16108.00	0.2535914	1.2836066E-02	57.72879
CM-244	207.3882	28-FEB-2010	5533.995	5885.818	15149.00	0.2562569	1.2980960E-02	47.84649

Instrument : CHAMBER 176  
 Detector : 74434  
 Standard ID : AESS-020  
 Standard Reference Date : 14-FEB-2008 21:55:55  
 Calibration Analysis Date/Time : 22-JUN-2009 09:50:17  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 22-JUN-2009 15:02:12  
 Average Efficiency : 0.2579391  
 Average Efficiency Error : 7.0963693E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	205.5870	28-FEB-2010	2991.698	3297.590	15497.00	0.2544173	1.0929942E-02	49.36812
NP-237	203.4984	28-FEB-2010	4432.745	4903.265	15910.00	0.2605837	1.3191990E-02	55.23719
CM-244	197.1096	28-FEB-2010	5530.868	5886.966	14625.00	0.2604272	1.3198279E-02	48.45524

Instrument : CHAMBER 177  
 Detector : 74435  
 Standard ID : AESS-015  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 22-JUN-2009 09:50:23  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 22-JUN-2009 15:02:24  
 Average Efficiency : 0.2681777  
 Average Efficiency Error : 7.3747509E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	204.0270	28-FEB-2010	2991.057	3299.457	16007.00	0.2647958	1.1369478E-02	47.28368
NP-237	200.6460	28-FEB-2010	4434.482	4904.663	16304.00	0.2708437	1.3707319E-02	53.90463
CM-244	195.9270	28-FEB-2010	5533.411	5885.598	15098.00	0.2704247	1.3699308E-02	53.91009

Instrument : CHAMBER 178  
 Detector : 74436  
 Standard ID : AESS-021  
 Standard Reference Date : 19-FEB-2008 15:31:52  
 Calibration Analysis Date/Time : 22-JUN-2009 09:50:28  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 22-JUN-2009 15:02:37  
 Average Efficiency : 0.2556835  
 Average Efficiency Error : 7.0334878E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	208.3608	28-FEB-2010	2991.779	3302.215	15571.00	0.2521989	1.0833724E-02	47.95219
NP-237	210.1548	28-FEB-2010	4435.746	4905.748	16086.00	0.2551121	1.2913272E-02	51.54728
CM-244	200.7390	28-FEB-2010	5532.798	5883.324	14964.00	0.2614959	1.3248475E-02	50.56778

Instrument : CHAMBER 179  
 Detector : 74437  
 Standard ID : AESS-016  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 22-JUN-2009 09:50:33  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 22-JUN-2009 15:02:54  
 Average Efficiency : 0.2622361  
 Average Efficiency Error : 7.2137858E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	204.0534	28-FEB-2010	2988.919	3302.532	15791.00	0.2611886	1.1217199E-02	49.05256
NP-237	199.3962	28-FEB-2010	4432.536	4902.537	16046.00	0.2682333	1.3577815E-02	59.11048
CM-244	198.6402	28-FEB-2010	5530.871	5882.740	14609.00	0.2580948	1.3080338E-02	50.98325

Instrument : CHAMBER 180  
 Detector : 74438  
 Standard ID : AESS-022  
 Standard Reference Date : 14-FEB-2008 21:55:55  
 Calibration Analysis Date/Time : 22-JUN-2009 09:50:39  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 22-JUN-2009 15:03:14  
 Average Efficiency : 0.2506651  
 Average Efficiency Error : 6.8974807E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	209.6724	28-FEB-2010	2989.905	3300.775	15284.00	0.2460265	1.0572049E-02	47.55061
NP-237	206.8830	28-FEB-2010	4435.062	4905.007	15694.00	0.2528355	1.2801906E-02	57.86346
CM-244	203.0208	28-FEB-2010	5531.655	5887.118	14776.00	0.2553983	1.2941745E-02	52.08472

Instrument : CHAMBER 181  
 Detector : 74439  
 Standard ID : AESS-017  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 22-JUN-2009 09:50:44  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 22-JUN-2009 15:03:27  
 Average Efficiency : 0.2556638  
 Average Efficiency Error : 7.0319269E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	210.0798	28-FEB-2010	2987.507	3301.291	15701.00	0.2522502	1.0834388E-02	45.61578
NP-237	208.5846	28-FEB-2010	4436.916	4901.810	16267.00	0.2599201	1.3154872E-02	58.60517
CM-244	205.5828	28-FEB-2010	5535.507	5887.405	15025.00	0.2564206	1.2990783E-02	53.43116

Instrument : CHAMBER 182  
 Detector : 74440  
 Standard ID : AESS-023  
 Standard Reference Date : 14-FEB-2008 21:55:55  
 Calibration Analysis Date/Time : 22-JUN-2009 09:50:49  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 22-JUN-2009 15:03:39  
 Average Efficiency : 0.2558407  
 Average Efficiency Error : 7.0378492E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	207.4764	28-FEB-2010	2992.364	3301.476	15578.00	0.2534181	1.0886028E-02	44.54460
NP-237	207.4998	28-FEB-2010	4437.311	4901.783	16019.00	0.2573143	1.3025383E-02	55.86248
CM-244	199.8804	28-FEB-2010	5534.452	5885.559	14687.00	0.2578480	1.3066921E-02	50.87081

Instrument : CHAMBER 183  
 Detector : 74441  
 Standard ID : AESS-018  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 22-JUN-2009 09:50:53  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 22-JUN-2009 15:03:53  
 Average Efficiency : 0.2616060  
 Average Efficiency Error : 7.1956841E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	202.1856	28-FEB-2010	2990.145	3298.781	15838.00	0.2643961	1.1354355E-02	49.09375
NP-237	208.8990	28-FEB-2010	4434.414	4904.732	16046.00	0.2560026	1.2958746E-02	55.38850
CM-244	198.1458	28-FEB-2010	5533.565	5885.751	14889.00	0.2636993	1.3361022E-02	51.92845

Instrument : CHAMBER 184  
 Detector : 74442  
 Standard ID : AESS-024  
 Standard Reference Date : 14-FEB-2008 21:55:55  
 Calibration Analysis Date/Time : 22-JUN-2009 09:50:58  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 22-JUN-2009 15:04:06  
 Average Efficiency : 0.2583629  
 Average Efficiency Error : 7.1082856E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	203.5218	28-FEB-2010	2990.570	3301.301	15320.00	0.2540686	1.0917156E-02	45.64460
NP-237	205.6662	28-FEB-2010	4435.154	4904.955	16035.00	0.2598630	1.3154246E-02	56.52773
CM-244	198.3060	28-FEB-2010	5531.440	5886.825	14876.00	0.2632301	1.3337432E-02	51.73911



Instrument : CHAMBER 185  
 Detector : 68615  
 Standard ID : AESS-025  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 22-JUN-2009 09:51:04  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 22-JUN-2009 15:04:16  
 Average Efficiency : 0.2577632  
 Average Efficiency Error : 7.1065617E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	195.5670	28-FEB-2010	2988.840	3300.640	15138.00	0.2612484	1.1228072E-02	58.07288
NP-237	167.9916	28-FEB-2010	4434.438	4901.812	12961.00	0.2571577	1.3054820E-02	59.76388
CM-244	157.2432	28-FEB-2010	5531.912	5887.166	11372.00	0.2537484	1.2908846E-02	57.77697

Instrument : CHAMBER 186  
 Detector : 68616  
 Standard ID : AESS-031  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 22-JUN-2009 09:51:09  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 22-JUN-2009 15:04:28  
 Average Efficiency : 0.2545925  
 Average Efficiency Error : 7.0233443E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	193.6650	28-FEB-2010	2987.988	3300.097	14397.00	0.2508908	1.0792810E-02	50.66381
NP-237	162.9186	28-FEB-2010	4435.729	4904.174	12681.00	0.2594548	1.3175752E-02	61.08182
CM-244	153.1968	28-FEB-2010	5530.696	5887.018	11148.00	0.2552285	1.2988597E-02	55.37442

Instrument : CHAMBER 187  
 Detector : 68620  
 Standard ID : AESS-026  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 22-JUN-2009 09:51:15  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 22-JUN-2009 15:04:38  
 Average Efficiency : 0.2487007  
 Average Efficiency Error : 7.2918888E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	199.5072	28-FEB-2010	2991.780	3300.355	14881.00	0.2517360	1.2755483E-02	50.86592
NP-237	168.0294	28-FEB-2010	4437.583	4904.093	12548.00	0.2488833	1.2641029E-02	60.88034
CM-244	160.5822	28-FEB-2010	5535.508	5884.097	11241.00	0.2456087	1.2497237E-02	52.60560

Instrument : CHAMBER 188  
 Detector : 68621  
 Standard ID : AESS-032  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 22-JUN-2009 09:51:20  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 22-JUN-2009 15:04:49  
 Average Efficiency : 0.2586242  
 Average Efficiency Error : 7.1308562E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	195.2364	28-FEB-2010	2991.235	3299.192	14866.00	0.2569736	1.1047941E-02	51.13421
NP-237	165.9822	28-FEB-2010	4434.285	4905.242	12979.00	0.2606384	1.3231235E-02	56.78614
CM-244	153.7938	28-FEB-2010	5530.351	5883.763	11355.00	0.2589744	1.3175028E-02	50.04874

Instrument : CHAMBER 189  
 Detector : 68622  
 Standard ID : AESS-027  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 22-JUN-2009 09:51:25  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 22-JUN-2009 15:05:00  
 Average Efficiency : 0.2605101  
 Average Efficiency Error : 7.6384274E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	193.4238	28-FEB-2010	2989.861	3302.155	14783.00	0.2579485	1.3071399E-02	55.19755
NP-237	161.6154	28-FEB-2010	4432.574	4905.866	12646.00	0.2608190	1.3245604E-02	56.80165
CM-244	148.1754	28-FEB-2010	5531.675	5887.456	11101.00	0.2628785	1.3378831E-02	53.23755

Instrument : CHAMBER 190  
 Detector : 68623  
 Standard ID : AESS-033  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 22-JUN-2009 09:51:31  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 22-JUN-2009 15:05:13  
 Average Efficiency : 0.2627474  
 Average Efficiency Error : 7.2460058E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	192.4158	28-FEB-2010	2987.675	3299.750	14852.00	0.2604897	1.1199310E-02	47.17914
NP-237	161.7816	28-FEB-2010	4435.687	4904.443	12741.00	0.2623105	1.3320174E-02	60.95700
CM-244	147.2670	28-FEB-2010	5531.545	5882.933	11195.00	0.2665110	1.3562006E-02	48.64064

Instrument : CHAMBER 191  
 Detector : 68624  
 Standard ID : AESS-028  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 22-JUN-2009 09:51:36  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 22-JUN-2009 15:05:24  
 Average Efficiency : 0.2624353  
 Average Efficiency Error : 7.6893568E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	199.6542	28-FEB-2010	2991.084	3299.950	15363.00	0.2597040	1.3153810E-02	50.65557
NP-237	168.1992	28-FEB-2010	4432.587	4904.375	13466.00	0.2668662	1.3540036E-02	59.46810
CM-244	156.7614	28-FEB-2010	5530.362	5884.163	11655.00	0.2609591	1.3270005E-02	54.62358

Instrument : CHAMBER 192  
 Detector : 74430  
 Standard ID : AESS-034  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 22-JUN-2009 09:51:41  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 22-JUN-2009 15:05:39  
 Average Efficiency : 0.2528592  
 Average Efficiency Error : 6.9742138E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	200.5488	28-FEB-2010	2991.302	3300.346	14675.00	0.2469523	1.0619615E-02	46.13663
NP-237	167.2962	28-FEB-2010	4433.147	4904.787	12994.00	0.2588962	1.3142551E-02	54.53447
CM-244	154.4388	28-FEB-2010	5530.391	5883.883	11261.00	0.2558116	1.3015866E-02	47.75322

Instrument : CHAMBER 193  
 Detector : 68627  
 Standard ID : AESS-029  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 22-JUN-2009 09:51:47  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 22-JUN-2009 15:05:50  
 Average Efficiency : 0.2616625  
 Average Efficiency Error : 7.6664970E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	201.5742	28-FEB-2010	2992.456	3299.248	15599.00	0.2611919	1.3226620E-02	70.75836
NP-237	169.7700	28-FEB-2010	4434.921	4903.889	13250.00	0.2601501	1.3202393E-02	85.04011
CM-244	154.8234	28-FEB-2010	5531.552	5883.390	11633.00	0.2637065	1.3410171E-02	75.12811

Instrument : CHAMBER 194  
 Detector : 68635  
 Standard ID : AESS-035  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 22-JUN-2009 09:51:52  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 22-JUN-2009 15:06:02  
 Average Efficiency : 0.2568864  
 Average Efficiency Error : 7.0813606E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	198.6666	28-FEB-2010	2988.759	3300.939	14987.00	0.2545973	1.0944160E-02	50.81337
NP-237	168.2934	28-FEB-2010	4437.087	4905.856	13065.00	0.2587210	1.3132677E-02	56.26561
CM-244	158.8128	28-FEB-2010	5532.909	5884.238	11698.00	0.2583487	1.3136664E-02	49.04685

Instrument : CHAMBER 195  
 Detector : 68636  
 Standard ID : AESS-030  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 22-JUN-2009 09:51:58  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 22-JUN-2009 15:06:11  
 Average Efficiency : 0.2565587  
 Average Efficiency Error : 7.5203422E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	198.9792	28-FEB-2010	2990.427	3298.108	14898.00	0.2526821	1.2803250E-02	52.36766
NP-237	166.3758	28-FEB-2010	4435.602	4904.677	13066.00	0.2617230	1.3285043E-02	56.16147
CM-244	157.1856	28-FEB-2010	5531.920	5883.250	11450.00	0.2556100	1.3001991E-02	53.60020

Instrument : CHAMBER 196  
 Detector : 68637  
 Standard ID : AESS-036  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 22-JUN-2009 09:52:03  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 22-JUN-2009 15:06:21  
 Average Efficiency : 0.2579557  
 Average Efficiency Error : 7.1107536E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	201.3204	28-FEB-2010	2987.764	3299.421	15154.00	0.2540307	1.0917650E-02	54.18713
NP-237	167.4312	28-FEB-2010	4434.243	4902.720	13085.00	0.2604812	1.3221670E-02	59.74107
CM-244	156.4188	28-FEB-2010	5534.908	5886.289	11649.00	0.2612170	1.3283413E-02	54.65987

Instrument : CHAMBER 197  
 Detector : 78894  
 Standard ID : AESS-037  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 23-JUN-2009 08:30:18  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 23-JUN-2009 13:40:27  
 Average Efficiency : 0.2567551  
 Average Efficiency Error : 7.0790784E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	197.7372	28-FEB-2010	2992.459	3301.421	14935.00	0.2548909	1.0957510E-02	53.54255
NP-237	167.1294	28-FEB-2010	4433.039	4903.794	12934.00	0.2579639	1.3096124E-02	56.62766
CM-244	154.7664	28-FEB-2010	5533.211	5885.723	11391.00	0.2582181	1.3135778E-02	57.79705

Instrument : CHAMBER 198  
 Detector : 78895  
 Standard ID : AESS-043  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 22-JUN-2009 09:52:14  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 22-JUN-2009 15:06:54  
 Average Efficiency : 0.2558283  
 Average Efficiency Error : 7.0531382E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	197.7708	28-FEB-2010	2990.792	3298.953	15029.00	0.2564534	1.1023409E-02	56.63857
NP-237	168.7422	28-FEB-2010	4433.042	4902.810	12945.00	0.2557096	1.2981524E-02	58.76215
CM-244	156.3252	28-FEB-2010	5530.984	5882.838	11372.00	0.2550805	1.2976733E-02	53.96784

Instrument : CHAMBER 199  
 Detector : 78896  
 Standard ID : AESS-038  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 22-JUN-2009 09:52:19  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 22-JUN-2009 15:07:05  
 Average Efficiency : 0.2503328  
 Average Efficiency Error : 6.9033257E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	200.1408	28-FEB-2010	2992.467	3301.736	15050.00	0.2537782	1.0908134E-02	52.31808
NP-237	170.0886	28-FEB-2010	4433.639	4904.142	12664.00	0.2481491	1.2601945E-02	58.89103
CM-244	157.7460	28-FEB-2010	5532.893	5884.873	11149.00	0.2479126	1.2616216E-02	52.99783

Instrument : CHAMBER 200  
 Detector : 78900  
 Standard ID : AESS-044  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 22-JUN-2009 09:52:25  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 22-JUN-2009 15:07:19  
 Average Efficiency : 0.2686577  
 Average Efficiency Error : 7.4024275E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	194.4510	28-FEB-2010	2991.709	3299.237	15525.00	0.2694455	1.1575188E-02	52.63724
NP-237	166.6248	28-FEB-2010	4433.212	4903.912	13505.00	0.2700959	1.3703452E-02	61.10624
CM-244	155.8290	28-FEB-2010	5534.189	5887.638	11827.00	0.2661784	1.3532363E-02	53.69180

Instrument : CHAMBER 201  
 Detector : 78902  
 Standard ID : AESS-039  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 22-JUN-2009 09:52:31  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 22-JUN-2009 15:07:30  
 Average Efficiency : 0.2608171  
 Average Efficiency Error : 7.1935584E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	192.2418	28-FEB-2010	2988.500	3302.053	14805.00	0.2599045	1.1174787E-02	49.08611
NP-237	159.1506	28-FEB-2010	4433.282	4904.434	12713.00	0.2662428	1.3519990E-02	52.63206
CM-244	151.7142	28-FEB-2010	5534.865	5882.809	11118.00	0.2569896	1.3078903E-02	48.72089

Instrument : CHAMBER 202  
 Detector : 78903  
 Standard ID : AESS-045  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 22-JUN-2009 09:52:37  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 22-JUN-2009 15:07:41  
 Average Efficiency : 0.2643825  
 Average Efficiency Error : 7.2935103E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	186.9936	28-FEB-2010	2990.900	3298.618	14652.00	0.2644352	1.1371753E-02	43.60920
NP-237	160.8066	28-FEB-2010	4432.436	4902.692	12420.00	0.2574461	1.3077959E-02	54.52970
CM-244	145.8384	28-FEB-2010	5532.047	5884.818	11313.00	0.2720752	1.3842396E-02	44.04590

Instrument : CHAMBER 203  
 Detector : 78905  
 Standard ID : AESS-040  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 22-JUN-2009 09:52:43  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 22-JUN-2009 15:07:50  
 Average Efficiency : 0.2542375  
 Average Efficiency Error : 7.0116646E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	194.4828	28-FEB-2010	2989.958	3298.323	14729.00	0.2555648	1.0989280E-02	48.90236
NP-237	166.8174	28-FEB-2010	4433.591	4904.036	12594.00	0.2515985	1.2778236E-02	52.39742
CM-244	155.0100	28-FEB-2010	5533.281	5885.816	11276.00	0.2551089	1.2980009E-02	47.65225

Instrument : CHAMBER 204  
 Detector : 78907  
 Standard ID : AESS-046  
 Standard Reference Date : 19-FEB-2008 19:35:48  
 Calibration Analysis Date/Time : 22-JUN-2009 09:52:49  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 22-JUN-2009 15:08:00  
 Average Efficiency : 0.2538103  
 Average Efficiency Error : 7.0014698E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	194.7474	28-FEB-2010	2990.324	3298.173	14541.00	0.2519002	1.0834365E-02	51.17892
NP-237	164.6658	28-FEB-2010	4437.399	4902.424	12509.00	0.2531350	1.2857672E-02	56.33944
CM-244	151.3824	28-FEB-2010	5531.626	5884.261	11110.00	0.2573011	1.3094992E-02	51.37049

Instrument : CHAMBER 205  
 Detector : 78908  
 Standard ID : AESS-041  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 22-JUN-2009 09:52:54  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 22-JUN-2009 15:08:10  
 Average Efficiency : 0.2561495  
 Average Efficiency Error : 7.0592412E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	203.9034	28-FEB-2010	2988.508	3302.170	15373.00	0.2544265	1.0931892E-02	47.59354
NP-237	171.2268	28-FEB-2010	4433.168	4903.946	13244.00	0.2578140	1.3083938E-02	59.69577
CM-244	159.5796	28-FEB-2010	5533.636	5886.419	11689.00	0.2569510	1.3065674E-02	49.40511

Instrument : CHAMBER 206  
 Detector : 78909  
 Standard ID : AESS-047  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 22-JUN-2009 09:53:00  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 22-JUN-2009 15:08:23  
 Average Efficiency : 0.2574005  
 Average Efficiency Error : 7.0962599E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	197.4804	28-FEB-2010	2988.616	3302.433	15062.00	0.2573945	1.1063425E-02	48.19839
NP-237	168.3948	28-FEB-2010	4432.477	4902.186	13001.00	0.2573397	1.3063446E-02	52.88721
CM-244	154.6032	28-FEB-2010	5535.166	5886.569	11347.00	0.2574700	1.3098557E-02	52.05136

Instrument : CHAMBER 207  
 Detector : 78910  
 Standard ID : AESS-042  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 22-JUN-2009 09:53:05  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 22-JUN-2009 15:08:36  
 Average Efficiency : 0.2561320  
 Average Efficiency Error : 7.0672869E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	188.7090	28-FEB-2010	2987.858	3301.538	14376.00	0.2570925	1.1059917E-02	51.83183
NP-237	159.6558	28-FEB-2010	4432.769	4903.719	12374.00	0.2583224	1.3123268E-02	56.06316
CM-244	150.5208	28-FEB-2010	5533.705	5886.686	10845.00	0.2527259	1.2867418E-02	54.23968

Instrument : CHAMBER 208  
 Detector : 78911  
 Standard ID : AESS-048  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 22-JUN-2009 09:53:10  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 22-JUN-2009 15:08:47  
 Average Efficiency : 0.2524280  
 Average Efficiency Error : 6.9653862E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	191.8350	28-FEB-2010	2990.819	3299.505	14260.00	0.2508653	1.0793664E-02	50.33332
NP-237	161.5530	28-FEB-2010	4435.407	4905.872	12192.00	0.2515088	1.2780157E-02	58.56274
CM-244	151.1856	28-FEB-2010	5534.932	5887.260	11020.00	0.2556523	1.3012759E-02	49.93821



Instrument : CHAMBER 209  
 Detector : 79188  
 Standard ID : AESS-001  
 Standard Reference Date : 20-FEB-2008 09:54:53  
 Calibration Analysis Date/Time : 29-JUN-2009 11:06:21  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 30-JUN-2009 13:25:14  
 Average Efficiency : 0.3677108  
 Average Efficiency Error : 1.0086662E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	208.6698	28-FEB-2010	2989.181	3301.049	21968.00	0.3553457	1.5187075E-02	65.89574
NP-237	171.0024	28-FEB-2010	4433.021	4903.097	19297.00	0.3761547	1.9001663E-02	90.73633
CM-244	158.1060	28-FEB-2010	5532.718	5885.886	17059.00	0.3788077	1.9161167E-02	62.71068

Instrument : CHAMBER 210  
 Detector : 79189  
 Standard ID : AESS-002  
 Standard Reference Date : 19-FEB-2008 11:05:22  
 Calibration Analysis Date/Time : 29-JUN-2009 11:06:26  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 30-JUN-2009 13:25:32  
 Average Efficiency : 0.3938951  
 Average Efficiency Error : 1.0783576E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	200.1144	28-FEB-2010	2990.859	3297.943	23047.00	0.3887416	1.6604694E-02	57.83068
NP-237	200.4990	28-FEB-2010	4435.076	4904.812	24104.00	0.4007338	2.0202259E-02	76.70370
CM-244	196.5558	28-FEB-2010	5533.646	5886.210	22093.00	0.3946623	1.9910963E-02	61.67818

Instrument : CHAMBER 211  
 Detector : 79190  
 Standard ID : AESS-003  
 Standard Reference Date : 15-FEB-2008 13:12:27  
 Calibration Analysis Date/Time : 29-JUN-2009 11:06:32  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 30-JUN-2009 13:25:46  
 Average Efficiency : 0.3797782  
 Average Efficiency Error : 1.0400439E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	202.9740	28-FEB-2010	2988.624	3301.653	22395.00	0.3724639	1.5914930E-02	64.54439
NP-237	203.2080	28-FEB-2010	4436.794	4902.468	23454.00	0.3847243	1.9399559E-02	74.42917
CM-244	197.2236	28-FEB-2010	5532.766	5886.120	21658.00	0.3857397	1.9464286E-02	63.38742

Instrument : CHAMBER 212  
 Detector : 79191  
 Standard ID : AESS-004  
 Standard Reference Date : 14-FEB-2008 09:35:18  
 Calibration Analysis Date/Time : 29-JUN-2009 11:06:38  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 30-JUN-2009 13:25:56  
 Average Efficiency : 0.3834927  
 Average Efficiency Error : 1.0500317E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	206.1222	28-FEB-2010	2989.287	3301.382	22921.00	0.3754007	1.6035914E-02	59.43782
NP-237	204.2586	28-FEB-2010	4434.079	4904.410	23916.00	0.3902802	1.9676529E-02	70.71378
CM-244	198.8100	28-FEB-2010	5534.335	5887.654	22006.00	0.3888572	1.9618779E-02	58.13512

Instrument : CHAMBER 213  
 Detector : 79192  
 Standard ID : AESS-005  
 Standard Reference Date : 14-FEB-2008 09:35:18  
 Calibration Analysis Date/Time : 29-JUN-2009 11:06:43  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 30-JUN-2009 13:26:06  
 Average Efficiency : 0.3631246  
 Average Efficiency Error : 9.9473838E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	210.7452	28-FEB-2010	2990.968	3298.520	22030.00	0.3528930	1.5081747E-02	65.96364
NP-237	209.5938	28-FEB-2010	4437.380	4902.572	23193.00	0.3688471	1.8600717E-02	79.66854
CM-244	202.7478	28-FEB-2010	5532.282	5885.336	21539.00	0.3732129	1.8833132E-02	63.84235

Instrument : CHAMBER 214  
 Detector : 79193  
 Standard ID : AESS-006  
 Standard Reference Date : 14-FEB-2008 09:35:18  
 Calibration Analysis Date/Time : 29-JUN-2009 11:06:48  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 30-JUN-2009 13:26:15  
 Average Efficiency : 0.3842220  
 Average Efficiency Error : 1.0522687E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	203.6952	28-FEB-2010	2990.403	3298.091	22543.00	0.3736039	1.5962366E-02	54.14455
NP-237	204.7038	28-FEB-2010	4437.439	4902.827	23935.00	0.3897505	1.9649688E-02	76.09060
CM-244	195.0060	28-FEB-2010	5532.795	5885.993	21931.00	0.3950915	1.9933926E-02	57.07459

Instrument : CHAMBER 215  
 Detector : 79194  
 Standard ID : AESS-007  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 29-JUN-2009 11:06:53  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 30-JUN-2009 13:26:24  
 Average Efficiency : 0.3850240  
 Average Efficiency Error : 1.0540539E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	206.7342	28-FEB-2010	2990.062	3302.465	23238.00	0.3794642	1.6206851E-02	59.62454
NP-237	205.0260	28-FEB-2010	4436.774	4902.728	24080.00	0.3914905	1.9736437E-02	77.73202
CM-244	199.6806	28-FEB-2010	5533.954	5882.708	21984.00	0.3867625	1.9513281E-02	61.70960

Instrument : CHAMBER 216  
 Detector : 79195  
 Standard ID : AESS-008  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 29-JUN-2009 11:06:59  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 30-JUN-2009 13:26:33  
 Average Efficiency : 0.3755702  
 Average Efficiency Error : 1.0284359E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	206.0418	28-FEB-2010	2992.227	3300.068	22506.00	0.3687362	1.5754715E-02	57.73516
NP-237	209.2716	28-FEB-2010	4434.095	4904.331	23839.00	0.3797142	1.9144330E-02	77.62376
CM-244	199.6488	28-FEB-2010	5533.563	5886.220	21686.00	0.3815858	1.9254461E-02	58.78411

Instrument : CHAMBER 217  
 Detector : 79410  
 Standard ID : AESS-009  
 Standard Reference Date : 19-FEB-2008 11:05:22  
 Calibration Analysis Date/Time : 29-JUN-2009 11:07:05  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 30-JUN-2009 13:26:43  
 Average Efficiency : 0.3781467  
 Average Efficiency Error : 1.0355381E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	203.3736	28-FEB-2010	2992.213	3299.566	22448.00	0.3725700	1.5918989E-02	57.23290
NP-237	204.0192	28-FEB-2010	4433.215	4903.920	23291.00	0.3805314	1.9189263E-02	75.68012
CM-244	197.2128	28-FEB-2010	5534.328	5882.531	21567.00	0.3839772	1.9376099E-02	61.18950

Instrument : CHAMBER 218  
 Detector : 79411  
 Standard ID : AESS-010  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 29-JUN-2009 11:07:11  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 30-JUN-2009 13:26:51  
 Average Efficiency : 0.3930978  
 Average Efficiency Error : 1.0763295E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	202.0008	28-FEB-2010	2990.601	3298.221	22913.00	0.3829195	1.6357172E-02	60.17708
NP-237	202.9926	28-FEB-2010	4432.747	4903.769	24319.00	0.3993416	2.0130621E-02	79.18008
CM-244	196.2330	28-FEB-2010	5534.561	5882.956	22479.00	0.4024245	2.0299474E-02	60.89557

Instrument : CHAMBER 219  
 Detector : 79412  
 Standard ID : AESS-011  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 29-JUN-2009 11:07:16  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 30-JUN-2009 13:27:01  
 Average Efficiency : 0.3689672  
 Average Efficiency Error : 1.0101880E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	212.8284	28-FEB-2010	2989.180	3302.094	22853.00	0.3624727	1.5484245E-02	56.52708
NP-237	214.4868	28-FEB-2010	4436.774	4902.239	24088.00	0.3743512	1.8872330E-02	86.37078
CM-244	208.4184	28-FEB-2010	5532.237	5885.415	22142.00	0.3732110	1.8828364E-02	61.88073

Instrument : CHAMBER 220  
 Detector : 79413  
 Standard ID : AESS-012  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 29-JUN-2009 11:07:21  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 30-JUN-2009 13:27:10  
 Average Efficiency : 0.3750438  
 Average Efficiency Error : 1.0269084E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	206.2200	28-FEB-2010	2990.438	3302.525	22663.00	0.3709926	1.5849777E-02	57.01278
NP-237	205.8930	28-FEB-2010	4435.000	4905.156	23426.00	0.3792588	1.9124148E-02	81.06312
CM-244	203.1954	28-FEB-2010	5534.774	5882.515	21789.00	0.3767064	1.9007433E-02	61.18806

Instrument : CHAMBER 221  
 Detector : 79414  
 Standard ID : AESS-013  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 29-JUN-2009 11:07:27  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 30-JUN-2009 13:27:19  
 Average Efficiency : 0.3793155  
 Average Efficiency Error : 1.0384974E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	203.6544	28-FEB-2010	2991.987	3300.655	22692.00	0.3761454	1.6069671E-02	54.91935
NP-237	210.2526	28-FEB-2010	4433.096	4905.038	23943.00	0.3795863	1.9137202E-02	74.16172
CM-244	201.9108	28-FEB-2010	5531.434	5885.564	22050.00	0.3836373	1.9355079E-02	57.98247

Instrument : CHAMBER 222  
 Detector : 79415  
 Standard ID : AESS-014  
 Standard Reference Date : 19-FEB-2008 11:05:22  
 Calibration Analysis Date/Time : 29-JUN-2009 11:07:32  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 30-JUN-2009 13:27:29  
 Average Efficiency : 0.3503861  
 Average Efficiency Error : 9.6052606E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	214.7088	28-FEB-2010	2991.968	3297.845	21293.00	0.3347430	1.4312199E-02	57.14749
NP-237	211.7160	28-FEB-2010	4434.336	4906.032	23208.00	0.3653858	1.8426064E-02	76.21756
CM-244	207.3882	28-FEB-2010	5530.429	5882.613	21327.00	0.3610742	1.8222243E-02	61.58858

Instrument : CHAMBER 223  
 Detector : 79416  
 Standard ID : AESS-015  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 29-JUN-2009 11:07:37  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 30-JUN-2009 13:27:39  
 Average Efficiency : 0.3893896  
 Average Efficiency Error : 1.0661449E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	204.0270	28-FEB-2010	2989.801	3297.756	23051.00	0.3813936	1.6290823E-02	56.25597
NP-237	200.6460	28-FEB-2010	4434.980	4902.483	23824.00	0.3957835	1.9954618E-02	75.62739
CM-244	195.9270	28-FEB-2010	5530.752	5886.350	22029.00	0.3949774	1.9927377E-02	58.25835

Instrument : CHAMBER 224  
 Detector : 79417  
 Standard ID : AESS-016  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 29-JUN-2009 11:07:43  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 30-JUN-2009 13:27:48  
 Average Efficiency : 0.3855355  
 Average Efficiency Error : 1.0559128E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	204.0534	28-FEB-2010	2987.708	3297.620	22614.00	0.3741145	1.5983578E-02	56.47799
NP-237	199.3962	28-FEB-2010	4432.391	4904.314	23852.00	0.3987372	2.0103335E-02	75.47507
CM-244	198.6402	28-FEB-2010	5535.163	5883.043	22064.00	0.3902014	1.9686140E-02	61.20261

Instrument : CHAMBER 225  
 Detector : 79418  
 Standard ID : AESS-017  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 29-JUN-2009 11:07:48  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 30-JUN-2009 13:28:00  
 Average Efficiency : 0.3784462  
 Average Efficiency Error : 1.0361466E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	210.0798	28-FEB-2010	2990.136	3297.838	23025.00	0.3699967	1.5804220E-02	54.96978
NP-237	208.5846	28-FEB-2010	4432.708	4903.892	24244.00	0.3874272	1.9530520E-02	72.92027
CM-244	205.5828	28-FEB-2010	5534.915	5883.445	22371.00	0.3822702	1.9283641E-02	60.31302

Instrument : CHAMBER 226  
 Detector : 79419  
 Standard ID : AESS-018  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 29-JUN-2009 11:07:53  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 30-JUN-2009 13:28:10  
 Average Efficiency : 0.3837910  
 Average Efficiency Error : 1.0508147E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	202.1856	28-FEB-2010	2990.396	3299.355	22716.00	0.3792837	1.6203530E-02	50.45033
NP-237	208.8990	28-FEB-2010	4437.021	4903.289	23922.00	0.3817108	1.9244449E-02	73.07991
CM-244	198.1458	28-FEB-2010	5534.002	5887.398	22152.00	0.3927352	1.9813271E-02	59.33780

Instrument : CHAMBER 227  
 Detector : 79420  
 Standard ID : AESS-019  
 Standard Reference Date : 19-FEB-2008 11:05:22  
 Calibration Analysis Date/Time : 29-JUN-2009 11:07:59  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 30-JUN-2009 13:28:21  
 Average Efficiency : 0.3834471  
 Average Efficiency Error : 1.0500080E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	204.6468	28-FEB-2010	2988.851	3301.430	22706.00	0.3745125	1.5999762E-02	61.38483
NP-237	202.9140	28-FEB-2010	4435.798	4901.523	23913.00	0.3928266	1.9804921E-02	69.44127
CM-244	199.3140	28-FEB-2010	5532.218	5885.954	22005.00	0.3876506	1.9557914E-02	59.98711

Instrument : CHAMBER 228  
 Detector : 79421  
 Standard ID : AESS-020  
 Standard Reference Date : 14-FEB-2008 21:55:55  
 Calibration Analysis Date/Time : 29-JUN-2009 11:08:06  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 30-JUN-2009 13:28:30  
 Average Efficiency : 0.3812083  
 Average Efficiency Error : 1.0441090E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	205.5870	28-FEB-2010	2989.413	3298.479	22499.00	0.3694338	1.5784577E-02	57.02933
NP-237	203.4984	28-FEB-2010	4435.708	4901.434	23757.00	0.3891334	1.9619791E-02	78.34894
CM-244	197.1096	28-FEB-2010	5531.094	5883.745	21974.00	0.3916203	1.9758444E-02	59.88309

Instrument : CHAMBER 229  
 Detector : 79422  
 Standard ID : AESS-021  
 Standard Reference Date : 19-FEB-2008 15:31:52  
 Calibration Analysis Date/Time : 29-JUN-2009 11:08:14  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 30-JUN-2009 13:28:39  
 Average Efficiency : 0.3777187  
 Average Efficiency Error : 1.0341295E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	208.3608	28-FEB-2010	2992.428	3300.536	22973.00	0.3721605	1.5897052E-02	58.77625
NP-237	210.1548	28-FEB-2010	4436.659	4902.986	23961.00	0.3800487	1.9160392E-02	70.52748
CM-244	200.7390	28-FEB-2010	5534.392	5883.088	21930.00	0.3835794	1.9353105E-02	57.32039

Instrument : CHAMBER 230  
 Detector : 79423  
 Standard ID : AESS-022  
 Standard Reference Date : 14-FEB-2008 21:55:55  
 Calibration Analysis Date/Time : 29-JUN-2009 11:08:21  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 30-JUN-2009 13:28:51  
 Average Efficiency : 0.3723746  
 Average Efficiency Error : 1.0199217E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	209.6724	28-FEB-2010	2990.435	3299.126	22423.00	0.3610166	1.5425573E-02	51.30120
NP-237	206.8830	28-FEB-2010	4436.006	4902.037	23676.00	0.3814719	1.9234043E-02	72.62286
CM-244	203.0208	28-FEB-2010	5532.506	5885.804	22015.00	0.3809220	1.9218368E-02	59.56349

Instrument : CHAMBER 231  
 Detector : 79424  
 Standard ID : AESS-023  
 Standard Reference Date : 14-FEB-2008 21:55:55  
 Calibration Analysis Date/Time : 29-JUN-2009 11:08:27  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 30-JUN-2009 13:29:03  
 Average Efficiency : 0.3858555  
 Average Efficiency Error : 1.0562916E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	207.4764	28-FEB-2010	2991.739	3299.860	23293.00	0.3789935	1.6186299E-02	57.20384
NP-237	207.4998	28-FEB-2010	4434.942	4905.625	24373.00	0.3915348	1.9736728E-02	74.61633
CM-244	199.8804	28-FEB-2010	5535.464	5883.098	22212.00	0.3903586	1.9692916E-02	65.42931

Instrument : CHAMBER 232  
 Detector : 79425  
 Standard ID : AESS-024  
 Standard Reference Date : 14-FEB-2008 21:55:55  
 Calibration Analysis Date/Time : 29-JUN-2009 11:08:33  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 30-JUN-2009 13:29:13  
 Average Efficiency : 0.3708555  
 Average Efficiency Error : 1.0160839E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	203.5218	28-FEB-2010	2989.849	3300.399	21668.00	0.3594086	1.5363393E-02	54.49700
NP-237	205.6662	28-FEB-2010	4435.500	4901.412	23160.00	0.3753609	1.8929429E-02	74.14132
CM-244	198.3060	28-FEB-2010	5530.414	5887.598	21698.00	0.3843684	1.9394770E-02	61.92214



Instrument : CHAMBER 233  
 Detector : 79426  
 Standard ID : AESS-025  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 29-JUN-2009 11:08:39  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 30-JUN-2009 13:29:22  
 Average Efficiency : 0.3807971  
 Average Efficiency Error : 1.0442032E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	195.5670	28-FEB-2010	2988.552	3300.019	21743.00	0.3753024	1.6042113E-02	57.53493
NP-237	167.9916	28-FEB-2010	4437.049	4902.445	19555.00	0.3880157	1.9598201E-02	65.87717
CM-244	157.2432	28-FEB-2010	5533.265	5887.350	17089.00	0.3817507	1.9309653E-02	57.89972

Instrument : CHAMBER 234  
 Detector : 79427  
 Standard ID : AESS-026  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 29-JUN-2009 11:08:46  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 30-JUN-2009 13:29:34  
 Average Efficiency : 0.3715710  
 Average Efficiency Error : 1.0840051E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	199.5072	28-FEB-2010	2992.038	3298.233	21630.00	0.3659885	1.8468786E-02	59.50484
NP-237	168.0294	28-FEB-2010	4434.030	4904.076	19159.00	0.3800664	1.9200675E-02	73.78577
CM-244	160.5822	28-FEB-2010	5534.071	5887.649	16880.00	0.3692411	1.8679539E-02	60.73690

Instrument : CHAMBER 235  
 Detector : 79428  
 Standard ID : AESS-027  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 29-JUN-2009 11:08:52  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 30-JUN-2009 13:29:43  
 Average Efficiency : 0.3940442  
 Average Efficiency Error : 1.1499584E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	193.4238	28-FEB-2010	2989.263	3301.595	21602.00	0.3770158	1.9025473E-02	58.14516
NP-237	161.6154	28-FEB-2010	4435.665	4901.527	19364.00	0.3993784	2.0174121E-02	80.43070
CM-244	148.1754	28-FEB-2010	5532.636	5886.715	17233.00	0.4085333	2.0662384E-02	62.76055

Instrument : CHAMBER 236  
 Detector : 79429  
 Standard ID : AESS-028  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 29-JUN-2009 11:08:58  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 30-JUN-2009 13:29:51  
 Average Efficiency : 0.3835090  
 Average Efficiency Error : 1.1186651E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	199.6542	28-FEB-2010	2987.896	3299.376	22084.00	0.3733852	1.8838538E-02	56.68213
NP-237	168.1992	28-FEB-2010	4436.423	4901.814	19840.00	0.3931670	1.9855550E-02	67.99222
CM-244	156.7614	28-FEB-2010	5532.618	5886.688	17183.00	0.3850371	1.9474657E-02	58.26772

Instrument : CHAMBER 237  
 Detector : 79430  
 Standard ID : AESS-029  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 29-JUN-2009 11:09:04  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 30-JUN-2009 13:30:00  
 Average Efficiency : 0.3829979  
 Average Efficiency Error : 1.1177646E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	201.5742	28-FEB-2010	2991.344	3298.717	21746.00	0.3641782	1.8376544E-02	56.31577
NP-237	169.7700	28-FEB-2010	4433.245	4904.669	19754.00	0.3878583	1.9588275E-02	82.97163
CM-244	154.8234	28-FEB-2010	5531.003	5885.403	17660.00	0.4006723	2.0259250E-02	60.27898

Instrument : CHAMBER 238  
 Detector : 79431  
 Standard ID : AESS-030  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 29-JUN-2009 11:09:12  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 30-JUN-2009 13:30:09  
 Average Efficiency : 0.3807547  
 Average Efficiency Error : 1.1108285E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	198.9792	28-FEB-2010	2988.961	3300.370	21726.00	0.3685883	1.8599236E-02	56.98843
NP-237	166.3758	28-FEB-2010	4436.951	4902.062	19490.00	0.3904817	1.9723417E-02	79.47810
CM-244	157.1856	28-FEB-2010	5532.406	5886.179	17210.00	0.3846013	1.9452270E-02	57.54609

Instrument : CHAMBER 239  
 Detector : 79432  
 Standard ID : AESS-031  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 29-JUN-2009 11:09:18  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 30-JUN-2009 13:30:18  
 Average Efficiency : 0.3896177  
 Average Efficiency Error : 1.0683284E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	193.6650	28-FEB-2010	2990.544	3302.370	22065.00	0.3845867	1.6435910E-02	56.06851
NP-237	162.9186	28-FEB-2010	4436.212	4902.679	19357.00	0.3960098	2.0004071E-02	74.77979
CM-244	153.1968	28-FEB-2010	5535.220	5884.998	17043.00	0.3906523	1.9760521E-02	60.01815

Instrument : CHAMBER 240  
 Detector : 79433  
 Standard ID : AESS-032  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 29-JUN-2009 11:09:25  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 30-JUN-2009 13:30:27  
 Average Efficiency : 0.3777754  
 Average Efficiency Error : 1.0360904E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	195.2364	28-FEB-2010	2990.696	3301.853	21594.00	0.3733324	1.5959276E-02	54.88348
NP-237	165.9822	28-FEB-2010	4433.664	4904.733	18875.00	0.3790388	1.9151727E-02	72.74045
CM-244	153.7938	28-FEB-2010	5531.260	5886.094	16776.00	0.3830326	1.9378640E-02	59.08883

Instrument : CHAMBER 241  
 Detector : 79434  
 Standard ID : AESS-033  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 29-JUN-2009 11:09:31  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 30-JUN-2009 13:30:36  
 Average Efficiency : 0.3931700  
 Average Efficiency Error : 1.0783223E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	192.4158	28-FEB-2010	2990.242	3301.966	21884.00	0.3839029	1.6408380E-02	53.49284
NP-237	161.7816	28-FEB-2010	4434.457	4905.204	19269.00	0.3970166	2.0055814E-02	84.30279
CM-244	147.2670	28-FEB-2010	5530.782	5884.826	16923.00	0.4035279	2.0413468E-02	60.66447

Instrument : CHAMBER 242  
 Detector : 79435  
 Standard ID : AESS-034  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 29-JUN-2009 11:09:38  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 30-JUN-2009 13:30:45  
 Average Efficiency : 0.3846521  
 Average Efficiency Error : 1.0549294E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	200.5488	28-FEB-2010	2990.030	3301.446	22109.00	0.3721264	1.5903009E-02	60.76245
NP-237	167.2962	28-FEB-2010	4433.469	4904.310	19754.00	0.3935935	1.9877926E-02	76.54881
CM-244	154.4388	28-FEB-2010	5535.605	5884.633	17390.00	0.3954074	1.9996468E-02	61.98755

Instrument : CHAMBER 243  
 Detector : 79436  
 Standard ID : AESS-035  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 29-JUN-2009 11:09:44  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 30-JUN-2009 13:30:54  
 Average Efficiency : 0.3685505  
 Average Efficiency Error : 1.0109218E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	198.6666	28-FEB-2010	2990.365	3297.486	21347.00	0.3626947	1.5506803E-02	57.87182
NP-237	168.2934	28-FEB-2010	4436.388	4902.306	19057.00	0.3774501	1.9069549E-02	79.79286
CM-244	158.8128	28-FEB-2010	5533.622	5882.491	16666.00	0.3685086	1.8645244E-02	59.82504

Instrument : CHAMBER 244  
 Detector : 79437  
 Standard ID : AESS-036  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 29-JUN-2009 11:09:51  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 30-JUN-2009 13:31:04  
 Average Efficiency : 0.3725442  
 Average Efficiency Error : 1.0218798E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	201.3204	28-FEB-2010	2989.131	3300.564	21635.00	0.3627526	1.5506621E-02	61.82745
NP-237	167.4312	28-FEB-2010	4432.574	4903.374	19014.00	0.3785259	1.9124355E-02	78.29796
CM-244	156.4188	28-FEB-2010	5534.584	5883.551	16999.00	0.3816244	1.9304425E-02	60.38109

Instrument : CHAMBER 245  
 Detector : 79438  
 Standard ID : AESS-037  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 29-JUN-2009 11:09:58  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 30-JUN-2009 13:31:18  
 Average Efficiency : 0.3871339  
 Average Efficiency Error : 1.0614644E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	197.7372	28-FEB-2010	2992.063	3299.394	22212.00	0.3791691	1.6203059E-02	61.13074
NP-237	167.1294	28-FEB-2010	4434.575	4906.628	19802.00	0.3949435	1.9945625E-02	77.95452
CM-244	154.7664	28-FEB-2010	5534.102	5883.894	17248.00	0.3913280	1.9792015E-02	61.02800

Instrument : CHAMBER 246  
 Detector : 78912  
 Standard ID : AESS-038  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 29-JUN-2009 11:10:04  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 30-JUN-2009 13:31:31  
 Average Efficiency : 0.3734691  
 Average Efficiency Error : 1.0242580E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	200.1408	28-FEB-2010	2989.019	3301.538	21682.00	0.3656716	1.5630983E-02	62.50508
NP-237	170.0886	28-FEB-2010	4435.665	4906.544	19170.00	0.3756807	1.8979004E-02	73.78893
CM-244	157.7460	28-FEB-2010	5531.825	5885.470	17212.00	0.3831484	1.9378757E-02	60.45332

Instrument : CHAMBER 247  
 Detector : 79440  
 Standard ID : AESS-039  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 29-JUN-2009 11:10:09  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 30-JUN-2009 13:31:41  
 Average Efficiency : 0.3946936  
 Average Efficiency Error : 1.0825262E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	192.2418	28-FEB-2010	2988.774	3301.191	21982.00	0.3859695	1.6495787E-02	57.12532
NP-237	159.1506	28-FEB-2010	4436.556	4903.380	19616.00	0.4108289	2.0749848E-02	76.11504
CM-244	151.7142	28-FEB-2010	5530.809	5885.967	16961.00	0.3925581	1.9858034E-02	61.99513

Instrument : CHAMBER 248  
 Detector : 79441  
 Standard ID : AESS-040  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 29-JUN-2009 11:10:15  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 30-JUN-2009 13:31:51  
 Average Efficiency : 0.3902423  
 Average Efficiency Error : 1.0700536E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	194.4828	28-FEB-2010	2988.392	3300.122	21933.00	0.3806768	1.6270030E-02	55.85408
NP-237	166.8174	28-FEB-2010	4433.659	4905.293	19807.00	0.3957821	1.9987926E-02	82.39788
CM-244	155.0100	28-FEB-2010	5532.437	5887.556	17631.00	0.3993214	2.0191407E-02	58.45845

Instrument : CHAMBER 249  
 Detector : 79442  
 Standard ID : AESS-041  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 29-JUN-2009 11:10:21  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 30-JUN-2009 13:32:04  
 Average Efficiency : 0.3691239  
 Average Efficiency Error : 1.0123477E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	203.9034	28-FEB-2010	2988.416	3300.577	21774.00	0.3604519	1.5407033E-02	52.81279
NP-237	171.2268	28-FEB-2010	4436.398	4904.007	19367.00	0.3770129	1.9044334E-02	66.80524
CM-244	159.5796	28-FEB-2010	5533.011	5883.893	17016.00	0.3744264	1.8940104E-02	54.54869

Instrument : CHAMBER 250  
 Detector : 79443  
 Standard ID : AESS-042  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 29-JUN-2009 11:10:26  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 30-JUN-2009 13:32:16  
 Average Efficiency : 0.4029809  
 Average Efficiency Error : 1.1048914E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	188.7090	28-FEB-2010	2987.664	3299.772	22102.00	0.3953417	1.6895199E-02	54.69497
NP-237	159.6558	28-FEB-2010	4433.576	4904.834	19622.00	0.4096608	2.0690778E-02	72.59711
CM-244	150.5208	28-FEB-2010	5531.060	5885.456	17478.00	0.4077245	2.0618226E-02	53.57324

Instrument : CHAMBER 251  
 Detector : 79444  
 Standard ID : AESS-043  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 29-JUN-2009 11:10:32  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 30-JUN-2009 13:32:48  
 Average Efficiency : 0.3859750  
 Average Efficiency Error : 1.0582183E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	197.7708	28-FEB-2010	2988.497	3300.693	22197.00	0.3788451	1.6189344E-02	55.12341
NP-237	168.7422	28-FEB-2010	4436.150	4903.399	19871.00	0.3925318	1.9823143E-02	75.41560
CM-244	156.3252	28-FEB-2010	5531.737	5887.575	17366.00	0.3900679	1.9726753E-02	56.80479

Instrument : CHAMBER 252  
 Detector : 79445  
 Standard ID : AESS-044  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 29-JUN-2009 11:10:38  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 30-JUN-2009 13:33:09  
 Average Efficiency : 0.3764580  
 Average Efficiency Error : 1.0325164E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	194.4510	28-FEB-2010	2988.592	3300.825	21491.00	0.3730471	1.5948050E-02	52.77084
NP-237	166.6248	28-FEB-2010	4435.553	4902.127	19212.00	0.3843369	1.9415863E-02	79.06938
CM-244	155.8290	28-FEB-2010	5534.590	5884.216	16588.00	0.3737789	1.8912956E-02	58.86968

Instrument : CHAMBER 253  
 Detector : 79446  
 Standard ID : AESS-045  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 29-JUN-2009 11:10:44  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 30-JUN-2009 13:33:20  
 Average Efficiency : 0.4178050  
 Average Efficiency Error : 1.1451593E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	186.9936	28-FEB-2010	2987.654	3300.865	23009.00	0.4153371	1.7741047E-02	58.55786
NP-237	160.8066	28-FEB-2010	4434.573	4903.102	19908.00	0.4126572	2.0839127E-02	76.00024
CM-244	145.8384	28-FEB-2010	5533.082	5884.383	17734.00	0.4269842	2.1588651E-02	59.04111

Instrument : CHAMBER 254  
 Detector : 79447  
 Standard ID : AESS-046  
 Standard Reference Date : 19-FEB-2008 19:35:48  
 Calibration Analysis Date/Time : 29-JUN-2009 11:10:49  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 30-JUN-2009 13:33:32  
 Average Efficiency : 0.3998787  
 Average Efficiency Error : 1.0964696E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	194.7474	28-FEB-2010	2991.549	3298.669	22357.00	0.3874868	1.6557176E-02	61.70351
NP-237	164.6658	28-FEB-2010	4433.543	4905.678	20062.00	0.4060794	2.0505425E-02	75.89950
CM-244	151.3824	28-FEB-2010	5533.440	5883.478	17814.00	0.4131682	2.0889070E-02	60.11974

Instrument : CHAMBER 255  
 Detector : 79448  
 Standard ID : AESS-047  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 29-JUN-2009 11:10:56  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 30-JUN-2009 13:33:42  
 Average Efficiency : 0.3661844  
 Average Efficiency Error : 1.0047055E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	197.4804	28-FEB-2010	2992.136	3299.381	20925.00	0.3576654	1.5295714E-02	54.59342
NP-237	168.3948	28-FEB-2010	4435.277	4902.796	18729.00	0.3707303	1.8733418E-02	71.29922
CM-244	154.6032	28-FEB-2010	5531.573	5887.697	16494.00	0.3746144	1.8956492E-02	56.20598

Instrument : CHAMBER 256  
 Detector : 79449  
 Standard ID : AESS-048  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 29-JUN-2009 11:11:01  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 30-JUN-2009 13:33:53  
 Average Efficiency : 0.3793263  
 Average Efficiency Error : 1.0406218E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	191.8350	28-FEB-2010	2989.020	3301.037	21283.00	0.3744797	1.6011277E-02	53.36488
NP-237	161.5530	28-FEB-2010	4435.346	4901.908	18858.00	0.3890801	1.9659264E-02	69.14060
CM-244	151.1856	28-FEB-2010	5534.491	5884.250	16233.00	0.3770208	1.9081894E-02	56.15398



## Subsection 1: Energy Calibration

The Energy Calibration energy=Cal\_Zero+(e1\*C)+(e2\*C^2)

where : Cal\_Zero = Energy Calibration Zero  
 e1 = Energy Calibration Slope  
 e2 = Energy Calibration Quadratic  
 C = Channel

Instrument : CHAMBER 001  
 Detector : 78788  
 Calibration Date/Time : 5-AUG-2009 14:45:15  
 Calibration Source Id : AESS-001

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3182.768
NP-237	4341	2/28/10	4768.800	4768.589
CM-244	4320A	2/28/10	5795.020	5794.928

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2541.111  
 Energy Calibration Slope : 5.103021  
 Energy Calibration Quadratic : 3.7696620E-04  
 Energy Calibration Range : 8162.000

Instrument : CHAMBER 002  
 Detector : 78266  
 Calibration Date/Time : 5-AUG-2009 14:45:26  
 Calibration Source Id : AESS-002

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3174.754
NP-237	4341	2/28/10	4768.800	4760.313
CM-244	4320A	2/28/10	5795.020	5783.900

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2454.309  
 Energy Calibration Slope : 5.127246  
 Energy Calibration Quadratic : 2.9634204E-04  
 Energy Calibration Range : 8015.000

Instrument : CHAMBER 003  
 Detector : 67617  
 Calibration Date/Time : 5-AUG-2009 14:45:38  
 Calibration Source Id : AESS-003

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3181.710
NP-237	4341	2/28/10	4768.800	4767.829
CM-244	4320A	2/28/10	5795.020	5794.321

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2595.909  
 Energy Calibration Slope : 5.495871  
 Energy Calibration Quadratic : 3.8085488E-04  
 Energy Calibration Range : 8623.000

Instrument : CHAMBER 004  
 Detector : 64279  
 Calibration Date/Time : 5-AUG-2009 14:45:54  
 Calibration Source Id : AESS-004

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.926
NP-237	4341	2/28/10	4768.800	4769.257
CM-244	4320A	2/28/10	5795.020	5795.158

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2531.198  
 Energy Calibration Slope : 5.085382  
 Energy Calibration Quadratic : 3.7076508E-04  
 Energy Calibration Range : 8127.000

Instrument : CHAMBER 005  
 Detector : 67612  
 Calibration Date/Time : 5-AUG-2009 14:46:05  
 Calibration Source Id : AESS-005

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.615
NP-237	4341	2/28/10	4768.800	4768.917
CM-244	4320A	2/28/10	5795.020	5795.262

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2383.824  
 Energy Calibration Slope : 5.018230  
 Energy Calibration Quadratic : 2.9044802E-04  
 Energy Calibration Range : 7827.000

Instrument : CHAMBER 006  
 Detector : 67613  
 Calibration Date/Time : 5-AUG-2009 14:46:15  
 Calibration Source Id : AESS-006

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3182.663
NP-237	4341	2/28/10	4768.800	4768.540
CM-244	4320A	2/28/10	5795.020	5794.813

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2372.455  
 Energy Calibration Slope : 4.968300  
 Energy Calibration Quadratic : 3.0602218E-04  
 Energy Calibration Range : 7781.000

Instrument : CHAMBER 007  
 Detector : 67607  
 Calibration Date/Time : 3-AUG-2009 15:08:14  
 Calibration Source Id : AESS-007  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.242  
 NP-237 4341 2/28/10 4768.800 4768.799  
 CM-244 4320A 2/28/10 5795.020 5795.021  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2434.070  
 Energy Calibration Slope : 5.126286  
 Energy Calibration Quadratic : 3.2231462E-04  
 Energy Calibration Range : 8021.000

Instrument : CHAMBER 008  
 Detector : 78788  
 Calibration Date/Time : 3-AUG-2009 15:08:25  
 Calibration Source Id : AESS-008  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.886  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2371.872  
 Energy Calibration Slope : 4.982497  
 Energy Calibration Quadratic : 2.9716187E-04  
 Energy Calibration Range : 7786.000

Instrument : CHAMBER 009  
 Detector : 72528  
 Calibration Date/Time : 3-AUG-2009 15:08:37  
 Calibration Source Id : AESS-009  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.800  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2376.048  
 Energy Calibration Slope : 4.954385  
 Energy Calibration Quadratic : 3.3214918E-04  
 Energy Calibration Range : 7798.000

Instrument : CHAMBER 010  
 Detector : 72529  
 Calibration Date/Time : 3-AUG-2009 15:08:47  
 Calibration Source Id : AESS-010

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.799
CM-244	4320A	2/28/10	5795.020	5795.021

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2369.197  
 Energy Calibration Slope : 4.976785  
 Energy Calibration Quadratic : 2.5434556E-04  
 Energy Calibration Range : 7732.000

Instrument : CHAMBER 011  
 Detector : 72531  
 Calibration Date/Time : 3-AUG-2009 15:10:05  
 Calibration Source Id : AESS-011

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.798
CM-244	4320A	2/28/10	5795.020	5794.773

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2352.745  
 Energy Calibration Slope : 4.989676  
 Energy Calibration Quadratic : 3.1640983E-04  
 Energy Calibration Range : 7794.000

Instrument : CHAMBER 012  
 Detector : 67594  
 Calibration Date/Time : 3-AUG-2009 15:10:47  
 Calibration Source Id : AESS-012

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3182.999
NP-237	4341	2/28/10	4768.800	4768.892
CM-244	4320A	2/28/10	5795.020	5795.162

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2380.763  
 Energy Calibration Slope : 4.944053  
 Energy Calibration Quadratic : 2.9969949E-04  
 Energy Calibration Range : 7758.000

Instrument : CHAMBER 013  
 Detector : 78790  
 Calibration Date/Time : 3-AUG-2009 15:10:57  
 Calibration Source Id : AESS-013

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3182.313
NP-237	4341	2/28/10	4768.800	4768.407
CM-244	4320A	2/28/10	5795.020	5794.604

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2363.188  
 Energy Calibration Slope : 4.918418  
 Energy Calibration Quadratic : 2.9963398E-04  
 Energy Calibration Range : 7714.000

Instrument : CHAMBER 014  
 Detector : 67616  
 Calibration Date/Time : 3-AUG-2009 15:11:09  
 Calibration Source Id : AESS-014

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.775
NP-237	4341	2/28/10	4768.800	4769.221
CM-244	4320A	2/28/10	5795.020	5795.274

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2348.951  
 Energy Calibration Slope : 4.947984  
 Energy Calibration Quadratic : 3.1622496E-04  
 Energy Calibration Range : 7747.000

Instrument : CHAMBER 015  
 Detector : 61581  
 Calibration Date/Time : 3-AUG-2009 15:11:19  
 Calibration Source Id : AESS-015

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3182.428
NP-237	4341	2/28/10	4768.800	4768.094
CM-244	4320A	2/28/10	5795.020	5794.472

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2351.056  
 Energy Calibration Slope : 4.893757  
 Energy Calibration Quadratic : 3.2378119E-04  
 Energy Calibration Range : 7702.000

Instrument : CHAMBER 016  
 Detector : 78774  
 Calibration Date/Time : 3-AUG-2009 15:11:28  
 Calibration Source Id : AESS-016

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.555
CM-244	4320A	2/28/10	5795.020	5795.020

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2352.841  
 Energy Calibration Slope : 4.901042  
 Energy Calibration Quadratic : 2.9683873E-04  
 Energy Calibration Range : 7683.000

Instrument : CHAMBER 017  
 Detector : 78791  
 Calibration Date/Time : 3-AUG-2009 15:12:45  
 Calibration Source Id : AESS-017

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.274
NP-237	4341	2/28/10	4768.800	4768.745
CM-244	4320A	2/28/10	5795.020	5795.020

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2363.135  
 Energy Calibration Slope : 4.992663  
 Energy Calibration Quadratic : 2.7446265E-04  
 Energy Calibration Range : 7763.000

Instrument : CHAMBER 018  
 Detector : 78782  
 Calibration Date/Time : 3-AUG-2009 15:12:56  
 Calibration Source Id : AESS-018

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3182.695
NP-237	4341	2/28/10	4768.800	4768.801
CM-244	4320A	2/28/10	5795.020	5795.113

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2352.853  
 Energy Calibration Slope : 4.963830  
 Energy Calibration Quadratic : 3.1513936E-04  
 Energy Calibration Range : 7766.000

Instrument : CHAMBER 019  
 Detector : 78786  
 Calibration Date/Time : 3-AUG-2009 15:13:21  
 Calibration Source Id : AESS-019  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.801  
 CM-244 4320A 2/28/10 5795.020 5794.625  
  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2342.911  
 Energy Calibration Slope : 5.075375  
 Energy Calibration Quadratic : 2.0290195E-04  
 Energy Calibration Range : 7753.000

Instrument : CHAMBER 020  
 Detector : 78787  
 Calibration Date/Time : 3-AUG-2009 15:13:30  
 Calibration Source Id : AESS-020  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3182.407  
 NP-237 4341 2/28/10 4768.800 4768.798  
 CM-244 4320A 2/28/10 5795.020 5794.754  
  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2341.178  
 Energy Calibration Slope : 4.974929  
 Energy Calibration Quadratic : 3.0557165E-04  
 Energy Calibration Range : 7756.000

Instrument : CHAMBER 021  
 Detector : 67047  
 Calibration Date/Time : 3-AUG-2009 15:13:40  
 Calibration Source Id : AESS-021  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3182.625  
 NP-237 4341 2/28/10 4768.800 4768.133  
 CM-244 4320A 2/28/10 5795.020 5794.606  
  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2275.519  
 Energy Calibration Slope : 4.971471  
 Energy Calibration Quadratic : 2.7405904E-04  
 Energy Calibration Range : 7654.000

Instrument : CHAMBER 022  
 Detector : 72530  
 Calibration Date/Time : 3-AUG-2009 15:13:53  
 Calibration Source Id : AESS-022

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.547
CM-244	4320A	2/28/10	5795.020	5795.021

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2376.547  
 Energy Calibration Slope : 4.977059  
 Energy Calibration Quadratic : 2.7739155E-04  
 Energy Calibration Range : 7764.000

Instrument : CHAMBER 023  
 Detector : 78264  
 Calibration Date/Time : 3-AUG-2009 15:14:51  
 Calibration Source Id : AESS-023

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3182.979
NP-237	4341	2/28/10	4768.800	4768.454
CM-244	4320A	2/28/10	5795.020	5795.020

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2383.134  
 Energy Calibration Slope : 4.999145  
 Energy Calibration Quadratic : 2.8956190E-04  
 Energy Calibration Range : 7806.000

Instrument : CHAMBER 024  
 Detector : 76542  
 Calibration Date/Time : 3-AUG-2009 15:15:01  
 Calibration Source Id : AESS-024

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.799
CM-244	4320A	2/28/10	5795.020	5795.021

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2348.727  
 Energy Calibration Slope : 4.965035  
 Energy Calibration Quadratic : 2.7366623E-04  
 Energy Calibration Range : 7720.000



Instrument : CHAMBER 025  
 Detector : 45-149AA5  
 Calibration Date/Time : 3-AUG-2009 15:15:13  
 Calibration Source Id : AESS-025  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.326  
 NP-237 4341 2/28/10 4768.800 4769.288  
 CM-244 4320A 2/28/10 5795.020 5795.321  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2318.480  
 Energy Calibration Slope : 4.856905  
 Energy Calibration Quadratic : 3.0368069E-04  
 Energy Calibration Range : 7610.000

Instrument : CHAMBER 026  
 Detector : 78204  
 Calibration Date/Time : 3-AUG-2009 15:15:23  
 Calibration Source Id : AESS-026  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.821  
 CM-244 4320A 2/28/10 5795.020 5795.028  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2356.528  
 Energy Calibration Slope : 4.940171  
 Energy Calibration Quadratic : 3.3160963E-04  
 Energy Calibration Range : 7763.000

Instrument : CHAMBER 027  
 Detector : 42484  
 Calibration Date/Time : 3-AUG-2009 15:15:36  
 Calibration Source Id : AESS-027  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.779  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2362.956  
 Energy Calibration Slope : 4.971167  
 Energy Calibration Quadratic : 3.1741365E-04  
 Energy Calibration Range : 7786.000

Instrument : CHAMBER 028  
 Detector : 78792  
 Calibration Date/Time : 3-AUG-2009 15:15:45  
 Calibration Source Id : AESS-028

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.319
NP-237	4341	2/28/10	4768.800	4768.977
CM-244	4320A	2/28/10	5795.020	5795.122

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2311.473  
 Energy Calibration Slope : 4.929708  
 Energy Calibration Quadratic : 3.5385601E-04  
 Energy Calibration Range : 7731.000

Instrument : CHAMBER 029  
 Detector : 33454  
 Calibration Date/Time : 3-AUG-2009 15:15:55  
 Calibration Source Id : AESS-029

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3184.453
NP-237	4341	2/28/10	4768.800	4773.209
CM-244	4320A	2/28/10	5795.020	5802.449

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2339.797  
 Energy Calibration Slope : 4.857889  
 Energy Calibration Quadratic : 3.2029144E-04  
 Energy Calibration Range : 7650.000

Instrument : CHAMBER 030  
 Detector : 33447  
 Calibration Date/Time : 3-AUG-2009 15:16:05  
 Calibration Source Id : AESS-030

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3182.504
NP-237	4341	2/28/10	4768.800	4768.116
CM-244	4320A	2/28/10	5795.020	5794.519

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2378.547  
 Energy Calibration Slope : 4.952705  
 Energy Calibration Quadratic : 3.1284252E-04  
 Energy Calibration Range : 7778.000

Instrument : CHAMBER 031  
 Detector : 67042  
 Calibration Date/Time : 3-AUG-2009 15:16:16  
 Calibration Source Id : AESS-031

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.466
NP-237	4341	2/28/10	4768.800	4769.878
CM-244	4320A	2/28/10	5795.020	5796.077

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2364.033  
 Energy Calibration Slope : 4.931703  
 Energy Calibration Quadratic : 3.3940026E-04  
 Energy Calibration Range : 7770.000

Instrument : CHAMBER 032  
 Detector : 67041  
 Calibration Date/Time : 3-AUG-2009 15:16:28  
 Calibration Source Id : AESS-032

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.801
CM-244	4320A	2/28/10	5795.020	5795.020

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2370.812  
 Energy Calibration Slope : 4.912539  
 Energy Calibration Quadratic : 3.7134811E-04  
 Energy Calibration Range : 7791.000

Instrument : CHAMBER 033  
 Detector : 78785  
 Calibration Date/Time : 3-AUG-2009 15:16:44  
 Calibration Source Id : AESS-033

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.937
CM-244	4320A	2/28/10	5795.020	5795.020

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2376.592  
 Energy Calibration Slope : 4.933960  
 Energy Calibration Quadratic : 3.4911980E-04  
 Energy Calibration Range : 7795.000

Instrument : CHAMBER 034  
 Detector : 61586  
 Calibration Date/Time : 3-AUG-2009 15:16:57  
 Calibration Source Id : AESS-034

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3182.237
NP-237	4341	2/28/10	4768.800	4768.352
CM-244	4320A	2/28/10	5795.020	5794.135

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2382.364  
 Energy Calibration Slope : 5.064843  
 Energy Calibration Quadratic : 3.7605409E-04  
 Energy Calibration Range : 7963.000

Instrument : CHAMBER 035  
 Detector : 78202  
 Calibration Date/Time : 3-AUG-2009 15:17:07  
 Calibration Source Id : AESS-035

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.976
CM-244	4320A	2/28/10	5795.020	5795.068

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2332.455  
 Energy Calibration Slope : 4.961503  
 Energy Calibration Quadratic : 3.2716690E-04  
 Energy Calibration Range : 7756.000

Instrument : CHAMBER 036  
 Detector : 78203  
 Calibration Date/Time : 3-AUG-2009 15:17:19  
 Calibration Source Id : AESS-036

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.831
CM-244	4320A	2/28/10	5795.020	5795.020

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2351.688  
 Energy Calibration Slope : 4.934670  
 Energy Calibration Quadratic : 3.2679725E-04  
 Energy Calibration Range : 7747.000

Instrument : CHAMBER 037  
 Detector : 45-149BB5  
 Calibration Date/Time : 3-AUG-2009 15:17:30  
 Calibration Source Id : AESS-037  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.360  
 NP-237 4341 2/28/10 4768.800 4770.173  
 CM-244 4320A 2/28/10 5795.020 5795.449  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2380.215  
 Energy Calibration Slope : 4.934037  
 Energy Calibration Quadratic : 2.6879812E-04  
 Energy Calibration Range : 7715.000

Instrument : CHAMBER 038  
 Detector : 72532  
 Calibration Date/Time : 3-AUG-2009 15:17:42  
 Calibration Source Id : AESS-038  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3182.992  
 NP-237 4341 2/28/10 4768.800 4768.694  
 CM-244 4320A 2/28/10 5795.020 5794.956  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2374.738  
 Energy Calibration Slope : 4.941356  
 Energy Calibration Quadratic : 3.2555324E-04  
 Energy Calibration Range : 7776.000

Instrument : CHAMBER 039  
 Detector : 45-149BB2  
 Calibration Date/Time : 3-AUG-2009 15:17:50  
 Calibration Source Id : AESS-039  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4769.047  
 CM-244 4320A 2/28/10 5795.020 5795.021  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2386.341  
 Energy Calibration Slope : 4.892657  
 Energy Calibration Quadratic : 3.3502636E-04  
 Energy Calibration Range : 7748.000

Instrument : CHAMBER 040  
 Detector : 78773  
 Calibration Date/Time : 3-AUG-2009 15:18:00  
 Calibration Source Id : AESS-040

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.801
CM-244	4320A	2/28/10	5795.020	5795.091

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2353.680  
 Energy Calibration Slope : 4.886324  
 Energy Calibration Quadratic : 3.3744561E-04  
 Energy Calibration Range : 7711.000

Instrument : CHAMBER 041  
 Detector : 78205  
 Calibration Date/Time : 3-AUG-2009 15:18:09  
 Calibration Source Id : AESS-041

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.801
CM-244	4320A	2/28/10	5795.020	5795.019

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2360.991  
 Energy Calibration Slope : 4.934965  
 Energy Calibration Quadratic : 3.5826201E-04  
 Energy Calibration Range : 7790.000

Instrument : CHAMBER 042  
 Detector : 78793  
 Calibration Date/Time : 3-AUG-2009 15:18:18  
 Calibration Source Id : AESS-042

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.799
CM-244	4320A	2/28/10	5795.020	5795.021

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2378.631  
 Energy Calibration Slope : 4.903480  
 Energy Calibration Quadratic : 3.3252311E-04  
 Energy Calibration Range : 7748.000

Instrument : CHAMBER 043  
 Detector : 76543  
 Calibration Date/Time : 3-AUG-2009 15:18:26  
 Calibration Source Id : AESS-043

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.829
CM-244	4320A	2/28/10	5795.020	5795.020

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2368.789  
 Energy Calibration Slope : 4.934124  
 Energy Calibration Quadratic : 3.2330386E-04  
 Energy Calibration Range : 7760.000

Instrument : CHAMBER 044  
 Detector : 79459  
 Calibration Date/Time : 3-AUG-2009 15:18:36  
 Calibration Source Id : AESS-044

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.302
NP-237	4341	2/28/10	4768.800	4768.800
CM-244	4320A	2/28/10	5795.020	5795.020

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2359.457  
 Energy Calibration Slope : 4.939529  
 Energy Calibration Quadratic : 3.2710869E-04  
 Energy Calibration Range : 7761.000

Instrument : CHAMBER 045  
 Detector : 78783  
 Calibration Date/Time : 3-AUG-2009 15:18:46  
 Calibration Source Id : AESS-045

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3182.992
NP-237	4341	2/28/10	4768.800	4768.800
CM-244	4320A	2/28/10	5795.020	5795.021

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2366.479  
 Energy Calibration Slope : 4.912705  
 Energy Calibration Quadratic : 3.5802016E-04  
 Energy Calibration Range : 7773.000

Instrument : CHAMBER 046  
 Detector : 76544  
 Calibration Date/Time : 3-AUG-2009 15:18:55  
 Calibration Source Id : AESS-046  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.801  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2361.703  
 Energy Calibration Slope : 4.888400  
 Energy Calibration Quadratic : 3.3994557E-04  
 Energy Calibration Range : 7724.000

Instrument : CHAMBER 047  
 Detector : 46-089B1  
 Calibration Date/Time : 3-AUG-2009 15:19:03  
 Calibration Source Id : AESS-047  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.340  
 NP-237 4341 2/28/10 4768.800 4768.922  
 CM-244 4320A 2/28/10 5795.020 5795.151  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2354.429  
 Energy Calibration Slope : 4.963282  
 Energy Calibration Quadratic : 3.1133511E-04  
 Energy Calibration Range : 7763.000

Instrument : CHAMBER 048  
 Detector : 42483  
 Calibration Date/Time : 3-AUG-2009 15:19:12  
 Calibration Source Id : AESS-048  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.266  
 NP-237 4341 2/28/10 4768.800 4768.972  
 CM-244 4320A 2/28/10 5795.020 5795.095  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2377.788  
 Energy Calibration Slope : 4.957360  
 Energy Calibration Quadratic : 2.8386535E-04  
 Energy Calibration Range : 7752.000



Instrument : CHAMBER 065  
 Detector : 68551  
 Calibration Date/Time : 11-AUG-2009 11:32:36  
 Calibration Source Id : AESS-001

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.849
NP-237	4341	2/28/10	4768.800	4769.466
CM-244	4320A	2/28/10	5795.020	5795.163

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2372.264  
 Energy Calibration Slope : 4.908353  
 Energy Calibration Quadratic : 3.3354512E-04  
 Energy Calibration Range : 7748.000

Instrument : CHAMBER 066  
 Detector : 46-089C1  
 Calibration Date/Time : 11-AUG-2009 11:33:22  
 Calibration Source Id : AESS-002

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.390
NP-237	4341	2/28/10	4768.800	4769.085
CM-244	4320A	2/28/10	5795.020	5795.154

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2366.405  
 Energy Calibration Slope : 4.987269  
 Energy Calibration Quadratic : 2.6785664E-04  
 Energy Calibration Range : 7754.000

Instrument : CHAMBER 067  
 Detector : 46-089B4  
 Calibration Date/Time : 11-AUG-2009 11:33:34  
 Calibration Source Id : AESS-003

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.001
NP-237	4341	2/28/10	4768.800	4768.295
CM-244	4320A	2/28/10	5795.020	5794.813

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2395.106  
 Energy Calibration Slope : 4.966452  
 Energy Calibration Quadratic : 2.8820083E-04  
 Energy Calibration Range : 7783.000

Instrument : CHAMBER 068  
 Detector : 78794  
 Calibration Date/Time : 11-AUG-2009 11:38:02  
 Calibration Source Id : AESS-004

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.980
CM-244	4320A	2/28/10	5795.020	5795.141

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2363.999  
 Energy Calibration Slope : 4.959627  
 Energy Calibration Quadratic : 3.2675461E-04  
 Energy Calibration Range : 7785.000

Instrument : CHAMBER 069  
 Detector : 78795  
 Calibration Date/Time : 11-AUG-2009 11:38:36  
 Calibration Source Id : AESS-005

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.715
CM-244	4320A	2/28/10	5795.020	5795.021

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2374.161  
 Energy Calibration Slope : 4.934980  
 Energy Calibration Quadratic : 3.3370449E-04  
 Energy Calibration Range : 7777.000

Instrument : CHAMBER 070  
 Detector : 46-089B2  
 Calibration Date/Time : 11-AUG-2009 11:38:49  
 Calibration Source Id : AESS-006

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.376
NP-237	4341	2/28/10	4768.800	4768.799
CM-244	4320A	2/28/10	5795.020	5795.021

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2384.967  
 Energy Calibration Slope : 4.940035  
 Energy Calibration Quadratic : 3.0117441E-04  
 Energy Calibration Range : 7759.000

Instrument : CHAMBER 071  
 Detector : 64259  
 Calibration Date/Time : 11-AUG-2009 11:39:05  
 Calibration Source Id : AESS-007

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.799
CM-244	4320A	2/28/10	5795.020	5795.020

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2380.222  
 Energy Calibration Slope : 4.972534  
 Energy Calibration Quadratic : 3.0923611E-04  
 Energy Calibration Range : 7796.000

Instrument : CHAMBER 072  
 Detector : 45-149AA3  
 Calibration Date/Time : 11-AUG-2009 11:41:05  
 Calibration Source Id : AESS-008

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.799
CM-244	4320A	2/28/10	5795.020	5794.779

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2367.289  
 Energy Calibration Slope : 4.936321  
 Energy Calibration Quadratic : 3.1663457E-04  
 Energy Calibration Range : 7754.000

Instrument : CHAMBER 073  
 Detector : 78775  
 Calibration Date/Time : 11-AUG-2009 11:41:19  
 Calibration Source Id : AESS-009

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.800
CM-244	4320A	2/28/10	5795.020	5795.020

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2340.294  
 Energy Calibration Slope : 4.933617  
 Energy Calibration Quadratic : 3.0803526E-04  
 Energy Calibration Range : 7715.000

Instrument : CHAMBER 074  
 Detector : 78266  
 Calibration Date/Time : 11-AUG-2009 11:41:50  
 Calibration Source Id : AESS-010

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.800
CM-244	4320A	2/28/10	5795.020	5795.020

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2357.238  
 Energy Calibration Slope : 4.957754  
 Energy Calibration Quadratic : 3.2763465E-04  
 Energy Calibration Range : 7778.000

Instrument : CHAMBER 075  
 Detector : 68550  
 Calibration Date/Time : 11-AUG-2009 11:42:08  
 Calibration Source Id : AESS-011

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.795
NP-237	4341	2/28/10	4768.800	4769.246
CM-244	4320A	2/28/10	5795.020	5795.020

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2357.909  
 Energy Calibration Slope : 4.956091  
 Energy Calibration Quadratic : 3.1667759E-04  
 Energy Calibration Range : 7765.000

Instrument : CHAMBER 076  
 Detector : 78779  
 Calibration Date/Time : 11-AUG-2009 11:42:40  
 Calibration Source Id : AESS-012

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.799
CM-244	4320A	2/28/10	5795.020	5795.193

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2353.146  
 Energy Calibration Slope : 4.949463  
 Energy Calibration Quadratic : 3.2361425E-04  
 Energy Calibration Range : 7761.000

Instrument : CHAMBER 077  
 Detector : 67576  
 Calibration Date/Time : 11-AUG-2009 11:42:53  
 Calibration Source Id : AESS-013

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.800
CM-244	4320A	2/28/10	5795.020	5794.739

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2362.830  
 Energy Calibration Slope : 4.939044  
 Energy Calibration Quadratic : 3.0275399E-04  
 Energy Calibration Range : 7738.000

Instrument : CHAMBER 078  
 Detector : 67577  
 Calibration Date/Time : 11-AUG-2009 11:43:47  
 Calibration Source Id : AESS-014

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3181.433
NP-237	4341	2/28/10	4768.800	4767.846
CM-244	4320A	2/28/10	5795.020	5793.522

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2407.798  
 Energy Calibration Slope : 4.964797  
 Energy Calibration Quadratic : 3.3742035E-04  
 Energy Calibration Range : 7846.000

Instrument : CHAMBER 079  
 Detector : 67598  
 Calibration Date/Time : 11-AUG-2009 11:44:09  
 Calibration Source Id : AESS-015

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.694
CM-244	4320A	2/28/10	5795.020	5795.021

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2369.132  
 Energy Calibration Slope : 4.920986  
 Energy Calibration Quadratic : 3.1385853E-04  
 Energy Calibration Range : 7737.000

Instrument : CHAMBER 080  
 Detector : 78197  
 Calibration Date/Time : 12-AUG-2009 06:47:19  
 Calibration Source Id : AESS-016

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.250
NP-237	4341	2/28/10	4768.800	4769.057
CM-244	4320A	2/28/10	5795.020	5795.270

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2352.236  
 Energy Calibration Slope : 4.998828  
 Energy Calibration Quadratic : 2.8291933E-04  
 Energy Calibration Range : 7768.000

Instrument : CHAMBER 081  
 Detector : 72533  
 Calibration Date/Time : 11-AUG-2009 11:46:32  
 Calibration Source Id : AESS-017

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3204.930
NP-237	4341	2/28/10	4768.800	4703.826
CM-244	4320A	2/28/10	5795.020	5726.761

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2219.847  
 Energy Calibration Slope : 9.458302  
 Energy Calibration Quadratic : -5.2725184E-03  
 Energy Calibration Range : 6377.000

Instrument : CHAMBER 082  
 Detector : 64263  
 Calibration Date/Time : 11-AUG-2009 11:47:05  
 Calibration Source Id : AESS-018

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3182.619
NP-237	4341	2/28/10	4768.800	4767.967
CM-244	4320A	2/28/10	5795.020	5794.591

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2389.567  
 Energy Calibration Slope : 4.987039  
 Energy Calibration Quadratic : 3.1898782E-04  
 Energy Calibration Range : 7831.000

Instrument : CHAMBER 083  
 Detector : 64278  
 Calibration Date/Time : 11-AUG-2009 11:47:29  
 Calibration Source Id : AESS-019  
 Cal. Isotopes    Source Id    Expiration Date    Standard Energy    Actual Energy  
   GD-148        6445-278      2/28/10            3183.000        3183.777  
   NP-237        4341          2/28/10            4768.800        4768.800  
   CM-244        4320A        2/28/10            5795.020        5795.020  
  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2373.204  
 Energy Calibration Slope : 5.041853  
 Energy Calibration Quadratic : 2.3808437E-04  
 Energy Calibration Range : 7786.000

Instrument : CHAMBER 084  
 Detector : 78265  
 Calibration Date/Time : 11-AUG-2009 11:47:52  
 Calibration Source Id : AESS-020  
 Cal. Isotopes    Source Id    Expiration Date    Standard Energy    Actual Energy  
   GD-148        6445-278      2/28/10            3183.000        3183.000  
   NP-237        4341          2/28/10            4768.800        4768.799  
   CM-244        4320A        2/28/10            5795.020        5794.867  
  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2362.363  
 Energy Calibration Slope : 5.016379  
 Energy Calibration Quadratic : 2.7867779E-04  
 Energy Calibration Range : 7791.000

Instrument : CHAMBER 085  
 Detector : 78776  
 Calibration Date/Time : 11-AUG-2009 11:48:19  
 Calibration Source Id : AESS-021  
 Cal. Isotopes    Source Id    Expiration Date    Standard Energy    Actual Energy  
   GD-148        6445-278      2/28/10            3183.000        3183.000  
   NP-237        4341          2/28/10            4768.800        4768.802  
   CM-244        4320A        2/28/10            5795.020        5795.019  
  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2368.057  
 Energy Calibration Slope : 4.984862  
 Energy Calibration Quadratic : 2.9382212E-04  
 Energy Calibration Range : 7781.000

Instrument : CHAMBER 086  
 Detector : 78198  
 Calibration Date/Time : 11-AUG-2009 11:48:41  
 Calibration Source Id : AESS-022

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3182.458
NP-237	4341	2/28/10	4768.800	4768.482
CM-244	4320A	2/28/10	5795.020	5794.558

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2358.351  
 Energy Calibration Slope : 5.023737  
 Energy Calibration Quadratic : 2.3622859E-04  
 Energy Calibration Range : 7750.000

Instrument : CHAMBER 087  
 Detector : 78199  
 Calibration Date/Time : 11-AUG-2009 11:49:08  
 Calibration Source Id : AESS-023

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3182.717
NP-237	4341	2/28/10	4768.800	4768.539
CM-244	4320A	2/28/10	5795.020	5794.745

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2342.553  
 Energy Calibration Slope : 4.976685  
 Energy Calibration Quadratic : 2.4361881E-04  
 Energy Calibration Range : 7694.000

Instrument : CHAMBER 088  
 Detector : 33452  
 Calibration Date/Time : 11-AUG-2009 11:50:14  
 Calibration Source Id : AESS-024

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.801
CM-244	4320A	2/28/10	5795.020	5795.020

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2348.450  
 Energy Calibration Slope : 4.985291  
 Energy Calibration Quadratic : 2.0228673E-04  
 Energy Calibration Range : 7666.000



Instrument : CHAMBER 089  
 Detector : 78262  
 Calibration Date/Time : 11-AUG-2009 11:50:54  
 Calibration Source Id : AESS-025

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3182.822
NP-237	4341	2/28/10	4768.800	4768.800
CM-244	4320A	2/28/10	5795.020	5795.020

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2360.236  
 Energy Calibration Slope : 4.993787  
 Energy Calibration Quadratic : 3.1235311E-04  
 Energy Calibration Range : 7801.000

Instrument : CHAMBER 090  
 Detector : 78263  
 Calibration Date/Time : 11-AUG-2009 11:51:07  
 Calibration Source Id : AESS-026

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.689
CM-244	4320A	2/28/10	5795.020	5794.864

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2367.944  
 Energy Calibration Slope : 4.912088  
 Energy Calibration Quadratic : 3.3423179E-04  
 Energy Calibration Range : 7748.000

Instrument : CHAMBER 091  
 Detector : 78259  
 Calibration Date/Time : 11-AUG-2009 11:51:19  
 Calibration Source Id : AESS-027

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3182.501
NP-237	4341	2/28/10	4768.800	4768.562
CM-244	4320A	2/28/10	5795.020	5794.908

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2373.294  
 Energy Calibration Slope : 4.962712  
 Energy Calibration Quadratic : 3.3628431E-04  
 Energy Calibration Range : 7808.000

Instrument : CHAMBER 092  
 Detector : 79457  
 Calibration Date/Time : 11-AUG-2009 11:52:08  
 Calibration Source Id : AESS-028

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3182.999
NP-237	4341	2/28/10	4768.800	4769.086
CM-244	4320A	2/28/10	5795.020	5795.236

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2353.207  
 Energy Calibration Slope : 4.920592  
 Energy Calibration Quadratic : 3.2561756E-04  
 Energy Calibration Range : 7733.000

Instrument : CHAMBER 093  
 Detector : 33206  
 Calibration Date/Time : 11-AUG-2009 11:52:22  
 Calibration Source Id : AESS-029

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3182.729
NP-237	4341	2/28/10	4768.800	4768.662
CM-244	4320A	2/28/10	5795.020	5794.973

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2374.507  
 Energy Calibration Slope : 4.905449  
 Energy Calibration Quadratic : 3.4070064E-04  
 Energy Calibration Range : 7755.000

Instrument : CHAMBER 094  
 Detector : 78267  
 Calibration Date/Time : 11-AUG-2009 11:52:36  
 Calibration Source Id : AESS-030

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3182.615
NP-237	4341	2/28/10	4768.800	4768.657
CM-244	4320A	2/28/10	5795.020	5794.828

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2364.661  
 Energy Calibration Slope : 4.944430  
 Energy Calibration Quadratic : 3.0602465E-04  
 Energy Calibration Range : 7749.000

Instrument : CHAMBER 095  
 Detector : 64279  
 Calibration Date/Time : 11-AUG-2009 11:53:20  
 Calibration Source Id : AESS-031

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.800
CM-244	4320A	2/28/10	5795.020	5794.924

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2360.997  
 Energy Calibration Slope : 4.923662  
 Energy Calibration Quadratic : 3.3134571E-04  
 Energy Calibration Range : 7750.000

Instrument : CHAMBER 096  
 Detector : 67605  
 Calibration Date/Time : 11-AUG-2009 11:53:35  
 Calibration Source Id : AESS-032

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3182.861
NP-237	4341	2/28/10	4768.800	4768.801
CM-244	4320A	2/28/10	5795.020	5794.970

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2352.669  
 Energy Calibration Slope : 4.930194  
 Energy Calibration Quadratic : 3.4499675E-04  
 Energy Calibration Range : 7763.000

Instrument : CHAMBER 097  
 Detector : 67599  
 Calibration Date/Time : 11-AUG-2009 11:54:04  
 Calibration Source Id : AESS-033

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3182.385
NP-237	4341	2/28/10	4768.800	4768.497
CM-244	4320A	2/28/10	5795.020	5794.575

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2366.630  
 Energy Calibration Slope : 4.955770  
 Energy Calibration Quadratic : 3.2342706E-04  
 Energy Calibration Range : 7780.000

Instrument : CHAMBER 098  
 Detector : 68644  
 Calibration Date/Time : 11-AUG-2009 11:54:57  
 Calibration Source Id : AESS-034

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.677
CM-244	4320A	2/28/10	5795.020	5795.020

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2384.988  
 Energy Calibration Slope : 4.980790  
 Energy Calibration Quadratic : 3.1301824E-04  
 Energy Calibration Range : 7814.000

Instrument : CHAMBER 099  
 Detector : 70317  
 Calibration Date/Time : 11-AUG-2009 11:55:11  
 Calibration Source Id : AESS-035

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3182.657
NP-237	4341	2/28/10	4768.800	4768.798
CM-244	4320A	2/28/10	5795.020	5794.872

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2370.271  
 Energy Calibration Slope : 4.896307  
 Energy Calibration Quadratic : 3.5264078E-04  
 Energy Calibration Range : 7754.000

Instrument : CHAMBER 100  
 Detector : 79456  
 Calibration Date/Time : 11-AUG-2009 11:55:23  
 Calibration Source Id : AESS-046

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.007
NP-237	4341	2/28/10	4768.800	4768.931
CM-244	4320A	2/28/10	5795.020	5795.248

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2353.091  
 Energy Calibration Slope : 4.889555  
 Energy Calibration Quadratic : 3.4731548E-04  
 Energy Calibration Range : 7724.000

Instrument : CHAMBER 101  
 Detector : 64253  
 Calibration Date/Time : 11-AUG-2009 11:55:41  
 Calibration Source Id : AESS-037

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3182.482
NP-237	4341	2/28/10	4768.800	4768.628
CM-244	4320A	2/28/10	5795.020	5795.004

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2413.378  
 Energy Calibration Slope : 4.941072  
 Energy Calibration Quadratic : 3.1744229E-04  
 Energy Calibration Range : 7806.000

Instrument : CHAMBER 102  
 Detector : 72525  
 Calibration Date/Time : 11-AUG-2009 11:55:55  
 Calibration Source Id : AESS-038

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3182.620
NP-237	4341	2/28/10	4768.800	4768.759
CM-244	4320A	2/28/10	5795.020	5795.021

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2365.023  
 Energy Calibration Slope : 4.877947  
 Energy Calibration Quadratic : 3.3410732E-04  
 Energy Calibration Range : 7710.000

Instrument : CHAMBER 103  
 Detector : 79461  
 Calibration Date/Time : 11-AUG-2009 11:56:06  
 Calibration Source Id : AESS-039

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.724
CM-244	4320A	2/28/10	5795.020	5795.020

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2388.602  
 Energy Calibration Slope : 4.925415  
 Energy Calibration Quadratic : 3.3399722E-04  
 Energy Calibration Range : 7782.000

Instrument : CHAMBER 104  
 Detector : 72524  
 Calibration Date/Time : 11-AUG-2009 11:56:56  
 Calibration Source Id : AESS-040

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3182.731
NP-237	4341	2/28/10	4768.800	4768.746
CM-244	4320A	2/28/10	5795.020	5794.950

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2361.164  
 Energy Calibration Slope : 4.875978  
 Energy Calibration Quadratic : 3.5914616E-04  
 Energy Calibration Range : 7731.000

Instrument : CHAMBER 105  
 Detector : 78777  
 Calibration Date/Time : 11-AUG-2009 11:57:20  
 Calibration Source Id : AESS-041

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.800
CM-244	4320A	2/28/10	5795.020	5795.021

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2374.957  
 Energy Calibration Slope : 4.877512  
 Energy Calibration Quadratic : 3.5687728E-04  
 Energy Calibration Range : 7744.000

Instrument : CHAMBER 106  
 Detector : 64274  
 Calibration Date/Time : 11-AUG-2009 11:57:33  
 Calibration Source Id : AESS-042

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.799
CM-244	4320A	2/28/10	5795.020	5795.021

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2386.397  
 Energy Calibration Slope : 4.925849  
 Energy Calibration Quadratic : 3.5619634E-04  
 Energy Calibration Range : 7804.000

Instrument : CHAMBER 107  
 Detector : 67578  
 Calibration Date/Time : 11-AUG-2009 11:58:23  
 Calibration Source Id : AESS-043

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3182.757
NP-237	4341	2/28/10	4768.800	4768.431
CM-244	4320A	2/28/10	5795.020	5794.760

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2365.165  
 Energy Calibration Slope : 4.989622  
 Energy Calibration Quadratic : 3.0367926E-04  
 Energy Calibration Range : 7793.000

Instrument : CHAMBER 108  
 Detector : 78778  
 Calibration Date/Time : 11-AUG-2009 12:00:02  
 Calibration Source Id : AESS-044

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.799
CM-244	4320A	2/28/10	5795.020	5795.085

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2361.750  
 Energy Calibration Slope : 4.889173  
 Energy Calibration Quadratic : 3.3859405E-04  
 Energy Calibration Range : 7723.000

Instrument : CHAMBER 109  
 Detector : 79463  
 Calibration Date/Time : 11-AUG-2009 12:00:23  
 Calibration Source Id : AESS-045

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.801
CM-244	4320A	2/28/10	5795.020	5795.011

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2361.956  
 Energy Calibration Slope : 4.902098  
 Energy Calibration Quadratic : 3.6021773E-04  
 Energy Calibration Range : 7759.000

Instrument : CHAMBER 110  
 Detector : 67602  
 Calibration Date/Time : 11-AUG-2009 12:01:03  
 Calibration Source Id : AESS-046  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3180.240  
 NP-237 4341 2/28/10 4768.800 4767.627  
 CM-244 4320A 2/28/10 5795.020 5792.351  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2450.737  
 Energy Calibration Slope : 5.078455  
 Energy Calibration Quadratic : 3.6329794E-04  
 Energy Calibration Range : 8032.000

Instrument : CHAMBER 111  
 Detector : 79462  
 Calibration Date/Time : 11-AUG-2009 12:01:21  
 Calibration Source Id : AESS-047  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3182.689  
 NP-237 4341 2/28/10 4768.800 4768.620  
 CM-244 4320A 2/28/10 5795.020 5794.913  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2360.863  
 Energy Calibration Slope : 4.982990  
 Energy Calibration Quadratic : 3.1839884E-04  
 Energy Calibration Range : 7797.000

Instrument : CHAMBER 112  
 Detector : 78261  
 Calibration Date/Time : 11-AUG-2009 12:02:06  
 Calibration Source Id : AESS-048  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.798  
 CM-244 4320A 2/28/10 5795.020 5795.021  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2372.713  
 Energy Calibration Slope : 4.922604  
 Energy Calibration Quadratic : 3.2149741E-04  
 Energy Calibration Range : 7751.000



Instrument : CHAMBER 113  
 Detector : 45-111B4  
 Calibration Date/Time : 17-AUG-2009 14:57:05  
 Calibration Source Id : AESS-001  
 Cal. Isotopes    Source Id    Expiration Date    Standard Energy    Actual Energy  
   GD-148        6445-278      2/28/10            3183.000        3183.000  
   NP-237        4341          2/28/10            4768.800        4768.693  
   CM-244        4320A        2/28/10            5795.020        5795.021  
  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2388.351  
 Energy Calibration Slope : 4.986037  
 Energy Calibration Quadratic : 2.9112995E-04  
 Energy Calibration Range : 7799.000

Instrument : CHAMBER 114  
 Detector : 78258  
 Calibration Date/Time : 17-AUG-2009 14:57:42  
 Calibration Source Id : AESS-007  
 Cal. Isotopes    Source Id    Expiration Date    Standard Energy    Actual Energy  
   GD-148        6445-278      2/28/10            3183.000        3182.738  
   NP-237        4341          2/28/10            4768.800        4768.375  
   CM-244        4320A        2/28/10            5795.020        5794.878  
  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2341.717  
 Energy Calibration Slope : 4.967946  
 Energy Calibration Quadratic : 2.6719994E-04  
 Energy Calibration Range : 7709.000

Instrument : CHAMBER 115  
 Detector : 45-132FF4  
 Calibration Date/Time : 17-AUG-2009 14:57:55  
 Calibration Source Id : AESS-002  
 Cal. Isotopes    Source Id    Expiration Date    Standard Energy    Actual Energy  
   GD-148        6445-278      2/28/10            3183.000        3183.000  
   NP-237        4341          2/28/10            4768.800        4768.996  
   CM-244        4320A        2/28/10            5795.020        5795.124  
  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2360.484  
 Energy Calibration Slope : 5.001271  
 Energy Calibration Quadratic : 2.5857674E-04  
 Energy Calibration Range : 7753.000

Instrument : CHAMBER 116  
 Detector : 45-132FF2  
 Calibration Date/Time : 17-AUG-2009 14:58:06  
 Calibration Source Id : AESS-008  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.296  
 NP-237 4341 2/28/10 4768.800 4768.799  
 CM-244 4320A 2/28/10 5795.020 5795.021  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2358.140  
 Energy Calibration Slope : 4.998592  
 Energy Calibration Quadratic : 2.4986797E-04  
 Energy Calibration Range : 7739.000

Instrument : CHAMBER 117  
 Detector : 33450  
 Calibration Date/Time : 17-AUG-2009 14:58:17  
 Calibration Source Id : AESS-003  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3182.212  
 NP-237 4341 2/28/10 4768.800 4768.136  
 CM-244 4320A 2/28/10 5795.020 5794.829  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2377.331  
 Energy Calibration Slope : 4.984442  
 Energy Calibration Quadratic : 2.6023277E-04  
 Energy Calibration Range : 7754.000

Instrument : CHAMBER 118  
 Detector : 75544  
 Calibration Date/Time : 17-AUG-2009 14:58:27  
 Calibration Source Id : AESS-009  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3182.453  
 NP-237 4341 2/28/10 4768.800 4768.624  
 CM-244 4320A 2/28/10 5795.020 5794.893  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2343.030  
 Energy Calibration Slope : 4.970738  
 Energy Calibration Quadratic : 2.7650801E-04  
 Energy Calibration Range : 7723.000

Instrument : CHAMBER 119  
 Detector : 74429  
 Calibration Date/Time : 2-FEB-2009 15:15:38  
 Calibration Source Id : AESS-004

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3001.688
NP-237	4341	2/28/10	4768.800	4669.281
CM-244	4320A	2/28/10	5795.020	5706.875

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2437.949  
 Energy Calibration Slope : 5.036866  
 Energy Calibration Quadratic :  
 Energy Calibration Range : 7596.000

Instrument : CHAMBER 120  
 Detector : 74430  
 Calibration Date/Time : 18-AUG-2009 13:38:55  
 Calibration Source Id : AESS-010

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3182.734
NP-237	4341	2/28/10	4768.800	4768.799
CM-244	4320A	2/28/10	5795.020	5794.984

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2316.127  
 Energy Calibration Slope : 4.939470  
 Energy Calibration Quadratic : 2.8824760E-04  
 Energy Calibration Range : 7676.000

Instrument : CHAMBER 121  
 Detector : 75545  
 Calibration Date/Time : 17-AUG-2009 14:58:37  
 Calibration Source Id : AESS-005

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3182.992
NP-237	4341	2/28/10	4768.800	4768.800
CM-244	4320A	2/28/10	5795.020	5794.910

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2338.077  
 Energy Calibration Slope : 4.950966  
 Energy Calibration Quadratic : 2.8139201E-04  
 Energy Calibration Range : 7703.000

Instrument : CHAMBER 122  
 Detector : 75546  
 Calibration Date/Time : 17-AUG-2009 14:58:49  
 Calibration Source Id : AESS-011  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3182.767  
 NP-237 4341 2/28/10 4768.800 4768.557  
 CM-244 4320A 2/28/10 5795.020 5795.021  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2334.596  
 Energy Calibration Slope : 4.961221  
 Energy Calibration Quadratic : 2.6947071E-04  
 Energy Calibration Range : 7697.000

Instrument : CHAMBER 123  
 Detector : 45-142V3  
 Calibration Date/Time : 17-AUG-2009 14:58:58  
 Calibration Source Id : AESS-006  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3182.626  
 NP-237 4341 2/28/10 4768.800 4768.419  
 CM-244 4320A 2/28/10 5795.020 5794.913  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2377.630  
 Energy Calibration Slope : 4.988592  
 Energy Calibration Quadratic : 2.4062325E-04  
 Energy Calibration Range : 7738.000

Instrument : CHAMBER 124  
 Detector : 45-142V2  
 Calibration Date/Time : 17-AUG-2009 14:59:08  
 Calibration Source Id : AESS-012  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3182.737  
 NP-237 4341 2/28/10 4768.800 4768.348  
 CM-244 4320A 2/28/10 5795.020 5794.822  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2389.445  
 Energy Calibration Slope : 5.014465  
 Energy Calibration Quadratic : 2.5700411E-04  
 Energy Calibration Range : 7794.000

Instrument : CHAMBER 125  
 Detector : 75547  
 Calibration Date/Time : 17-AUG-2009 14:59:18  
 Calibration Source Id : AESS-013  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3182.519  
 NP-237 4341 2/28/10 4768.800 4768.590  
 CM-244 4320A 2/28/10 5795.020 5794.968  
  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2346.234  
 Energy Calibration Slope : 4.935012  
 Energy Calibration Quadratic : 2.8653492E-04  
 Energy Calibration Range : 7700.000

Instrument : CHAMBER 126  
 Detector : 75548  
 Calibration Date/Time : 17-AUG-2009 14:59:32  
 Calibration Source Id : AESS-019  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3182.586  
 NP-237 4341 2/28/10 4768.800 4768.494  
 CM-244 4320A 2/28/10 5795.020 5794.836  
  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2351.831  
 Energy Calibration Slope : 5.025319  
 Energy Calibration Quadratic : 2.1107355E-04  
 Energy Calibration Range : 7719.000

Instrument : CHAMBER 127  
 Detector : 78770  
 Calibration Date/Time : 17-AUG-2009 14:59:46  
 Calibration Source Id : AESS-014  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3182.831  
 NP-237 4341 2/28/10 4768.800 4768.741  
 CM-244 4320A 2/28/10 5795.020 5794.894  
  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2339.154  
 Energy Calibration Slope : 4.970251  
 Energy Calibration Quadratic : 2.5652250E-04  
 Energy Calibration Range : 7698.000

Instrument : CHAMBER 128  
 Detector : 75549  
 Calibration Date/Time : 17-AUG-2009 15:00:39  
 Calibration Source Id : AESS-020

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3182.531
NP-237	4341	2/28/10	4768.800	4768.610
CM-244	4320A	2/28/10	5795.020	5794.838

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2330.388  
 Energy Calibration Slope : 5.000057  
 Energy Calibration Quadratic : 2.3812153E-04  
 Energy Calibration Range : 7700.000

Instrument : CHAMBER 129  
 Detector : 76227  
 Calibration Date/Time : 17-AUG-2009 15:00:50  
 Calibration Source Id : AESS-015

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3182.843
NP-237	4341	2/28/10	4768.800	4768.717
CM-244	4320A	2/28/10	5795.020	5794.874

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2351.215  
 Energy Calibration Slope : 4.930460  
 Energy Calibration Quadratic : 2.9455224E-04  
 Energy Calibration Range : 7709.000

Instrument : CHAMBER 130  
 Detector : 76228  
 Calibration Date/Time : 17-AUG-2009 15:01:00  
 Calibration Source Id : AESS-021

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3182.985
NP-237	4341	2/28/10	4768.800	4768.658
CM-244	4320A	2/28/10	5795.020	5794.729

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2337.606  
 Energy Calibration Slope : 4.982665  
 Energy Calibration Quadratic : 2.2944069E-04  
 Energy Calibration Range : 7680.000

Instrument : CHAMBER 131  
 Detector : 33448  
 Calibration Date/Time : 17-AUG-2009 15:01:10  
 Calibration Source Id : AESS-016  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3178.948  
 NP-237 4341 2/28/10 4768.800 4766.564  
 CM-244 4320A 2/28/10 5795.020 5793.610  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2408.823  
 Energy Calibration Slope : 4.963500  
 Energy Calibration Quadratic : 2.8727154E-04  
 Energy Calibration Range : 7793.000

Instrument : CHAMBER 132  
 Detector : 67579  
 Calibration Date/Time : 17-AUG-2009 15:01:19  
 Calibration Source Id : AESS-022  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.495  
 CM-244 4320A 2/28/10 5795.020 5794.895  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2326.639  
 Energy Calibration Slope : 5.034670  
 Energy Calibration Quadratic : 2.1709618E-04  
 Energy Calibration Range : 7710.000

Instrument : CHAMBER 133  
 Detector : 76229  
 Calibration Date/Time : 17-AUG-2009 15:01:29  
 Calibration Source Id : AESS-017  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3182.802  
 NP-237 4341 2/28/10 4768.800 4768.798  
 CM-244 4320A 2/28/10 5795.020 5794.855  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2310.723  
 Energy Calibration Slope : 4.901457  
 Energy Calibration Quadratic : 2.6648620E-04  
 Energy Calibration Range : 7609.000

Instrument : CHAMBER 134  
 Detector : 76230  
 Calibration Date/Time : 17-AUG-2009 15:01:38  
 Calibration Source Id : AESS-023

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3182.670
NP-237	4341	2/28/10	4768.800	4768.734
CM-244	4320A	2/28/10	5795.020	5795.020

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2328.671  
 Energy Calibration Slope : 4.971330  
 Energy Calibration Quadratic : 2.3919715E-04  
 Energy Calibration Range : 7670.000

Instrument : CHAMBER 135  
 Detector : 64270  
 Calibration Date/Time : 17-AUG-2009 15:01:50  
 Calibration Source Id : AESS-018

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.220
NP-237	4341	2/28/10	4768.800	4768.800
CM-244	4320A	2/28/10	5795.020	5795.020

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2334.713  
 Energy Calibration Slope : 4.950563  
 Energy Calibration Quadratic : 2.6665861E-04  
 Energy Calibration Range : 7684.000

Instrument : CHAMBER 136  
 Detector : 68549  
 Calibration Date/Time : 17-AUG-2009 15:02:00  
 Calibration Source Id : AESS-024

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.547
NP-237	4341	2/28/10	4768.800	4769.648
CM-244	4320A	2/28/10	5795.020	5795.176

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2352.961  
 Energy Calibration Slope : 4.996480  
 Energy Calibration Quadratic : 2.6544984E-04  
 Energy Calibration Range : 7748.000



Instrument : CHAMBER 137  
 Detector : 64288  
 Calibration Date/Time : 18-AUG-2009 09:58:00  
 Calibration Source Id : AESS-025

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.426
CM-244	4320A	2/28/10	5795.020	5794.897

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2376.854  
 Energy Calibration Slope : 5.032813  
 Energy Calibration Quadratic : 2.8756596E-04  
 Energy Calibration Range : 7832.000

Instrument : CHAMBER 138  
 Detector : 65877  
 Calibration Date/Time : 17-AUG-2009 15:10:23  
 Calibration Source Id : AESS-031

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.778
CM-244	4320A	2/28/10	5795.020	5794.902

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2376.472  
 Energy Calibration Slope : 4.997972  
 Energy Calibration Quadratic : 2.8433124E-04  
 Energy Calibration Range : 7793.000

Instrument : CHAMBER 139  
 Detector : 76231  
 Calibration Date/Time : 17-AUG-2009 15:10:36  
 Calibration Source Id : AESS-026

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3182.807
NP-237	4341	2/28/10	4768.800	4768.778
CM-244	4320A	2/28/10	5795.020	5795.020

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2353.050  
 Energy Calibration Slope : 4.923675  
 Energy Calibration Quadratic : 3.2614564E-04  
 Energy Calibration Range : 7737.000

Instrument : CHAMBER 140  
 Detector : 78771  
 Calibration Date/Time : 17-AUG-2009 15:10:53  
 Calibration Source Id : AESS-032

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.800
CM-244	4320A	2/28/10	5795.020	5794.950

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2343.606  
 Energy Calibration Slope : 4.949296  
 Energy Calibration Quadratic : 3.0935110E-04  
 Energy Calibration Range : 7736.000

Instrument : CHAMBER 141  
 Detector : 76232  
 Calibration Date/Time : 17-AUG-2009 15:11:05  
 Calibration Source Id : AESS-027

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3182.704
NP-237	4341	2/28/10	4768.800	4768.701
CM-244	4320A	2/28/10	5795.020	5795.020

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2354.080  
 Energy Calibration Slope : 4.967496  
 Energy Calibration Quadratic : 2.7667297E-04  
 Energy Calibration Range : 7731.000

Instrument : CHAMBER 142  
 Detector : 64261  
 Calibration Date/Time : 17-AUG-2009 15:11:22  
 Calibration Source Id : AESS-033

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.800
CM-244	4320A	2/28/10	5795.020	5794.996

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2377.858  
 Energy Calibration Slope : 4.966272  
 Energy Calibration Quadratic : 3.0408424E-04  
 Energy Calibration Range : 7782.000

Instrument : CHAMBER 143  
 Detector : 65882  
 Calibration Date/Time : 17-AUG-2009 15:11:35  
 Calibration Source Id : AESS-028

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3182.838
NP-237	4341	2/28/10	4768.800	4768.801
CM-244	4320A	2/28/10	5795.020	5795.020

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2353.476  
 Energy Calibration Slope : 4.958334  
 Energy Calibration Quadratic : 2.9036327E-04  
 Energy Calibration Range : 7735.000

Instrument : CHAMBER 144  
 Detector : 75551  
 Calibration Date/Time : 17-AUG-2009 15:11:48  
 Calibration Source Id : AESS-034

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.149
NP-237	4341	2/28/10	4768.800	4768.801
CM-244	4320A	2/28/10	5795.020	5795.020

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2348.280  
 Energy Calibration Slope : 4.953019  
 Energy Calibration Quadratic : 2.9027942E-04  
 Energy Calibration Range : 7725.000

Instrument : CHAMBER 145  
 Detector : 72526  
 Calibration Date/Time : 17-AUG-2009 15:12:06  
 Calibration Source Id : AESS-029

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.799
CM-244	4320A	2/28/10	5795.020	5794.950

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2358.188  
 Energy Calibration Slope : 4.950538  
 Energy Calibration Quadratic : 3.1101296E-04  
 Energy Calibration Range : 7754.000

Instrument : CHAMBER 146  
 Detector : 72527  
 Calibration Date/Time : 17-AUG-2009 15:12:19  
 Calibration Source Id : AESS-035

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3182.841
NP-237	4341	2/28/10	4768.800	4768.589
CM-244	4320A	2/28/10	5795.020	5795.021

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2352.896  
 Energy Calibration Slope : 4.936564  
 Energy Calibration Quadratic : 2.8588294E-04  
 Energy Calibration Range : 7708.000

Instrument : CHAMBER 147  
 Detector : 75550  
 Calibration Date/Time : 17-AUG-2009 15:12:37  
 Calibration Source Id : AESS-030

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3182.991
NP-237	4341	2/28/10	4768.800	4768.681
CM-244	4320A	2/28/10	5795.020	5794.852

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2344.357  
 Energy Calibration Slope : 4.979820  
 Energy Calibration Quadratic : 2.4974984E-04  
 Energy Calibration Range : 7706.000

Instrument : CHAMBER 148  
 Detector : 74429  
 Calibration Date/Time : 17-AUG-2009 15:12:57  
 Calibration Source Id : AESS-036

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3182.790
NP-237	4341	2/28/10	4768.800	4768.746
CM-244	4320A	2/28/10	5795.020	5794.901

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2347.048  
 Energy Calibration Slope : 4.952481  
 Energy Calibration Quadratic : 2.8881739E-04  
 Energy Calibration Range : 7721.000

Instrument : CHAMBER 149  
 Detector : 33449  
 Calibration Date/Time : 17-AUG-2009 15:02:09  
 Calibration Source Id : AESS-037

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3182.635
NP-237	4341	2/28/10	4768.800	4768.444
CM-244	4320A	2/28/10	5795.020	5794.948

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2393.262  
 Energy Calibration Slope : 4.951241  
 Energy Calibration Quadratic : 3.0021602E-04  
 Energy Calibration Range : 7778.000

Instrument : CHAMBER 150  
 Detector : 75552  
 Calibration Date/Time : 17-AUG-2009 15:02:19  
 Calibration Source Id : AESS-043

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.799
CM-244	4320A	2/28/10	5795.020	5795.021

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2357.177  
 Energy Calibration Slope : 4.964990  
 Energy Calibration Quadratic : 2.8429780E-04  
 Energy Calibration Range : 7739.000

Instrument : CHAMBER 151  
 Detector : 75556  
 Calibration Date/Time : 17-AUG-2009 15:02:29  
 Calibration Source Id : AESS-038

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.755
CM-244	4320A	2/28/10	5795.020	5794.925

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2344.746  
 Energy Calibration Slope : 4.932197  
 Energy Calibration Quadratic : 2.7974858E-04  
 Energy Calibration Range : 7689.000

Instrument : CHAMBER 152  
 Detector : 76222  
 Calibration Date/Time : 17-AUG-2009 15:02:41  
 Calibration Source Id : AESS-044

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3182.811
NP-237	4341	2/28/10	4768.800	4768.798
CM-244	4320A	2/28/10	5795.020	5794.877

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2344.480  
 Energy Calibration Slope : 4.936235  
 Energy Calibration Quadratic : 2.8715734E-04  
 Energy Calibration Range : 7700.000

Instrument : CHAMBER 153  
 Detector : 76223  
 Calibration Date/Time : 17-AUG-2009 15:02:59  
 Calibration Source Id : AESS-039

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3182.810
NP-237	4341	2/28/10	4768.800	4768.800
CM-244	4320A	2/28/10	5795.020	5794.996

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2337.684  
 Energy Calibration Slope : 4.933674  
 Energy Calibration Quadratic : 3.0187287E-04  
 Energy Calibration Range : 7706.000

Instrument : CHAMBER 154  
 Detector : 76224  
 Calibration Date/Time : 17-AUG-2009 15:03:12  
 Calibration Source Id : AESS-045

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.801
CM-244	4320A	2/28/10	5795.020	5795.019

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2342.948  
 Energy Calibration Slope : 4.948957  
 Energy Calibration Quadratic : 2.8683257E-04  
 Energy Calibration Range : 7711.000

Instrument : CHAMBER 155  
 Detector : 75553  
 Calibration Date/Time : 17-AUG-2009 15:03:49  
 Calibration Source Id : AESS-040  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3182.770  
 NP-237 4341 2/28/10 4768.800 4768.662  
 CM-244 4320A 2/28/10 5795.020 5794.902  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2367.728  
 Energy Calibration Slope : 4.983710  
 Energy Calibration Quadratic : 2.8808211E-04  
 Energy Calibration Range : 7773.000

Instrument : CHAMBER 156  
 Detector : 75554  
 Calibration Date/Time : 17-AUG-2009 15:03:58  
 Calibration Source Id : AESS-046  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3182.851  
 NP-237 4341 2/28/10 4768.800 4768.705  
 CM-244 4320A 2/28/10 5795.020 5794.899  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2362.355  
 Energy Calibration Slope : 4.999010  
 Energy Calibration Quadratic : 2.6741659E-04  
 Energy Calibration Range : 7762.000

Instrument : CHAMBER 157  
 Detector : 75555  
 Calibration Date/Time : 17-AUG-2009 15:04:07  
 Calibration Source Id : AESS-041  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3182.868  
 NP-237 4341 2/28/10 4768.800 4768.768  
 CM-244 4320A 2/28/10 5795.020 5794.925  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2358.092  
 Energy Calibration Slope : 4.979420  
 Energy Calibration Quadratic : 2.8018607E-04  
 Energy Calibration Range : 7751.000

Instrument : CHAMBER 158  
 Detector : 33451  
 Calibration Date/Time : 17-AUG-2009 15:04:18  
 Calibration Source Id : AESS-047

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3182.449
NP-237	4341	2/28/10	4768.800	4768.432
CM-244	4320A	2/28/10	5795.020	5794.938

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2389.976  
 Energy Calibration Slope : 5.006801  
 Energy Calibration Quadratic : 3.0287215E-04  
 Energy Calibration Range : 7835.000

Instrument : CHAMBER 159  
 Detector : 76225  
 Calibration Date/Time : 17-AUG-2009 15:04:28  
 Calibration Source Id : AESS-042

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.800
CM-244	4320A	2/28/10	5795.020	5795.021

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2354.720  
 Energy Calibration Slope : 4.980748  
 Energy Calibration Quadratic : 2.9428111E-04  
 Energy Calibration Range : 7764.000

Instrument : CHAMBER 160  
 Detector : 76226  
 Calibration Date/Time : 17-AUG-2009 15:04:40  
 Calibration Source Id : AESS-048

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.799
CM-244	4320A	2/28/10	5795.020	5795.021

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2355.649  
 Energy Calibration Slope : 4.990073  
 Energy Calibration Quadratic : 2.8874222E-04  
 Energy Calibration Range : 7768.000



Instrument : CHAMBER 161  
 Detector : 70321  
 Calibration Date/Time : 24-AUG-2009 14:06:47  
 Calibration Source Id : AESS-001

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.800
CM-244	4320A	2/28/10	5795.020	5795.020

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2374.961  
 Energy Calibration Slope : 4.910189  
 Energy Calibration Quadratic : 3.2356248E-04  
 Energy Calibration Range : 7742.000

Instrument : CHAMBER 162  
 Detector : 70323  
 Calibration Date/Time : 24-AUG-2009 14:06:56  
 Calibration Source Id : AESS-007

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.799
CM-244	4320A	2/28/10	5795.020	5795.021

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2369.767  
 Energy Calibration Slope : 4.933752  
 Energy Calibration Quadratic : 2.9582490E-04  
 Energy Calibration Range : 7732.000

Instrument : CHAMBER 163  
 Detector : 70324  
 Calibration Date/Time : 24-AUG-2009 14:07:06  
 Calibration Source Id : AESS-002

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.801
CM-244	4320A	2/28/10	5795.020	5795.020

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2380.833  
 Energy Calibration Slope : 4.951450  
 Energy Calibration Quadratic : 2.9602056E-04  
 Energy Calibration Range : 7762.000

Instrument : CHAMBER 164  
 Detector : 70325  
 Calibration Date/Time : 24-AUG-2009 14:07:20  
 Calibration Source Id : AESS-008

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.801
CM-244	4320A	2/28/10	5795.020	5795.020

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2382.319  
 Energy Calibration Slope : 4.937610  
 Energy Calibration Quadratic : 3.1754762E-04  
 Energy Calibration Range : 7771.000

Instrument : CHAMBER 165  
 Detector : 72544  
 Calibration Date/Time : 24-AUG-2009 14:07:34  
 Calibration Source Id : AESS-003

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.801
CM-244	4320A	2/28/10	5795.020	5795.020

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2383.801  
 Energy Calibration Slope : 4.978922  
 Energy Calibration Quadratic : 2.7212233E-04  
 Energy Calibration Range : 7768.000

Instrument : CHAMBER 166  
 Detector : 74545  
 Calibration Date/Time : 24-AUG-2009 14:07:42  
 Calibration Source Id : AESS-009

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.800
CM-244	4320A	2/28/10	5795.020	5795.021

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2376.102  
 Energy Calibration Slope : 4.917744  
 Energy Calibration Quadratic : 3.4292034E-04  
 Energy Calibration Range : 7771.000

Instrument : CHAMBER 167  
 Detector : 72546  
 Calibration Date/Time : 24-AUG-2009 14:07:51  
 Calibration Source Id : AESS-004

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.800
CM-244	4320A	2/28/10	5795.020	5795.020

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2378.657  
 Energy Calibration Slope : 4.932514  
 Energy Calibration Quadratic : 3.1670861E-04  
 Energy Calibration Range : 7762.000

Instrument : CHAMBER 168  
 Detector : 72547  
 Calibration Date/Time : 24-AUG-2009 14:07:59  
 Calibration Source Id : AESS-010

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.799
CM-244	4320A	2/28/10	5795.020	5795.021

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2383.249  
 Energy Calibration Slope : 4.927288  
 Energy Calibration Quadratic : 3.2642024E-04  
 Energy Calibration Range : 7771.000

Instrument : CHAMBER 169  
 Detector : 72548  
 Calibration Date/Time : 24-AUG-2009 14:08:11  
 Calibration Source Id : AESS-005

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.799
CM-244	4320A	2/28/10	5795.020	5795.021

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2381.642  
 Energy Calibration Slope : 4.923596  
 Energy Calibration Quadratic : 3.2521432E-04  
 Energy Calibration Range : 7764.000

Instrument : CHAMBER 170  
 Detector : 72549  
 Calibration Date/Time : 24-AUG-2009 14:08:20  
 Calibration Source Id : AESS-011

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.492
CM-244	4320A	2/28/10	5795.020	5795.021

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2382.004  
 Energy Calibration Slope : 4.926051  
 Energy Calibration Quadratic : 3.3877406E-04  
 Energy Calibration Range : 7782.000

Instrument : CHAMBER 171  
 Detector : 78260  
 Calibration Date/Time : 24-AUG-2009 14:08:29  
 Calibration Source Id : AESS-006

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4769.426
CM-244	4320A	2/28/10	5795.020	5795.289

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2366.691  
 Energy Calibration Slope : 4.935659  
 Energy Calibration Quadratic : 3.0618926E-04  
 Energy Calibration Range : 7742.000

Instrument : CHAMBER 172  
 Detector : 78772  
 Calibration Date/Time : 24-AUG-2009 14:08:40  
 Calibration Source Id : AESS-012

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.798
CM-244	4320A	2/28/10	5795.020	5795.021

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2367.995  
 Energy Calibration Slope : 4.907234  
 Energy Calibration Quadratic : 3.5045875E-04  
 Energy Calibration Range : 7760.000

Instrument : CHAMBER 173  
 Detector : 74431  
 Calibration Date/Time : 24-AUG-2009 14:08:49  
 Calibration Source Id : AESS-013

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.801
CM-244	4320A	2/28/10	5795.020	5795.020

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2364.808  
 Energy Calibration Slope : 4.998088  
 Energy Calibration Quadratic : 2.5220143E-04  
 Energy Calibration Range : 7747.000

Instrument : CHAMBER 174  
 Detector : 74432  
 Calibration Date/Time : 24-AUG-2009 14:08:58  
 Calibration Source Id : AESS-019

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.801
CM-244	4320A	2/28/10	5795.020	5795.020

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2359.695  
 Energy Calibration Slope : 5.048626  
 Energy Calibration Quadratic : 1.8959134E-04  
 Energy Calibration Range : 7728.000

Instrument : CHAMBER 175  
 Detector : 74433  
 Calibration Date/Time : 24-AUG-2009 14:09:06  
 Calibration Source Id : AESS-014

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.801
CM-244	4320A	2/28/10	5795.020	5795.020

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2365.396  
 Energy Calibration Slope : 4.978646  
 Energy Calibration Quadratic : 2.7462494E-04  
 Energy Calibration Range : 7751.000

Instrument : CHAMBER 176  
 Detector : 74434  
 Calibration Date/Time : 24-AUG-2009 14:09:15  
 Calibration Source Id : AESS-020

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.800
CM-244	4320A	2/28/10	5795.020	5795.020

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2362.332  
 Energy Calibration Slope : 5.014320  
 Energy Calibration Quadratic : 2.4356594E-04  
 Energy Calibration Range : 7752.000

Instrument : CHAMBER 177  
 Detector : 74435  
 Calibration Date/Time : 24-AUG-2009 14:09:24  
 Calibration Source Id : AESS-015

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.800
CM-244	4320A	2/28/10	5795.020	5795.020

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2364.740  
 Energy Calibration Slope : 4.964604  
 Energy Calibration Quadratic : 2.9061688E-04  
 Energy Calibration Range : 7753.000

Instrument : CHAMBER 178  
 Detector : 74436  
 Calibration Date/Time : 24-AUG-2009 14:09:35  
 Calibration Source Id : AESS-021

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.799
CM-244	4320A	2/28/10	5795.020	5795.020

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2358.420  
 Energy Calibration Slope : 4.990875  
 Energy Calibration Quadratic : 2.6006214E-04  
 Energy Calibration Range : 7742.000

Instrument : CHAMBER 179  
 Detector : 74437  
 Calibration Date/Time : 24-AUG-2009 14:09:44  
 Calibration Source Id : AESS-016

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.800
CM-244	4320A	2/28/10	5795.020	5795.020

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2360.365  
 Energy Calibration Slope : 4.967896  
 Energy Calibration Quadratic : 2.8685154E-04  
 Energy Calibration Range : 7748.000

Instrument : CHAMBER 180  
 Detector : 74438  
 Calibration Date/Time : 24-AUG-2009 14:09:54  
 Calibration Source Id : AESS-022

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.800
CM-244	4320A	2/28/10	5795.020	5795.020

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2358.338  
 Energy Calibration Slope : 5.025792  
 Energy Calibration Quadratic : 2.1654682E-04  
 Energy Calibration Range : 7732.000

Instrument : CHAMBER 181  
 Detector : 74439  
 Calibration Date/Time : 24-AUG-2009 14:10:03  
 Calibration Source Id : AESS-017

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.697
CM-244	4320A	2/28/10	5795.020	5795.020

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2362.787  
 Energy Calibration Slope : 4.972206  
 Energy Calibration Quadratic : 2.7814286E-04  
 Energy Calibration Range : 7746.000

Instrument : CHAMBER 182  
 Detector : 74440  
 Calibration Date/Time : 24-AUG-2009 14:10:14  
 Calibration Source Id : AESS-023

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.799
CM-244	4320A	2/28/10	5795.020	5795.021

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2353.051  
 Energy Calibration Slope : 4.986979  
 Energy Calibration Quadratic : 2.5764259E-04  
 Energy Calibration Range : 7730.000

Instrument : CHAMBER 183  
 Detector : 74441  
 Calibration Date/Time : 24-AUG-2009 14:10:29  
 Calibration Source Id : AESS-018

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.799
CM-244	4320A	2/28/10	5795.020	5795.021

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2362.208  
 Energy Calibration Slope : 4.980685  
 Energy Calibration Quadratic : 2.7016739E-04  
 Energy Calibration Range : 7746.000

Instrument : CHAMBER 184  
 Detector : 74442  
 Calibration Date/Time : 24-AUG-2009 14:10:41  
 Calibration Source Id : AESS-024

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.799
CM-244	4320A	2/28/10	5795.020	5795.021

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2359.055  
 Energy Calibration Slope : 5.010284  
 Energy Calibration Quadratic : 2.3703104E-04  
 Energy Calibration Range : 7738.000



Instrument : CHAMBER 185  
 Detector : 68615  
 Calibration Date/Time : 24-AUG-2009 14:10:54  
 Calibration Source Id : AESS-025

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.699
CM-244	4320A	2/28/10	5795.020	5795.020

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2361.733  
 Energy Calibration Slope : 4.933492  
 Energy Calibration Quadratic : 2.8617174E-04  
 Energy Calibration Range : 7714.000

Instrument : CHAMBER 186  
 Detector : 68616  
 Calibration Date/Time : 24-AUG-2009 14:11:06  
 Calibration Source Id : AESS-031

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.800
CM-244	4320A	2/28/10	5795.020	5795.020

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2365.753  
 Energy Calibration Slope : 4.935731  
 Energy Calibration Quadratic : 2.9755512E-04  
 Energy Calibration Range : 7732.000

Instrument : CHAMBER 187  
 Detector : 68620  
 Calibration Date/Time : 24-AUG-2009 14:11:16  
 Calibration Source Id : AESS-026

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.801
CM-244	4320A	2/28/10	5795.020	5795.020

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2376.047  
 Energy Calibration Slope : 4.966012  
 Energy Calibration Quadratic : 3.0612116E-04  
 Energy Calibration Range : 7782.000

Instrument : CHAMBER 188  
 Detector : 68621  
 Calibration Date/Time : 24-AUG-2009 14:11:25  
 Calibration Source Id : AESS-032

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.799
CM-244	4320A	2/28/10	5795.020	5795.021

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2368.519  
 Energy Calibration Slope : 4.967674  
 Energy Calibration Quadratic : 2.9094989E-04  
 Energy Calibration Range : 7761.000

Instrument : CHAMBER 189  
 Detector : 68622  
 Calibration Date/Time : 24-AUG-2009 14:11:34  
 Calibration Source Id : AESS-027

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.800
CM-244	4320A	2/28/10	5795.020	5795.020

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2363.805  
 Energy Calibration Slope : 4.932057  
 Energy Calibration Quadratic : 3.0281782E-04  
 Energy Calibration Range : 7732.000

Instrument : CHAMBER 190  
 Detector : 68623  
 Calibration Date/Time : 24-AUG-2009 14:11:43  
 Calibration Source Id : AESS-033

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.799
CM-244	4320A	2/28/10	5795.020	5795.021

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2358.846  
 Energy Calibration Slope : 4.945598  
 Energy Calibration Quadratic : 2.9230170E-04  
 Energy Calibration Range : 7730.000

Instrument : CHAMBER 191  
 Detector : 68624  
 Calibration Date/Time : 24-AUG-2009 14:11:54  
 Calibration Source Id : AESS-028

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.800
CM-244	4320A	2/28/10	5795.020	5795.020

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2370.757  
 Energy Calibration Slope : 4.964250  
 Energy Calibration Quadratic : 3.1056980E-04  
 Energy Calibration Range : 7780.000

Instrument : CHAMBER 192  
 Detector : 74430  
 Calibration Date/Time : 24-AUG-2009 14:12:04  
 Calibration Source Id : AESS-034

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.800
CM-244	4320A	2/28/10	5795.020	5795.021

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2365.552  
 Energy Calibration Slope : 4.984001  
 Energy Calibration Quadratic : 2.9122332E-04  
 Energy Calibration Range : 7775.000

Instrument : CHAMBER 193  
 Detector : 68627  
 Calibration Date/Time : 24-AUG-2009 14:12:15  
 Calibration Source Id : AESS-029

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.799
CM-244	4320A	2/28/10	5795.020	5795.021

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2364.432  
 Energy Calibration Slope : 4.926356  
 Energy Calibration Quadratic : 3.1079396E-04  
 Energy Calibration Range : 7735.000

Instrument : CHAMBER 194  
 Detector : 68635  
 Calibration Date/Time : 24-AUG-2009 14:12:24  
 Calibration Source Id : AESS-035  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.801  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2361.972  
 Energy Calibration Slope : 4.949121  
 Energy Calibration Quadratic : 2.8917161E-04  
 Energy Calibration Range : 7733.000

Instrument : CHAMBER 195  
 Detector : 68636  
 Calibration Date/Time : 24-AUG-2009 14:12:38  
 Calibration Source Id : AESS-030  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.802  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2361.575  
 Energy Calibration Slope : 4.972611  
 Energy Calibration Quadratic : 2.6226370E-04  
 Energy Calibration Range : 7729.000

Instrument : CHAMBER 196  
 Detector : 68637  
 Calibration Date/Time : 24-AUG-2009 14:12:49  
 Calibration Source Id : AESS-036  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.799  
 CM-244 4320A 2/28/10 5795.020 5795.021  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2364.691  
 Energy Calibration Slope : 4.926461  
 Energy Calibration Quadratic : 3.1398068E-04  
 Energy Calibration Range : 7739.000

Instrument : CHAMBER 197  
 Detector : 78894  
 Calibration Date/Time : 24-AUG-2009 14:12:58  
 Calibration Source Id : AESS-037

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.801
CM-244	4320A	2/28/10	5795.020	5795.020

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2371.940  
 Energy Calibration Slope : 4.962372  
 Energy Calibration Quadratic : 3.0214558E-04  
 Energy Calibration Range : 7770.000

Instrument : CHAMBER 198  
 Detector : 78895  
 Calibration Date/Time : 24-AUG-2009 14:13:11  
 Calibration Source Id : AESS-043

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.801
CM-244	4320A	2/28/10	5795.020	5795.020

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2366.058  
 Energy Calibration Slope : 4.966545  
 Energy Calibration Quadratic : 2.8346200E-04  
 Energy Calibration Range : 7749.000

Instrument : CHAMBER 199  
 Detector : 78896  
 Calibration Date/Time : 24-AUG-2009 14:13:20  
 Calibration Source Id : AESS-038

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.800
CM-244	4320A	2/28/10	5795.020	5795.020

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2368.399  
 Energy Calibration Slope : 4.967513  
 Energy Calibration Quadratic : 2.9532972E-04  
 Energy Calibration Range : 7765.000

Instrument : CHAMBER 200  
 Detector : 78900  
 Calibration Date/Time : 24-AUG-2009 14:13:29  
 Calibration Source Id : AESS-044  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.801  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2366.221  
 Energy Calibration Slope : 4.968300  
 Energy Calibration Quadratic : 2.9352392E-04  
 Energy Calibration Range : 7762.000

Instrument : CHAMBER 201  
 Detector : 78902  
 Calibration Date/Time : 24-AUG-2009 14:13:38  
 Calibration Source Id : AESS-039  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.801  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2362.156  
 Energy Calibration Slope : 4.974658  
 Energy Calibration Quadratic : 2.9066936E-04  
 Energy Calibration Range : 7761.000

Instrument : CHAMBER 202  
 Detector : 78903  
 Calibration Date/Time : 24-AUG-2009 14:13:47  
 Calibration Source Id : AESS-045  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.800  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2356.033  
 Energy Calibration Slope : 4.956886  
 Energy Calibration Quadratic : 2.9409473E-04  
 Energy Calibration Range : 7740.000

Instrument : CHAMBER 203  
 Detector : 78905  
 Calibration Date/Time : 24-AUG-2009 14:16:33  
 Calibration Source Id : AESS-040

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.800
CM-244	4320A	2/28/10	5795.020	5795.020

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2364.159  
 Energy Calibration Slope : 4.957525  
 Energy Calibration Quadratic : 3.0185276E-04  
 Energy Calibration Range : 7757.000

Instrument : CHAMBER 204  
 Detector : 78907  
 Calibration Date/Time : 24-AUG-2009 14:14:37  
 Calibration Source Id : AESS-046

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.799
CM-244	4320A	2/28/10	5795.020	5795.021

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2361.336  
 Energy Calibration Slope : 4.953297  
 Energy Calibration Quadratic : 3.0559121E-04  
 Energy Calibration Range : 7754.000

Instrument : CHAMBER 205  
 Detector : 78908  
 Calibration Date/Time : 24-AUG-2009 14:14:46  
 Calibration Source Id : AESS-041

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.800
CM-244	4320A	2/28/10	5795.020	5795.020

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2366.916  
 Energy Calibration Slope : 4.956555  
 Energy Calibration Quadratic : 3.0603251E-04  
 Energy Calibration Range : 7763.000

Instrument : CHAMBER 206  
 Detector : 78909  
 Calibration Date/Time : 24-AUG-2009 14:14:55  
 Calibration Source Id : AESS-047  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.800  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2362.312  
 Energy Calibration Slope : 4.958225  
 Energy Calibration Quadratic : 2.9557038E-04  
 Energy Calibration Range : 7749.000

Instrument : CHAMBER 207  
 Detector : 78910  
 Calibration Date/Time : 24-AUG-2009 14:15:04  
 Calibration Source Id : AESS-042  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.801  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2365.581  
 Energy Calibration Slope : 4.980759  
 Energy Calibration Quadratic : 2.8388310E-04  
 Energy Calibration Range : 7764.000

Instrument : CHAMBER 208  
 Detector : 78911  
 Calibration Date/Time : 24-AUG-2009 14:15:14  
 Calibration Source Id : AESS-048  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.800  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2364.472  
 Energy Calibration Slope : 4.972521  
 Energy Calibration Quadratic : 2.9282621E-04  
 Energy Calibration Range : 7763.000



Instrument : CHAMBER 209  
 Detector : 79188  
 Calibration Date/Time : 28-JUL-2009 13:59:46  
 Calibration Source Id : AESS-001

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.800
CM-244	4320A	2/28/10	5795.020	5795.020

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2390.309  
 Energy Calibration Slope : 4.907889  
 Energy Calibration Quadratic : 3.5155186E-04  
 Energy Calibration Range : 7785.000

Instrument : CHAMBER 210  
 Detector : 79189  
 Calibration Date/Time : 28-JUL-2009 13:59:55  
 Calibration Source Id : AESS-002

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.801
CM-244	4320A	2/28/10	5795.020	5795.019

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2382.719  
 Energy Calibration Slope : 4.945560  
 Energy Calibration Quadratic : 3.0519743E-04  
 Energy Calibration Range : 7767.000

Instrument : CHAMBER 211  
 Detector : 79190  
 Calibration Date/Time : 28-JUL-2009 14:00:03  
 Calibration Source Id : AESS-003

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.800
CM-244	4320A	2/28/10	5795.020	5795.020

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2388.786  
 Energy Calibration Slope : 4.957439  
 Energy Calibration Quadratic : 3.0850343E-04  
 Energy Calibration Range : 7789.000

Instrument : CHAMBER 212  
 Detector : 79191  
 Calibration Date/Time : 28-JUL-2009 14:00:11  
 Calibration Source Id : AESS-004

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.801
CM-244	4320A	2/28/10	5795.020	5795.020

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2386.612  
 Energy Calibration Slope : 4.941330  
 Energy Calibration Quadratic : 3.1567214E-04  
 Energy Calibration Range : 7778.000

Instrument : CHAMBER 213  
 Detector : 79192  
 Calibration Date/Time : 28-JUL-2009 14:00:20  
 Calibration Source Id : AESS-005

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.801
CM-244	4320A	2/28/10	5795.020	5795.020

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2392.102  
 Energy Calibration Slope : 4.949504  
 Energy Calibration Quadratic : 3.0747624E-04  
 Energy Calibration Range : 7783.000

Instrument : CHAMBER 214  
 Detector : 79193  
 Calibration Date/Time : 28-JUL-2009 14:00:29  
 Calibration Source Id : AESS-006

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.799
CM-244	4320A	2/28/10	5795.020	5795.020

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2383.299  
 Energy Calibration Slope : 4.938057  
 Energy Calibration Quadratic : 3.2320846E-04  
 Energy Calibration Range : 7779.000

Instrument : CHAMBER 215  
 Detector : 79194  
 Calibration Date/Time : 28-JUL-2009 14:00:38  
 Calibration Source Id : AESS-007

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.800
CM-244	4320A	2/28/10	5795.020	5795.021

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2391.097  
 Energy Calibration Slope : 4.946728  
 Energy Calibration Quadratic : 3.2361320E-04  
 Energy Calibration Range : 7796.000

Instrument : CHAMBER 216  
 Detector : 79195  
 Calibration Date/Time : 28-JUL-2009 14:00:46  
 Calibration Source Id : AESS-008

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.001
NP-237	4341	2/28/10	4768.800	4768.798
CM-244	4320A	2/28/10	5795.020	5795.021

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2389.871  
 Energy Calibration Slope : 4.924810  
 Energy Calibration Quadratic : 3.3861332E-04  
 Energy Calibration Range : 7788.000

Instrument : CHAMBER 217  
 Detector : 79410  
 Calibration Date/Time : 28-JUL-2009 14:00:55  
 Calibration Source Id : AESS-009

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.799
CM-244	4320A	2/28/10	5795.020	5795.021

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2391.358  
 Energy Calibration Slope : 4.934552  
 Energy Calibration Quadratic : 3.3054961E-04  
 Energy Calibration Range : 7791.000

Instrument : CHAMBER 218  
 Detector : 79411  
 Calibration Date/Time : 28-JUL-2009 14:01:03  
 Calibration Source Id : AESS-010  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.801  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2388.335  
 Energy Calibration Slope : 4.946022  
 Energy Calibration Quadratic : 3.1945287E-04  
 Energy Calibration Range : 7788.000

Instrument : CHAMBER 219  
 Detector : 79412  
 Calibration Date/Time : 28-JUL-2009 14:01:48  
 Calibration Source Id : AESS-011  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.801  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2390.188  
 Energy Calibration Slope : 4.929147  
 Energy Calibration Quadratic : 3.3767600E-04  
 Energy Calibration Range : 7792.000

Instrument : CHAMBER 220  
 Detector : 79413  
 Calibration Date/Time : 28-JUL-2009 14:02:00  
 Calibration Source Id : AESS-012  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.800  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2382.449  
 Energy Calibration Slope : 4.943600  
 Energy Calibration Quadratic : 3.1373679E-04  
 Energy Calibration Range : 7774.000

Instrument : CHAMBER 221  
 Detector : 79414  
 Calibration Date/Time : 28-JUL-2009 14:02:09  
 Calibration Source Id : AESS-013

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.800
CM-244	4320A	2/28/10	5795.020	5795.021

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2387.174  
 Energy Calibration Slope : 4.970656  
 Energy Calibration Quadratic : 3.0409341E-04  
 Energy Calibration Range : 7796.000

Instrument : CHAMBER 222  
 Detector : 79415  
 Calibration Date/Time : 28-JUL-2009 14:02:19  
 Calibration Source Id : AESS-014

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.800
CM-244	4320A	2/28/10	5795.020	5795.020

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2382.306  
 Energy Calibration Slope : 5.025091  
 Energy Calibration Quadratic : 2.4377843E-04  
 Energy Calibration Range : 7784.000

Instrument : CHAMBER 223  
 Detector : 79416  
 Calibration Date/Time : 28-JUL-2009 14:02:29  
 Calibration Source Id : AESS-015

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.799
CM-244	4320A	2/28/10	5795.020	5795.021

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2389.067  
 Energy Calibration Slope : 4.958123  
 Energy Calibration Quadratic : 3.2477293E-04  
 Energy Calibration Range : 7807.000

Instrument : CHAMBER 224  
 Detector : 79417  
 Calibration Date/Time : 28-JUL-2009 14:02:37  
 Calibration Source Id : AESS-016  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.027  
 NP-237 4341 2/28/10 4768.800 4768.799  
 CM-244 4320A 2/28/10 5795.020 5795.021  
  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2386.695  
 Energy Calibration Slope : 5.011842  
 Energy Calibration Quadratic : 2.6290418E-04  
 Energy Calibration Range : 7794.000

Instrument : CHAMBER 225  
 Detector : 79418  
 Calibration Date/Time : 28-JUL-2009 14:02:46  
 Calibration Source Id : AESS-017  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.801  
 CM-244 4320A 2/28/10 5795.020 5795.019  
  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2392.776  
 Energy Calibration Slope : 4.933724  
 Energy Calibration Quadratic : 3.3852886E-04  
 Energy Calibration Range : 7800.000

Instrument : CHAMBER 226  
 Detector : 79419  
 Calibration Date/Time : 28-JUL-2009 14:02:55  
 Calibration Source Id : AESS-018  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.800  
 CM-244 4320A 2/28/10 5795.020 5795.020  
  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2384.150  
 Energy Calibration Slope : 4.973210  
 Energy Calibration Quadratic : 2.9508519E-04  
 Energy Calibration Range : 7786.000

Instrument : CHAMBER 227  
 Detector : 79420  
 Calibration Date/Time : 28-JUL-2009 14:03:04  
 Calibration Source Id : AESS-019  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.799  
 CM-244 4320A 2/28/10 5795.020 5795.021  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2391.061  
 Energy Calibration Slope : 4.938961  
 Energy Calibration Quadratic : 3.3045741E-04  
 Energy Calibration Range : 7795.000

Instrument : CHAMBER 228  
 Detector : 79421  
 Calibration Date/Time : 28-JUL-2009 14:03:13  
 Calibration Source Id : AESS-020  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.799  
 CM-244 4320A 2/28/10 5795.020 5795.021  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2386.005  
 Energy Calibration Slope : 4.959556  
 Energy Calibration Quadratic : 3.0744984E-04  
 Energy Calibration Range : 7787.000

Instrument : CHAMBER 229  
 Detector : 79422  
 Calibration Date/Time : 28-JUL-2009 14:03:22  
 Calibration Source Id : AESS-021  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.800  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2387.995  
 Energy Calibration Slope : 4.940877  
 Energy Calibration Quadratic : 3.3899915E-04  
 Energy Calibration Range : 7803.000

Instrument : CHAMBER 230  
 Detector : 79423  
 Calibration Date/Time : 28-JUL-2009 14:03:31  
 Calibration Source Id : AESS-022

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.800
CM-244	4320A	2/28/10	5795.020	5795.020

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2384.573  
 Energy Calibration Slope : 4.960246  
 Energy Calibration Quadratic : 3.1046796E-04  
 Energy Calibration Range : 7789.000

Instrument : CHAMBER 231  
 Detector : 79424  
 Calibration Date/Time : 28-JUL-2009 14:03:40  
 Calibration Source Id : AESS-023

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.801
CM-244	4320A	2/28/10	5795.020	5795.020

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2387.425  
 Energy Calibration Slope : 4.946337  
 Energy Calibration Quadratic : 3.1792521E-04  
 Energy Calibration Range : 7786.000

Instrument : CHAMBER 232  
 Detector : 79425  
 Calibration Date/Time : 28-JUL-2009 14:03:48  
 Calibration Source Id : AESS-024

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.799
CM-244	4320A	2/28/10	5795.020	5795.021

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2384.962  
 Energy Calibration Slope : 5.004478  
 Energy Calibration Quadratic : 2.5898189E-04  
 Energy Calibration Range : 7781.000



Instrument : CHAMBER 233  
 Detector : 79426  
 Calibration Date/Time : 28-JUL-2009 14:03:57  
 Calibration Source Id : AESS-025

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.800
CM-244	4320A	2/28/10	5795.020	5795.020

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2384.858  
 Energy Calibration Slope : 4.908395  
 Energy Calibration Quadratic : 3.6085595E-04  
 Energy Calibration Range : 7789.000

Instrument : CHAMBER 234  
 Detector : 79427  
 Calibration Date/Time : 28-JUL-2009 14:04:08  
 Calibration Source Id : AESS-026

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.801
CM-244	4320A	2/28/10	5795.020	5795.019

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2378.557  
 Energy Calibration Slope : 4.936086  
 Energy Calibration Quadratic : 3.1737317E-04  
 Energy Calibration Range : 7766.000

Instrument : CHAMBER 235  
 Detector : 79428  
 Calibration Date/Time : 28-JUL-2009 14:04:17  
 Calibration Source Id : AESS-027

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.800
CM-244	4320A	2/28/10	5795.020	5795.020

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2386.048  
 Energy Calibration Slope : 4.937345  
 Energy Calibration Quadratic : 3.3249237E-04  
 Energy Calibration Range : 7791.000

Instrument : CHAMBER 236  
 Detector : 79429  
 Calibration Date/Time : 28-JUL-2009 14:04:27  
 Calibration Source Id : AESS-028

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.801
CM-244	4320A	2/28/10	5795.020	5795.020

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2388.810  
 Energy Calibration Slope : 4.906125  
 Energy Calibration Quadratic : 3.6270331E-04  
 Energy Calibration Range : 7793.000

Instrument : CHAMBER 237  
 Detector : 79430  
 Calibration Date/Time : 28-JUL-2009 14:04:36  
 Calibration Source Id : AESS-029

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.800
CM-244	4320A	2/28/10	5795.020	5795.021

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2387.128  
 Energy Calibration Slope : 4.944391  
 Energy Calibration Quadratic : 3.2767057E-04  
 Energy Calibration Range : 7794.000

Instrument : CHAMBER 238  
 Detector : 79431  
 Calibration Date/Time : 28-JUL-2009 14:04:46  
 Calibration Source Id : AESS-030

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.800
CM-244	4320A	2/28/10	5795.020	5795.020

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2381.338  
 Energy Calibration Slope : 4.929770  
 Energy Calibration Quadratic : 3.3144769E-04  
 Energy Calibration Range : 7777.000

Instrument : CHAMBER 239  
 Detector : 79432  
 Calibration Date/Time : 28-JUL-2009 14:04:55  
 Calibration Source Id : AESS-031

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.798
CM-244	4320A	2/28/10	5795.020	5795.021

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2390.132  
 Energy Calibration Slope : 4.920120  
 Energy Calibration Quadratic : 3.5708508E-04  
 Energy Calibration Range : 7803.000

Instrument : CHAMBER 240  
 Detector : 79433  
 Calibration Date/Time : 28-JUL-2009 14:05:04  
 Calibration Source Id : AESS-032

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.799
CM-244	4320A	2/28/10	5795.020	5795.021

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2385.205  
 Energy Calibration Slope : 4.918474  
 Energy Calibration Quadratic : 3.4866974E-04  
 Energy Calibration Range : 7787.000

Instrument : CHAMBER 241  
 Detector : 79434  
 Calibration Date/Time : 28-JUL-2009 14:05:13  
 Calibration Source Id : AESS-033

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.800
CM-244	4320A	2/28/10	5795.020	5795.021

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2385.825  
 Energy Calibration Slope : 4.908836  
 Energy Calibration Quadratic : 3.6050563E-04  
 Energy Calibration Range : 7790.000

Instrument : CHAMBER 242  
 Detector : 79435  
 Calibration Date/Time : 28-JUL-2009 14:05:21  
 Calibration Source Id : AESS-034

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.801
CM-244	4320A	2/28/10	5795.020	5795.020

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2385.009  
 Energy Calibration Slope : 4.945025  
 Energy Calibration Quadratic : 3.1615721E-04  
 Energy Calibration Range : 7780.000

Instrument : CHAMBER 243  
 Detector : 79436  
 Calibration Date/Time : 28-JUL-2009 14:05:30  
 Calibration Source Id : AESS-035

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.801
CM-244	4320A	2/28/10	5795.020	5795.020

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2386.770  
 Energy Calibration Slope : 4.934989  
 Energy Calibration Quadratic : 3.3655608E-04  
 Energy Calibration Range : 7793.000

Instrument : CHAMBER 244  
 Detector : 79437  
 Calibration Date/Time : 28-JUL-2009 14:05:39  
 Calibration Source Id : AESS-036

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.801
CM-244	4320A	2/28/10	5795.020	5795.019

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2391.069  
 Energy Calibration Slope : 4.911016  
 Energy Calibration Quadratic : 3.5919523E-04  
 Energy Calibration Range : 7797.000

Instrument : CHAMBER 245  
 Detector : 79438  
 Calibration Date/Time : 28-JUL-2009 14:05:48  
 Calibration Source Id : AESS-037

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.800
CM-244	4320A	2/28/10	5795.020	5795.020

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2392.602  
 Energy Calibration Slope : 4.941990  
 Energy Calibration Quadratic : 3.3874813E-04  
 Energy Calibration Range : 7808.000

Instrument : CHAMBER 246  
 Detector : 78912  
 Calibration Date/Time : 28-JUL-2009 14:05:57  
 Calibration Source Id : AESS-038

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.799
CM-244	4320A	2/28/10	5795.020	5795.021

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2392.768  
 Energy Calibration Slope : 4.935872  
 Energy Calibration Quadratic : 3.3401168E-04  
 Energy Calibration Range : 7797.000

Instrument : CHAMBER 247  
 Detector : 79440  
 Calibration Date/Time : 28-JUL-2009 14:06:06  
 Calibration Source Id : AESS-039

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.799
CM-244	4320A	2/28/10	5795.020	5795.021

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2393.687  
 Energy Calibration Slope : 4.919972  
 Energy Calibration Quadratic : 3.6322643E-04  
 Energy Calibration Range : 7813.000

Instrument : CHAMBER 248  
 Detector : 79441  
 Calibration Date/Time : 28-JUL-2009 14:06:15  
 Calibration Source Id : AESS-040  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.799  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2386.829  
 Energy Calibration Slope : 4.935865  
 Energy Calibration Quadratic : 3.3986062E-04  
 Energy Calibration Range : 7798.000

Instrument : CHAMBER 249  
 Detector : 79442  
 Calibration Date/Time : 28-JUL-2009 14:10:21  
 Calibration Source Id : AESS-041  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.799  
 CM-244 4320A 2/28/10 5795.020 5795.021  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2391.737  
 Energy Calibration Slope : 4.913334  
 Energy Calibration Quadratic : 3.7958668E-04  
 Energy Calibration Range : 7821.000

Instrument : CHAMBER 250  
 Detector : 79443  
 Calibration Date/Time : 28-JUL-2009 14:07:02  
 Calibration Source Id : AESS-042  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.798  
 CM-244 4320A 2/28/10 5795.020 5795.021  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2383.582  
 Energy Calibration Slope : 4.915850  
 Energy Calibration Quadratic : 3.5610356E-04  
 Energy Calibration Range : 7791.000

Instrument : CHAMBER 251  
 Detector : 79444  
 Calibration Date/Time : 28-JUL-2009 14:07:11  
 Calibration Source Id : AESS-043

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.800
CM-244	4320A	2/28/10	5795.020	5795.021

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2390.072  
 Energy Calibration Slope : 4.920268  
 Energy Calibration Quadratic : 3.7023224E-04  
 Energy Calibration Range : 7817.000

Instrument : CHAMBER 252  
 Detector : 79445  
 Calibration Date/Time : 28-JUL-2009 14:07:24  
 Calibration Source Id : AESS-044

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.800
CM-244	4320A	2/28/10	5795.020	5795.021

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2391.797  
 Energy Calibration Slope : 4.906192  
 Energy Calibration Quadratic : 3.7361679E-04  
 Energy Calibration Range : 7808.000

Instrument : CHAMBER 253  
 Detector : 79446  
 Calibration Date/Time : 28-JUL-2009 14:07:35  
 Calibration Source Id : AESS-045

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.799
CM-244	4320A	2/28/10	5795.020	5795.021

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2393.983  
 Energy Calibration Slope : 4.947714  
 Energy Calibration Quadratic : 3.5550338E-04  
 Energy Calibration Range : 7833.000

Instrument : CHAMBER 254  
 Detector : 79447  
 Calibration Date/Time : 28-JUL-2009 14:07:52  
 Calibration Source Id : AESS-046

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.801
CM-244	4320A	2/28/10	5795.020	5795.020

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2389.038  
 Energy Calibration Slope : 4.937405  
 Energy Calibration Quadratic : 3.4224574E-04  
 Energy Calibration Range : 7804.000

Instrument : CHAMBER 255  
 Detector : 79448  
 Calibration Date/Time : 28-JUL-2009 14:08:10  
 Calibration Source Id : AESS-047

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.800
CM-244	4320A	2/28/10	5795.020	5795.020

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2391.216  
 Energy Calibration Slope : 4.920984  
 Energy Calibration Quadratic : 3.7234218E-04  
 Energy Calibration Range : 7821.000

Instrument : CHAMBER 256  
 Detector : 79449  
 Calibration Date/Time : 28-JUL-2009 14:08:26  
 Calibration Source Id : AESS-048

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.801
CM-244	4320A	2/28/10	5795.020	5795.020

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2387.279  
 Energy Calibration Slope : 4.932406  
 Energy Calibration Quadratic : 3.4164111E-04  
 Energy Calibration Range : 7796.000



## Subsection 2: Background Calibration

Instrument : CHAMBER 001  
 Detector : 78788  
 Background Analysis Date/Time : 2-AUG-2009 17:38:31  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2987.927	3299.401	3.000000	0.7200001	57.73503	95.00000
NP-237	4432.428	4902.923	11.00000	2.640001	30.15113	95.00000
CM-244	5533.599	5883.327	10.00000	2.400001	31.62278	95.00000

Instrument : CHAMBER 002  
 Detector : 78266  
 Background Analysis Date/Time : 2-AUG-2009 17:38:31  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.748	3297.924	4.000000	0.9600002	50.00000	95.00000
NP-237	4434.751	4902.555	3.000000	0.7200001	57.73503	95.00000
CM-244	5533.273	5884.668	1.000000	0.2400001	100.0000	95.00000

Instrument : CHAMBER 003  
 Detector : 67617  
 Background Analysis Date/Time : 2-AUG-2009 17:38:31  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.035	3300.027	6.000000	1.440000	40.82483	95.00000
NP-237	4433.783	4901.623	9.000000	2.160001	33.33334	95.00000
CM-244	5533.183	5887.889	9.000000	2.160001	33.33334	95.00000

Instrument : CHAMBER 004  
 Detector : 64279  
 Background Analysis Date/Time : 2-AUG-2009 17:38:31  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2991.885	3302.347	4.000000	0.9600002	50.00000	95.00000
NP-237	4436.757	4905.540	7.000000	1.680000	37.79645	95.00000
CM-244	5533.807	5887.698	4.000000	0.9600002	50.00000	95.00000

Instrument : CHAMBER 005  
 Detector : 67612  
 Background Analysis Date/Time : 2-AUG-2009 17:38:31  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.194	3301.639	3.000000	0.7200001	57.73503	95.00000
NP-237	4437.588	4901.889	8.000000	1.920000	35.35534	95.00000
CM-244	5531.535	5887.236	1.000000	0.2400001	100.0000	95.00000

Instrument : CHAMBER 006  
 Detector : 67613  
 Background Analysis Date/Time : 2-AUG-2009 17:38:31  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.186	3302.064	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000
NP-237	4434.812	4901.476	9.000000	2.160001	33.33334	95.00000
CM-244	5533.017	5887.020	8.000000	1.920000	35.35534	95.00000

Instrument : CHAMBER 007  
 Detector : 67607  
 Background Analysis Date/Time : 2-AUG-2009 17:38:32  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2991.468	3299.148	8.000000	1.920000	35.35534	95.00000
NP-237	4433.972	4903.766	11.00000	2.640000	30.15113	95.00000
CM-244	5532.246	5885.701	17.00000	4.080001	24.25356	95.00000

Instrument : CHAMBER 008  
 Detector : 78788  
 Background Analysis Date/Time : 2-AUG-2009 17:38:32  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.215	3298.713	3.000000	0.7200001	57.73503	95.00000
NP-237	4433.303	4905.744	4.000000	0.9600002	50.00000	95.00000
CM-244	5532.461	5886.606	2.000000	0.4800001	70.71068	95.00000

Instrument : CHAMBER 009  
 Detector : 72528  
 Background Analysis Date/Time : 2-AUG-2009 17:38:32  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.462	3298.900	5.000000	1.200000	44.72136	95.00000
NP-237	4437.055	4904.570	10.000000	2.400000	31.62278	95.00000
CM-244	5532.536	5882.399	13.000000	3.120001	27.73501	95.00000

Instrument : CHAMBER 010  
 Detector : 72529  
 Background Analysis Date/Time : 2-AUG-2009 17:38:32  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.229	3298.607	8.000000	1.920000	35.35534	95.00000
NP-237	4436.880	4905.484	9.000000	2.160000	33.33334	95.00000
CM-244	5531.409	5886.990	4.000000	0.9600002	50.00000	95.00000

Instrument : CHAMBER 011  
 Detector : 72531  
 Background Analysis Date/Time : 2-AUG-2009 17:38:32  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2991.538	3301.988	3.000000	0.7200001	57.73503	95.00000
NP-237	4435.957	4905.467	9.000000	2.160000	33.33334	95.00000
CM-244	5530.314	5886.614	3.000000	0.7200001	57.73503	95.00000

Instrument : CHAMBER 012  
 Detector : 67594  
 Background Analysis Date/Time : 2-AUG-2009 17:38:32  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.398	3300.615	3.000000	0.7200001	57.73503	95.00000
NP-237	4437.450	4901.503	9.000000	2.160000	33.33334	95.00000
CM-244	5534.709	5886.652	16.000000	3.840001	25.00000	95.00000

Instrument : CHAMBER 013  
 Detector : 78790  
 Background Analysis Date/Time : 2-AUG-2009 17:38:33  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2987.666	3298.441	1.000000	0.2400001	100.0000	95.00000
NP-237	4435.272	4902.524	6.000000	1.440000	40.82483	95.00000
CM-244	5533.077	5883.559	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000

Instrument : CHAMBER 014  
 Detector : 67616  
 Background Analysis Date/Time : 2-AUG-2009 17:38:33  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2992.504	3300.484	2.000000	0.4800001	70.71068	95.00000
NP-237	4435.990	4902.000	4.000000	0.9600002	50.00000	95.00000
CM-244	5532.918	5886.701	23.00000	5.520001	20.85144	95.00000

Instrument : CHAMBER 015  
 Detector : 61581  
 Background Analysis Date/Time : 2-AUG-2009 17:38:33  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2987.739	3297.575	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000
NP-237	4432.566	4904.976	10.00000	2.400001	31.62278	95.00000
CM-244	5530.833	5887.242	22.00000	5.280001	21.32007	95.00000

Instrument : CHAMBER 016  
 Detector : 78774  
 Background Analysis Date/Time : 2-AUG-2009 17:38:33  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.015	3299.769	3.000000	0.7200001	57.73503	95.00000
NP-237	4432.750	4903.568	3.000000	0.7200001	57.73503	95.00000
CM-244	5531.945	5886.508	2.000000	0.4800001	70.71068	95.00000

Instrument : CHAMBER 017  
 Detector : 78791  
 Background Analysis Date/Time : 2-AUG-2009 17:38:33  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2991.506	3301.266	0.000000E+00	0.000000E+00	0.000000E+00	95.00000
NP-237	4435.397	4901.753	6.000000	1.440000	40.82483	95.00000
CM-244	5532.102	5885.058	2.000000	0.4800001	70.71068	95.00000

Instrument : CHAMBER 018  
 Detector : 78782  
 Background Analysis Date/Time : 2-AUG-2009 17:38:33  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.342	3302.274	1.000000	0.2400001	100.0000	95.00000
NP-237	4435.776	4902.996	4.000000	0.9600002	50.00000	95.00000
CM-244	5535.506	5884.764	1.000000	0.2400001	100.0000	95.00000

Instrument : CHAMBER 019  
 Detector : 78786  
 Background Analysis Date/Time : 2-AUG-2009 17:38:34  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.757	3299.102	1.000000	0.2399998	100.0000	95.00000
NP-237	4436.959	4904.938	5.000000	1.199999	44.72136	95.00000
CM-244	5530.360	5882.637	4.000000	0.9599994	50.00000	95.00000

Instrument : CHAMBER 020  
 Detector : 78787  
 Background Analysis Date/Time : 2-AUG-2009 17:38:34  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.029	3302.537	0.000000E+00	0.000000E+00	0.000000E+00	95.00000
NP-237	4437.491	4905.035	10.00000	2.399998	31.62278	95.00000
CM-244	5532.389	5886.993	5.000000	1.199999	44.72136	95.00000

Instrument : CHAMBER 021  
 Detector : 67047  
 Background Analysis Date/Time : 2-AUG-2009 17:38:34  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2992.044	3301.105	4.000000	0.9599994	50.00000	95.00000
NP-237	4432.692	4903.261	8.000000	1.919999	35.35534	95.00000
CM-244	5532.273	5884.483	16.00000	3.839998	25.00000	95.00000

Instrument : CHAMBER 022  
 Detector : 72530  
 Background Analysis Date/Time : 2-AUG-2009 17:38:34  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2987.876	3301.717	5.000000	1.199999	44.72136	95.00000
NP-237	4432.553	4902.907	4.000000	0.9599994	50.00000	95.00000
CM-244	5531.719	5883.858	21.00000	5.039997	21.82179	95.00000

Instrument : CHAMBER 023  
 Detector : 78264  
 Background Analysis Date/Time : 2-AUG-2009 17:38:34  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2992.270	3297.465	1.000000	0.2399998	100.0000	95.00000
NP-237	4434.353	4902.238	12.00000	2.879998	28.86751	95.00000
CM-244	5535.006	5884.098	4.000000	0.9599994	50.00000	95.00000

Instrument : CHAMBER 024  
 Detector : 76542  
 Background Analysis Date/Time : 2-AUG-2009 17:38:34  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.735	3301.963	3.000000	0.7199996	57.73503	95.00000
NP-237	4435.585	4904.900	14.00000	3.359998	26.72612	95.00000
CM-244	5532.247	5883.527	6.000000	1.439999	40.82483	95.00000

Instrument : CHAMBER 025  
 Detector : 45-149AA5  
 Background Analysis Date/Time : 2-AUG-2009 17:38:35  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.576	3302.009	0.000000E+00	0.000000E+00	0.000000E+00	95.00000
NP-237	4437.518	4905.500	4.000000	0.9600002	50.00000	95.00000
CM-244	5535.553	5882.966	61.00000	14.64000	12.80369	95.00000

Instrument : CHAMBER 026  
 Detector : 78204  
 Background Analysis Date/Time : 2-AUG-2009 17:38:35  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.278	3302.066	1.000000	0.2400001	100.0000	95.00000
NP-237	4432.530	4904.245	8.000000	1.920000	35.35534	95.00000
CM-244	5530.854	5885.357	35.00000	8.400002	16.90309	95.00000

Instrument : CHAMBER 027  
 Detector : 42484  
 Background Analysis Date/Time : 2-AUG-2009 17:38:35  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.311	3298.574	1.000000	0.2400001	100.0000	95.00000
NP-237	4433.571	4901.458	4.000000	0.9600002	50.00000	95.00000
CM-244	5534.916	5884.719	37.00000	8.880002	16.43990	95.00000

Instrument : CHAMBER 028  
 Detector : 78792  
 Background Analysis Date/Time : 2-AUG-2009 17:38:35  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.458	3301.428	1.000000	0.2400001	100.0000	95.00000
NP-237	4433.918	4901.793	10.00000	2.400001	31.62278	95.00000
CM-244	5530.766	5886.861	36.00000	8.640002	16.66667	95.00000

Instrument : CHAMBER 029  
 Detector : 33454  
 Background Analysis Date/Time : 2-AUG-2009 17:38:35  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2991.561	3299.264	4.000000	0.9600002	50.00000	95.00000
NP-237	4436.609	4905.813	5.000000	1.200000	44.72136	95.00000
CM-244	5532.652	5886.650	41.00000	9.840002	15.61738	95.00000

Instrument : CHAMBER 030  
 Detector : 33447  
 Background Analysis Date/Time : 2-AUG-2009 17:38:35  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2992.462	3300.436	4.000000	0.9600002	50.00000	95.00000
NP-237	4435.706	4901.528	10.00000	2.400001	31.62278	95.00000
CM-244	5532.111	5885.667	49.00000	11.76000	14.28572	95.00000

Instrument : CHAMBER 031  
 Detector : 67042  
 Background Analysis Date/Time : 2-AUG-2009 17:38:35  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.816	3298.130	4.000000	0.9599994	50.00000	95.00000
NP-237	4432.666	4904.194	11.00000	2.639998	30.15113	95.00000
CM-244	5530.750	5885.317	50.00000	11.99999	14.14214	95.00000

Instrument : CHAMBER 032  
 Detector : 67041  
 Background Analysis Date/Time : 2-AUG-2009 17:38:35  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.681	3302.442	2.000000	0.4799997	70.71068	95.00000
NP-237	4436.943	4904.070	8.000000	1.919999	35.35534	95.00000
CM-244	5532.476	5883.050	63.00000	15.11999	12.59882	95.00000



Instrument : CHAMBER 033  
 Detector : 78785  
 Background Analysis Date/Time : 2-AUG-2009 17:38:35  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.750	3301.323	2.000000	0.4799997	70.71068	95.00000
NP-237	4437.327	4904.445	7.000000	1.679999	37.79645	95.00000
CM-244	5532.298	5882.301	47.00000	11.27999	14.58650	95.00000

Instrument : CHAMBER 034  
 Detector : 61586  
 Background Analysis Date/Time : 2-AUG-2009 17:38:35  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.405	3301.020	3.000000	0.7199996	57.73503	95.00000
NP-237	4436.289	4905.558	6.000000	1.439999	40.82483	95.00000
CM-244	5534.591	5883.408	6.000000	1.439999	40.82483	95.00000

Instrument : CHAMBER 035  
 Detector : 78202  
 Background Analysis Date/Time : 2-AUG-2009 17:38:35  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.026	3302.211	3.000000	0.7199996	57.73503	95.00000
NP-237	4437.360	4905.577	20.00000	4.799997	22.36068	95.00000
CM-244	5534.350	5884.600	61.00000	14.63999	12.80369	95.00000

Instrument : CHAMBER 036  
 Detector : 78203  
 Background Analysis Date/Time : 2-AUG-2009 17:38:35  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.680	3301.073	2.000000	0.4799997	70.71068	95.00000
NP-237	4435.041	4905.984	9.000000	2.159999	33.33334	95.00000
CM-244	5531.465	5885.278	47.00000	11.27999	14.58650	95.00000

Instrument : CHAMBER 037  
 Detector : 45-149BB5  
 Background Analysis Date/Time : 2-AUG-2009 17:38:36  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2991.168	3302.212	3.000000	0.7199995	57.73503	95.00000
NP-237	4432.895	4904.029	13.00000	3.119998	27.73501	95.00000
CM-244	5532.110	5886.157	66.00000	15.83999	12.30915	95.00000

Instrument : CHAMBER 038  
 Detector : 72532  
 Background Analysis Date/Time : 2-AUG-2009 17:38:36  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2992.472	3300.031	4.000000	0.9599993	50.00000	95.00000
NP-237	4434.591	4905.742	16.00000	3.839997	25.00000	95.00000
CM-244	5531.463	5885.396	50.00000	11.99999	14.14214	95.00000

Instrument : CHAMBER 039  
 Detector : 45-149BB2  
 Background Analysis Date/Time : 2-AUG-2009 17:38:36  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.231	3297.932	6.000000	1.439999	40.82483	95.00000
NP-237	4433.148	4905.972	6.000000	1.439999	40.82483	95.00000
CM-244	5532.651	5884.312	76.00000	18.23999	11.47079	95.00000

Instrument : CHAMBER 040  
 Detector : 78773  
 Background Analysis Date/Time : 2-AUG-2009 17:38:36  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.631	3299.278	2.000000	0.4799997	70.71068	95.00000
NP-237	4434.455	4902.104	2.000000	0.4799997	70.71068	95.00000
CM-244	5534.140	5885.901	43.00000	10.31999	15.24986	95.00000

Instrument : CHAMBER 041  
 Detector : 78205  
 Background Analysis Date/Time : 2-AUG-2009 17:38:36  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.485	3301.427	8.000000	1.919999	35.35534	95.00000
NP-237	4434.095	4902.163	8.000000	1.919999	35.35534	95.00000
CM-244	5531.498	5882.427	43.00000	10.31999	15.24986	95.00000

Instrument : CHAMBER 042  
 Detector : 78793  
 Background Analysis Date/Time : 2-AUG-2009 17:38:36  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2991.775	3302.182	3.000000	0.7199995	57.73503	95.00000
NP-237	4434.604	4903.031	12.00000	2.879998	28.86751	95.00000
CM-244	5530.666	5882.826	45.00000	10.79999	14.90712	95.00000

Instrument : CHAMBER 043  
 Detector : 76543  
 Background Analysis Date/Time : 2-AUG-2009 17:38:37  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.605	3297.721	2.000000	0.4799997	70.71068	95.00000
NP-237	4435.729	4906.163	7.000000	1.679999	37.79645	95.00000
CM-244	5530.889	5884.237	59.00000	14.15999	13.01889	95.00000

Instrument : CHAMBER 044  
 Detector : 79459  
 Background Analysis Date/Time : 2-AUG-2009 17:38:37  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2992.053	3299.650	4.000000	0.9599994	50.00000	95.00000
NP-237	4434.444	4905.733	8.000000	1.919999	35.35534	95.00000
CM-244	5531.674	5885.749	67.00000	16.07999	12.21694	95.00000

Instrument : CHAMBER 045  
 Detector : 78783  
 Background Analysis Date/Time : 2-AUG-2009 17:38:37  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2991.163	3297.674	2.000000	0.4799997	70.71068	95.00000
NP-237	4435.665	4901.796	4.000000	0.9599994	50.00000	95.00000
CM-244	5533.912	5883.468	60.00000	14.39999	12.90994	95.00000

Instrument : CHAMBER 046  
 Detector : 76544  
 Background Analysis Date/Time : 2-AUG-2009 17:38:37  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.013	3297.754	6.000000	1.439999	40.82483	95.00000
NP-237	4433.428	4906.578	9.000000	2.159999	33.33334	95.00000
CM-244	5533.808	5885.833	47.00000	11.27999	14.58650	95.00000

Instrument : CHAMBER 047  
 Detector : 46-089B1  
 Background Analysis Date/Time : 2-AUG-2009 17:38:37  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.788	3298.531	0.000000E+00	0.000000E+00	0.000000E+00	95.00000
NP-237	4436.493	4903.356	9.000000	2.159999	33.33334	95.00000
CM-244	5535.296	5884.198	73.00000	17.51999	11.70411	95.00000

Instrument : CHAMBER 048  
 Detector : 42483  
 Background Analysis Date/Time : 2-AUG-2009 17:38:37  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2991.838	3299.553	0.000000E+00	0.000000E+00	0.000000E+00	95.00000
NP-237	4437.268	4906.475	10.00000	2.399998	31.62278	95.00000
CM-244	5533.930	5885.396	49.00000	11.75999	14.28572	95.00000

Instrument : CHAMBER 065  
 Detector : 68551  
 Background Analysis Date/Time : 9-AUG-2009 15:42:44  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2991.020	3301.790	4.000000	0.9599993	50.00000	95.00000
NP-237	4435.576	4904.585	11.00000	2.639998	30.15113	95.00000
CM-244	5533.015	5885.628	14.00000	3.359998	26.72612	95.00000

Instrument : CHAMBER 066  
 Detector : 46-089C1  
 Background Analysis Date/Time : 9-AUG-2009 15:42:44  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.945	3298.217	3.000000	0.7199995	57.73503	95.00000
NP-237	4435.388	4905.987	4.000000	0.9599993	50.00000	95.00000
CM-244	5534.885	5886.957	15.00000	3.599998	25.81989	95.00000

Instrument : CHAMBER 067  
 Detector : 46-089B4  
 Background Analysis Date/Time : 9-AUG-2009 15:42:44  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.195	3298.405	1.000000	0.2399998	100.0000	95.00000
NP-237	4432.996	4903.114	5.000000	1.199999	44.72136	95.00000
CM-244	5531.881	5884.128	12.00000	2.879998	28.86751	95.00000

Instrument : CHAMBER 068  
 Detector : 78794  
 Background Analysis Date/Time : 9-AUG-2009 15:42:44  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.058	3297.794	2.000000	0.4799997	70.71068	95.00000
NP-237	4436.694	4904.361	3.000000	0.7199995	57.73503	95.00000
CM-244	5532.395	5887.637	15.00000	3.599998	25.81989	95.00000

Instrument : CHAMBER 069  
 Detector : 78795  
 Background Analysis Date/Time : 9-AUG-2009 15:42:44  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2991.230	3298.554	0.000000E+00	0.000000E+00	0.000000E+00	95.00000
NP-237	4432.770	4904.008	12.00000	2.879998	28.86751	95.00000
CM-244	5535.390	5884.253	11.00000	2.639998	30.15113	95.00000

Instrument : CHAMBER 070  
 Detector : 46-089B2  
 Background Analysis Date/Time : 9-AUG-2009 15:42:44  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2992.134	3299.079	4.000000	0.9599993	50.00000	95.00000
NP-237	4435.081	4904.079	12.00000	2.879998	28.86751	95.00000
CM-244	5531.689	5883.454	10.00000	2.399998	31.62278	95.00000

Instrument : CHAMBER 071  
 Detector : 64259  
 Background Analysis Date/Time : 9-AUG-2009 15:42:45  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2991.474	3300.552	4.000000	0.9599993	50.00000	95.00000
NP-237	4434.375	4901.563	12.00000	2.879998	28.86751	95.00000
CM-244	5533.885	5882.968	9.000000	2.159998	33.33334	95.00000

Instrument : CHAMBER 072  
 Detector : 45-149AA3  
 Background Analysis Date/Time : 9-AUG-2009 15:42:45  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.276	3301.453	1.000000	0.2399998	100.0000	95.00000
NP-237	4434.016	4904.104	11.00000	2.639998	30.15113	95.00000
CM-244	5533.538	5886.502	15.00000	3.599998	25.81989	95.00000

Instrument : CHAMBER 073  
 Detector : 78775  
 Background Analysis Date/Time : 9-AUG-2009 15:42:45  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2991.884	3298.904	2.000000	0.4799997	70.71068	95.00000
NP-237	4435.607	4905.083	10.00000	2.399998	31.62278	95.00000
CM-244	5533.495	5885.787	1.000000	0.2399998	100.0000	95.00000

Instrument : CHAMBER 074  
 Detector : 78266  
 Background Analysis Date/Time : 9-AUG-2009 15:42:45  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2992.157	3300.875	6.000000	1.439999	40.82483	95.00000
NP-237	4434.541	4902.170	10.00000	2.399998	31.62278	95.00000
CM-244	5535.537	5885.413	5.000000	1.199999	44.72136	95.00000

Instrument : CHAMBER 075  
 Detector : 68550  
 Background Analysis Date/Time : 9-AUG-2009 15:42:45  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2992.440	3300.846	3.000000	0.7199995	57.73503	95.00000
NP-237	4432.709	4904.580	14.00000	3.359998	26.72612	95.00000
CM-244	5531.026	5885.258	12.00000	2.879998	28.86751	95.00000

Instrument : CHAMBER 076  
 Detector : 78779  
 Background Analysis Date/Time : 9-AUG-2009 15:42:45  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2991.979	3300.154	1.000000	0.2399998	100.0000	95.00000
NP-237	4436.825	4903.508	11.00000	2.639998	30.15113	95.00000
CM-244	5535.510	5884.591	0.000000E+00	0.000000E+00	0.000000E+00	95.00000

Instrument : CHAMBER 077  
 Detector : 67576  
 Background Analysis Date/Time : 9-AUG-2009 15:42:46  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.957	3302.071	2.000000	0.4800001	70.71068	95.00000
NP-237	4433.544	4902.799	6.000000	1.440000	40.82483	95.00000
CM-244	5530.788	5882.782	17.00000	4.080001	24.25356	95.00000

Instrument : CHAMBER 078  
 Detector : 67577  
 Background Analysis Date/Time : 9-AUG-2009 15:42:46  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.255	3302.223	3.000000	0.7200001	57.73503	95.00000
NP-237	4437.236	4905.680	5.000000	1.200000	44.72136	95.00000
CM-244	5535.005	5885.680	6.000000	1.440000	40.82483	95.00000

Instrument : CHAMBER 079  
 Detector : 67598  
 Background Analysis Date/Time : 9-AUG-2009 15:42:46  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.159	3300.331	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000
NP-237	4434.317	4902.854	5.000000	1.200000	44.72136	95.00000
CM-244	5535.480	5887.277	7.000000	1.680000	37.79645	95.00000

Instrument : CHAMBER 080  
 Detector : 78197  
 Background Analysis Date/Time : 9-AUG-2009 15:42:46  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2991.650	3302.015	2.000000	0.4799997	70.71068	95.00000
NP-237	4433.624	4906.537	7.000000	1.679999	37.79645	95.00000
CM-244	5533.522	5887.645	5.000000	1.199999	44.72136	95.00000



Instrument : CHAMBER 081  
 Detector : 72533  
 Background Analysis Date/Time : 9-AUG-2009 15:42:46  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2994.266	3303.451	0.000000E+00	0.000000E+00	0.000000E+00	95.00000
NP-237	4435.242	4901.625	6.000000	1.440000	40.82483	95.00000
CM-244	5531.807	5884.164	15.00000	3.600001	25.81989	95.00000

Instrument : CHAMBER 082  
 Detector : 64263  
 Background Analysis Date/Time : 9-AUG-2009 15:42:46  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2987.542	3297.569	2.000000	0.4800001	70.71068	95.00000
NP-237	4435.421	4904.506	14.00000	3.360001	26.72612	95.00000
CM-244	5534.230	5884.907	8.000000	1.920000	35.35534	95.00000

Instrument : CHAMBER 083  
 Detector : 64278  
 Background Analysis Date/Time : 9-AUG-2009 15:42:47  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2991.854	3298.707	3.000000	0.7199995	57.73503	95.00000
NP-237	4433.271	4906.151	10.00000	2.399998	31.62278	95.00000
CM-244	5531.993	5884.932	8.000000	1.919999	35.35534	95.00000

Instrument : CHAMBER 084  
 Detector : 78265  
 Background Analysis Date/Time : 9-AUG-2009 15:42:47  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.678	3299.931	1.000000	0.2399998	100.0000	95.00000
NP-237	4434.465	4903.170	11.00000	2.639998	30.15113	95.00000
CM-244	5531.407	5886.178	0.000000E+00	0.000000E+00	0.000000E+00	95.00000

Instrument : CHAMBER 085  
 Detector : 78776  
 Background Analysis Date/Time : 9-AUG-2009 15:42:47  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.698	3300.313	4.000000	0.9599993	50.00000	95.00000
NP-237	4435.121	4902.282	7.000000	1.679999	37.79645	95.00000
CM-244	5534.187	5882.859	5.000000	1.199999	44.72136	95.00000

Instrument : CHAMBER 086  
 Detector : 78198  
 Background Analysis Date/Time : 9-AUG-2009 15:42:47  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.009	3300.939	1.000000	0.2399998	100.0000	95.00000
NP-237	4436.927	4902.983	9.000000	2.159998	33.33334	95.00000
CM-244	5531.983	5883.724	1.000000	0.2399998	100.0000	95.00000

Instrument : CHAMBER 087  
 Detector : 78199  
 Background Analysis Date/Time : 9-AUG-2009 15:42:47  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.599	3301.987	2.000000	0.4799997	70.71068	95.00000
NP-237	4434.300	4902.242	9.000000	2.159998	33.33334	95.00000
CM-244	5532.304	5887.140	2.000000	0.4799997	70.71068	95.00000

Instrument : CHAMBER 088  
 Detector : 33452  
 Background Analysis Date/Time : 9-AUG-2009 15:42:47  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.881	3297.896	3.000000	0.7199995	57.73503	95.00000
NP-237	4436.727	4902.043	10.00000	2.399998	31.62278	95.00000
CM-244	5532.799	5884.609	11.00000	2.639998	30.15113	95.00000

Instrument : CHAMBER 089  
 Detector : 78262  
 Background Analysis Date/Time : 9-AUG-2009 15:42:48  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.340	3299.886	3.000000	0.7200001	57.73503	95.00000
NP-237	4433.954	4903.393	6.000000	1.440000	40.82483	95.00000
CM-244	5533.423	5884.190	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000

Instrument : CHAMBER 090  
 Detector : 78263  
 Background Analysis Date/Time : 9-AUG-2009 15:42:48  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2992.174	3298.193	2.000000	0.4800001	70.71068	95.00000
NP-237	4432.899	4902.301	9.000000	2.160000	33.33334	95.00000
CM-244	5531.267	5884.186	1.000000	0.2400000	100.0000	95.00000

Instrument : CHAMBER 091  
 Detector : 78259  
 Background Analysis Date/Time : 9-AUG-2009 15:42:48  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.796	3297.819	3.000000	0.7200001	57.73503	95.00000
NP-237	4433.118	4901.645	4.000000	0.9600002	50.00000	95.00000
CM-244	5531.054	5887.180	2.000000	0.4800001	70.71068	95.00000

Instrument : CHAMBER 092  
 Detector : 79457  
 Background Analysis Date/Time : 9-AUG-2009 15:42:48  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.378	3299.875	108.0000	25.92000	9.622504	95.00000
NP-237	4435.762	4905.401	82.00000	19.68000	11.04315	95.00000
CM-244	5534.466	5887.335	8.000000	1.920000	35.35534	95.00000

Instrument : CHAMBER 093  
 Detector : 33206  
 Background Analysis Date/Time : 9-AUG-2009 15:42:48  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.021	3298.707	5.000000	1.200000	44.72136	95.00000
NP-237	4432.645	4901.916	6.000000	1.440000	40.82483	95.00000
CM-244	5530.870	5883.862	2.000000	0.4800001	70.71068	95.00000

Instrument : CHAMBER 094  
 Detector : 78267  
 Background Analysis Date/Time : 9-AUG-2009 15:42:48  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2987.496	3299.970	8.000000	1.920000	35.35534	95.00000
NP-237	4432.930	4902.883	1.000000	0.2400000	100.0000	95.00000
CM-244	5531.875	5884.464	4.000000	0.9600002	50.00000	95.00000

Instrument : CHAMBER 095  
 Detector : 64279  
 Background Analysis Date/Time : 9-AUG-2009 17:08:35  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2991.646	3298.356	3.000000	0.7199996	57.73503	95.00000
NP-237	4435.397	4905.664	11.00000	2.639998	30.15113	95.00000
CM-244	5530.369	5883.804	23.00000	5.519997	20.85144	95.00000

Instrument : CHAMBER 096  
 Detector : 67605  
 Background Analysis Date/Time : 9-AUG-2009 17:08:35  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.386	3301.860	1.000000	0.2399998	100.0000	95.00000
NP-237	4437.256	4904.015	24.00000	5.759996	20.41241	95.00000
CM-244	5531.292	5886.331	5.000000	1.199999	44.72136	95.00000

Instrument : CHAMBER 097  
 Detector : 67599  
 Background Analysis Date/Time : 9-AUG-2009 17:08:35  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2991.155	3299.592	5.000000	1.199999	44.72136	95.00000
NP-237	4437.204	4904.260	9.000000	2.159999	33.33334	95.00000
CM-244	5531.403	5886.106	16.00000	3.839998	25.00000	95.00000

Instrument : CHAMBER 098  
 Detector : 68644  
 Background Analysis Date/Time : 9-AUG-2009 17:08:35  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2992.247	3301.860	4.000000	0.9599994	50.00000	95.00000
NP-237	4432.619	4906.019	9.000000	2.159999	33.33334	95.00000
CM-244	5534.382	5884.237	3.000000	0.7199996	57.73503	95.00000

Instrument : CHAMBER 099  
 Detector : 70317  
 Background Analysis Date/Time : 9-AUG-2009 17:08:35  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2987.820	3298.212	1.000000	0.2399998	100.0000	95.00000
NP-237	4437.036	4906.585	8.000000	1.919999	35.35534	95.00000
CM-244	5530.871	5884.331	1.000000	0.2399998	100.0000	95.00000

Instrument : CHAMBER 100  
 Detector : 79456  
 Background Analysis Date/Time : 9-AUG-2009 17:08:35  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.623	3299.666	6.000000	1.439999	40.82483	95.00000
NP-237	4436.895	4905.650	17.00000	4.079998	24.25356	95.00000
CM-244	5534.086	5886.872	12.00000	2.879998	28.86751	95.00000

Instrument : CHAMBER 101  
 Detector : 64253  
 Background Analysis Date/Time : 9-AUG-2009 15:42:49  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.814	3297.893	8.000000	1.919999	35.35534	95.00000
NP-237	4435.403	4905.470	5.000000	1.199999	44.72136	95.00000
CM-244	5534.897	5882.499	0.000000E+00	0.000000E+00	0.000000E+00	95.00000

Instrument : CHAMBER 102  
 Detector : 72525  
 Background Analysis Date/Time : 9-AUG-2009 15:42:49  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.911	3298.890	2.000000	0.4799997	70.71068	95.00000
NP-237	4436.604	4903.163	6.000000	1.439999	40.82483	95.00000
CM-244	5533.661	5884.537	1.000000	0.2399998	100.0000	95.00000

Instrument : CHAMBER 103  
 Detector : 79461  
 Background Analysis Date/Time : 9-AUG-2009 15:42:49  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.467	3301.138	2.000000	0.4799997	70.71068	95.00000
NP-237	4432.983	4903.264	8.000000	1.919999	35.35534	95.00000
CM-244	5533.387	5886.945	0.000000E+00	0.000000E+00	0.000000E+00	95.00000

Instrument : CHAMBER 104  
 Detector : 72524  
 Background Analysis Date/Time : 9-AUG-2009 15:42:49  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2991.174	3300.565	4.000000	0.9599993	50.00000	95.00000
NP-237	4436.202	4904.648	8.000000	1.919999	35.35534	95.00000
CM-244	5532.970	5885.836	3.000000	0.7199995	57.73503	95.00000

Instrument : CHAMBER 105  
 Detector : 78777  
 Background Analysis Date/Time : 9-AUG-2009 15:42:49  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.222	3299.531	4.000000	0.9599993	50.00000	95.00000
NP-237	4434.728	4902.932	3.000000	0.7199995	57.73503	95.00000
CM-244	5530.878	5883.508	1.000000	0.2399998	100.0000	95.00000

Instrument : CHAMBER 106  
 Detector : 64274  
 Background Analysis Date/Time : 9-AUG-2009 15:42:49  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2987.640	3299.757	6.000000	1.439999	40.82483	95.00000
NP-237	4434.577	4901.415	11.00000	2.639998	30.15113	95.00000
CM-244	5534.428	5884.452	4.000000	0.9599993	50.00000	95.00000

Instrument : CHAMBER 107  
 Detector : 67578  
 Background Analysis Date/Time : 9-AUG-2009 15:42:50  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.547	3298.638	3.000000	0.7199995	57.73503	95.00000
NP-237	4435.772	4904.146	5.000000	1.199999	44.72136	95.00000
CM-244	5532.554	5882.324	8.000000	1.919999	35.35534	95.00000

Instrument : CHAMBER 108  
 Detector : 78778  
 Background Analysis Date/Time : 9-AUG-2009 15:42:50  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.136	3297.898	0.000000E+00	0.000000E+00	0.000000E+00	95.00000
NP-237	4433.563	4901.441	2.000000	0.4799997	70.71068	95.00000
CM-244	5533.812	5885.772	9.000000	2.159998	33.33334	95.00000

Instrument : CHAMBER 109  
 Detector : 79463  
 Background Analysis Date/Time : 9-AUG-2009 15:42:50  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.332	3301.320	1.000000	0.2399998	100.0000	95.00000
NP-237	4437.566	4903.059	2.000000	0.4799997	70.71068	95.00000
CM-244	5534.376	5883.521	6.000000	1.439999	40.82483	95.00000

Instrument : CHAMBER 110  
 Detector : 67602  
 Background Analysis Date/Time : 9-AUG-2009 15:42:50  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2987.980	3298.573	1.000000	0.2399998	100.0000	95.00000
NP-237	4433.010	4901.606	8.000000	1.919999	35.35534	95.00000
CM-244	5534.957	5883.028	14.00000	3.359998	26.72612	95.00000

Instrument : CHAMBER 111  
 Detector : 79462  
 Background Analysis Date/Time : 9-AUG-2009 15:42:50  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.711	3298.714	0.000000E+00	0.000000E+00	0.000000E+00	95.00000
NP-237	4436.440	4905.458	8.000000	1.919999	35.35534	95.00000
CM-244	5535.080	5885.693	4.000000	0.9599993	50.00000	95.00000

Instrument : CHAMBER 112  
 Detector : 78261  
 Background Analysis Date/Time : 9-AUG-2009 15:42:50  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.059	3299.440	3.000000	0.7199995	57.73503	95.00000
NP-237	4434.653	4903.902	1.000000	0.2399998	100.0000	95.00000
CM-244	5532.350	5884.826	7.000000	1.679999	37.79645	95.00000



Instrument : CHAMBER 113  
 Detector : 45-111B4  
 Background Analysis Date/Time : 16-AUG-2009 16:34:44  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.867	3300.361	1.000000	0.3000000	100.0000	95.00000
NP-237	4434.565	4901.409	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000
CM-244	5532.822	5886.571	10.00000	3.000000	31.62278	95.00000

Instrument : CHAMBER 114  
 Detector : 78258  
 Background Analysis Date/Time : 16-AUG-2009 16:34:50  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2992.066	3300.343	1.000000	0.3000000	100.0000	95.00000
NP-237	4433.866	4902.961	2.000000	0.6000000	70.71068	95.00000
CM-244	5535.155	5886.142	4.000000	1.200000	50.00000	95.00000

Instrument : CHAMBER 115  
 Detector : 45-132FF4  
 Background Analysis Date/Time : 16-AUG-2009 16:34:55  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.683	3299.666	2.000000	0.6000000	70.71068	95.00000
NP-237	4433.623	4904.729	6.000000	1.800000	40.82483	95.00000
CM-244	5534.066	5886.268	10.00000	3.000000	31.62278	95.00000

Instrument : CHAMBER 116  
 Detector : 45-132FF2  
 Background Analysis Date/Time : 16-AUG-2009 16:34:59  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2991.930	3301.615	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000
NP-237	4433.958	4904.160	3.000000	0.9000000	57.73503	95.00000
CM-244	5532.087	5883.400	11.00000	3.300000	30.15113	95.00000

Instrument : CHAMBER 117  
 Detector : 33450  
 Background Analysis Date/Time : 16-AUG-2009 16:35:03  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.306	3298.199	2.000000	0.6000000	70.71068	95.00000
NP-237	4433.520	4903.152	3.000000	0.9000000	57.73503	95.00000
CM-244	5530.582	5887.083	11.00000	3.300000	30.15113	95.00000

Instrument : CHAMBER 118  
 Detector : 75544  
 Background Analysis Date/Time : 16-AUG-2009 16:35:08  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.856	3302.528	2.000000	0.6000000	70.71068	95.00000
NP-237	4432.711	4902.773	2.000000	0.6000000	70.71068	95.00000
CM-244	5531.177	5883.080	18.00000	5.400000	23.57022	95.00000

Instrument : CHAMBER 119  
 Detector : 74429  
 Background Analysis Date/Time : 16-AUG-2009 16:35:12  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2992.004	3299.253	3.000000	0.9000000	57.73503	95.00000
NP-237	4432.548	4906.013	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000
CM-244	5530.584	5883.165	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000

Instrument : CHAMBER 120  
 Detector : 74430  
 Background Analysis Date/Time : 16-AUG-2009 16:35:17  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.209	3300.389	1.000000	0.3000000	100.0000	95.00000
NP-237	4436.370	4904.997	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000
CM-244	5531.794	5882.950	1.000000	0.3000000	100.0000	95.00000

Instrument : CHAMBER 121  
 Detector : 75545  
 Background Analysis Date/Time : 16-AUG-2009 16:35:22  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2991.483	3299.036	4.000000	1.200000	50.00000	95.00000
NP-237	4436.007	4904.843	6.000000	1.800000	40.82483	95.00000
CM-244	5531.746	5882.876	5.000000	1.500000	44.72136	95.00000

Instrument : CHAMBER 122  
 Detector : 75546  
 Background Analysis Date/Time : 16-AUG-2009 16:35:26  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.140	3302.149	0.000000E+00	0.000000E+00	0.000000E+00	95.00000
NP-237	4434.728	4903.501	14.00000	4.200000	26.72612	95.00000
CM-244	5535.323	5886.133	13.00000	3.900000	27.73501	95.00000

Instrument : CHAMBER 123  
 Detector : 45-142V3  
 Background Analysis Date/Time : 16-AUG-2009 16:35:30  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.820	3298.601	3.000000	0.9000000	57.73503	95.00000
NP-237	4437.478	4905.941	6.000000	1.800000	40.82483	95.00000
CM-244	5531.339	5886.453	8.000000	2.400000	35.35534	95.00000

Instrument : CHAMBER 124  
 Detector : 45-142V2  
 Background Analysis Date/Time : 16-AUG-2009 16:35:35  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.806	3300.376	2.000000	0.6000000	70.71068	95.00000
NP-237	4436.352	4902.974	9.000000	2.700000	33.33334	95.00000
CM-244	5533.246	5885.946	6.000000	1.800000	40.82483	95.00000

Instrument : CHAMBER 125  
 Detector : 75547  
 Background Analysis Date/Time : 16-AUG-2009 16:35:39  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2987.619	3299.275	2.000000	0.6000000	70.71068	95.00000
NP-237	4433.269	4906.266	6.000000	1.800000	40.82483	95.00000
CM-244	5531.959	5882.482	4.000000	1.200000	50.00000	95.00000

Instrument : CHAMBER 126  
 Detector : 75548  
 Background Analysis Date/Time : 16-AUG-2009 16:35:44  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.372	3298.946	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000
NP-237	4437.297	4901.551	15.00000	4.500000	25.81989	95.00000
CM-244	5532.806	5882.587	4.000000	1.200000	50.00000	95.00000

Instrument : CHAMBER 127  
 Detector : 78770  
 Background Analysis Date/Time : 16-AUG-2009 16:35:48  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.622	3297.830	3.000000	0.9000000	57.73503	95.00000
NP-237	4435.622	4904.092	1.000000	0.3000000	100.0000	95.00000
CM-244	5535.184	5885.434	1.000000	0.3000000	100.0000	95.00000

Instrument : CHAMBER 128  
 Detector : 75549  
 Background Analysis Date/Time : 16-AUG-2009 16:35:52  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.482	3299.177	135.0000	40.50000	8.606629	95.00000
NP-237	4436.028	4905.664	84.00000	25.20000	10.91089	95.00000
CM-244	5532.549	5883.141	32.00000	9.600000	17.67767	95.00000

Instrument : CHAMBER 129  
 Detector : 76227  
 Background Analysis Date/Time : 16-AUG-2009 16:35:57  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2992.146	3298.635	1.000000	0.3000000	100.0000	95.00000
NP-237	4432.563	4905.761	8.000000	2.400000	35.35534	95.00000
CM-244	5531.918	5882.796	2.000000	0.6000000	70.71068	95.00000

Instrument : CHAMBER 130  
 Detector : 76228  
 Background Analysis Date/Time : 16-AUG-2009 16:36:01  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.230	3297.665	2.000000	0.6000000	70.71068	95.00000
NP-237	4434.582	4901.937	8.000000	2.400000	35.35534	95.00000
CM-244	5530.859	5884.881	4.000000	1.200000	50.00000	95.00000

Instrument : CHAMBER 131  
 Detector : 33448  
 Background Analysis Date/Time : 16-AUG-2009 16:36:05  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.455	3301.428	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000
NP-237	4434.994	4904.668	4.000000	1.200000	50.00000	95.00000
CM-244	5532.826	5884.723	6.000000	1.800000	40.82483	95.00000

Instrument : CHAMBER 132  
 Detector : 67579  
 Background Analysis Date/Time : 16-AUG-2009 16:36:09  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.906	3301.298	2.000000	0.6000000	70.71068	95.00000
NP-237	4432.560	4903.500	5.000000	1.500000	44.72136	95.00000
CM-244	5531.586	5882.587	2.000000	0.6000000	70.71068	95.00000

Instrument : CHAMBER 133  
 Detector : 76229  
 Background Analysis Date/Time : 16-AUG-2009 16:36:14  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2992.199	3301.674	1.000000	0.3000000	100.0000	95.00000
NP-237	4436.849	4905.652	3.000000	0.9000000	57.73503	95.00000
CM-244	5530.602	5882.872	5.000000	1.500000	44.72136	95.00000

Instrument : CHAMBER 134  
 Detector : 76230  
 Background Analysis Date/Time : 16-AUG-2009 16:36:19  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.055	3302.112	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000
NP-237	4432.969	4905.408	21.00000	6.300000	21.82179	95.00000
CM-244	5534.460	5883.375	9.000000	2.700000	33.33334	95.00000

Instrument : CHAMBER 135  
 Detector : 64270  
 Background Analysis Date/Time : 16-AUG-2009 16:36:23  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2987.813	3300.105	2.000000	0.6000000	70.71068	95.00000
NP-237	4435.123	4902.752	2.000000	0.6000000	70.71068	95.00000
CM-244	5532.979	5882.877	10.00000	3.000000	31.62278	95.00000

Instrument : CHAMBER 136  
 Detector : 68549  
 Background Analysis Date/Time : 16-AUG-2009 16:36:27  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2991.796	3301.682	3.000000	0.9000000	57.73503	95.00000
NP-237	4435.713	4901.780	14.00000	4.200000	26.72612	95.00000
CM-244	5531.520	5884.028	5.000000	1.500000	44.72136	95.00000

Instrument : CHAMBER 137  
 Detector : 64288  
 Background Analysis Date/Time : 16-AUG-2009 16:36:31  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.035	3302.352	4.000000	1.200000	50.00000	95.00000
NP-237	4435.990	4901.349	6.000000	1.800000	40.82483	95.00000
CM-244	5532.344	5883.346	7.000000	2.100000	37.79645	95.00000

Instrument : CHAMBER 138  
 Detector : 65877  
 Background Analysis Date/Time : 16-AUG-2009 16:36:35  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.457	3300.623	3.000000	0.9000000	57.73503	95.00000
NP-237	4436.833	4904.301	13.00000	3.900000	27.73501	95.00000
CM-244	5531.035	5885.034	10.00000	3.000000	31.62278	95.00000

Instrument : CHAMBER 139  
 Detector : 76231  
 Background Analysis Date/Time : 16-AUG-2009 16:36:40  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.624	3300.322	4.000000	1.200000	50.00000	95.00000
NP-237	4436.965	4901.673	8.000000	2.400000	35.35534	95.00000
CM-244	5531.099	5884.173	8.000000	2.400000	35.35534	95.00000

Instrument : CHAMBER 140  
 Detector : 78771  
 Background Analysis Date/Time : 16-AUG-2009 16:36:43  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2992.243	3300.208	3.000000	0.9000000	57.73503	95.00000
NP-237	4435.227	4906.111	12.00000	3.600000	28.86751	95.00000
CM-244	5531.085	5884.403	1.000000	0.3000000	100.0000	95.00000

Instrument : CHAMBER 141  
 Detector : 76232  
 Background Analysis Date/Time : 16-AUG-2009 16:36:48  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.414	3297.748	1.000000	0.3000000	100.0000	95.00000
NP-237	4437.262	4901.753	5.000000	1.500000	44.72136	95.00000
CM-244	5534.971	5886.637	5.000000	1.500000	44.72136	95.00000

Instrument : CHAMBER 142  
 Detector : 64261  
 Background Analysis Date/Time : 16-AUG-2009 16:36:52  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.269	3301.948	2.000000	0.6000000	70.71068	95.00000
NP-237	4433.864	4905.404	11.00000	3.300000	30.15113	95.00000
CM-244	5531.110	5884.773	12.00000	3.600000	28.86751	95.00000

Instrument : CHAMBER 143  
 Detector : 65882  
 Background Analysis Date/Time : 16-AUG-2009 16:36:56  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2987.868	3300.973	10.00000	3.000000	31.62278	95.00000
NP-237	4435.203	4905.234	16.00000	4.800000	25.00000	95.00000
CM-244	5533.941	5886.181	11.00000	3.300000	30.15113	95.00000

Instrument : CHAMBER 144  
 Detector : 75551  
 Background Analysis Date/Time : 16-AUG-2009 16:37:00  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2992.050	3299.833	2.000000	0.6000000	70.71068	95.00000
NP-237	4433.005	4902.603	12.00000	3.600000	28.86751	95.00000
CM-244	5530.735	5882.656	9.000000	2.700000	33.33334	95.00000



Instrument : CHAMBER 145  
 Detector : 72526  
 Background Analysis Date/Time : 16-AUG-2009 16:37:03  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2991.923	3299.882	3.000000	0.9000000	57.73503	95.00000
NP-237	4434.984	4905.949	4.000000	1.200000	50.00000	95.00000
CM-244	5531.069	5884.490	6.000000	1.800000	40.82483	95.00000

Instrument : CHAMBER 146  
 Detector : 72527  
 Background Analysis Date/Time : 16-AUG-2009 16:37:08  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.460	3301.164	2.000000	0.6000000	70.71068	95.00000
NP-237	4435.288	4903.095	2.000000	0.6000000	70.71068	95.00000
CM-244	5534.042	5884.573	6.000000	1.800000	40.82483	95.00000

Instrument : CHAMBER 147  
 Detector : 75550  
 Background Analysis Date/Time : 16-AUG-2009 16:37:11  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.910	3299.539	10.00000	3.000000	31.62278	95.00000
NP-237	4433.251	4901.935	8.000000	2.400000	35.35534	95.00000
CM-244	5533.139	5883.368	12.00000	3.600000	28.86751	95.00000

Instrument : CHAMBER 148  
 Detector : 74429  
 Background Analysis Date/Time : 16-AUG-2009 16:37:16  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.725	3298.446	6.000000	1.800000	40.82483	95.00000
NP-237	4436.496	4905.977	7.000000	2.100000	37.79645	95.00000
CM-244	5533.919	5885.716	8.000000	2.400000	35.35534	95.00000

Instrument : CHAMBER 149  
 Detector : 33449  
 Background Analysis Date/Time : 16-AUG-2009 16:37:20  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2991.734	3299.272	0.000000E+00	0.000000E+00	0.000000E+00	95.00000
NP-237	4437.371	4901.944	4.000000	1.200000	50.00000	95.00000
CM-244	5530.548	5882.851	6.000000	1.800000	40.82483	95.00000

Instrument : CHAMBER 150  
 Detector : 75552  
 Background Analysis Date/Time : 16-AUG-2009 16:37:24  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2992.316	3300.643	2.000000	0.6000000	70.71068	95.00000
NP-237	4435.415	4905.497	7.000000	2.100000	37.79645	95.00000
CM-244	5534.121	5886.240	7.000000	2.100000	37.79645	95.00000

Instrument : CHAMBER 151  
 Detector : 75556  
 Background Analysis Date/Time : 16-AUG-2009 16:37:28  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.659	3302.040	1.000000	0.3000000	100.0000	95.00000
NP-237	4434.623	4901.634	4.000000	1.200000	50.00000	95.00000
CM-244	5531.364	5886.469	8.000000	2.400000	35.35534	95.00000

Instrument : CHAMBER 152  
 Detector : 76222  
 Background Analysis Date/Time : 16-AUG-2009 16:37:32  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2991.044	3297.777	4.000000	1.200000	50.00000	95.00000
NP-237	4437.300	4905.285	5.000000	1.500000	44.72136	95.00000
CM-244	5531.209	5887.199	7.000000	2.100000	37.79645	95.00000

Instrument : CHAMBER 153  
 Detector : 76223  
 Background Analysis Date/Time : 16-AUG-2009 16:37:35  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.175	3301.127	4.000000	1.200000	50.00000	95.00000
NP-237	4437.148	4906.174	10.00000	3.000000	31.62278	95.00000
CM-244	5533.838	5885.640	4.000000	1.200000	50.00000	95.00000

Instrument : CHAMBER 154  
 Detector : 76224  
 Background Analysis Date/Time : 16-AUG-2009 16:37:40  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2991.160	3298.663	3.000000	0.9000000	57.73503	95.00000
NP-237	4435.792	4904.845	6.000000	1.800000	40.82483	95.00000
CM-244	5532.170	5883.602	4.000000	1.200000	50.00000	95.00000

Instrument : CHAMBER 155  
 Detector : 75553  
 Background Analysis Date/Time : 16-AUG-2009 16:37:44  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.137	3299.574	8.000000	2.400000	35.35534	95.00000
NP-237	4433.383	4905.252	9.000000	2.700000	33.33334	95.00000
CM-244	5530.995	5884.485	8.000000	2.400000	35.35534	95.00000

Instrument : CHAMBER 156  
 Detector : 75554  
 Background Analysis Date/Time : 16-AUG-2009 16:37:48  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2991.410	3301.423	6.000000	1.800000	40.82483	95.00000
NP-237	4436.034	4902.390	17.00000	5.100000	24.25356	95.00000
CM-244	5532.563	5885.336	4.000000	1.200000	50.00000	95.00000

Instrument : CHAMBER 157  
 Detector : 75555  
 Background Analysis Date/Time : 16-AUG-2009 16:37:52  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.948	3299.042	1.000000	0.3000000	100.0000	95.00000
NP-237	4436.337	4902.073	9.000000	2.700000	33.33334	95.00000
CM-244	5531.733	5884.378	7.000000	2.100000	37.79645	95.00000

Instrument : CHAMBER 158  
 Detector : 33451  
 Background Analysis Date/Time : 16-AUG-2009 16:37:56  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.074	3301.013	2.000000	0.6000000	70.71068	95.00000
NP-237	4435.907	4905.421	10.00000	3.000000	31.62278	95.00000
CM-244	5535.323	5885.904	6.000000	1.800000	40.82483	95.00000

Instrument : CHAMBER 159  
 Detector : 76225  
 Background Analysis Date/Time : 16-AUG-2009 16:38:00  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2992.022	3301.502	4.000000	1.200000	50.00000	95.00000
NP-237	4435.853	4902.842	7.000000	2.100000	37.79645	95.00000
CM-244	5534.528	5883.086	12.00000	3.600000	28.86751	95.00000

Instrument : CHAMBER 160  
 Detector : 76226  
 Background Analysis Date/Time : 16-AUG-2009 16:38:03  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.982	3298.890	6.000000	1.800000	40.82483	95.00000
NP-237	4434.439	4901.761	20.00000	6.000000	22.36068	95.00000
CM-244	5533.753	5882.414	11.00000	3.300000	30.15113	95.00000

Instrument : CHAMBER 161  
 Detector : 70321  
 Background Analysis Date/Time : 23-AUG-2009 11:54:11  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.799	3299.450	0.000000E+00	0.000000E+00	0.000000E+00	95.00000
NP-237	4437.354	4905.712	6.000000	1.800000	40.82483	95.00000
CM-244	5533.034	5884.911	14.00000	4.200000	26.72612	95.00000

Instrument : CHAMBER 162  
 Detector : 70323  
 Background Analysis Date/Time : 23-AUG-2009 11:54:16  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2991.108	3297.679	0.000000E+00	0.000000E+00	0.000000E+00	95.00000
NP-237	4437.157	4905.370	5.000000	1.500000	44.72136	95.00000
CM-244	5531.808	5882.856	5.000000	1.500000	44.72136	95.00000

Instrument : CHAMBER 163  
 Detector : 70324  
 Background Analysis Date/Time : 23-AUG-2009 11:54:21  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.316	3301.922	0.000000E+00	0.000000E+00	0.000000E+00	95.00000
NP-237	4434.725	4904.333	12.00000	3.600000	28.86751	95.00000
CM-244	5532.622	5884.699	13.00000	3.900000	27.73501	95.00000

Instrument : CHAMBER 164  
 Detector : 70325  
 Background Analysis Date/Time : 23-AUG-2009 11:54:26  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.433	3301.590	2.000000	0.6000000	70.71068	95.00000
NP-237	4434.137	4904.243	9.000000	2.700000	33.33334	95.00000
CM-244	5533.726	5886.727	6.000000	1.800000	40.82483	95.00000

Instrument : CHAMBER 165  
 Detector : 72544  
 Background Analysis Date/Time : 23-AUG-2009 11:54:31  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.235	3298.979	0.000000E+00	0.000000E+00	0.000000E+00	95.00000
NP-237	4434.502	4904.549	7.000000	2.100000	37.79645	95.00000
CM-244	5532.823	5884.601	7.000000	2.100000	37.79645	95.00000

Instrument : CHAMBER 166  
 Detector : 74545  
 Background Analysis Date/Time : 23-AUG-2009 11:54:35  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2991.175	3297.621	0.000000E+00	0.000000E+00	0.000000E+00	95.00000
NP-237	4434.428	4904.926	5.000000	1.500000	44.72136	95.00000
CM-244	5535.556	5884.119	12.000000	3.600000	28.86751	95.00000

Instrument : CHAMBER 167  
 Detector : 72546  
 Background Analysis Date/Time : 23-AUG-2009 11:54:40  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.148	3302.011	2.000000	0.6000000	70.71068	95.00000
NP-237	4433.463	4903.100	12.000000	3.6000000	28.86751	95.00000
CM-244	5531.940	5884.576	10.000000	3.0000000	31.62278	95.00000

Instrument : CHAMBER 168  
 Detector : 72547  
 Background Analysis Date/Time : 23-AUG-2009 11:54:44  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.237	3300.921	1.000000	0.3000000	100.0000	95.00000
NP-237	4437.534	4902.237	16.000000	4.8000000	25.00000	95.00000
CM-244	5531.663	5884.741	9.000000	2.7000000	33.33334	95.00000

Instrument : CHAMBER 169  
 Detector : 72548  
 Background Analysis Date/Time : 23-AUG-2009 11:54:49  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2992.165	3298.594	1.000000	0.3000000	100.0000	95.00000
NP-237	4434.229	4903.754	13.00000	3.900000	27.73501	95.00000
CM-244	5532.658	5885.433	3.000000	0.9000000	57.73503	95.00000

Instrument : CHAMBER 170  
 Detector : 72549  
 Background Analysis Date/Time : 23-AUG-2009 11:54:54  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.025	3299.867	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000
NP-237	4432.622	4903.408	16.00000	4.800000	25.00000	95.00000
CM-244	5534.316	5882.981	5.000000	1.500000	44.72136	95.00000

Instrument : CHAMBER 171  
 Detector : 78260  
 Background Analysis Date/Time : 23-AUG-2009 11:54:58  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.433	3300.366	1.000000	0.3000000	100.0000	95.00000
NP-237	4436.595	4905.826	9.000000	2.700000	33.33334	95.00000
CM-244	5533.870	5885.935	11.00000	3.300000	30.15113	95.00000

Instrument : CHAMBER 172  
 Detector : 78772  
 Background Analysis Date/Time : 23-AUG-2009 11:55:03  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2991.870	3297.903	3.000000	0.9000000	57.73503	95.00000
NP-237	4433.678	4903.969	9.000000	2.700000	33.33334	95.00000
CM-244	5534.514	5883.121	7.000000	2.100000	37.79645	95.00000

Instrument : CHAMBER 173  
 Detector : 74431  
 Background Analysis Date/Time : 23-AUG-2009 11:55:07  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.449	3298.086	0.000000E+00	0.000000E+00	0.000000E+00	95.00000
NP-237	4435.604	4905.905	2.000000	0.6000000	70.71068	95.00000
CM-244	5534.021	5885.467	32.00000	9.600000	17.67767	95.00000

Instrument : CHAMBER 174  
 Detector : 74432  
 Background Analysis Date/Time : 23-AUG-2009 11:55:12  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.639	3300.179	2.000000	0.6000000	70.71068	95.00000
NP-237	4435.486	4905.219	9.000000	2.700000	33.33334	95.00000
CM-244	5531.026	5885.734	20.00000	6.000000	22.36068	95.00000

Instrument : CHAMBER 175  
 Detector : 74433  
 Background Analysis Date/Time : 23-AUG-2009 11:55:16  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2992.018	3300.926	1.000000	0.3000000	100.0000	95.00000
NP-237	4437.197	4902.367	8.000000	2.400000	35.35534	95.00000
CM-244	5531.134	5883.215	22.00000	6.600000	21.32007	95.00000

Instrument : CHAMBER 176  
 Detector : 74434  
 Background Analysis Date/Time : 23-AUG-2009 11:55:21  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2987.853	3298.318	1.000000	0.3000000	100.0000	95.00000
NP-237	4433.083	4904.101	7.000000	2.100000	37.79645	95.00000
CM-244	5532.948	5884.695	23.00000	6.900000	20.85144	95.00000



Instrument : CHAMBER 177  
 Detector : 74435  
 Background Analysis Date/Time : 23-AUG-2009 11:55:26  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.857	3298.211	3.000000	0.9000000	57.73503	95.00000
NP-237	4433.475	4903.934	1.000000	0.3000000	100.0000	95.00000
CM-244	5533.213	5885.773	29.00000	8.700001	18.56953	95.00000

Instrument : CHAMBER 178  
 Detector : 74436  
 Background Analysis Date/Time : 23-AUG-2009 11:55:31  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2991.399	3300.807	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000
NP-237	4432.785	4903.123	10.00000	3.000000	31.62278	95.00000
CM-244	5531.481	5883.158	22.00000	6.600000	21.32007	95.00000

Instrument : CHAMBER 179  
 Detector : 74437  
 Background Analysis Date/Time : 23-AUG-2009 11:55:36  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.874	3299.393	2.000000	0.6000000	70.71068	95.00000
NP-237	4435.018	4905.518	5.000000	1.500000	44.72136	95.00000
CM-244	5534.758	5887.251	32.00000	9.600000	17.67767	95.00000

Instrument : CHAMBER 180  
 Detector : 74438  
 Background Analysis Date/Time : 23-AUG-2009 11:55:40  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.946	3300.627	2.000000	0.6000000	70.71068	95.00000
NP-237	4434.505	4904.405	9.000000	2.700000	33.33334	95.00000
CM-244	5531.104	5886.649	23.00000	6.900000	20.85144	95.00000

Instrument : CHAMBER 181  
 Detector : 74439  
 Background Analysis Date/Time : 23-AUG-2009 11:55:45  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.658	3302.315	0.000000E+00	0.000000E+00	0.000000E+00	95.00000
NP-237	4432.549	4902.677	7.000000	2.100000	37.79645	95.00000
CM-244	5531.208	5883.203	33.00000	9.900001	17.40777	95.00000

Instrument : CHAMBER 182  
 Detector : 74440  
 Background Analysis Date/Time : 23-AUG-2009 11:55:49  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.553	3299.709	1.000000	0.3000000	100.0000	95.00000
NP-237	4435.824	4905.707	3.000000	0.9000000	57.73503	95.00000
CM-244	5533.404	5884.684	13.00000	3.900000	27.73501	95.00000

Instrument : CHAMBER 183  
 Detector : 74441  
 Background Analysis Date/Time : 23-AUG-2009 11:55:54  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.015	3297.962	3.000000	0.9000000	57.73503	95.00000
NP-237	4434.099	4904.342	4.000000	1.200000	50.00000	95.00000
CM-244	5532.826	5884.696	34.00000	10.20000	17.14986	95.00000

Instrument : CHAMBER 184  
 Detector : 74442  
 Background Analysis Date/Time : 23-AUG-2009 11:55:58  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.045	3299.169	0.000000E+00	0.000000E+00	0.000000E+00	95.00000
NP-237	4437.505	4902.470	5.000000	1.500000	44.72136	95.00000
CM-244	5535.333	5886.318	24.00000	7.200000	20.41241	95.00000

Instrument : CHAMBER 185  
 Detector : 68615  
 Background Analysis Date/Time : 23-AUG-2009 11:56:04  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2987.897	3299.344	1.000000	0.3000000	100.0000	95.00000
NP-237	4432.571	4905.243	2.000000	0.6000000	70.71068	95.00000
CM-244	5530.503	5886.106	27.00000	8.100000	19.24501	95.00000

Instrument : CHAMBER 186  
 Detector : 68616  
 Background Analysis Date/Time : 23-AUG-2009 11:56:08  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2992.379	3299.140	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000
NP-237	4434.242	4902.774	1.000000	0.3000000	100.0000	95.00000
CM-244	5534.982	5886.349	23.00000	6.900000	20.85144	95.00000

Instrument : CHAMBER 187  
 Detector : 68620  
 Background Analysis Date/Time : 23-AUG-2009 11:56:12  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2991.498	3300.157	4.000000	1.200000	50.00000	95.00000
NP-237	4437.493	4903.961	8.000000	2.400000	35.35534	95.00000
CM-244	5535.243	5883.722	18.00000	5.400000	23.57022	95.00000

Instrument : CHAMBER 188  
 Detector : 68621  
 Background Analysis Date/Time : 23-AUG-2009 11:56:16  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.985	3297.497	1.000000	0.3000000	100.0000	95.00000
NP-237	4433.354	4904.064	5.000000	1.500000	44.72136	95.00000
CM-244	5533.683	5886.437	31.00000	9.300000	17.96053	95.00000

Instrument : CHAMBER 189  
 Detector : 68622  
 Background Analysis Date/Time : 23-AUG-2009 11:56:21  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.052	3301.735	1.000000	0.3000000	100.0000	95.00000
NP-237	4436.853	4905.539	4.000000	1.200000	50.00000	95.00000
CM-244	5532.776	5884.354	29.00000	8.700001	18.56953	95.00000

Instrument : CHAMBER 190  
 Detector : 68623  
 Background Analysis Date/Time : 23-AUG-2009 11:56:25  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2991.652	3298.950	4.000000	1.200000	50.00000	95.00000
NP-237	4435.677	4904.720	25.00000	7.500000	20.00000	95.00000
CM-244	5532.170	5883.736	36.00000	10.80000	16.66667	95.00000

Instrument : CHAMBER 191  
 Detector : 68624  
 Background Analysis Date/Time : 23-AUG-2009 11:56:29  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2991.100	3299.772	1.000000	0.3000000	100.0000	95.00000
NP-237	4437.436	4904.158	1.000000	0.3000000	100.0000	95.00000
CM-244	5530.545	5884.668	27.00000	8.100000	19.24501	95.00000

Instrument : CHAMBER 192  
 Detector : 74430  
 Background Analysis Date/Time : 23-AUG-2009 11:56:33  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.046	3297.560	1.000000	0.3000000	100.0000	95.00000
NP-237	4437.061	4903.990	4.000000	1.200000	50.00000	95.00000
CM-244	5535.519	5883.955	25.00000	7.500000	20.00000	95.00000

Instrument : CHAMBER 193  
 Detector : 68627  
 Background Analysis Date/Time : 23-AUG-2009 11:56:37  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.087	3301.572	2.000000	0.6000000	70.71068	95.00000
NP-237	4436.483	4905.309	7.000000	2.100000	37.79645	95.00000
CM-244	5532.931	5884.819	32.00000	9.600000	17.67767	95.00000

Instrument : CHAMBER 194  
 Detector : 68635  
 Background Analysis Date/Time : 23-AUG-2009 11:56:41  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.152	3297.570	1.000000	0.3000000	100.0000	95.00000
NP-237	4434.536	4903.587	4.000000	1.200000	50.00000	95.00000
CM-244	5530.970	5882.461	11.00000	3.300000	30.15113	95.00000

Instrument : CHAMBER 195  
 Detector : 68636  
 Background Analysis Date/Time : 23-AUG-2009 11:56:45  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2992.288	3300.624	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000
NP-237	4434.057	4902.978	3.000000	0.9000000	57.73503	95.00000
CM-244	5534.813	5885.542	15.00000	4.500000	25.81989	95.00000

Instrument : CHAMBER 196  
 Detector : 68637  
 Background Analysis Date/Time : 23-AUG-2009 11:56:50  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.410	3301.963	3.000000	0.9000000	57.73503	95.00000
NP-237	4437.321	4906.417	5.000000	1.500000	44.72136	95.00000
CM-244	5534.476	5886.645	21.00000	6.300000	21.82179	95.00000

Instrument : CHAMBER 197  
 Detector : 78894  
 Background Analysis Date/Time : 23-AUG-2009 11:56:54  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2991.920	3300.320	0.000000E+00	0.000000E+00	0.000000E+00	95.00000
NP-237	4436.468	4902.348	1.000000	0.3000000	100.0000	95.00000
CM-244	5532.745	5886.065	12.00000	3.600000	28.86751	95.00000

Instrument : CHAMBER 198  
 Detector : 78895  
 Background Analysis Date/Time : 23-AUG-2009 11:56:58  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2991.305	3299.642	1.000000	0.3000000	100.0000	95.00000
NP-237	4434.397	4904.448	0.000000E+00	0.000000E+00	0.000000E+00	95.00000
CM-244	5533.011	5885.087	30.00000	9.000000	18.25742	95.00000

Instrument : CHAMBER 199  
 Detector : 78896  
 Background Analysis Date/Time : 23-AUG-2009 11:57:02  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.912	3297.497	0.000000E+00	0.000000E+00	0.000000E+00	95.00000
NP-237	4433.891	4904.941	5.000000	1.500000	44.72136	95.00000
CM-244	5535.121	5882.869	7.000000	2.100000	37.79645	95.00000

Instrument : CHAMBER 200  
 Detector : 78900  
 Background Analysis Date/Time : 23-AUG-2009 11:57:06  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2991.845	3300.480	2.000000	0.6000000	70.71068	95.00000
NP-237	4436.941	4902.709	10.00000	3.000000	31.62278	95.00000
CM-244	5532.744	5885.759	30.00000	9.000000	18.25742	95.00000

Instrument : CHAMBER 201  
 Detector : 78902  
 Background Analysis Date/Time : 23-AUG-2009 11:57:10  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.531	3297.499	1.000000	0.3000000	100.0000	95.00000
NP-237	4434.991	4906.359	5.000000	1.500000	44.72136	95.00000
CM-244	5531.510	5884.700	15.00000	4.500000	25.81989	95.00000

Instrument : CHAMBER 202  
 Detector : 78903  
 Background Analysis Date/Time : 23-AUG-2009 11:57:14  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.301	3298.322	1.000000	0.3000000	100.0000	95.00000
NP-237	4432.596	4902.750	0.000000E+00	0.0000000E+00	0.000000E+00	95.00000
CM-244	5531.710	5884.137	13.00000	3.900000	27.73501	95.00000

Instrument : CHAMBER 203  
 Detector : 78905  
 Background Analysis Date/Time : 23-AUG-2009 11:57:19  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.566	3301.771	4.000000	1.200000	50.00000	95.00000
NP-237	4437.077	4902.609	6.000000	1.800000	40.82483	95.00000
CM-244	5532.534	5885.590	12.00000	3.600000	28.86751	95.00000

Instrument : CHAMBER 204  
 Detector : 78907  
 Background Analysis Date/Time : 23-AUG-2009 11:57:23  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.303	3298.289	13.00000	3.900000	27.73501	95.00000
NP-237	4433.152	4903.866	12.00000	3.600000	28.86751	95.00000
CM-244	5533.856	5886.993	34.00000	10.20000	17.14986	95.00000

Instrument : CHAMBER 205  
 Detector : 78908  
 Background Analysis Date/Time : 23-AUG-2009 11:57:27  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2991.267	3299.423	1.000000	0.3000000	100.0000	95.00000
NP-237	4434.928	4905.917	1.000000	0.3000000	100.0000	95.00000
CM-244	5530.946	5884.256	15.00000	4.500000	25.81989	95.00000

Instrument : CHAMBER 206  
 Detector : 78909  
 Background Analysis Date/Time : 23-AUG-2009 11:57:31  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2991.740	3299.836	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000
NP-237	4434.469	4904.811	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000
CM-244	5534.058	5886.660	13.00000	3.900000	27.73501	95.00000

Instrument : CHAMBER 207  
 Detector : 78910  
 Background Analysis Date/Time : 23-AUG-2009 11:57:35  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2987.560	3301.824	2.000000	0.6000000	70.71068	95.00000
NP-237	4434.563	4905.877	4.000000	1.200000	50.00000	95.00000
CM-244	5530.790	5883.765	14.00000	4.200000	26.72612	95.00000

Instrument : CHAMBER 208  
 Detector : 78911  
 Background Analysis Date/Time : 23-AUG-2009 11:57:40  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.613	3299.492	2.000000	0.6000000	70.71068	95.00000
NP-237	4436.795	4902.883	7.000000	2.100000	37.79645	95.00000
CM-244	5533.327	5886.561	13.00000	3.900000	27.73501	95.00000



Instrument : CHAMBER 209  
 Detector : 79188  
 Background Analysis Date/Time : 26-JUL-2009 17:06:41  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.310	3300.226	2.000000	0.6000000	70.71068	95.00000
NP-237	4435.667	4905.853	1.000000	0.3000000	100.0000	95.00000
CM-244	5530.947	5884.845	8.000000	2.400000	35.35534	95.00000

Instrument : CHAMBER 210  
 Detector : 79189  
 Background Analysis Date/Time : 26-JUL-2009 17:06:45  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.620	3297.977	1.000000	0.3000000	100.0000	95.00000
NP-237	4435.731	4905.552	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000
CM-244	5534.352	5886.824	9.000000	2.700000	33.33334	95.00000

Instrument : CHAMBER 211  
 Detector : 79190  
 Background Analysis Date/Time : 26-JUL-2009 17:06:49  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.121	3301.259	3.000000	0.9000000	57.73503	95.00000
NP-237	4436.737	4902.524	1.000000	0.3000000	100.0000	95.00000
CM-244	5532.952	5886.368	15.00000	4.500000	25.81989	95.00000

Instrument : CHAMBER 212  
 Detector : 79191  
 Background Analysis Date/Time : 26-JUL-2009 17:06:54  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.135	3301.447	1.000000	0.3000000	100.0000	95.00000
NP-237	4434.433	4904.665	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000
CM-244	5534.267	5887.313	12.00000	3.600000	28.86751	95.00000

Instrument : CHAMBER 213  
 Detector : 79192  
 Background Analysis Date/Time : 26-JUL-2009 17:06:58  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.470	3298.036	0.000000E+00	0.000000E+00	0.000000E+00	95.00000
NP-237	4436.689	4901.687	1.000000	0.3000000	100.0000	95.00000
CM-244	5531.037	5883.842	3.000000	0.9000000	57.73503	95.00000

Instrument : CHAMBER 214  
 Detector : 79193  
 Background Analysis Date/Time : 26-JUL-2009 17:07:02  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.553	3297.788	2.000000	0.6000000	70.71068	95.00000
NP-237	4436.227	4901.574	1.000000	0.3000000	100.0000	95.00000
CM-244	5531.780	5885.252	0.000000E+00	0.000000E+00	0.000000E+00	95.00000

Instrument : CHAMBER 215  
 Detector : 79194  
 Background Analysis Date/Time : 26-JUL-2009 17:07:06  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.364	3302.121	0.000000E+00	0.000000E+00	0.000000E+00	95.00000
NP-237	4437.186	4903.222	1.000000	0.3000000	100.0000	95.00000
CM-244	5534.359	5882.968	6.000000	1.800000	40.82483	95.00000

Instrument : CHAMBER 216  
 Detector : 79195  
 Background Analysis Date/Time : 26-JUL-2009 17:07:10  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.730	3302.451	1.000000	0.3000000	100.0000	95.00000
NP-237	4434.761	4905.361	2.000000	0.6000000	70.71068	95.00000
CM-244	5530.680	5884.547	6.000000	1.800000	40.82483	95.00000

Instrument : CHAMBER 217  
 Detector : 79410  
 Background Analysis Date/Time : 26-JUL-2009 17:07:14  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.264	3300.395	1.000000	0.3000000	100.0000	95.00000
NP-237	4433.666	4904.432	1.000000	0.3000000	100.0000	95.00000
CM-244	5535.108	5883.550	8.000000	2.400000	35.35534	95.00000

Instrument : CHAMBER 218  
 Detector : 79411  
 Background Analysis Date/Time : 26-JUL-2009 17:07:19  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2991.480	3299.092	1.000000	0.3000000	100.0000	95.00000
NP-237	4433.463	4904.366	6.000000	1.800000	40.82483	95.00000
CM-244	5534.949	5883.207	1.000000	0.3000000	100.0000	95.00000

Instrument : CHAMBER 219  
 Detector : 79412  
 Background Analysis Date/Time : 26-JUL-2009 17:07:23  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2991.558	3298.478	1.000000	0.3000000	100.0000	95.00000
NP-237	4436.677	4902.329	2.000000	0.6000000	70.71068	95.00000
CM-244	5533.300	5887.374	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000

Instrument : CHAMBER 220  
 Detector : 79413  
 Background Analysis Date/Time : 26-JUL-2009 17:07:26  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.238	3297.635	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000
NP-237	4436.067	4906.404	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000
CM-244	5530.768	5883.799	4.000000	1.200000	50.00000	95.00000

Instrument : CHAMBER 221  
 Detector : 79414  
 Background Analysis Date/Time : 26-JUL-2009 17:07:30  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.031	3301.906	0.000000E+00	0.000000E+00	0.000000E+00	95.00000
NP-237	4434.520	4906.347	1.000000	0.3000000	100.0000	95.00000
CM-244	5532.427	5886.301	7.000000	2.100000	37.79645	95.00000

Instrument : CHAMBER 222  
 Detector : 79415  
 Background Analysis Date/Time : 26-JUL-2009 17:07:34  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.828	3299.834	0.000000E+00	0.000000E+00	0.000000E+00	95.00000
NP-237	4436.567	4903.132	0.000000E+00	0.000000E+00	0.000000E+00	95.00000
CM-244	5532.999	5885.314	5.000000	1.500000	44.72136	95.00000

Instrument : CHAMBER 223  
 Detector : 79416  
 Background Analysis Date/Time : 26-JUL-2009 17:07:38  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.719	3302.203	0.000000E+00	0.000000E+00	0.000000E+00	95.00000
NP-237	4434.717	4901.802	1.000000	0.3000000	100.0000	95.00000
CM-244	5534.370	5883.775	10.00000	3.000000	31.62278	95.00000

Instrument : CHAMBER 224  
 Detector : 79417  
 Background Analysis Date/Time : 26-JUL-2009 17:07:43  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2991.902	3302.451	1.000000	0.3000000	100.0000	95.00000
NP-237	4433.496	4905.621	1.000000	0.3000000	100.0000	95.00000
CM-244	5531.081	5884.107	5.000000	1.500000	44.72136	95.00000

Instrument : CHAMBER 225  
 Detector : 79418  
 Background Analysis Date/Time : 26-JUL-2009 17:07:47  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.698	3301.928	3.000000	0.9000000	57.73503	95.00000
NP-237	4436.047	4902.115	1.000000	0.3000000	100.0000	95.00000
CM-244	5533.662	5882.674	1.000000	0.3000000	100.0000	95.00000

Instrument : CHAMBER 226  
 Detector : 79419  
 Background Analysis Date/Time : 26-JUL-2009 17:07:51  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.229	3299.048	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000
NP-237	4436.278	4902.399	1.000000	0.3000000	100.0000	95.00000
CM-244	5532.943	5886.259	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000

Instrument : CHAMBER 227  
 Detector : 79420  
 Background Analysis Date/Time : 26-JUL-2009 17:07:55  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.495	3300.898	1.000000	0.3000000	100.0000	95.00000
NP-237	4435.132	4906.286	3.000000	0.9000000	57.73503	95.00000
CM-244	5532.133	5886.196	1.000000	0.3000000	100.0000	95.00000

Instrument : CHAMBER 228  
 Detector : 79421  
 Background Analysis Date/Time : 26-JUL-2009 17:07:59  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.613	3298.829	1.000000	0.3000000	100.0000	95.00000
NP-237	4434.639	4905.792	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000
CM-244	5531.072	5884.538	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000

Instrument : CHAMBER 229  
 Detector : 79422  
 Background Analysis Date/Time : 26-JUL-2009 17:08:03  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.805	3298.464	3.000000	0.9000000	57.73503	95.00000
NP-237	4434.226	4906.242	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000
CM-244	5533.427	5882.943	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000

Instrument : CHAMBER 230  
 Detector : 79423  
 Background Analysis Date/Time : 26-JUL-2009 17:08:07  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.308	3297.622	2.000000	0.6000000	70.71068	95.00000
NP-237	4433.975	4905.433	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000
CM-244	5531.188	5884.956	1.000000	0.3000000	100.0000	95.00000

Instrument : CHAMBER 231  
 Detector : 79424  
 Background Analysis Date/Time : 26-JUL-2009 17:08:12  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.586	3298.189	1.000000	0.3000000	100.0000	95.00000
NP-237	4432.432	4903.240	4.000000	1.200000	50.00000	95.00000
CM-244	5533.660	5887.186	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000

Instrument : CHAMBER 232  
 Detector : 79425  
 Background Analysis Date/Time : 26-JUL-2009 17:08:16  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.229	3299.258	1.000000	0.3000000	100.0000	95.00000
NP-237	4433.403	4904.597	1.000000	0.3000000	100.0000	95.00000
CM-244	5534.062	5886.338	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000

Instrument : CHAMBER 233  
 Detector : 79426  
 Background Analysis Date/Time : 26-JUL-2009 17:08:20  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.053	3300.219	1.000000	0.3000000	100.0000	95.00000
NP-237	4437.148	4902.933	1.000000	0.3000000	100.0000	95.00000
CM-244	5534.654	5884.028	5.000000	1.500000	44.72136	95.00000

Instrument : CHAMBER 234  
 Detector : 79427  
 Background Analysis Date/Time : 26-JUL-2009 17:08:25  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.497	3297.542	2.000000	0.6000000	70.71068	95.00000
NP-237	4434.922	4904.935	1.000000	0.3000000	100.0000	95.00000
CM-244	5534.289	5887.217	7.000000	2.100000	37.79645	95.00000

Instrument : CHAMBER 235  
 Detector : 79428  
 Background Analysis Date/Time : 26-JUL-2009 17:08:29  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.334	3300.717	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000
NP-237	4435.003	4906.236	2.000000	0.6000000	70.71068	95.00000
CM-244	5532.236	5886.409	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000

Instrument : CHAMBER 236  
 Detector : 79429  
 Background Analysis Date/Time : 26-JUL-2009 17:08:33  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2987.761	3298.777	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000
NP-237	4435.283	4906.214	9.000000	2.700000	33.33334	95.00000
CM-244	5532.557	5887.291	3.000000	0.9000000	57.73503	95.00000

Instrument : CHAMBER 237  
 Detector : 79430  
 Background Analysis Date/Time : 26-JUL-2009 17:08:37  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.197	3297.861	1.000000	0.3000000	100.0000	95.00000
NP-237	4432.935	4904.354	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000
CM-244	5530.478	5884.662	11.00000	3.300000	30.15113	95.00000

Instrument : CHAMBER 238  
 Detector : 79431  
 Background Analysis Date/Time : 26-JUL-2009 17:08:41  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2987.703	3299.637	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000
NP-237	4437.459	4902.787	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000
CM-244	5533.171	5886.843	4.000000	1.200000	50.00000	95.00000

Instrument : CHAMBER 239  
 Detector : 79432  
 Background Analysis Date/Time : 26-JUL-2009 17:08:46  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.694	3302.472	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000
NP-237	4436.142	4902.540	8.000000	2.400000	35.35534	95.00000
CM-244	5534.989	5884.715	1.000000	0.3000000	100.0000	95.00000

Instrument : CHAMBER 240  
 Detector : 79433  
 Background Analysis Date/Time : 26-JUL-2009 17:08:50  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.448	3302.009	1.000000	0.3000000	100.0000	95.00000
NP-237	4434.377	4905.282	1.000000	0.3000000	100.0000	95.00000
CM-244	5531.249	5885.600	1.000000	0.3000000	100.0000	95.00000



Instrument : CHAMBER 241  
 Detector : 79434  
 Background Analysis Date/Time : 26-JUL-2009 17:08:54  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.069	3301.257	3.000000	0.9000000	57.73503	95.00000
NP-237	4433.036	4904.033	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000
CM-244	5530.409	5885.133	1.000000	0.3000000	100.0000	95.00000

Instrument : CHAMBER 242  
 Detector : 79435  
 Background Analysis Date/Time : 26-JUL-2009 17:08:58  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2987.986	3300.537	1.000000	0.3000000	100.0000	95.00000
NP-237	4434.402	4905.006	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000
CM-244	5535.112	5883.069	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000

Instrument : CHAMBER 243  
 Detector : 79436  
 Background Analysis Date/Time : 26-JUL-2009 17:09:02  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.831	3301.144	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000
NP-237	4435.437	4901.520	3.000000	0.9000000	57.73503	95.00000
CM-244	5533.039	5887.402	2.000000	0.6000000	70.71068	95.00000

Instrument : CHAMBER 244  
 Detector : 79437  
 Background Analysis Date/Time : 26-JUL-2009 17:09:06  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.561	3301.814	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000
NP-237	4433.746	4904.768	1.000000	0.3000000	100.0000	95.00000
CM-244	5531.146	5885.854	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000

Instrument : CHAMBER 245  
 Detector : 79438  
 Background Analysis Date/Time : 26-JUL-2009 17:09:11  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.519	3298.200	0.000000E+00	0.000000E+00	0.000000E+00	95.00000
NP-237	4434.025	4906.060	1.000000	0.3000000	100.0000	95.00000
CM-244	5533.264	5882.788	0.000000E+00	0.000000E+00	0.000000E+00	95.00000

Instrument : CHAMBER 246  
 Detector : 78912  
 Background Analysis Date/Time : 26-JUL-2009 17:09:15  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.883	3302.161	2.000000	0.6000000	70.71068	95.00000
NP-237	4436.171	4902.069	2.000000	0.6000000	70.71068	95.00000
CM-244	5533.279	5887.441	0.000000E+00	0.000000E+00	0.000000E+00	95.00000

Instrument : CHAMBER 247  
 Detector : 79440  
 Background Analysis Date/Time : 26-JUL-2009 17:09:20  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.314	3301.154	2.000000	0.6000000	70.71068	95.00000
NP-237	4435.427	4902.237	2.000000	0.6000000	70.71068	95.00000
CM-244	5535.390	5885.574	2.000000	0.6000000	70.71068	95.00000

Instrument : CHAMBER 248  
 Detector : 79441  
 Background Analysis Date/Time : 26-JUL-2009 17:09:23  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.045	3301.474	2.000000	0.6000000	70.71068	95.00000
NP-237	4436.389	4902.813	1.000000	0.3000000	100.0000	95.00000
CM-244	5534.872	5884.178	5.000000	1.500000	44.72136	95.00000

Instrument : CHAMBER 249  
 Detector : 79442  
 Background Analysis Date/Time : 26-JUL-2009 17:09:28  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2991.808	3298.538	3.000000	0.9000000	57.73503	95.00000
NP-237	4433.459	4906.270	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000
CM-244	5535.492	5886.613	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000

Instrument : CHAMBER 250  
 Detector : 79443  
 Background Analysis Date/Time : 26-JUL-2009 17:09:32  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.616	3300.155	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000
NP-237	4432.911	4904.182	6.000000	1.800000	40.82483	95.00000
CM-244	5530.811	5885.622	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000

Instrument : CHAMBER 251  
 Detector : 79444  
 Background Analysis Date/Time : 26-JUL-2009 17:09:36  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.845	3297.824	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000
NP-237	4433.069	4905.749	2.000000	0.6000000	70.71068	95.00000
CM-244	5534.571	5885.360	2.000000	0.6000000	70.71068	95.00000

Instrument : CHAMBER 252  
 Detector : 79445  
 Background Analysis Date/Time : 26-JUL-2009 17:09:40  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.916	3302.142	1.000000	0.3000000	100.0000	95.00000
NP-237	4434.879	4906.631	1.000000	0.3000000	100.0000	95.00000
CM-244	5534.322	5884.528	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000

Instrument : CHAMBER 253  
 Detector : 79446  
 Background Analysis Date/Time : 26-JUL-2009 17:09:45  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2987.796	3301.166	2.000000	0.6000000	70.71068	95.00000
NP-237	4435.182	4903.720	9.000000	2.700000	33.33334	95.00000
CM-244	5533.610	5884.813	2.000000	0.6000000	70.71068	95.00000

Instrument : CHAMBER 254  
 Detector : 79447  
 Background Analysis Date/Time : 26-JUL-2009 17:09:49  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2991.474	3298.982	1.000000	0.3000000	100.0000	95.00000
NP-237	4434.396	4906.361	4.000000	1.200000	50.00000	95.00000
CM-244	5533.560	5883.122	1.000000	0.3000000	100.0000	95.00000

Instrument : CHAMBER 255  
 Detector : 79448  
 Background Analysis Date/Time : 26-JUL-2009 17:09:53  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2992.107	3299.169	3.000000	0.9000000	57.73503	95.00000
NP-237	4434.844	4902.471	4.000000	1.200000	50.00000	95.00000
CM-244	5531.565	5882.529	6.000000	1.800000	40.82483	95.00000

Instrument : CHAMBER 256  
 Detector : 79449  
 Background Analysis Date/Time : 26-JUL-2009 17:09:57  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.102	3301.350	2.000000	0.6000000	70.71068	95.00000
NP-237	4435.732	4901.991	8.000000	2.400000	35.35534	95.00000
CM-244	5533.871	5883.102	3.000000	0.9000000	57.73503	95.00000

### Subsection 3: Efficiency Calibration

Instrument : CHAMBER 001  
 Detector : 78788  
 Standard ID : AESS-001  
 Standard Reference Date : 20-FEB-2008 09:54:53  
 Calibration Analysis Date/Time : 5-AUG-2009 09:23:09  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 5-AUG-2009 14:45:15  
 Average Efficiency : 0.3129051  
 Average Efficiency Error : 8.6269947E-03  
 Confidence : 95.00000

Cal. Isteps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	208.6698	28-FEB-2010	2987.927	3299.401	15169.00	0.3069817	1.3193288E-02	58.42078
NP-237	171.0024	28-FEB-2010	4432.428	4902.923	12984.00	0.3163057	1.6057158E-02	73.48861
CM-244	158.1060	28-FEB-2010	5533.599	5883.327	11428.00	0.3183713	1.6194897E-02	56.66428

Instrument : CHAMBER 002  
 Detector : 78266  
 Standard ID : AESS-002  
 Standard Reference Date : 19-FEB-2008 11:05:22  
 Calibration Analysis Date/Time : 5-AUG-2009 09:23:09  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 5-AUG-2009 14:45:26  
 Average Efficiency : 0.3058862  
 Average Efficiency Error : 8.4242094E-03  
 Confidence : 95.00000

Cal. Isteps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	200.1144	28-FEB-2010	2990.748	3297.924	14398.00	0.3038373	1.3070637E-02	49.74084
NP-237	200.4990	28-FEB-2010	4434.751	4902.555	14828.00	0.3081331	1.5613098E-02	65.75996
CM-244	196.5558	28-FEB-2010	5533.273	5884.668	13676.00	0.3065576	1.5550442E-02	56.66758

Instrument : CHAMBER 003  
 Detector : 67617  
 Standard ID : AESS-003  
 Standard Reference Date : 15-FEB-2008 13:12:27  
 Calibration Analysis Date/Time : 5-AUG-2009 09:23:09  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 5-AUG-2009 14:45:38  
 Average Efficiency : 0.3501697  
 Average Efficiency Error : 9.6245455E-03  
 Confidence : 95.00000

Cal. Isteps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	202.9740	28-FEB-2010	2988.035	3300.027	16505.00	0.3434206	1.4738046E-02	69.44512
NP-237	203.2080	28-FEB-2010	4433.783	4901.623	17421.00	0.3571638	1.8062104E-02	78.56305
CM-244	197.2236	28-FEB-2010	5533.183	5887.889	15808.00	0.3532508	1.7884690E-02	60.67228

Instrument : CHAMBER 004  
 Detector : 64279  
 Standard ID : AESS-004  
 Standard Reference Date : 14-FEB-2008 09:35:18  
 Calibration Analysis Date/Time : 5-AUG-2009 09:23:09  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 5-AUG-2009 14:45:54  
 Average Efficiency : 0.3004026  
 Average Efficiency Error : 8.2737673E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	206.1222	28-FEB-2010	2991.885	3302.347	14848.00	0.3042404	1.3080551E-02	53.10138
NP-237	204.2586	28-FEB-2010	4436.757	4905.540	14917.00	0.3042575	1.5415543E-02	64.73015
CM-244	198.8100	28-FEB-2010	5533.807	5887.698	13166.00	0.2919180	1.4816008E-02	57.85523

Instrument : CHAMBER 005  
 Detector : 67612  
 Standard ID : AESS-005  
 Standard Reference Date : 14-FEB-2008 09:35:18  
 Calibration Analysis Date/Time : 5-AUG-2009 09:23:09  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 5-AUG-2009 14:46:05  
 Average Efficiency : 0.2843162  
 Average Efficiency Error : 7.8336252E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	210.7452	28-FEB-2010	2990.194	3301.639	14157.00	0.2837222	1.2209224E-02	51.06648
NP-237	209.5938	28-FEB-2010	4437.588	4901.889	14375.00	0.2857330	1.4484116E-02	69.27464
CM-244	202.7478	28-FEB-2010	5531.535	5887.236	13050.00	0.2837417	1.4402892E-02	60.22887

Instrument : CHAMBER 006  
 Detector : 67613  
 Standard ID : AESS-006  
 Standard Reference Date : 14-FEB-2008 09:35:18  
 Calibration Analysis Date/Time : 5-AUG-2009 09:23:09  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 5-AUG-2009 14:46:15  
 Average Efficiency : 0.3150931  
 Average Efficiency Error : 8.6723948E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	203.6952	28-FEB-2010	2988.186	3302.064	15061.00	0.3123020	1.3423658E-02	54.65259
NP-237	204.7038	28-FEB-2010	4434.812	4901.476	15598.00	0.3174475	1.6074667E-02	62.21717
CM-244	195.0060	28-FEB-2010	5533.017	5887.020	14013.00	0.3167382	1.6061435E-02	59.32273

Instrument : CHAMBER 007  
 Detector : 67607  
 Standard ID : AESS-007  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:33  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:08:14  
 Average Efficiency : 0.3026176  
 Average Efficiency Error : 8.3323661E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	206.7342	28-FEB-2010	2991.468	3299.148	14693.00	0.3001373	1.2906651E-02	48.67664
NP-237	205.0260	28-FEB-2010	4433.972	4903.766	14977.00	0.3043185	1.5417857E-02	59.64954
CM-244	199.6806	28-FEB-2010	5532.246	5885.701	13798.00	0.3044618	1.5442326E-02	51.23282

Instrument : CHAMBER 008  
 Detector : 78788  
 Standard ID : AESS-008  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:33  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:08:25  
 Average Efficiency : 0.3224154  
 Average Efficiency Error : 8.8692745E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	206.0418	28-FEB-2010	2989.215	3298.713	15734.00	0.3225096	1.3851766E-02	44.71056
NP-237	209.2716	28-FEB-2010	4433.303	4905.744	15863.00	0.3158187	1.5988812E-02	63.33889
CM-244	199.6488	28-FEB-2010	5532.461	5886.606	14925.00	0.3294691	1.6692771E-02	51.66238

Instrument : CHAMBER 009  
 Detector : 72528  
 Standard ID : AESS-009  
 Standard Reference Date : 19-FEB-2008 11:05:22  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:33  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:08:37  
 Average Efficiency : 0.3431641  
 Average Efficiency Error : 9.4328979E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	203.3736	28-FEB-2010	2990.462	3298.900	16457.00	0.3417034	1.4665021E-02	47.76541
NP-237	204.0192	28-FEB-2010	4437.055	4904.570	16959.00	0.3463034	1.7518245E-02	66.91080
CM-244	197.2128	28-FEB-2010	5532.536	5882.399	15320.00	0.3421319	1.7328590E-02	53.20248

Instrument : CHAMBER 010  
 Detector : 72529  
 Standard ID : AESS-010  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:33  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:08:47  
 Average Efficiency : 0.3163380  
 Average Efficiency Error : 8.7065995E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	202.0008	28-FEB-2010	2990.229	3298.607	15141.00	0.3165374	1.3604476E-02	54.57225
NP-237	202.9926	28-FEB-2010	4436.880	4905.484	15237.00	0.3127136	1.5839646E-02	70.41494
CM-244	196.2330	28-FEB-2010	5531.409	5886.990	14242.00	0.3198532	1.6215732E-02	59.36025

Instrument : CHAMBER 011  
 Detector : 72531  
 Standard ID : AESS-011  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:33  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:10:05  
 Average Efficiency : 0.2947833  
 Average Efficiency Error : 8.1152376E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	212.8284	28-FEB-2010	2991.538	3301.988	14786.00	0.2934125	1.2615963E-02	51.15865
NP-237	214.4868	28-FEB-2010	4435.957	4905.467	15318.00	0.2975290	1.5069493E-02	57.97636
CM-244	208.4184	28-FEB-2010	5530.314	5886.614	13904.00	0.2940101	1.4910497E-02	52.04412

Instrument : CHAMBER 012  
 Detector : 67594  
 Standard ID : AESS-012  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:33  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:10:47  
 Average Efficiency : 0.2985670  
 Average Efficiency Error : 8.2218517E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	206.2200	28-FEB-2010	2988.398	3300.615	14557.00	0.2981249	1.2822272E-02	47.31236
NP-237	205.8930	28-FEB-2010	4437.450	4901.503	14889.00	0.3012659	1.5264360E-02	60.85177
CM-244	203.1954	28-FEB-2010	5534.709	5886.652	13676.00	0.2965543	1.5043142E-02	54.26840



Instrument : CHAMBER 013  
 Detector : 78790  
 Standard ID : AESS-013  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:35  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:10:57  
 Average Efficiency : 0.3409691  
 Average Efficiency Error : 9.3713822E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	203.6544	28-FEB-2010	2987.666	3298.441	16523.00	0.3426617	1.4705168E-02	49.16812
NP-237	210.2526	28-FEB-2010	4435.272	4902.524	17040.00	0.3376607	1.7080082E-02	61.60270
CM-244	201.9108	28-FEB-2010	5533.077	5883.559	15669.00	0.3420227	1.7318053E-02	54.98487

Instrument : CHAMBER 014  
 Detector : 67616  
 Standard ID : AESS-014  
 Standard Reference Date : 19-FEB-2008 11:05:22  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:35  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:11:09  
 Average Efficiency : 0.3130623  
 Average Efficiency Error : 8.6121503E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	214.7088	28-FEB-2010	2992.504	3300.484	15590.00	0.3066251	1.3171598E-02	52.69585
NP-237	211.7160	28-FEB-2010	4435.990	4902.000	16202.00	0.3188440	1.6137818E-02	68.36411
CM-244	207.3882	28-FEB-2010	5532.918	5886.701	14925.00	0.3169042	1.6056320E-02	53.58373

Instrument : CHAMBER 015  
 Detector : 61581  
 Standard ID : AESS-015  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:35  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:11:19  
 Average Efficiency : 0.3249588  
 Average Efficiency Error : 8.9409258E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	204.0270	28-FEB-2010	2987.739	3297.575	15440.00	0.3196218	1.3732214E-02	68.63618
NP-237	200.6460	28-FEB-2010	4432.566	4904.976	15842.00	0.3289294	1.6652878E-02	78.34551
CM-244	195.9270	28-FEB-2010	5530.833	5887.242	14624.00	0.3288428	1.6665678E-02	73.03269

Instrument : CHAMBER 016  
 Detector : 78774  
 Standard ID : AESS-016  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:35  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:11:28  
 Average Efficiency : 0.3372796  
 Average Efficiency Error : 9.2755891E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	204.0534	28-FEB-2010	2990.015	3299.769	15968.00	0.3304942	1.4191121E-02	47.63641
NP-237	199.3962	28-FEB-2010	4432.750	4903.568	16594.00	0.3467403	1.7544748E-02	65.62801
CM-244	198.6402	28-FEB-2010	5531.945	5886.508	15241.00	0.3381473	1.7127821E-02	51.73166

Instrument : CHAMBER 017  
 Detector : 78791  
 Standard ID : AESS-017  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:35  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:12:45  
 Average Efficiency : 0.2920910  
 Average Efficiency Error : 8.0447914E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	210.0798	28-FEB-2010	2991.506	3301.266	14360.00	0.2887001	1.2420051E-02	46.05902
NP-237	208.5846	28-FEB-2010	4435.397	4901.753	14828.00	0.2961742	1.5007162E-02	55.70656
CM-244	205.5828	28-FEB-2010	5532.102	5885.058	13665.00	0.2929415	1.4859928E-02	50.18596

Instrument : CHAMBER 018  
 Detector : 78782  
 Standard ID : AESS-018  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:35  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:12:56  
 Average Efficiency : 0.3172097  
 Average Efficiency Error : 8.7289969E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	202.1856	28-FEB-2010	2988.342	3302.274	15345.00	0.3205433	1.3773307E-02	42.03425
NP-237	208.8990	28-FEB-2010	4435.776	4902.996	15628.00	0.3116947	1.5782947E-02	59.98587
CM-244	198.1458	28-FEB-2010	5535.506	5884.764	14315.00	0.3183995	1.6140889E-02	46.41229

Instrument : CHAMBER 019  
 Detector : 78786  
 Standard ID : AESS-019  
 Standard Reference Date : 19-FEB-2008 11:05:22  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:38  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:13:21  
 Average Efficiency : 0.2910323  
 Average Efficiency Error : 8.0228020E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	204.6468	28-FEB-2010	2990.757	3299.102	13644.00	0.2815492	1.2124360E-02	48.88054
NP-237	202.9140	28-FEB-2010	4436.959	4904.938	14592.00	0.2996101	1.5184480E-02	53.45035
CM-244	199.3140	28-FEB-2010	5530.360	5882.637	13450.00	0.2972434	1.5081594E-02	50.55271

Instrument : CHAMBER 020  
 Detector : 78787  
 Standard ID : AESS-020  
 Standard Reference Date : 14-FEB-2008 21:55:55  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:38  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:13:30  
 Average Efficiency : 0.3471871  
 Average Efficiency Error : 9.5441081E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	205.5870	28-FEB-2010	2988.029	3302.537	16453.00	0.3380062	1.4506385E-02	51.08092
NP-237	203.4984	28-FEB-2010	4437.491	4905.035	17379.00	0.3557895	1.7993098E-02	61.84319
CM-244	197.1096	28-FEB-2010	5532.389	5886.993	15772.00	0.3526238	1.7853415E-02	51.51802

Instrument : CHAMBER 021  
 Detector : 67047  
 Standard ID : AESS-021  
 Standard Reference Date : 19-FEB-2008 15:31:52  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:38  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:13:40  
 Average Efficiency : 0.3035440  
 Average Efficiency Error : 8.3565973E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	208.3608	28-FEB-2010	2992.044	3301.105	14782.00	0.2995796	1.2881183E-02	58.16195
NP-237	210.1548	28-FEB-2010	4432.692	4903.261	15300.00	0.3033102	1.5362527E-02	64.83363
CM-244	200.7390	28-FEB-2010	5532.273	5884.483	14116.00	0.3096792	1.5701950E-02	51.57142

Instrument : CHAMBER 022  
 Detector : 72530  
 Standard ID : AESS-022  
 Standard Reference Date : 14-FEB-2008 21:55:55  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:38  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:13:53  
 Average Efficiency : 0.3171063  
 Average Efficiency Error : 8.7253209E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	209.6724	28-FEB-2010	2987.876	3301.717	15368.00	0.3095404	1.3300211E-02	46.46027
NP-237	206.8830	28-FEB-2010	4432.553	4902.907	16121.00	0.3246614	1.6433254E-02	59.61079
CM-244	203.0208	28-FEB-2010	5531.719	5883.858	14793.00	0.3210209	1.6266784E-02	54.93265

Instrument : CHAMBER 023  
 Detector : 78264  
 Standard ID : AESS-023  
 Standard Reference Date : 14-FEB-2008 21:55:55  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:38  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:14:51  
 Average Efficiency : 0.3475247  
 Average Efficiency Error : 9.5510995E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	207.4764	28-FEB-2010	2992.270	3297.465	16655.00	0.3390353	1.4547646E-02	44.65316
NP-237	207.4998	28-FEB-2010	4434.353	4902.238	17621.00	0.3537784	1.7888635E-02	67.17326
CM-244	199.8804	28-FEB-2010	5535.006	5884.098	16062.00	0.3541352	1.7925926E-02	50.59406

Instrument : CHAMBER 024  
 Detector : 76542  
 Standard ID : AESS-024  
 Standard Reference Date : 14-FEB-2008 21:55:55  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:38  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:15:01  
 Average Efficiency : 0.3329758  
 Average Efficiency Error : 9.1575533E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	203.5218	28-FEB-2010	2988.735	3301.963	15751.00	0.3268531	1.4038056E-02	48.09840
NP-237	205.6662	28-FEB-2010	4435.585	4904.900	16552.00	0.3352655	1.6964708E-02	62.82615
CM-244	198.3060	28-FEB-2010	5532.247	5883.527	15292.00	0.3398233	1.7212013E-02	54.96418

Instrument : CHAMBER 025  
 Detector : 45-149AA5  
 Standard ID : AESS-025  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:40  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:15:13  
 Average Efficiency : 0.3273577  
 Average Efficiency Error : 9.0229549E-03  
 Confidence : 95.00000

Cal. Isteps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	195.5670	28-FEB-2010	2989.576	3302.009	15260.00	0.3295556	1.4161936E-02	65.60141
NP-237	167.9916	28-FEB-2010	4437.518	4905.500	13240.00	0.3283658	1.6664496E-02	71.67536
CM-244	157.2432	28-FEB-2010	5535.553	5882.966	11554.00	0.3234104	1.6448844E-02	64.13462

Instrument : CHAMBER 026  
 Detector : 78204  
 Standard ID : AESS-026  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:40  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:15:23  
 Average Efficiency : 0.3163501  
 Average Efficiency Error : 9.2731481E-03  
 Confidence : 95.00000

Cal. Isteps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	199.5072	28-FEB-2010	2989.278	3302.066	15073.00	0.3190832	1.6165398E-02	47.54145
NP-237	168.0294	28-FEB-2010	4432.530	4904.245	12818.00	0.3178037	1.6136298E-02	64.89447
CM-244	160.5822	28-FEB-2010	5530.854	5885.357	11388.00	0.3123012	1.5887389E-02	53.07367

Instrument : CHAMBER 027  
 Detector : 42484  
 Standard ID : AESS-027  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:40  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:15:36  
 Average Efficiency : 0.3396688  
 Average Efficiency Error : 9.9549843E-03  
 Confidence : 95.00000

Cal. Isteps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	193.4238	28-FEB-2010	2989.311	3298.574	15139.00	0.3305598	1.6745884E-02	45.75581
NP-237	161.6154	28-FEB-2010	4433.571	4901.458	13298.00	0.3428161	1.7396733E-02	58.91746
CM-244	148.1754	28-FEB-2010	5534.916	5884.719	11660.00	0.3465259	1.7621491E-02	49.89463

Instrument : CHAMBER 028  
 Detector : 78792  
 Standard ID : AESS-028  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:40  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:15:45  
 Average Efficiency : 0.3070537  
 Average Efficiency Error : 9.0059368E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	199.6542	28-FEB-2010	2988.458	3301.428	14649.00	0.3098790	1.5704965E-02	43.03392
NP-237	168.1992	28-FEB-2010	4433.918	4901.793	12445.00	0.3082309	1.5657367E-02	57.16418
CM-244	156.7614	28-FEB-2010	5530.766	5886.861	10793.00	0.3031792	1.5437813E-02	42.94358

Instrument : CHAMBER 029  
 Detector : 33454  
 Standard ID : AESS-029  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:40  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:15:55  
 Average Efficiency : 0.3165512  
 Average Efficiency Error : 9.2795976E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	201.5742	28-FEB-2010	2991.561	3299.264	14962.00	0.3134704	1.5882587E-02	59.06260
NP-237	169.7700	28-FEB-2010	4436.609	4905.813	12925.00	0.3171891	1.6103044E-02	65.57512
CM-244	154.8234	28-FEB-2010	5532.652	5886.650	11221.00	0.3191230	1.6238619E-02	58.94875

Instrument : CHAMBER 030  
 Detector : 33447  
 Standard ID : AESS-030  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:40  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:16:05  
 Average Efficiency : 0.3195129  
 Average Efficiency Error : 9.3687959E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	198.9792	28-FEB-2010	2992.462	3300.436	14496.00	0.3076674	1.5595090E-02	51.22312
NP-237	166.3758	28-FEB-2010	4435.706	4901.528	13016.00	0.3259090	1.6544048E-02	70.89224
CM-244	157.1856	28-FEB-2010	5532.111	5885.667	11657.00	0.3264974	1.6603231E-02	58.51925

Instrument : CHAMBER 031  
 Detector : 67042  
 Standard ID : AESS-031  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:41  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:16:16  
 Average Efficiency : 0.3333972  
 Average Efficiency Error : 9.1897855E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	193.6650	28-FEB-2010	2990.816	3298.130	15264.00	0.3328327	1.4302717E-02	63.22559
NP-237	162.9186	28-FEB-2010	4432.666	4904.194	13199.00	0.3374993	1.7128870E-02	85.39982
CM-244	153.1968	28-FEB-2010	5530.750	5885.317	11495.00	0.3302312	1.6797049E-02	69.66753

Instrument : CHAMBER 032  
 Detector : 67041  
 Standard ID : AESS-032  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:41  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:16:28  
 Average Efficiency : 0.3079946  
 Average Efficiency Error : 8.4994007E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	195.2364	28-FEB-2010	2990.681	3302.442	14237.00	0.3079492	1.3250315E-02	56.35440
NP-237	165.9822	28-FEB-2010	4436.943	4904.070	12286.00	0.3083688	1.5667509E-02	62.42379
CM-244	153.7938	28-FEB-2010	5532.476	5883.050	10756.00	0.3076837	1.5668528E-02	54.99291

Instrument : CHAMBER 033  
 Detector : 78785  
 Standard ID : AESS-033  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:41  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:16:44  
 Average Efficiency : 0.3159786  
 Average Efficiency Error : 8.7208869E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	192.4158	28-FEB-2010	2988.750	3301.323	14152.00	0.3105978	1.3365801E-02	46.58186
NP-237	161.7816	28-FEB-2010	4437.327	4904.445	12331.00	0.3175407	1.6132571E-02	57.74305
CM-244	147.2670	28-FEB-2010	5532.298	5882.301	10791.00	0.3224820	1.6420925E-02	47.06204

Instrument : CHAMBER 034  
 Detector : 61586  
 Standard ID : AESS-034  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:41  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:16:57  
 Average Efficiency : 0.3186626  
 Average Efficiency Error : 8.7871859E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	200.5488	28-FEB-2010	2990.405	3301.020	14898.00	0.3137061	1.3486663E-02	63.62747
NP-237	167.2962	28-FEB-2010	4436.289	4905.558	12847.00	0.3199310	1.6243735E-02	89.06429
CM-244	154.4388	28-FEB-2010	5534.591	5883.408	11387.00	0.3247890	1.6522311E-02	62.47897

Instrument : CHAMBER 035  
 Detector : 78202  
 Standard ID : AESS-035  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:41  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:17:07  
 Average Efficiency : 0.3066753  
 Average Efficiency Error : 8.4610144E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	198.6666	28-FEB-2010	2988.026	3302.211	14579.00	0.3098971	1.3328200E-02	45.84651
NP-237	168.2934	28-FEB-2010	4437.360	4905.577	12421.00	0.3074051	1.5615990E-02	59.70762
CM-244	158.8128	28-FEB-2010	5534.350	5884.600	10890.00	0.3016905	1.5359893E-02	46.83206

Instrument : CHAMBER 036  
 Detector : 78203  
 Standard ID : AESS-036  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:41  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:17:19  
 Average Efficiency : 0.3238717  
 Average Efficiency Error : 8.9277234E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	201.3204	28-FEB-2010	2988.680	3301.073	15196.00	0.3187600	1.3699047E-02	53.56891
NP-237	167.4312	28-FEB-2010	4435.041	4905.984	13273.00	0.3302565	1.6759887E-02	68.47729
CM-244	156.4188	28-FEB-2010	5531.465	5885.278	11554.00	0.3251042	1.6534815E-02	54.91026



Instrument : CHAMBER 037  
 Detector : 45-149BB5  
 Standard ID : AESS-037  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:43  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:17:30  
 Average Efficiency : 0.3588454  
 Average Efficiency Error : 9.8783271E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	197.7372	28-FEB-2010	2991.168	3302.212	16427.00	0.3508205	1.5056745E-02	64.60843
NP-237	167.1294	28-FEB-2010	4432.895	4904.029	14662.00	0.3654579	1.8520588E-02	77.87219
CM-244	154.7664	28-FEB-2010	5532.110	5886.157	12816.00	0.3643632	1.8501068E-02	65.29257

Instrument : CHAMBER 038  
 Detector : 72532  
 Standard ID : AESS-038  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:43  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:17:42  
 Average Efficiency : 0.3401872  
 Average Efficiency Error : 9.3690762E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	200.1408	28-FEB-2010	2992.472	3300.031	15896.00	0.3353978	1.4402774E-02	52.10275
NP-237	170.0886	28-FEB-2010	4434.591	4905.742	14074.00	0.3446777	1.7477222E-02	66.10255
CM-244	157.7460	28-FEB-2010	5531.463	5885.396	12284.00	0.3427305	1.7413909E-02	59.13643

Instrument : CHAMBER 039  
 Detector : 45-149BB2  
 Standard ID : AESS-039  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:43  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:17:50  
 Average Efficiency : 0.3635030  
 Average Efficiency Error : 1.0010615E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	192.2418	28-FEB-2010	2988.231	3297.932	16136.00	0.3544406	1.5216673E-02	64.96208
NP-237	159.1506	28-FEB-2010	4433.148	4905.972	14381.00	0.3764731	1.9083694E-02	79.22511
CM-244	151.7142	28-FEB-2010	5532.651	5884.312	12578.00	0.3647127	1.8524269E-02	60.58306

Instrument : CHAMBER 040  
 Detector : 78773  
 Standard ID : AESS-040  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:43  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:18:00  
 Average Efficiency : 0.3197618  
 Average Efficiency Error : 8.8180574E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	194.4828	28-FEB-2010	2989.631	3299.278	14776.00	0.3208454	1.3795648E-02	47.91216
NP-237	166.8174	28-FEB-2010	4434.455	4902.104	12719.00	0.3176762	1.6131660E-02	62.00956
CM-244	155.0100	28-FEB-2010	5534.140	5885.901	11283.00	0.3203784	1.6300978E-02	46.47287

Instrument : CHAMBER 041  
 Detector : 78205  
 Standard ID : AESS-041  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:43  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:18:09  
 Average Efficiency : 0.3320726  
 Average Efficiency Error : 9.1476394E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	203.9034	28-FEB-2010	2988.485	3301.427	15744.00	0.3260407	1.4003299E-02	48.05792
NP-237	171.2268	28-FEB-2010	4434.095	4902.163	13892.00	0.3380044	1.7141877E-02	64.23948
CM-244	159.5796	28-FEB-2010	5531.498	5882.427	12150.00	0.3351395	1.7031105E-02	52.60388

Instrument : CHAMBER 042  
 Detector : 78793  
 Standard ID : AESS-042  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:43  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:18:18  
 Average Efficiency : 0.3355130  
 Average Efficiency Error : 9.2503820E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	188.7090	28-FEB-2010	2991.775	3302.182	14895.00	0.3333198	1.4329934E-02	45.19947
NP-237	159.6558	28-FEB-2010	4434.604	4903.031	12973.00	0.3384922	1.7183678E-02	58.44910
CM-244	150.5208	28-FEB-2010	5530.666	5882.826	11480.00	0.3356853	1.7074790E-02	51.00649

Instrument : CHAMBER 043  
 Detector : 76543  
 Standard ID : AESS-043  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:44  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:18:26  
 Average Efficiency : 0.3394984  
 Average Efficiency Error : 9.3512600E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	197.7708	28-FEB-2010	2990.605	3297.721	15848.00	0.3383991	1.4532390E-02	52.98521
NP-237	168.7422	28-FEB-2010	4435.729	4906.163	13860.00	0.3421971	1.7355058E-02	63.69067
CM-244	156.3252	28-FEB-2010	5530.889	5884.237	12022.00	0.3383877	1.7199298E-02	58.34155

Instrument : CHAMBER 044  
 Detector : 79459  
 Standard ID : AESS-044  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:44  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:18:36  
 Average Efficiency : 0.3472623  
 Average Efficiency Error : 9.5641837E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	194.4510	28-FEB-2010	2992.053	3299.650	16240.00	0.3526795	1.5139417E-02	46.60588
NP-237	166.6248	28-FEB-2010	4434.444	4905.733	13868.00	0.3467396	1.7585307E-02	67.40435
CM-244	155.8290	28-FEB-2010	5531.674	5885.749	12067.00	0.3406831	1.7315021E-02	50.52586

Instrument : CHAMBER 045  
 Detector : 78783  
 Standard ID : AESS-045  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:44  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:18:46  
 Average Efficiency : 0.3473964  
 Average Efficiency Error : 9.5752627E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	186.9936	28-FEB-2010	2991.163	3297.674	15321.00	0.3460006	1.4867575E-02	42.89996
NP-237	160.8066	28-FEB-2010	4435.665	4901.796	13169.00	0.3411981	1.7317103E-02	61.13550
CM-244	145.8384	28-FEB-2010	5533.912	5883.468	11808.00	0.3562486	1.8112443E-02	45.70908

Instrument : CHAMBER 046  
 Detector : 76544  
 Standard ID : AESS-046  
 Standard Reference Date : 19-FEB-2008 19:35:48  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:44  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:18:55  
 Average Efficiency : 0.3396656  
 Average Efficiency Error : 9.3595181E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	194.7474	28-FEB-2010	2988.013	3297.754	15574.00	0.3376833	1.4506049E-02	53.28547
NP-237	164.6658	28-FEB-2010	4433.428	4906.578	13320.00	0.3369921	1.7100822E-02	64.03419
CM-244	151.3824	28-FEB-2010	5533.808	5885.833	11881.00	0.3453883	1.7558334E-02	49.95901

Instrument : CHAMBER 047  
 Detector : 46-089B1  
 Standard ID : AESS-047  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:44  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:19:03  
 Average Efficiency : 0.3416091  
 Average Efficiency Error : 9.4094146E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	197.4804	28-FEB-2010	2989.788	3298.531	15812.00	0.3381371	1.4521689E-02	57.51329
NP-237	168.3948	28-FEB-2010	4436.493	4903.356	13857.00	0.3428169	1.7386565E-02	66.01371
CM-244	154.6032	28-FEB-2010	5535.296	5884.198	12141.00	0.3454518	1.7555740E-02	60.25008

Instrument : CHAMBER 048  
 Detector : 42483  
 Standard ID : AESS-048  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:44  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:19:12  
 Average Efficiency : 0.3123633  
 Average Efficiency Error : 8.6213006E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	191.8350	28-FEB-2010	2991.838	3299.553	14065.00	0.3096292	1.3325672E-02	54.65192
NP-237	161.5530	28-FEB-2010	4437.268	4906.475	12285.00	0.3167912	1.6095465E-02	66.40394
CM-244	151.1856	28-FEB-2010	5533.930	5885.396	10717.00	0.3119354	1.5885884E-02	57.74399

Instrument : CHAMBER 065  
 Detector : 68551  
 Standard ID : AESS-001  
 Standard Reference Date : 20-FEB-2008 09:54:53  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:10  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:32:36  
 Average Efficiency : 0.3083470  
 Average Efficiency Error : 8.5085379E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	208.6698	28-FEB-2010	2991.020	3301.790	14596.00	0.2954247	1.2705522E-02	58.52770
NP-237	171.0024	28-FEB-2010	4435.576	4904.585	13191.00	0.3213498	1.6309390E-02	64.23100
CM-244	158.1060	28-FEB-2010	5533.015	5885.628	11352.00	0.3164231	1.6097672E-02	59.22498

Instrument : CHAMBER 066  
 Detector : 46-089C1  
 Standard ID : AESS-002  
 Standard Reference Date : 19-FEB-2008 11:05:22  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:10  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:33:22  
 Average Efficiency : 0.3112474  
 Average Efficiency Error : 8.5695526E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	200.1144	28-FEB-2010	2988.945	3298.217	14657.00	0.3093549	1.3303596E-02	55.37485
NP-237	200.4990	28-FEB-2010	4435.388	4905.987	14981.00	0.3113079	1.5771858E-02	67.81973
CM-244	196.5558	28-FEB-2010	5534.885	5886.957	13998.00	0.3138950	1.5917554E-02	57.19744

Instrument : CHAMBER 067  
 Detector : 46-089B4  
 Standard ID : AESS-003  
 Standard Reference Date : 15-FEB-2008 13:12:27  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:10  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:33:34  
 Average Efficiency : 0.3251616  
 Average Efficiency Error : 8.9453170E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	202.9740	28-FEB-2010	2990.195	3298.405	15523.00	0.3230599	1.3878663E-02	73.01379
NP-237	203.2080	28-FEB-2010	4432.996	4903.114	16006.00	0.3281700	1.6612297E-02	79.50097
CM-244	197.2236	28-FEB-2010	5531.881	5884.128	14543.00	0.3251645	1.6480407E-02	73.28760

Instrument : CHAMBER 068  
 Detector : 78794  
 Standard ID : AESS-004  
 Standard Reference Date : 14-FEB-2008 09:35:18  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:10  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:38:02  
 Average Efficiency : 0.2988316  
 Average Efficiency Error : 8.2298918E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	206.1222	28-FEB-2010	2989.058	3297.794	14610.00	0.2994183	1.2877054E-02	47.51308
NP-237	204.2586	28-FEB-2010	4436.694	4904.361	14617.00	0.2981576	1.5110506E-02	57.11169
CM-244	198.8100	28-FEB-2010	5532.395	5887.637	13466.00	0.2986969	1.5155178E-02	48.38633

Instrument : CHAMBER 069  
 Detector : 78795  
 Standard ID : AESS-005  
 Standard Reference Date : 14-FEB-2008 09:35:18  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:10  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:38:36  
 Average Efficiency : 0.3175282  
 Average Efficiency Error : 8.7343659E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	210.7452	28-FEB-2010	2991.230	3298.554	15670.00	0.3141076	1.3491860E-02	49.70101
NP-237	209.5938	28-FEB-2010	4432.770	4904.008	16141.00	0.3208218	1.6238715E-02	60.15531
CM-244	202.7478	28-FEB-2010	5535.390	5884.253	14673.00	0.3191766	1.6174993E-02	51.27451

Instrument : CHAMBER 070  
 Detector : 46-089B2  
 Standard ID : AESS-006  
 Standard Reference Date : 14-FEB-2008 09:35:18  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:10  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:38:49  
 Average Efficiency : 0.3529845  
 Average Efficiency Error : 9.7008841E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	203.6952	28-FEB-2010	2992.134	3299.079	16742.00	0.3471912	1.4896408E-02	63.07681
NP-237	204.7038	28-FEB-2010	4435.081	4904.079	17300.00	0.3520767	1.7806258E-02	82.77227
CM-244	195.0060	28-FEB-2010	5531.689	5883.454	16039.00	0.3627528	1.8362503E-02	70.00533

Instrument : CHAMBER 071  
 Detector : 64259  
 Standard ID : AESS-007  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:11  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:39:05  
 Average Efficiency : 0.3208804  
 Average Efficiency Error : 8.8285562E-03  
 Confidence : 95.00000

Cal. Isteps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	206.7342	28-FEB-2010	2991.474	3300.552	15413.00	0.3149293	1.3531087E-02	62.47171
NP-237	205.0260	28-FEB-2010	4434.375	4901.563	15925.00	0.3235798	1.6380999E-02	71.98354
CM-244	199.6806	28-FEB-2010	5533.885	5882.968	14807.00	0.3270442	1.6571697E-02	60.00851

Instrument : CHAMBER 072  
 Detector : 45-149AA3  
 Standard ID : AESS-008  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:11  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:41:05  
 Average Efficiency : 0.3267370  
 Average Efficiency Error : 8.9871846E-03  
 Confidence : 95.00000

Cal. Isteps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	206.0418	28-FEB-2010	2989.276	3301.453	15650.00	0.3208615	1.3782272E-02	51.51645
NP-237	209.2716	28-FEB-2010	4434.016	4904.104	16413.00	0.3267362	1.6534751E-02	70.18485
CM-244	199.6488	28-FEB-2010	5533.538	5886.502	15197.00	0.3356811	1.7003637E-02	59.25634

Instrument : CHAMBER 073  
 Detector : 78775  
 Standard ID : AESS-009  
 Standard Reference Date : 19-FEB-2008 11:05:22  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:11  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:41:19  
 Average Efficiency : 0.3329331  
 Average Efficiency Error : 9.1557140E-03  
 Confidence : 95.00000

Cal. Isteps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	203.3736	28-FEB-2010	2991.884	3298.904	15903.00	0.3302805	1.4182931E-02	45.72569
NP-237	204.0192	28-FEB-2010	4435.607	4905.083	16398.00	0.3348464	1.6945357E-02	65.14548
CM-244	197.2128	28-FEB-2010	5533.495	5885.787	14977.00	0.3348103	1.6962610E-02	52.22756

Instrument : CHAMBER 074  
 Detector : 78266  
 Standard ID : AESS-010  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:11  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:41:50  
 Average Efficiency : 0.3171463  
 Average Efficiency Error : 8.7284483E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	202.0008	28-FEB-2010	2992.157	3300.875	15091.00	0.3155650	1.3563500E-02	48.84003
NP-237	202.9926	28-FEB-2010	4434.541	4902.170	15525.00	0.3186204	1.6135018E-02	61.89280
CM-244	196.2330	28-FEB-2010	5535.537	5885.413	14144.00	0.3179084	1.6118674E-02	53.87412

Instrument : CHAMBER 075  
 Detector : 68550  
 Standard ID : AESS-011  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:11  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:42:08  
 Average Efficiency : 0.2994908  
 Average Efficiency Error : 8.2427450E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	212.8284	28-FEB-2010	2992.440	3300.846	15058.00	0.2988699	1.2846401E-02	51.75235
NP-237	214.4868	28-FEB-2010	4432.709	4904.580	15499.00	0.3010221	1.5244178E-02	70.86993
CM-244	208.4184	28-FEB-2010	5531.026	5885.258	14123.00	0.2988416	1.5152307E-02	52.88081

Instrument : CHAMBER 076  
 Detector : 78779  
 Standard ID : AESS-012  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:11  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:42:40  
 Average Efficiency : 0.3028130  
 Average Efficiency Error : 8.3379308E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	206.2200	28-FEB-2010	2991.979	3300.154	14630.00	0.2996896	1.2888389E-02	45.27155
NP-237	205.8930	28-FEB-2010	4436.825	4903.508	15329.00	0.3101608	1.5709149E-02	64.17129
CM-244	203.1954	28-FEB-2010	5535.510	5884.591	13832.00	0.3002685	1.5228972E-02	51.27063



Instrument : CHAMBER 077  
 Detector : 67576  
 Standard ID : AESS-013  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:12  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:42:53  
 Average Efficiency : 0.3266060  
 Average Efficiency Error : 8.9822784E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	203.6544	28-FEB-2010	2989.957	3302.071	15788.00	0.3274788	1.4064389E-02	50.84729
NP-237	210.2526	28-FEB-2010	4433.544	4902.799	16283.00	0.3226589	1.6329939E-02	64.60262
CM-244	201.9108	28-FEB-2010	5530.788	5882.782	15087.00	0.3295008	1.6692154E-02	50.76959

Instrument : CHAMBER 078  
 Detector : 67577  
 Standard ID : AESS-014  
 Standard Reference Date : 19-FEB-2008 11:05:22  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:12  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:43:47  
 Average Efficiency : 0.3266194  
 Average Efficiency Error : 8.9784693E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	214.7088	28-FEB-2010	2988.255	3302.223	16485.00	0.3242883	1.3917238E-02	54.47247
NP-237	211.7160	28-FEB-2010	4437.236	4905.680	16830.00	0.3311986	1.6755598E-02	62.86163
CM-244	207.3882	28-FEB-2010	5535.005	5885.680	15311.00	0.3254575	1.6484126E-02	54.68671

Instrument : CHAMBER 079  
 Detector : 67598  
 Standard ID : AESS-015  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:12  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:44:09  
 Average Efficiency : 0.3272116  
 Average Efficiency Error : 9.0027396E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	204.0270	28-FEB-2010	2989.159	3300.331	15511.00	0.3211554	1.3797027E-02	50.97751
NP-237	200.6460	28-FEB-2010	4434.317	4902.854	16177.00	0.3359110	1.7001966E-02	61.88776
CM-244	195.9270	28-FEB-2010	5535.480	5887.277	14557.00	0.3276861	1.6607955E-02	52.62397

Instrument : CHAMBER 080  
 Detector : 78197  
 Standard ID : AESS-016  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 11-AUG-2009 12:17:29  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 12-AUG-2009 06:47:19  
 Average Efficiency : 0.3321076  
 Average Efficiency Error : 9.1349650E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	204.0534	28-FEB-2010	2991.650	3302.015	15752.00	0.3260951	1.4005513E-02	48.00739
NP-237	199.3962	28-FEB-2010	4433.624	4906.537	16268.00	0.3399083	1.7203139E-02	68.49010
CM-244	198.6402	28-FEB-2010	5533.522	5887.645	15012.00	0.3333320	1.6887236E-02	53.20805

Instrument : CHAMBER 081  
 Detector : 72533  
 Standard ID : AESS-017  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:12  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:46:32  
 Average Efficiency : 6.1864634E-03  
 Average Efficiency Error : 2.9860463E-04  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	210.0798	28-FEB-2010	2994.266	3303.451	1475.000	2.9659975E-02	2.4708204E-03	0.0000000E+00
NP-237	208.5846	28-FEB-2010	4435.242	4901.625	202.0000	4.0063704E-03	3.4766502E-04	575.4393
CM-244	205.5828	28-FEB-2010	5531.807	5884.164	427.0000	9.0843663E-03	3.3504453E-04	562.1900

Instrument : CHAMBER 082  
 Detector : 64263  
 Standard ID : AESS-018  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:12  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:47:05  
 Average Efficiency : 0.3226976  
 Average Efficiency Error : 8.8783512E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	202.1856	28-FEB-2010	2987.542	3297.569	15428.00	0.3223361	1.3849068E-02	64.65321
NP-237	208.8990	28-FEB-2010	4435.421	4904.506	15892.00	0.3169125	1.6043896E-02	93.68992
CM-244	198.1458	28-FEB-2010	5534.230	5884.907	14803.00	0.3294876	1.6695555E-02	84.86885

Instrument : CHAMBER 083  
 Detector : 64278  
 Standard ID : AESS-019  
 Standard Reference Date : 19-FEB-2008 11:05:22  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:14  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:47:29  
 Average Efficiency : 0.3395500  
 Average Efficiency Error : 9.3379803E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	204.6468	28-FEB-2010	2991.854	3298.707	15947.00	0.3291289	1.4132823E-02	53.16394
NP-237	202.9140	28-FEB-2010	4433.271	4906.151	16931.00	0.3476149	1.7584924E-02	67.04104
CM-244	199.3140	28-FEB-2010	5531.993	5884.932	15718.00	0.3476342	1.7601561E-02	59.50858

Instrument : CHAMBER 084  
 Detector : 78265  
 Standard ID : AESS-020  
 Standard Reference Date : 14-FEB-2008 21:55:55  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:14  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:47:52  
 Average Efficiency : 0.3397457  
 Average Efficiency Error : 9.3453201E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	205.5870	28-FEB-2010	2988.678	3299.931	15922.00	0.3271575	1.4048551E-02	47.08979
NP-237	203.4984	28-FEB-2010	4434.465	4903.170	17250.00	0.3531433	1.7860783E-02	67.92932
CM-244	197.1096	28-FEB-2010	5531.407	5886.178	15482.00	0.3464514	1.7544933E-02	50.18247

Instrument : CHAMBER 085  
 Detector : 78776  
 Standard ID : AESS-021  
 Standard Reference Date : 19-FEB-2008 15:31:52  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:14  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:48:19  
 Average Efficiency : 0.3272626  
 Average Efficiency Error : 8.9994660E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	208.3608	28-FEB-2010	2990.698	3300.313	15918.00	0.3226679	1.3855824E-02	49.75027
NP-237	210.1548	28-FEB-2010	4435.121	4902.282	16630.00	0.3296844	1.6681336E-02	59.70044
CM-244	200.7390	28-FEB-2010	5534.187	5882.859	15098.00	0.3315589	1.6796166E-02	51.87433

Instrument : CHAMBER 086  
 Detector : 78198  
 Standard ID : AESS-022  
 Standard Reference Date : 14-FEB-2008 21:55:55  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:14  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:48:41  
 Average Efficiency : 0.3012526  
 Average Efficiency Error : 8.2951793E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	209.6724	28-FEB-2010	2990.009	3300.939	14622.00	0.2945913	1.2669257E-02	46.73733
NP-237	206.8830	28-FEB-2010	4436.927	4902.983	15242.00	0.3069340	1.5546833E-02	58.46733
CM-244	203.0208	28-FEB-2010	5531.983	5883.724	14065.00	0.3055728	1.5494397E-02	51.66624

Instrument : CHAMBER 087  
 Detector : 78199  
 Standard ID : AESS-023  
 Standard Reference Date : 14-FEB-2008 21:55:55  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:14  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:49:08  
 Average Efficiency : 0.3135695  
 Average Efficiency Error : 8.6297104E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	207.4764	28-FEB-2010	2988.599	3301.987	15111.00	0.3076608	1.3223418E-02	48.25697
NP-237	207.4998	28-FEB-2010	4434.300	4902.242	15867.00	0.3185670	1.6127942E-02	61.93990
CM-244	199.8804	28-FEB-2010	5532.304	5887.140	14381.00	0.3173418	1.6086275E-02	50.20942

Instrument : CHAMBER 088  
 Detector : 33452  
 Standard ID : AESS-024  
 Standard Reference Date : 14-FEB-2008 21:55:55  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:14  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:50:14  
 Average Efficiency : 0.3028336  
 Average Efficiency Error : 8.3410190E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	203.5218	28-FEB-2010	2989.881	3297.896	14259.00	0.2959496	1.2733680E-02	60.40763
NP-237	205.6662	28-FEB-2010	4436.727	4902.043	15208.00	0.3080562	1.5604130E-02	68.20498
CM-244	198.3060	28-FEB-2010	5532.799	5884.609	13848.00	0.3079579	1.5618804E-02	57.90837

Instrument : CHAMBER 089  
 Detector : 78262  
 Standard ID : AESS-025  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:15  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:50:54  
 Average Efficiency : 0.2999636  
 Average Efficiency Error : 8.2814181E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	195.5670	28-FEB-2010	2989.340	3299.886	14192.00	0.3065364	1.3190371E-02	47.47885
NP-237	167.9916	28-FEB-2010	4433.954	4903.393	12026.00	0.2982433	1.5158199E-02	61.37537
CM-244	157.2432	28-FEB-2010	5533.423	5884.190	10453.00	0.2932044	1.4938097E-02	52.58473

Instrument : CHAMBER 090  
 Detector : 78263  
 Standard ID : AESS-026  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:15  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:51:07  
 Average Efficiency : 0.3280271  
 Average Efficiency Error : 9.6107582E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	199.5072	28-FEB-2010	2992.174	3298.193	15340.00	0.3247949	1.6451096E-02	48.79327
NP-237	168.0294	28-FEB-2010	4432.899	4902.301	13513.00	0.3350319	1.6997805E-02	59.73701
CM-244	160.5822	28-FEB-2010	5531.267	5884.186	11821.00	0.3246754	1.6506171E-02	54.24763

Instrument : CHAMBER 091  
 Detector : 78259  
 Standard ID : AESS-027  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:15  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:51:19  
 Average Efficiency : 0.3422945  
 Average Efficiency Error : 1.0031743E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	193.4238	28-FEB-2010	2988.796	3297.819	15212.00	0.3322093	1.6828449E-02	48.17033
NP-237	161.6154	28-FEB-2010	4433.118	4901.645	13301.00	0.3428935	1.7400602E-02	71.25236
CM-244	148.1754	28-FEB-2010	5531.054	5887.180	11864.00	0.3531335	1.7951898E-02	54.03432

Instrument : CHAMBER 092  
 Detector : 79457  
 Standard ID : AESS-028  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:15  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:52:08  
 Average Efficiency : 0.3126248  
 Average Efficiency Error : 9.1664707E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	199.6542	28-FEB-2010	2988.378	3299.875	14752.00	0.3115867	1.5790872E-02	44.92863
NP-237	168.1992	28-FEB-2010	4435.762	4905.401	12691.00	0.3138909	1.5940819E-02	59.90319
CM-244	156.7614	28-FEB-2010	5534.466	5887.335	11106.00	0.3124176	1.5899830E-02	46.96757

Instrument : CHAMBER 093  
 Detector : 33206  
 Standard ID : AESS-029  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:15  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:52:22  
 Average Efficiency : 0.3223998  
 Average Efficiency Error : 9.4486484E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	201.5742	28-FEB-2010	2988.021	3298.707	15183.00	0.3181591	1.6117128E-02	52.68830
NP-237	169.7700	28-FEB-2010	4432.645	4901.916	13165.00	0.3230736	1.6397305E-02	66.05635
CM-244	154.8234	28-FEB-2010	5530.870	5883.862	11451.00	0.3262046	1.6592693E-02	55.78003

Instrument : CHAMBER 094  
 Detector : 78267  
 Standard ID : AESS-030  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:15  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:52:36  
 Average Efficiency : 0.3070784  
 Average Efficiency Error : 9.0072202E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	198.9792	28-FEB-2010	2987.496	3299.970	14244.00	0.3023582	1.5329675E-02	44.82082
NP-237	166.3758	28-FEB-2010	4432.930	4902.883	12450.00	0.3117883	1.5837880E-02	57.18416
CM-244	157.1856	28-FEB-2010	5531.875	5884.464	10956.00	0.3073991	1.5648084E-02	55.69304

Instrument : CHAMBER 095  
 Detector : 64279  
 Standard ID : AESS-031  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:16  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:53:20  
 Average Efficiency : 0.3112848  
 Average Efficiency Error : 8.5905641E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	193.6650	28-FEB-2010	2991.646	3298.356	14103.00	0.3075817	1.3236930E-02	52.02211
NP-237	162.9186	28-FEB-2010	4435.397	4905.664	12249.00	0.3132029	1.5913907E-02	59.25825
CM-244	153.1968	28-FEB-2010	5530.369	5883.804	10942.00	0.3147666	1.6023749E-02	56.52655

Instrument : CHAMBER 096  
 Detector : 67605  
 Standard ID : AESS-032  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:16  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:53:35  
 Average Efficiency : 0.3007939  
 Average Efficiency Error : 8.3044088E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	195.2364	28-FEB-2010	2989.386	3301.860	13969.00	0.3022173	1.3008440E-02	46.72513
NP-237	165.9822	28-FEB-2010	4437.256	4904.015	11834.00	0.2969258	1.5095386E-02	61.08714
CM-244	153.7938	28-FEB-2010	5531.292	5886.331	10564.00	0.3028315	1.5425657E-02	47.63036

Instrument : CHAMBER 097  
 Detector : 67599  
 Standard ID : AESS-033  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:16  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:54:04  
 Average Efficiency : 0.3450123  
 Average Efficiency Error : 9.5089795E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	192.4158	28-FEB-2010	2991.155	3299.592	15339.00	0.3367012	1.4467746E-02	59.45457
NP-237	161.7816	28-FEB-2010	4437.204	4904.260	13605.00	0.3503401	1.7772736E-02	79.89651
CM-244	147.2670	28-FEB-2010	5531.403	5886.106	11772.00	0.3523416	1.7914115E-02	60.43928

Instrument : CHAMBER 098  
 Detector : 68644  
 Standard ID : AESS-034  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:16  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:54:57  
 Average Efficiency : 0.3358550  
 Average Efficiency Error : 9.2535829E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	200.5488	28-FEB-2010	2992.247	3301.860	15657.00	0.3297495	1.4163947E-02	50.47488
NP-237	167.2962	28-FEB-2010	4432.619	4906.019	13588.00	0.3383684	1.7165720E-02	63.83917
CM-244	154.4388	28-FEB-2010	5534.382	5884.237	11997.00	0.3424924	1.7407812E-02	51.17926

Instrument : CHAMBER 099  
 Detector : 70317  
 Standard ID : AESS-035  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:16  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:55:11  
 Average Efficiency : 0.3432277  
 Average Efficiency Error : 9.4517590E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	198.6666	28-FEB-2010	2987.820	3298.212	15976.00	0.3396714	1.4585057E-02	54.44847
NP-237	168.2934	28-FEB-2010	4437.036	4906.585	14008.00	0.3467679	1.7584279E-02	71.12630
CM-244	158.8128	28-FEB-2010	5530.871	5884.331	12421.00	0.3448446	1.7517686E-02	52.96134

Instrument : CHAMBER 100  
 Detector : 79456  
 Standard ID : AESS-046  
 Standard Reference Date : 19-FEB-2008 19:35:48  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:16  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:55:23  
 Average Efficiency : 0.3455574  
 Average Efficiency Error : 9.5195137E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	194.7474	28-FEB-2010	2989.623	3299.666	15783.00	0.3422834	1.4700302E-02	52.09954
NP-237	164.6658	28-FEB-2010	4436.895	4905.650	13580.00	0.3435225	1.7427422E-02	69.24625
CM-244	151.3824	28-FEB-2010	5534.086	5886.872	12110.00	0.3525722	1.7917577E-02	56.51697



Instrument : CHAMBER 101  
 Detector : 64253  
 Standard ID : AESS-037  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:17  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:55:41  
 Average Efficiency : 0.3333714  
 Average Efficiency Error : 9.1898674E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	197.7372	28-FEB-2010	2990.814	3297.893	15101.00	0.3225393	1.3863103E-02	69.71876
NP-237	167.1294	28-FEB-2010	4435.403	4905.470	13614.00	0.3393782	1.7216442E-02	75.26087
CM-244	154.7664	28-FEB-2010	5534.897	5882.499	12090.00	0.3444314	1.7504154E-02	64.32682

Instrument : CHAMBER 102  
 Detector : 72525  
 Standard ID : AESS-038  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:17  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:55:55  
 Average Efficiency : 0.3351222  
 Average Efficiency Error : 9.2311725E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	200.1408	28-FEB-2010	2989.911	3298.890	15784.00	0.3331057	1.4306106E-02	52.96164
NP-237	170.0886	28-FEB-2010	4436.604	4903.163	13774.00	0.3373874	1.7112618E-02	67.26456
CM-244	157.7460	28-FEB-2010	5533.661	5884.537	12012.00	0.3357387	1.7064173E-02	56.82374

Instrument : CHAMBER 103  
 Detector : 79461  
 Standard ID : AESS-039  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:17  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:56:06  
 Average Efficiency : 0.3326890  
 Average Efficiency Error : 9.1751814E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	192.2418	28-FEB-2010	2989.467	3301.138	14760.00	0.3242984	1.3944432E-02	47.60223
NP-237	159.1506	28-FEB-2010	4432.983	4903.264	13171.00	0.3447756	1.7498676E-02	57.68694
CM-244	151.7142	28-FEB-2010	5533.387	5886.945	11484.00	0.3337491	1.6975598E-02	51.22444

Instrument : CHAMBER 104  
 Detector : 72524  
 Standard ID : AESS-040  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:17  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:56:56  
 Average Efficiency : 0.3150799  
 Average Efficiency Error : 8.6921128E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	194.4828	28-FEB-2010	2991.174	3300.565	14723.00	0.3197476	1.3749403E-02	50.59072
NP-237	166.8174	28-FEB-2010	4436.202	4904.648	12311.00	0.3074494	1.5620295E-02	55.80039
CM-244	155.0100	28-FEB-2010	5532.970	5885.836	11138.00	0.3167908	1.6121507E-02	49.72461

Instrument : CHAMBER 105  
 Detector : 78777  
 Standard ID : AESS-041  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:17  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:57:20  
 Average Efficiency : 0.3276281  
 Average Efficiency Error : 9.0270750E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	203.9034	28-FEB-2010	2990.222	3299.531	15562.00	0.3223552	1.3847793E-02	46.50069
NP-237	171.2268	28-FEB-2010	4434.728	4902.932	13744.00	0.3344322	1.6963221E-02	65.77631
CM-244	159.5796	28-FEB-2010	5530.878	5883.508	11897.00	0.3287036	1.6709210E-02	49.01804

Instrument : CHAMBER 106  
 Detector : 64274  
 Standard ID : AESS-042  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:17  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:57:33  
 Average Efficiency : 0.3250493  
 Average Efficiency Error : 8.9671388E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	188.7090	28-FEB-2010	2987.640	3299.757	14336.00	0.3208575	1.3803991E-02	53.47353
NP-237	159.6558	28-FEB-2010	4434.577	4901.415	12565.00	0.3278506	1.6651530E-02	72.39591
CM-244	150.5208	28-FEB-2010	5534.428	5884.452	11211.00	0.3283702	1.6708910E-02	56.10339

Instrument : CHAMBER 107  
 Detector : 67578  
 Standard ID : AESS-043  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:19  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:58:23  
 Average Efficiency : 0.3085136  
 Average Efficiency Error : 8.5112611E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	197.7708	28-FEB-2010	2988.547	3298.638	14405.00	0.3076421	1.3234209E-02	50.64014
NP-237	168.7422	28-FEB-2010	4435.772	4904.146	12514.00	0.3089727	1.5693650E-02	62.76998
CM-244	156.3252	28-FEB-2010	5532.554	5882.324	10968.00	0.3092847	1.5743818E-02	52.78785

Instrument : CHAMBER 108  
 Detector : 78778  
 Standard ID : AESS-044  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:19  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 12:00:02  
 Average Efficiency : 0.3507076  
 Average Efficiency Error : 9.6569844E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	194.4510	28-FEB-2010	2988.136	3297.898	16033.00	0.3482739	1.4953526E-02	49.59322
NP-237	166.6248	28-FEB-2010	4433.563	4901.441	14165.00	0.3542025	1.7958457E-02	66.29896
CM-244	155.8290	28-FEB-2010	5533.812	5885.772	12398.00	0.3507225	1.7816888E-02	52.33121

Instrument : CHAMBER 109  
 Detector : 79463  
 Standard ID : AESS-045  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:19  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 12:00:23  
 Average Efficiency : 0.3572300  
 Average Efficiency Error : 9.8411189E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	186.9936	28-FEB-2010	2990.332	3301.320	15964.00	0.3605992	1.5483866E-02	43.37672
NP-237	160.8066	28-FEB-2010	4437.566	4903.059	13542.00	0.3508754	1.7801007E-02	56.95218
CM-244	145.8384	28-FEB-2010	5534.376	5883.521	11884.00	0.3592313	1.8261438E-02	45.65917

Instrument : CHAMBER 110  
 Detector : 67602  
 Standard ID : AESS-046  
 Standard Reference Date : 8-JAN-2007 09:29:00  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:19  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 12:01:03  
 Average Efficiency : 0.3231843  
 Average Efficiency Error : 8.9130215E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	197.6531	28-FEB-2010	2987.980	3298.573	14814.00	0.3198501	1.3754530E-02	53.58074
NP-237	164.3834	28-FEB-2010	4433.010	4901.606	12984.00	0.3290606	1.6704626E-02	68.74621
CM-244	159.4253	28-FEB-2010	5534.957	5883.028	11170.00	0.3222606	1.6399227E-02	53.66474

Instrument : CHAMBER 111  
 Detector : 79462  
 Standard ID : AESS-047  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:19  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 12:01:21  
 Average Efficiency : 0.3397023  
 Average Efficiency Error : 9.3582701E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	197.4804	28-FEB-2010	2988.711	3298.714	15668.00	0.3351243	1.4394601E-02	47.62338
NP-237	168.3948	28-FEB-2010	4436.440	4905.458	13711.00	0.3392103	1.7206213E-02	64.03130
CM-244	154.6032	28-FEB-2010	5535.080	5885.693	12172.00	0.3470925	1.7637538E-02	47.05465

Instrument : CHAMBER 112  
 Detector : 78261  
 Standard ID : AESS-048  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:19  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 12:02:06  
 Average Efficiency : 0.3161603  
 Average Efficiency Error : 8.7240264E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	191.8350	28-FEB-2010	2988.059	3299.440	14279.00	0.3143869	1.3526597E-02	45.81523
NP-237	161.5530	28-FEB-2010	4434.653	4903.902	12390.00	0.3195488	1.6233314E-02	58.56979
CM-244	151.1856	28-FEB-2010	5532.350	5884.826	10815.00	0.3153441	1.6056247E-02	49.68813

Instrument : CHAMBER 113  
 Detector : 45-111B4  
 Standard ID : AESS-001  
 Standard Reference Date : 20-FEB-2008 09:54:53  
 Calibration Analysis Date/Time : 17-AUG-2009 09:40:49  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 14:57:05  
 Average Efficiency : 0.2505672  
 Average Efficiency Error : 6.9084223E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	208.6698	28-FEB-2010	2990.867	3300.361	15169.00	0.2456670	1.0558164E-02	69.86203
NP-237	171.0024	28-FEB-2010	4434.565	4901.409	13130.00	0.2559362	1.2990281E-02	75.93420
CM-244	158.1060	28-FEB-2010	5532.822	5886.571	11319.00	0.2525721	1.2849954E-02	69.15296

Instrument : CHAMBER 114  
 Detector : 78258  
 Standard ID : AESS-007  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 17-AUG-2009 09:40:56  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 14:57:42  
 Average Efficiency : 0.2566939  
 Average Efficiency Error : 7.0618941E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	206.7342	28-FEB-2010	2992.066	3300.343	15529.00	0.2538896	1.0907058E-02	46.46336
NP-237	205.0260	28-FEB-2010	4433.866	4902.961	15975.00	0.2597136	1.3147265E-02	59.75802
CM-244	199.6806	28-FEB-2010	5535.155	5886.142	14576.00	0.2577351	1.3062422E-02	48.49145

Instrument : CHAMBER 115  
 Detector : 45-132FF4  
 Standard ID : AESS-002  
 Standard Reference Date : 19-FEB-2008 11:05:22  
 Calibration Analysis Date/Time : 17-AUG-2009 09:41:02  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 14:57:55  
 Average Efficiency : 0.2653268  
 Average Efficiency Error : 7.2980789E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	200.1144	28-FEB-2010	2989.683	3299.666	15797.00	0.2667769	1.1457291E-02	62.01321
NP-237	200.4990	28-FEB-2010	4433.623	4904.729	15897.00	0.2642607	1.3378277E-02	65.74837
CM-244	196.5558	28-FEB-2010	5534.066	5886.268	14729.00	0.2644131	1.3399067E-02	62.30648

Instrument : CHAMBER 116  
 Detector : 45-132FF2  
 Standard ID : AESS-008  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 17-AUG-2009 09:41:08  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 14:58:06  
 Average Efficiency : 0.2617015  
 Average Efficiency Error : 7.1968301E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	206.0418	28-FEB-2010	2991.930	3301.615	15931.00	0.2613424	1.1222276E-02	57.22266
NP-237	209.2716	28-FEB-2010	4433.958	4904.160	16458.00	0.2621330	1.3264989E-02	65.63932
CM-244	199.6488	28-FEB-2010	5532.087	5883.400	14804.00	0.2617715	1.3264321E-02	58.02108

Instrument : CHAMBER 117  
 Detector : 33450  
 Standard ID : AESS-003  
 Standard Reference Date : 15-FEB-2008 13:12:27  
 Calibration Analysis Date/Time : 17-AUG-2009 09:41:13  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 14:58:17  
 Average Efficiency : 0.2525579  
 Average Efficiency Error : 6.9512939E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	202.9740	28-FEB-2010	2989.306	3298.199	15015.00	0.2500224	1.0747343E-02	65.18716
NP-237	203.2080	28-FEB-2010	4433.520	4903.152	15609.00	0.2560285	1.2964435E-02	69.72454
CM-244	197.2236	28-FEB-2010	5530.582	5887.083	14123.00	0.2527719	1.2816428E-02	63.59301

Instrument : CHAMBER 118  
 Detector : 75544  
 Standard ID : AESS-009  
 Standard Reference Date : 19-FEB-2008 11:05:22  
 Calibration Analysis Date/Time : 17-AUG-2009 09:41:17  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 14:58:27  
 Average Efficiency : 0.2576301  
 Average Efficiency Error : 7.0881532E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	203.3736	28-FEB-2010	2988.856	3302.528	15454.00	0.2568017	1.1033086E-02	48.57111
NP-237	204.0192	28-FEB-2010	4432.711	4902.773	15795.00	0.2580543	1.3065088E-02	53.80557
CM-244	197.2128	28-FEB-2010	5531.177	5883.080	14443.00	0.2583711	1.3096387E-02	48.23898

Instrument : CHAMBER 119  
 Detector : 74429  
 Standard ID : AESS-004  
 Standard Reference Date : 14-FEB-2008 09:35:18  
 Calibration Analysis Date/Time : 18-AUG-2009 08:34:33  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 2-FEB-2009 15:15:38  
 Average Efficiency : 0.2936279  
 Average Efficiency Error : 1.2630888E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	206.1222	28-FEB-2010	2992.004	3299.253	1406.000	0.2936279	1.2630888E-02	0.0000000E+00
NP-237	204.2586	28-FEB-2010	4432.548	4906.013	0.0000000E+00	0.0000000E+00	0.0000000E+00	0.0000000E+00
CM-244	198.8100	28-FEB-2010	5530.584	5883.165	0.0000000E+00	0.0000000E+00	0.0000000E+00	0.0000000E+00

Instrument : CHAMBER 120  
 Detector : 74430  
 Standard ID : AESS-010  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 18-AUG-2009 08:35:01  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 18-AUG-2009 13:38:55  
 Average Efficiency : 0.2589359  
 Average Efficiency Error : 7.1242545E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	202.0008	28-FEB-2010	2988.209	3300.389	15391.00	0.2575360	1.1065440E-02	43.23295
NP-237	202.9926	28-FEB-2010	4436.370	4904.997	15823.00	0.2598289	1.3154631E-02	56.74783
CM-244	196.2330	28-FEB-2010	5531.794	5882.950	14449.00	0.2600255	1.3180019E-02	54.60671

Instrument : CHAMBER 121  
 Detector : 75545  
 Standard ID : AESS-005  
 Standard Reference Date : 14-FEB-2008 09:35:18  
 Calibration Analysis Date/Time : 17-AUG-2009 09:41:25  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 14:58:37  
 Average Efficiency : 0.2477992  
 Average Efficiency Error : 6.8184505E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	210.7452	28-FEB-2010	2991.483	3299.036	15409.00	0.2471195	1.0617682E-02	50.47642
NP-237	209.5938	28-FEB-2010	4436.007	4904.843	15591.00	0.2479274	1.2554423E-02	56.89366
CM-244	202.7478	28-FEB-2010	5531.746	5882.876	14277.00	0.2486278	1.2604386E-02	50.04906

Instrument : CHAMBER 122  
 Detector : 75546  
 Standard ID : AESS-011  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 17-AUG-2009 09:41:30  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 14:58:49  
 Average Efficiency : 0.2511526  
 Average Efficiency Error : 6.9076614E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	212.8284	28-FEB-2010	2989.140	3302.149	15817.00	0.2511983	1.0788003E-02	55.71524
NP-237	214.4868	28-FEB-2010	4434.728	4903.501	16008.00	0.2487148	1.2590243E-02	57.96050
CM-244	208.4184	28-FEB-2010	5535.323	5886.133	14974.00	0.2536270	1.2849721E-02	53.77795

Instrument : CHAMBER 123  
 Detector : 45-142V3  
 Standard ID : AESS-006  
 Standard Reference Date : 14-FEB-2008 09:35:18  
 Calibration Analysis Date/Time : 17-AUG-2009 09:41:34  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 14:58:58  
 Average Efficiency : 0.2594329  
 Average Efficiency Error : 7.1380134E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	203.6952	28-FEB-2010	2989.820	3298.601	15515.00	0.2574363	1.1059616E-02	71.81727
NP-237	204.7038	28-FEB-2010	4437.478	4905.941	15738.00	0.2562436	1.2974020E-02	72.62444
CM-244	195.0060	28-FEB-2010	5531.339	5886.453	14683.00	0.2658339	1.3471606E-02	67.85081

Instrument : CHAMBER 124  
 Detector : 45-142V2  
 Standard ID : AESS-012  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 17-AUG-2009 09:41:39  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 14:59:08  
 Average Efficiency : 0.2622745  
 Average Efficiency Error : 7.2123613E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	206.2200	28-FEB-2010	2989.806	3300.376	16169.00	0.2650077	1.1376831E-02	65.10977
NP-237	205.8930	28-FEB-2010	4436.352	4902.974	16128.00	0.2610630	1.3214089E-02	71.08579
CM-244	203.1954	28-FEB-2010	5533.246	5885.946	14953.00	0.2598179	1.3163561E-02	70.97868



Instrument : CHAMBER 125  
 Detector : 75547  
 Standard ID : AESS-013  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 17-AUG-2009 09:41:44  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 14:59:18  
 Average Efficiency : 0.2577128  
 Average Efficiency Error : 7.0888288E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	203.6544	28-FEB-2010	2987.619	3299.275	15570.00	0.2584035	1.1100472E-02	45.32409
NP-237	210.2526	28-FEB-2010	4433.269	4906.266	16194.00	0.2567104	1.2993116E-02	55.37461
CM-244	201.9108	28-FEB-2010	5531.959	5882.482	14741.00	0.2577693	1.3062201E-02	51.62124

Instrument : CHAMBER 126  
 Detector : 75548  
 Standard ID : AESS-019  
 Standard Reference Date : 19-FEB-2008 11:05:22  
 Calibration Analysis Date/Time : 17-AUG-2009 09:41:49  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 14:59:32  
 Average Efficiency : 0.2528252  
 Average Efficiency Error : 6.9586127E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	204.6468	28-FEB-2010	2988.372	3298.946	15025.00	0.2481292	1.0665805E-02	51.29427
NP-237	202.9140	28-FEB-2010	4437.297	4901.551	15728.00	0.2582902	1.3077814E-02	59.55880
CM-244	199.3140	28-FEB-2010	5532.806	5882.587	14367.00	0.2543760	1.2894685E-02	53.51087

Instrument : CHAMBER 127  
 Detector : 78770  
 Standard ID : AESS-014  
 Standard Reference Date : 19-FEB-2008 11:05:22  
 Calibration Analysis Date/Time : 17-AUG-2009 09:41:53  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 14:59:46  
 Average Efficiency : 0.2467646  
 Average Efficiency Error : 6.7887292E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	214.7088	28-FEB-2010	2989.622	3297.830	15608.00	0.2456636	1.0552737E-02	45.17228
NP-237	211.7160	28-FEB-2010	4435.622	4904.092	15815.00	0.2489925	1.2606090E-02	55.68476
CM-244	207.3882	28-FEB-2010	5535.184	5885.434	14463.00	0.2461215	1.2475103E-02	51.99955

Instrument : CHAMBER 128  
 Detector : 75549  
 Standard ID : AESS-020  
 Standard Reference Date : 14-FEB-2008 21:55:55  
 Calibration Analysis Date/Time : 17-AUG-2009 09:41:59  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 15:00:39  
 Average Efficiency : 0.2557978  
 Average Efficiency Error : 7.0393290E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	205.5870	28-FEB-2010	2989.482	3299.177	15312.00	0.2510756	1.0789989E-02	50.23243
NP-237	203.4984	28-FEB-2010	4436.028	4905.664	15805.00	0.2584755	1.3086889E-02	59.26414
CM-244	197.1096	28-FEB-2010	5532.549	5883.141	14531.00	0.2601309	1.3184624E-02	52.60558

Instrument : CHAMBER 129  
 Detector : 76227  
 Standard ID : AESS-015  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 17-AUG-2009 09:42:03  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 15:00:50  
 Average Efficiency : 0.2636167  
 Average Efficiency Error : 7.2512124E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	204.0270	28-FEB-2010	2992.146	3298.635	15855.00	0.2626581	1.1279699E-02	51.01081
NP-237	200.6460	28-FEB-2010	4432.563	4905.761	16101.00	0.2674463	1.3537456E-02	55.64974
CM-244	195.9270	28-FEB-2010	5531.918	5882.796	14498.00	0.2612732	1.3242676E-02	51.23387

Instrument : CHAMBER 130  
 Detector : 76228  
 Standard ID : AESS-021  
 Standard Reference Date : 19-FEB-2008 15:31:52  
 Calibration Analysis Date/Time : 17-AUG-2009 09:42:09  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 15:01:00  
 Average Efficiency : 0.2500172  
 Average Efficiency Error : 6.8798582E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	208.3608	28-FEB-2010	2989.230	3297.665	15254.00	0.2474099	1.0632024E-02	49.47410
NP-237	210.1548	28-FEB-2010	4434.582	4901.937	15716.00	0.2492386	1.2619579E-02	59.00264
CM-244	200.7390	28-FEB-2010	5530.859	5884.881	14487.00	0.2546751	1.2908396E-02	49.18253

Instrument : CHAMBER 131  
 Detector : 33448  
 Standard ID : AESS-016  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 17-AUG-2009 09:42:13  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 15:01:10  
 Average Efficiency : 0.2486686  
 Average Efficiency Error : 6.8503493E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	204.0534	28-FEB-2010	2988.455	3301.428	14427.00	0.2389750	1.0279993E-02	88.46142
NP-237	199.3962	28-FEB-2010	4434.994	4904.668	15550.00	0.2599315	1.3162703E-02	91.50983
CM-244	198.6402	28-FEB-2010	5532.826	5884.723	14238.00	0.2530668	1.2829903E-02	81.92683

Instrument : CHAMBER 132  
 Detector : 67579  
 Standard ID : AESS-022  
 Standard Reference Date : 14-FEB-2008 21:55:55  
 Calibration Analysis Date/Time : 17-AUG-2009 09:42:18  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 15:01:19  
 Average Efficiency : 0.2503150  
 Average Efficiency Error : 6.8899435E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	209.6724	28-FEB-2010	2989.906	3301.298	15059.00	0.2427482	1.0434108E-02	48.23922
NP-237	206.8830	28-FEB-2010	4432.560	4903.500	15980.00	0.2574485	1.3032571E-02	59.84295
CM-244	203.0208	28-FEB-2010	5531.586	5882.587	14657.00	0.2549047	1.2918007E-02	51.83584

Instrument : CHAMBER 133  
 Detector : 76229  
 Standard ID : AESS-017  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 17-AUG-2009 09:42:22  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 15:01:29  
 Average Efficiency : 0.2444916  
 Average Efficiency Error : 6.7288522E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	210.0798	28-FEB-2010	2992.199	3301.674	15088.00	0.2427499	1.0433814E-02	51.73604
NP-237	208.5846	28-FEB-2010	4436.849	4905.652	15341.00	0.2451461	1.2416095E-02	59.86903
CM-244	205.5828	28-FEB-2010	5530.602	5882.872	14343.00	0.2463241	1.2486813E-02	55.80942

Instrument : CHAMBER 134  
 Detector : 76230  
 Standard ID : AESS-023  
 Standard Reference Date : 14-FEB-2008 21:55:55  
 Calibration Analysis Date/Time : 17-AUG-2009 09:42:27  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 15:01:38  
 Average Efficiency : 0.2444722  
 Average Efficiency Error : 6.7306994E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	207.4764	28-FEB-2010	2989.055	3302.112	14731.00	0.2399838	1.0319396E-02	45.58716
NP-237	207.4998	28-FEB-2010	4432.969	4905.408	15414.00	0.2475136	1.2535379E-02	52.40787
CM-244	199.8804	28-FEB-2010	5534.460	5883.375	14046.00	0.2480791	1.2579419E-02	47.39998

Instrument : CHAMBER 135  
 Detector : 64270  
 Standard ID : AESS-018  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 17-AUG-2009 09:42:32  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 15:01:50  
 Average Efficiency : 0.2546879  
 Average Efficiency Error : 7.0084208E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	202.1856	28-FEB-2010	2987.813	3300.105	15110.00	0.2525907	1.0856513E-02	49.36219
NP-237	208.8990	28-FEB-2010	4435.123	4902.752	15878.00	0.2533506	1.2826114E-02	62.03614
CM-244	198.1458	28-FEB-2010	5532.979	5882.877	14546.00	0.2591602	1.3135060E-02	51.79539

Instrument : CHAMBER 136  
 Detector : 68549  
 Standard ID : AESS-024  
 Standard Reference Date : 14-FEB-2008 21:55:55  
 Calibration Analysis Date/Time : 17-AUG-2009 09:42:37  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 15:02:00  
 Average Efficiency : 0.2475998  
 Average Efficiency Error : 6.8165381E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	203.5218	28-FEB-2010	2991.796	3301.682	14741.00	0.2447980	1.0526305E-02	60.65231
NP-237	205.6662	28-FEB-2010	4435.713	4901.780	15573.00	0.2523313	1.2777670E-02	84.66249
CM-244	198.3060	28-FEB-2010	5531.520	5884.028	13875.00	0.2470199	1.2527825E-02	70.83999

Instrument : CHAMBER 137  
 Detector : 64288  
 Standard ID : AESS-025  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 17-AUG-2009 15:19:29  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 18-AUG-2009 09:58:00  
 Average Efficiency : 0.2555233  
 Average Efficiency Error : 7.0462842E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	195.5670	28-FEB-2010	2990.035	3302.352	15040.00	0.2599163	1.1172320E-02	62.16771
NP-237	167.9916	28-FEB-2010	4435.990	4901.349	12745.00	0.2528539	1.2839622E-02	74.72440
CM-244	157.2432	28-FEB-2010	5532.344	5883.346	11242.00	0.2523895	1.2842122E-02	61.62554

Instrument : CHAMBER 138  
 Detector : 65877  
 Standard ID : AESS-031  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 17-AUG-2009 10:05:25  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 15:10:23  
 Average Efficiency : 0.2550827  
 Average Efficiency Error : 7.0365570E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	193.6650	28-FEB-2010	2990.457	3300.623	14458.00	0.2522955	1.0852579E-02	60.07153
NP-237	162.9186	28-FEB-2010	4436.833	4904.301	12578.00	0.2572678	1.3066470E-02	64.63396
CM-244	153.1968	28-FEB-2010	5531.035	5885.034	11155.00	0.2569406	1.3075489E-02	58.61239

Instrument : CHAMBER 139  
 Detector : 76231  
 Standard ID : AESS-026  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 17-AUG-2009 10:05:40  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 15:10:36  
 Average Efficiency : 0.2493770  
 Average Efficiency Error : 7.3113223E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	199.5072	28-FEB-2010	2988.624	3300.322	14789.00	0.2505293	1.2695529E-02	52.23651
NP-237	168.0294	28-FEB-2010	4436.965	4901.673	12535.00	0.2486135	1.2627549E-02	58.33430
CM-244	160.5822	28-FEB-2010	5531.099	5884.173	11327.00	0.2489982	1.2667944E-02	53.91700

Instrument : CHAMBER 140  
 Detector : 78771  
 Standard ID : AESS-032  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 17-AUG-2009 10:05:55  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 15:10:53  
 Average Efficiency : 0.2545226  
 Average Efficiency Error : 7.0204390E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	195.2364	28-FEB-2010	2992.243	3300.208	14492.00	0.2508534	1.0790074E-02	46.38138
NP-237	165.9822	28-FEB-2010	4435.227	4906.111	12782.00	0.2566222	1.3030458E-02	51.74347
CM-244	153.7938	28-FEB-2010	5531.085	5884.403	11234.00	0.2578183	1.3118429E-02	44.44519

Instrument : CHAMBER 141  
 Detector : 76232  
 Standard ID : AESS-027  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 17-AUG-2009 10:06:09  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 15:11:05  
 Average Efficiency : 0.2584702  
 Average Efficiency Error : 7.5807418E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	193.4238	28-FEB-2010	2989.414	3297.748	14427.00	0.2520987	1.2779256E-02	53.56795
NP-237	161.6154	28-FEB-2010	4437.262	4901.753	12660.00	0.2610831	1.3258832E-02	57.80217
CM-244	148.1754	28-FEB-2010	5534.971	5886.637	11030.00	0.2627913	1.3375781E-02	54.14219

Instrument : CHAMBER 142  
 Detector : 64261  
 Standard ID : AESS-033  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 17-AUG-2009 10:06:21  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 15:11:22  
 Average Efficiency : 0.2600435  
 Average Efficiency Error : 7.1729934E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	192.4158	28-FEB-2010	2988.269	3301.948	14656.00	0.2574165	1.1070056E-02	54.03382
NP-237	161.7816	28-FEB-2010	4433.864	4905.404	12714.00	0.2618904	1.3299029E-02	57.43495
CM-244	147.2670	28-FEB-2010	5531.110	5884.773	10935.00	0.2619993	1.3337597E-02	54.46835

Instrument : CHAMBER 143  
 Detector : 65882  
 Standard ID : AESS-028  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 17-AUG-2009 10:06:30  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 15:11:35  
 Average Efficiency : 0.2441945  
 Average Efficiency Error : 7.1629179E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	199.6542	28-FEB-2010	2987.868	3300.973	14504.00	0.2454895	1.2443409E-02	48.86588
NP-237	168.1992	28-FEB-2010	4435.203	4905.234	12409.00	0.2458239	1.2487897E-02	54.42411
CM-244	156.7614	28-FEB-2010	5533.941	5886.181	10719.00	0.2413527	1.2290902E-02	48.55591

Instrument : CHAMBER 144  
 Detector : 75551  
 Standard ID : AESS-034  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 17-AUG-2009 10:06:42  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 15:11:48  
 Average Efficiency : 0.2468767  
 Average Efficiency Error : 6.8111387E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	200.5488	28-FEB-2010	2992.050	3299.833	14487.00	0.2441242	1.0500696E-02	46.56598
NP-237	167.2962	28-FEB-2010	4433.005	4902.603	12463.00	0.2482506	1.2610275E-02	54.14901
CM-244	154.4388	28-FEB-2010	5530.735	5882.656	10920.00	0.2495103	1.2702089E-02	51.83741

Instrument : CHAMBER 145  
 Detector : 72526  
 Standard ID : AESS-029  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 17-AUG-2009 10:06:50  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 15:12:06  
 Average Efficiency : 0.2516074  
 Average Efficiency Error : 7.3767379E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	201.5742	28-FEB-2010	2991.923	3299.882	14896.00	0.2497595	1.2655314E-02	52.44717
NP-237	169.7700	28-FEB-2010	4434.984	4905.949	12721.00	0.2497460	1.2682147E-02	64.14503
CM-244	154.8234	28-FEB-2010	5531.069	5884.490	11206.00	0.2555142	1.3001818E-02	51.97158

Instrument : CHAMBER 146  
 Detector : 72527  
 Standard ID : AESS-035  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 17-AUG-2009 10:06:56  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 15:12:19  
 Average Efficiency : 0.2487766  
 Average Efficiency Error : 6.8616522E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	198.6666	28-FEB-2010	2989.460	3301.164	14683.00	0.2497765	1.0741138E-02	52.75697
NP-237	168.2934	28-FEB-2010	4435.288	4903.095	12451.00	0.2466013	1.2526580E-02	54.23803
CM-244	158.8128	28-FEB-2010	5534.042	5884.573	11233.00	0.2496148	1.2701104E-02	51.22379

Instrument : CHAMBER 147  
 Detector : 75550  
 Standard ID : AESS-030  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 17-AUG-2009 10:07:03  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 15:12:37  
 Average Efficiency : 0.2470976  
 Average Efficiency Error : 7.2475495E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	198.9792	28-FEB-2010	2990.910	3299.539	14303.00	0.2429080	1.2314880E-02	46.94440
NP-237	166.3758	28-FEB-2010	4433.251	4901.935	12590.00	0.2521924	1.2808450E-02	53.36894
CM-244	157.1856	28-FEB-2010	5533.139	5883.368	10980.00	0.2465573	1.2550585E-02	53.24918

Instrument : CHAMBER 148  
 Detector : 74429  
 Standard ID : AESS-036  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 17-AUG-2009 10:07:10  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 15:12:57  
 Average Efficiency : 0.2480969  
 Average Efficiency Error : 6.8435837E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	201.3204	28-FEB-2010	2990.725	3298.446	14645.00	0.2458259	1.0571792E-02	53.02917
NP-237	167.4312	28-FEB-2010	4436.496	4905.977	12647.00	0.2517435	1.2784752E-02	56.62496
CM-244	156.4188	28-FEB-2010	5533.919	5885.716	10983.00	0.2477803	1.2612724E-02	51.14078



Instrument : CHAMBER 149  
 Detector : 33449  
 Standard ID : AESS-037  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 17-AUG-2009 09:46:49  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 15:02:09  
 Average Efficiency : 0.2465136  
 Average Efficiency Error : 6.8024271E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	197.7372	28-FEB-2010	2991.734	3299.272	14178.00	0.2423231	1.0427443E-02	68.70028
NP-237	167.1294	28-FEB-2010	4437.371	4901.944	12533.00	0.2499420	1.2695006E-02	68.91545
CM-244	154.7664	28-FEB-2010	5530.548	5882.851	10933.00	0.2492944	1.2690787E-02	65.41205

Instrument : CHAMBER 150  
 Detector : 75552  
 Standard ID : AESS-043  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 17-AUG-2009 09:47:06  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 15:02:19  
 Average Efficiency : 0.2486527  
 Average Efficiency Error : 6.8590841E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	197.7708	28-FEB-2010	2992.316	3300.643	14670.00	0.2506822	1.0780259E-02	53.31720
NP-237	168.7422	28-FEB-2010	4435.415	4905.497	12565.00	0.2481675	1.2604410E-02	58.05605
CM-244	156.3252	28-FEB-2010	5534.121	5886.240	10915.00	0.2463857	1.2543092E-02	53.10606

Instrument : CHAMBER 151  
 Detector : 75556  
 Standard ID : AESS-038  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 17-AUG-2009 09:47:22  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 15:02:29  
 Average Efficiency : 0.2450182  
 Average Efficiency Error : 6.7593171E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	200.1408	28-FEB-2010	2990.659	3302.040	14473.00	0.2443945	1.0512492E-02	52.21863
NP-237	170.0886	28-FEB-2010	4434.623	4901.634	12448.00	0.2439277	1.2390838E-02	56.98894
CM-244	157.7460	28-FEB-2010	5531.364	5886.469	11043.00	0.2470334	1.2573502E-02	57.42078

Instrument : CHAMBER 152  
 Detector : 76222  
 Standard ID : AESS-044  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 17-AUG-2009 09:47:27  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 15:02:41  
 Average Efficiency : 0.2490164  
 Average Efficiency Error : 6.8703890E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	194.4510	28-FEB-2010	2991.044	3297.777	14243.00	0.2475301	1.0650607E-02	47.08284
NP-237	166.6248	28-FEB-2010	4437.300	4905.285	12419.00	0.2484124	1.2619114E-02	60.94747
CM-244	155.8290	28-FEB-2010	5531.209	5887.199	11119.00	0.2517907	1.2814093E-02	54.11842

Instrument : CHAMBER 153  
 Detector : 76223  
 Standard ID : AESS-039  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 17-AUG-2009 09:47:33  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 15:02:59  
 Average Efficiency : 0.2519075  
 Average Efficiency Error : 6.9520962E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	192.2418	28-FEB-2010	2989.175	3301.127	14308.00	0.2515197	1.0821341E-02	47.18059
NP-237	159.1506	28-FEB-2010	4437.148	4906.174	12220.00	0.2558792	1.3001786E-02	54.79121
CM-244	151.7142	28-FEB-2010	5533.838	5885.640	10690.00	0.2486704	1.2664073E-02	49.37799

Instrument : CHAMBER 154  
 Detector : 76224  
 Standard ID : AESS-045  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 17-AUG-2009 09:47:38  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 15:03:12  
 Average Efficiency : 0.2559401  
 Average Efficiency Error : 7.0637148E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	186.9936	28-FEB-2010	2991.160	3298.663	14169.00	0.2560697	1.1019127E-02	49.27927
NP-237	160.8066	28-FEB-2010	4435.792	4904.845	12224.00	0.2533519	1.2873255E-02	55.70718
CM-244	145.8384	28-FEB-2010	5532.170	5883.602	10681.00	0.2584613	1.3162896E-02	52.40295

Instrument : CHAMBER 155  
 Detector : 75553  
 Standard ID : AESS-040  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 17-AUG-2009 09:47:43  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 15:03:49  
 Average Efficiency : 0.2604031  
 Average Efficiency Error : 7.1793078E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	194.4828	28-FEB-2010	2990.137	3299.574	15144.00	0.2631285	1.1309024E-02	51.70325
NP-237	166.8174	28-FEB-2010	4433.383	4905.252	13025.00	0.2602106	1.3208893E-02	58.26657
CM-244	155.0100	28-FEB-2010	5530.995	5884.485	11287.00	0.2569496	1.3073267E-02	54.09868

Instrument : CHAMBER 156  
 Detector : 75554  
 Standard ID : AESS-046  
 Standard Reference Date : 19-FEB-2008 19:35:48  
 Calibration Analysis Date/Time : 17-AUG-2009 09:47:48  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 15:03:58  
 Average Efficiency : 0.2478251  
 Average Efficiency Error : 6.8396293E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	194.7474	28-FEB-2010	2991.410	3301.423	14146.00	0.2454547	1.0562697E-02	50.29560
NP-237	164.6658	28-FEB-2010	4436.034	4902.390	12227.00	0.2474083	1.2571326E-02	54.83716
CM-244	151.3824	28-FEB-2010	5532.563	5885.336	10800.00	0.2517493	1.2818515E-02	50.76693

Instrument : CHAMBER 157  
 Detector : 75555  
 Standard ID : AESS-041  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 17-AUG-2009 09:47:53  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 15:04:07  
 Average Efficiency : 0.2459567  
 Average Efficiency Error : 6.7838337E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	203.9034	28-FEB-2010	2989.948	3299.042	14635.00	0.2425698	1.0431849E-02	49.95551
NP-237	171.2268	28-FEB-2010	4436.337	4902.073	12880.00	0.2506870	1.2727586E-02	53.18868
CM-244	159.5796	28-FEB-2010	5531.733	5884.378	11136.00	0.2462586	1.2532219E-02	53.03581

Instrument : CHAMBER 158  
 Detector : 33451  
 Standard ID : AESS-047  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 17-AUG-2009 09:47:59  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 15:04:18  
 Average Efficiency : 0.2470825  
 Average Efficiency Error : 6.8179565E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	197.4804	28-FEB-2010	2990.074	3301.013	14195.00	0.2429217	1.0452971E-02	65.65772
NP-237	168.3948	28-FEB-2010	4435.907	4905.421	12486.00	0.2470921	1.2551059E-02	76.64585
CM-244	154.6032	28-FEB-2010	5535.323	5885.904	11102.00	0.2534059	1.2896620E-02	68.27572

Instrument : CHAMBER 159  
 Detector : 76225  
 Standard ID : AESS-042  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 17-AUG-2009 09:48:04  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 15:04:28  
 Average Efficiency : 0.2536185  
 Average Efficiency Error : 6.9992472E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	188.7090	28-FEB-2010	2992.022	3301.502	14176.00	0.2538644	1.0924136E-02	47.45573
NP-237	159.6558	28-FEB-2010	4435.853	4902.842	12186.00	0.2543722	1.2925758E-02	52.94994
CM-244	150.5208	28-FEB-2010	5534.528	5883.086	10773.00	0.2525320	1.2859062E-02	52.36504

Instrument : CHAMBER 160  
 Detector : 76226  
 Standard ID : AESS-048  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 17-AUG-2009 09:48:09  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 17-AUG-2009 15:04:40  
 Average Efficiency : 0.2450936  
 Average Efficiency Error : 6.7667966E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	191.8350	28-FEB-2010	2988.982	3298.890	13916.00	0.2451341	1.0552234E-02	50.78497
NP-237	161.5530	28-FEB-2010	4434.439	4901.761	11957.00	0.2465858	1.2534058E-02	58.31113
CM-244	151.1856	28-FEB-2010	5533.753	5882.414	10437.00	0.2435748	1.2410097E-02	52.51821

Instrument : CHAMBER 161  
 Detector : 70321  
 Standard ID : AESS-001  
 Standard Reference Date : 20-FEB-2008 09:54:53  
 Calibration Analysis Date/Time : 24-AUG-2009 08:39:50  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 24-AUG-2009 14:06:47  
 Average Efficiency : 0.3731306  
 Average Efficiency Error : 1.0235887E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	208.6698	28-FEB-2010	2988.799	3299.450	22121.00	0.3583271	1.5313427E-02	65.76945
NP-237	171.0024	28-FEB-2010	4437.354	4905.712	19775.00	0.3854371	1.9465830E-02	75.53835
CM-244	158.1060	28-FEB-2010	5533.034	5884.911	17229.00	0.3847365	1.9458989E-02	65.65879

Instrument : CHAMBER 162  
 Detector : 70323  
 Standard ID : AESS-007  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 24-AUG-2009 08:39:56  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 24-AUG-2009 14:06:56  
 Average Efficiency : 0.3723955  
 Average Efficiency Error : 1.0201765E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	206.7342	28-FEB-2010	2991.108	3297.679	22068.00	0.3608688	1.5422536E-02	59.05890
NP-237	205.0260	28-FEB-2010	4437.157	4905.370	23621.00	0.3840082	1.9362321E-02	75.93850
CM-244	199.6806	28-FEB-2010	5531.808	5882.856	21406.00	0.3787849	1.9115422E-02	59.17039

Instrument : CHAMBER 163  
 Detector : 70324  
 Standard ID : AESS-002  
 Standard Reference Date : 19-FEB-2008 11:05:22  
 Calibration Analysis Date/Time : 24-AUG-2009 08:40:01  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 24-AUG-2009 14:07:06  
 Average Efficiency : 0.3784964  
 Average Efficiency Error : 1.0368022E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	200.1144	28-FEB-2010	2989.316	3301.922	21875.00	0.3695002	1.5793122E-02	75.87975
NP-237	200.4990	28-FEB-2010	4434.725	4904.333	23130.00	0.3844810	1.9389626E-02	89.93044
CM-244	196.5558	28-FEB-2010	5532.622	5884.699	21494.00	0.3861476	1.9486297E-02	68.44479

Instrument : CHAMBER 164  
 Detector : 70325  
 Standard ID : AESS-008  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 24-AUG-2009 08:40:07  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 24-AUG-2009 14:07:20  
 Average Efficiency : 0.3795241  
 Average Efficiency Error : 1.0392675E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	206.0418	28-FEB-2010	2989.433	3301.590	22711.00	0.3726217	1.5919240E-02	60.22451
NP-237	209.2716	28-FEB-2010	4434.137	4904.243	23751.00	0.3782692	1.9072101E-02	72.85822
CM-244	199.6488	28-FEB-2010	5533.726	5886.727	22121.00	0.3914949	1.9750981E-02	58.50513

Instrument : CHAMBER 165  
 Detector : 72544  
 Standard ID : AESS-003  
 Standard Reference Date : 15-FEB-2008 13:12:27  
 Calibration Analysis Date/Time : 24-AUG-2009 08:40:14  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 24-AUG-2009 14:07:34  
 Average Efficiency : 0.3818519  
 Average Efficiency Error : 1.0458693E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	202.9740	28-FEB-2010	2990.235	3298.979	22293.00	0.3712923	1.5866017E-02	64.67880
NP-237	203.2080	28-FEB-2010	4434.502	4904.549	23821.00	0.3907148	1.9699110E-02	89.80749
CM-244	197.2236	28-FEB-2010	5532.823	5884.601	21728.00	0.3892223	1.9639486E-02	65.21038

Instrument : CHAMBER 166  
 Detector : 74545  
 Standard ID : AESS-009  
 Standard Reference Date : 19-FEB-2008 11:05:22  
 Calibration Analysis Date/Time : 24-AUG-2009 08:40:20  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 24-AUG-2009 14:07:42  
 Average Efficiency : 0.3930937  
 Average Efficiency Error : 1.0762543E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	203.3736	28-FEB-2010	2991.175	3297.621	23070.00	0.3834404	1.6378330E-02	51.93287
NP-237	204.0192	28-FEB-2010	4434.428	4904.926	24581.00	0.4015882	2.0242147E-02	75.61842
CM-244	197.2128	28-FEB-2010	5535.556	5884.119	22299.00	0.3992831	2.0142501E-02	56.82180

Instrument : CHAMBER 167  
 Detector : 72546  
 Standard ID : AESS-004  
 Standard Reference Date : 14-FEB-2008 09:35:18  
 Calibration Analysis Date/Time : 24-AUG-2009 08:40:25  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 24-AUG-2009 14:07:51  
 Average Efficiency : 0.3896100  
 Average Efficiency Error : 1.0666691E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	206.1222	28-FEB-2010	2990.148	3302.011	23242.00	0.3811870	1.6280681E-02	60.73105
NP-237	204.2586	28-FEB-2010	4433.463	4903.100	24426.00	0.3985536	2.0090239E-02	78.42995
CM-244	198.8100	28-FEB-2010	5531.940	5884.576	22136.00	0.3933990	1.9846944E-02	60.41788

Instrument : CHAMBER 168  
 Detector : 72547  
 Standard ID : AESS-010  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 24-AUG-2009 08:40:32  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 24-AUG-2009 14:07:59  
 Average Efficiency : 0.3891803  
 Average Efficiency Error : 1.0657012E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	202.0008	28-FEB-2010	2989.237	3300.921	22691.00	0.3797462	1.6223785E-02	60.45912
NP-237	202.9926	28-FEB-2010	4437.534	4902.237	24096.00	0.3956006	1.9943606E-02	81.13048
CM-244	196.2330	28-FEB-2010	5531.663	5884.741	22054.00	0.3970870	2.0033659E-02	60.17071

Instrument : CHAMBER 169  
 Detector : 72548  
 Standard ID : AESS-005  
 Standard Reference Date : 14-FEB-2008 09:35:18  
 Calibration Analysis Date/Time : 24-AUG-2009 08:40:37  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 24-AUG-2009 14:08:11  
 Average Efficiency : 0.3755721  
 Average Efficiency Error : 1.0284009E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	210.7452	28-FEB-2010	2992.165	3298.594	22868.00	0.3668304	1.5670519E-02	63.17508
NP-237	209.5938	28-FEB-2010	4434.229	4903.754	23971.00	0.3811674	1.9216783E-02	80.00423
CM-244	202.7478	28-FEB-2010	5532.658	5885.433	21988.00	0.3832155	1.9334303E-02	60.82853

Instrument : CHAMBER 170  
 Detector : 72549  
 Standard ID : AESS-011  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 24-AUG-2009 08:40:43  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 24-AUG-2009 14:08:20  
 Average Efficiency : 0.3679080  
 Average Efficiency Error : 1.0074493E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	212.8284	28-FEB-2010	2988.025	3299.867	22620.00	0.3593037	1.5351000E-02	55.68573
NP-237	214.4868	28-FEB-2010	4432.622	4903.408	24183.00	0.3757574	1.8942678E-02	83.32780
CM-244	208.4184	28-FEB-2010	5534.316	5882.981	22007.00	0.3730944	1.8823531E-02	57.78218

Instrument : CHAMBER 171  
 Detector : 78260  
 Standard ID : AESS-006  
 Standard Reference Date : 14-FEB-2008 09:35:18  
 Calibration Analysis Date/Time : 24-AUG-2009 08:40:49  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 24-AUG-2009 14:08:29  
 Average Efficiency : 0.3855957  
 Average Efficiency Error : 1.0559761E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	203.6952	28-FEB-2010	2988.433	3300.366	22641.00	0.3757591	1.6053872E-02	54.75708
NP-237	204.7038	28-FEB-2010	4436.595	4905.826	23976.00	0.3903738	1.9680876E-02	77.89750
CM-244	195.0060	28-FEB-2010	5533.870	5885.935	21851.00	0.3959031	1.9975597E-02	57.65449

Instrument : CHAMBER 172  
 Detector : 78772  
 Standard ID : AESS-012  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 24-AUG-2009 08:40:55  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 24-AUG-2009 14:08:40  
 Average Efficiency : 0.3797724  
 Average Efficiency Error : 1.0397769E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	206.2200	28-FEB-2010	2991.870	3297.903	22889.00	0.3752128	1.6028440E-02	52.39552
NP-237	205.8930	28-FEB-2010	4433.678	4903.969	23812.00	0.3854640	1.9434443E-02	82.21458
CM-244	203.1954	28-FEB-2010	5534.514	5883.121	21897.00	0.3807611	1.9211210E-02	56.07287



Instrument : CHAMBER 173  
 Detector : 74431  
 Standard ID : AESS-013  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 24-AUG-2009 08:41:01  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 24-AUG-2009 14:08:49  
 Average Efficiency : 0.2601730  
 Average Efficiency Error : 7.1557011E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	203.6544	28-FEB-2010	2988.449	3298.086	15819.00	0.2625923	1.1277330E-02	48.84491
NP-237	210.2526	28-FEB-2010	4435.604	4905.905	16223.00	0.2571892	1.3017043E-02	57.42966
CM-244	201.9108	28-FEB-2010	5534.021	5885.467	14862.00	0.2599279	1.3170394E-02	53.55892

Instrument : CHAMBER 174  
 Detector : 74432  
 Standard ID : AESS-019  
 Standard Reference Date : 19-FEB-2008 11:05:22  
 Calibration Analysis Date/Time : 24-AUG-2009 08:41:06  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 24-AUG-2009 14:08:58  
 Average Efficiency : 0.2560052  
 Average Efficiency Error : 7.0460425E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	204.6468	28-FEB-2010	2988.639	3300.179	15066.00	0.2488402	1.0695883E-02	51.37117
NP-237	202.9140	28-FEB-2010	4435.486	4905.219	15899.00	0.2611338	1.3219978E-02	60.89258
CM-244	199.3140	28-FEB-2010	5531.026	5885.734	14784.00	0.2618657	1.3269406E-02	47.62206

Instrument : CHAMBER 175  
 Detector : 74433  
 Standard ID : AESS-014  
 Standard Reference Date : 19-FEB-2008 11:05:22  
 Calibration Analysis Date/Time : 24-AUG-2009 08:41:12  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 24-AUG-2009 14:09:06  
 Average Efficiency : 0.2541471  
 Average Efficiency Error : 6.9896011E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	214.7088	28-FEB-2010	2992.018	3300.926	15876.00	0.2499355	1.0733101E-02	50.54956
NP-237	211.7160	28-FEB-2010	4437.197	4902.367	16318.00	0.2568789	1.3000464E-02	57.64658
CM-244	207.3882	28-FEB-2010	5531.134	5883.215	15134.00	0.2576209	1.3050339E-02	53.56906

Instrument : CHAMBER 176  
 Detector : 74434  
 Standard ID : AESS-020  
 Standard Reference Date : 14-FEB-2008 21:55:55  
 Calibration Analysis Date/Time : 24-AUG-2009 08:41:18  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 24-AUG-2009 14:09:15  
 Average Efficiency : 0.2565841  
 Average Efficiency Error : 7.0622312E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	205.5870	28-FEB-2010	2987.853	3298.318	15148.00	0.2490841	1.0705328E-02	47.98410
NP-237	203.4984	28-FEB-2010	4433.083	4904.101	15833.00	0.2593126	1.3128439E-02	58.20272
CM-244	197.1096	28-FEB-2010	5532.948	5884.695	14821.00	0.2655677	1.3456577E-02	49.33431

Instrument : CHAMBER 177  
 Detector : 74435  
 Standard ID : AESS-015  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 24-AUG-2009 08:41:25  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 24-AUG-2009 14:09:24  
 Average Efficiency : 0.2668152  
 Average Efficiency Error : 7.3382389E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	204.0270	28-FEB-2010	2989.857	3298.211	15920.00	0.2637714	1.1326759E-02	49.45098
NP-237	200.6460	28-FEB-2010	4433.475	4903.934	16338.00	0.2714185	1.3736055E-02	53.30935
CM-244	195.9270	28-FEB-2010	5533.213	5885.773	14796.00	0.2666922	1.3513907E-02	53.74039

Instrument : CHAMBER 178  
 Detector : 74436  
 Standard ID : AESS-021  
 Standard Reference Date : 19-FEB-2008 15:31:52  
 Calibration Analysis Date/Time : 24-AUG-2009 08:41:30  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 24-AUG-2009 14:09:35  
 Average Efficiency : 0.2595187  
 Average Efficiency Error : 7.1381964E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	208.3608	28-FEB-2010	2991.399	3300.807	15690.00	0.2545363	1.0932880E-02	44.11681
NP-237	210.1548	28-FEB-2010	4432.785	4903.123	16730.00	0.2653126	1.3423340E-02	55.16845
CM-244	200.7390	28-FEB-2010	5531.481	5883.158	14852.00	0.2611876	1.3234260E-02	50.76077

Instrument : CHAMBER 179  
 Detector : 74437  
 Standard ID : AESS-016  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 24-AUG-2009 08:41:36  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 24-AUG-2009 14:09:44  
 Average Efficiency : 0.2718232  
 Average Efficiency Error : 7.4735158E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	204.0534	28-FEB-2010	2990.874	3299.393	16266.00	0.2694745	1.1567459E-02	45.58660
NP-237	199.3962	28-FEB-2010	4435.018	4905.518	16480.00	0.2754735	1.3939864E-02	58.76590
CM-244	198.6402	28-FEB-2010	5534.758	5887.251	15277.00	0.2715900	1.3756392E-02	54.51526

Instrument : CHAMBER 180  
 Detector : 74438  
 Standard ID : AESS-022  
 Standard Reference Date : 14-FEB-2008 21:55:55  
 Calibration Analysis Date/Time : 24-AUG-2009 08:41:41  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 24-AUG-2009 14:09:54  
 Average Efficiency : 0.2528372  
 Average Efficiency Error : 6.9568004E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	209.6724	28-FEB-2010	2989.946	3300.627	15376.00	0.2479020	1.0651710E-02	47.69878
NP-237	206.8830	28-FEB-2010	4434.505	4904.405	15995.00	0.2576708	1.3043700E-02	52.34612
CM-244	203.0208	28-FEB-2010	5531.104	5886.649	14679.00	0.2553639	1.2941188E-02	49.43889

Instrument : CHAMBER 181  
 Detector : 74439  
 Standard ID : AESS-017  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 24-AUG-2009 08:41:46  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 24-AUG-2009 14:10:03  
 Average Efficiency : 0.2567677  
 Average Efficiency Error : 7.0618824E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	210.0798	28-FEB-2010	2988.658	3302.315	15809.00	0.2543999	1.0925616E-02	48.94121
NP-237	208.5846	28-FEB-2010	4432.549	4902.677	16291.00	0.2603085	1.3174290E-02	56.85185
CM-244	205.5828	28-FEB-2010	5531.208	5883.203	14943.00	0.2566723	1.3004515E-02	53.00024

Instrument : CHAMBER 182  
 Detector : 74440  
 Standard ID : AESS-023  
 Standard Reference Date : 14-FEB-2008 21:55:55  
 Calibration Analysis Date/Time : 24-AUG-2009 08:41:51  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 24-AUG-2009 14:10:14  
 Average Efficiency : 0.2534730  
 Average Efficiency Error : 6.9745579E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	207.4764	28-FEB-2010	2990.553	3299.709	15297.00	0.2492435	1.0710318E-02	46.65529
NP-237	207.4998	28-FEB-2010	4435.824	4905.707	15977.00	0.2566445	1.2991886E-02	50.94455
CM-244	199.8804	28-FEB-2010	5533.404	5884.684	14515.00	0.2565299	1.3002145E-02	46.18616

Instrument : CHAMBER 183  
 Detector : 74441  
 Standard ID : AESS-018  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 24-AUG-2009 08:41:56  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 24-AUG-2009 14:10:29  
 Average Efficiency : 0.2637588  
 Average Efficiency Error : 7.2541810E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	202.1856	28-FEB-2010	2989.015	3297.962	16012.00	0.2677119	1.1494849E-02	47.11412
NP-237	208.8990	28-FEB-2010	4434.099	4904.342	16303.00	0.2601227	1.3164749E-02	52.97176
CM-244	198.1458	28-FEB-2010	5532.826	5884.696	14712.00	0.2621811	1.3286361E-02	53.53780

Instrument : CHAMBER 184  
 Detector : 74442  
 Standard ID : AESS-024  
 Standard Reference Date : 14-FEB-2008 21:55:55  
 Calibration Analysis Date/Time : 24-AUG-2009 08:42:02  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 24-AUG-2009 14:10:41  
 Average Efficiency : 0.2604004  
 Average Efficiency Error : 7.1640476E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	203.5218	28-FEB-2010	2989.045	3299.169	15378.00	0.2554370	1.0975426E-02	49.39055
NP-237	205.6662	28-FEB-2010	4437.505	4902.470	16322.00	0.2645144	1.3386835E-02	57.05146
CM-244	198.3060	28-FEB-2010	5535.333	5886.318	14804.00	0.2636573	1.3359983E-02	50.92117

Instrument : CHAMBER 185  
 Detector : 68615  
 Standard ID : AESS-025  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 24-AUG-2009 08:42:07  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 24-AUG-2009 14:10:54  
 Average Efficiency : 0.2583998  
 Average Efficiency Error : 7.1241027E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	195.5670	28-FEB-2010	2987.897	3299.344	14977.00	0.2588871	1.1128917E-02	59.70583
NP-237	167.9916	28-FEB-2010	4432.571	4905.243	13169.00	0.2612911	1.3261506E-02	62.76381
CM-244	157.2432	28-FEB-2010	5530.503	5886.106	11355.00	0.2549717	1.2971560E-02	55.40694

Instrument : CHAMBER 186  
 Detector : 68616  
 Standard ID : AESS-031  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 24-AUG-2009 08:42:13  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 24-AUG-2009 14:11:06  
 Average Efficiency : 0.2578412  
 Average Efficiency Error : 7.1111098E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	193.6650	28-FEB-2010	2992.379	3299.140	14692.00	0.2564398	1.1027561E-02	55.81911
NP-237	162.9186	28-FEB-2010	4434.242	4902.774	12639.00	0.2585895	1.3132489E-02	57.78773
CM-244	153.1968	28-FEB-2010	5534.982	5886.349	11244.00	0.2590897	1.3183227E-02	55.94541

Instrument : CHAMBER 187  
 Detector : 68620  
 Standard ID : AESS-026  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 24-AUG-2009 08:42:19  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 24-AUG-2009 14:11:16  
 Average Efficiency : 0.2520546  
 Average Efficiency Error : 7.3888451E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	199.5072	28-FEB-2010	2991.498	3300.157	14978.00	0.2537758	1.2857930E-02	50.69514
NP-237	168.0294	28-FEB-2010	4437.493	4903.961	12739.00	0.2526664	1.2830210E-02	58.36928
CM-244	160.5822	28-FEB-2010	5535.243	5883.722	11357.00	0.2497735	1.2706947E-02	53.40160

Instrument : CHAMBER 188  
 Detector : 68621  
 Standard ID : AESS-032  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 24-AUG-2009 08:42:24  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 24-AUG-2009 14:11:25  
 Average Efficiency : 0.2590206  
 Average Efficiency Error : 7.1418569E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	195.2364	28-FEB-2010	2988.985	3297.497	14940.00	0.2586645	1.1119837E-02	50.77880
NP-237	165.9822	28-FEB-2010	4433.354	4904.064	12857.00	0.2581703	1.3107833E-02	59.69577
CM-244	153.7938	28-FEB-2010	5533.683	5886.437	11347.00	0.2603945	1.3247656E-02	50.83346

Instrument : CHAMBER 189  
 Detector : 68622  
 Standard ID : AESS-027  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 24-AUG-2009 08:42:30  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 24-AUG-2009 14:11:34  
 Average Efficiency : 0.2605012  
 Average Efficiency Error : 7.6393606E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	193.4238	28-FEB-2010	2990.052	3301.735	14579.00	0.2547995	1.2914370E-02	54.11663
NP-237	161.6154	28-FEB-2010	4436.853	4905.539	12669.00	0.2612749	1.3268417E-02	57.74998
CM-244	148.1754	28-FEB-2010	5532.776	5884.354	11162.00	0.2659585	1.3534531E-02	55.68552

Instrument : CHAMBER 190  
 Detector : 68623  
 Standard ID : AESS-033  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 24-AUG-2009 08:42:35  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 24-AUG-2009 14:11:43  
 Average Efficiency : 0.2627709  
 Average Efficiency Error : 7.2474247E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	192.4158	28-FEB-2010	2991.652	3298.950	14837.00	0.2606309	1.1205810E-02	49.34105
NP-237	161.7816	28-FEB-2010	4435.677	4904.720	12625.00	0.2599701	1.3203092E-02	52.76612
CM-244	147.2670	28-FEB-2010	5532.170	5883.736	11225.00	0.2689729	1.3686700E-02	52.48962

Instrument : CHAMBER 191  
 Detector : 68624  
 Standard ID : AESS-028  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 24-AUG-2009 08:42:40  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 24-AUG-2009 14:11:54  
 Average Efficiency : 0.2621362  
 Average Efficiency Error : 7.6808794E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	199.6542	28-FEB-2010	2991.100	3299.772	15569.00	0.2636111	1.3349629E-02	49.40056
NP-237	168.1992	28-FEB-2010	4437.436	4904.158	13280.00	0.2631744	1.3355431E-02	53.16087
CM-244	156.7614	28-FEB-2010	5530.545	5884.668	11529.00	0.2596773	1.3207550E-02	53.47022

Instrument : CHAMBER 192  
 Detector : 74430  
 Standard ID : AESS-034  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 24-AUG-2009 08:42:45  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 24-AUG-2009 14:12:04  
 Average Efficiency : 0.2555450  
 Average Efficiency Error : 7.0466422E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	200.5488	28-FEB-2010	2988.046	3297.560	14899.00	0.2511216	1.0796109E-02	50.91946
NP-237	167.2962	28-FEB-2010	4437.061	4903.990	12977.00	0.2585397	1.3124744E-02	59.22014
CM-244	154.4388	28-FEB-2010	5535.519	5883.955	11337.00	0.2591194	1.3182904E-02	51.43979

Instrument : CHAMBER 193  
 Detector : 68627  
 Standard ID : AESS-029  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 24-AUG-2009 08:42:50  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 24-AUG-2009 14:12:15  
 Average Efficiency : 0.2629034  
 Average Efficiency Error : 7.7030240E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	201.5742	28-FEB-2010	2990.087	3301.572	15539.00	0.2605920	1.3197066E-02	51.03585
NP-237	169.7700	28-FEB-2010	4436.483	4905.309	13298.00	0.2610572	1.3247789E-02	60.49369
CM-244	154.8234	28-FEB-2010	5532.931	5884.819	11722.00	0.2672982	1.3591460E-02	49.40217

Instrument : CHAMBER 194  
 Detector : 68635  
 Standard ID : AESS-035  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 24-AUG-2009 08:42:56  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 24-AUG-2009 14:12:24  
 Average Efficiency : 0.2559154  
 Average Efficiency Error : 7.0551960E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	198.6666	28-FEB-2010	2990.152	3297.570	15094.00	0.2568187	1.1038445E-02	52.22760
NP-237	168.2934	28-FEB-2010	4434.536	4903.587	12941.00	0.2562945	1.3011310E-02	57.01247
CM-244	158.8128	28-FEB-2010	5530.970	5882.461	11437.00	0.2543004	1.2935611E-02	52.26905

Instrument : CHAMBER 195  
 Detector : 68636  
 Standard ID : AESS-030  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 24-AUG-2009 08:43:02  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 24-AUG-2009 14:12:38  
 Average Efficiency : 0.2667065  
 Average Efficiency Error : 7.8130718E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	198.9792	28-FEB-2010	2992.288	3300.624	15672.00	0.2662604	1.3482675E-02	51.81870
NP-237	166.3758	28-FEB-2010	4434.057	4902.978	13400.00	0.2684508	1.3621432E-02	55.01876
CM-244	157.1856	28-FEB-2010	5534.813	5885.542	11813.00	0.2654414	1.3495106E-02	48.18431

Instrument : CHAMBER 196  
 Detector : 68637  
 Standard ID : AESS-036  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 24-AUG-2009 08:43:07  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 24-AUG-2009 14:12:49  
 Average Efficiency : 0.2563491  
 Average Efficiency Error : 7.0671304E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	201.3204	28-FEB-2010	2990.410	3301.963	15144.00	0.2542627	1.0927959E-02	54.37652
NP-237	167.4312	28-FEB-2010	4437.321	4906.417	12971.00	0.2582058	1.3107896E-02	61.84642
CM-244	156.4188	28-FEB-2010	5534.476	5886.645	11409.00	0.2574924	1.3098660E-02	57.13540



Instrument : CHAMBER 197  
 Detector : 78894  
 Standard ID : AESS-037  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 24-AUG-2009 08:43:12  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 24-AUG-2009 14:12:58  
 Average Efficiency : 0.2565553  
 Average Efficiency Error : 7.0746746E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	197.7372	28-FEB-2010	2991.920	3300.320	14773.00	0.2525423	1.0858861E-02	53.38351
NP-237	167.1294	28-FEB-2010	4436.468	4902.348	13097.00	0.2612088	1.3258392E-02	59.72187
CM-244	154.7664	28-FEB-2010	5532.745	5886.065	11302.00	0.2578566	1.3119171E-02	59.33312

Instrument : CHAMBER 198  
 Detector : 78895  
 Standard ID : AESS-043  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 24-AUG-2009 08:43:18  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 24-AUG-2009 14:13:11  
 Average Efficiency : 0.2541020  
 Average Efficiency Error : 7.0067579E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	197.7708	28-FEB-2010	2991.305	3299.642	14821.00	0.2533123	1.0891330E-02	54.52969
NP-237	168.7422	28-FEB-2010	4434.397	4904.448	12902.00	0.2548661	1.2939337E-02	62.13729
CM-244	156.3252	28-FEB-2010	5533.011	5885.087	11271.00	0.2544529	1.2946853E-02	57.18044

Instrument : CHAMBER 199  
 Detector : 78896  
 Standard ID : AESS-038  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 24-AUG-2009 08:43:24  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 24-AUG-2009 14:13:20  
 Average Efficiency : 0.2501573  
 Average Efficiency Error : 6.8986462E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	200.1408	28-FEB-2010	2988.912	3297.497	14841.00	0.2506579	1.0776930E-02	55.76347
NP-237	170.0886	28-FEB-2010	4433.891	4904.941	12813.00	0.2510752	1.2748260E-02	59.43263
CM-244	157.7460	28-FEB-2010	5535.121	5882.869	11103.00	0.2485638	1.2650183E-02	55.23568

Instrument : CHAMBER 200  
 Detector : 78900  
 Standard ID : AESS-044  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 24-AUG-2009 08:43:29  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 24-AUG-2009 14:13:29  
 Average Efficiency : 0.2684568  
 Average Efficiency Error : 7.3974063E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	194.4510	28-FEB-2010	2991.845	3300.480	15537.00	0.2700785	1.1602442E-02	51.63891
NP-237	166.6248	28-FEB-2010	4436.941	4902.709	13461.00	0.2692276	1.3660024E-02	60.85046
CM-244	155.8290	28-FEB-2010	5532.744	5885.759	11723.00	0.2655081	1.3500395E-02	52.11015

Instrument : CHAMBER 201  
 Detector : 78902  
 Standard ID : AESS-039  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 24-AUG-2009 08:43:34  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 24-AUG-2009 14:13:38  
 Average Efficiency : 0.2592217  
 Average Efficiency Error : 7.1504964E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	192.2418	28-FEB-2010	2988.531	3297.499	14697.00	0.2584198	1.1112645E-02	48.26062
NP-237	159.1506	28-FEB-2010	4434.991	4906.359	12598.00	0.2638277	1.3399226E-02	56.82220
CM-244	151.7142	28-FEB-2010	5531.510	5884.700	10999.00	0.2559689	1.3029314E-02	45.31117

Instrument : CHAMBER 202  
 Detector : 78903  
 Standard ID : AESS-045  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 24-AUG-2009 08:43:39  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 24-AUG-2009 14:13:47  
 Average Efficiency : 0.2636107  
 Average Efficiency Error : 7.2720256E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	186.9936	28-FEB-2010	2990.301	3298.322	14668.00	0.2651460	1.1402297E-02	43.51926
NP-237	160.8066	28-FEB-2010	4432.596	4902.750	12471.00	0.2585094	1.3131124E-02	55.44957
CM-244	145.8384	28-FEB-2010	5531.710	5884.137	11024.00	0.2668914	1.3584715E-02	46.64507

Instrument : CHAMBER 203  
 Detector : 78905  
 Standard ID : AESS-040  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 24-AUG-2009 08:43:44  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 24-AUG-2009 14:16:33  
 Average Efficiency : 0.2640079  
 Average Efficiency Error : 7.2768405E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	194.4828	28-FEB-2010	2988.566	3301.771	15299.00	0.2658898	1.1425615E-02	49.79924
NP-237	166.8174	28-FEB-2010	4437.077	4902.609	13111.00	0.2619471	1.3295709E-02	56.73104
CM-244	155.0100	28-FEB-2010	5532.534	5885.590	11568.00	0.2635126	1.3401660E-02	53.98056

Instrument : CHAMBER 204  
 Detector : 78907  
 Standard ID : AESS-046  
 Standard Reference Date : 19-FEB-2008 19:35:48  
 Calibration Analysis Date/Time : 24-AUG-2009 08:43:49  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 24-AUG-2009 14:14:37  
 Average Efficiency : 0.2523464  
 Average Efficiency Error : 6.9619059E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	194.7474	28-FEB-2010	2990.303	3298.289	14571.00	0.2528380	1.0874456E-02	50.39679
NP-237	164.6658	28-FEB-2010	4433.152	4903.866	12403.00	0.2510013	1.2750966E-02	53.81767
CM-244	151.3824	28-FEB-2010	5533.856	5886.993	10856.00	0.2530294	1.2882944E-02	47.99111

Instrument : CHAMBER 205  
 Detector : 78908  
 Standard ID : AESS-041  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 24-AUG-2009 08:43:54  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 24-AUG-2009 14:14:46  
 Average Efficiency : 0.2560018  
 Average Efficiency Error : 7.0556081E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	203.9034	28-FEB-2010	2991.267	3299.423	15358.00	0.2545983	1.0939639E-02	47.30880
NP-237	171.2268	28-FEB-2010	4434.928	4905.917	13265.00	0.2582288	1.3104673E-02	60.39516
CM-244	159.5796	28-FEB-2010	5530.946	5884.256	11561.00	0.2557920	1.3009178E-02	54.31215

Instrument : CHAMBER 206  
 Detector : 78909  
 Standard ID : AESS-047  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 24-AUG-2009 08:44:00  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 24-AUG-2009 14:14:55  
 Average Efficiency : 0.2539860  
 Average Efficiency Error : 7.0044687E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	197.4804	28-FEB-2010	2991.740	3299.836	14668.00	0.2510710	1.0797012E-02	49.54147
NP-237	168.3948	28-FEB-2010	4434.469	4904.811	12921.00	0.2557680	1.2984839E-02	58.90450
CM-244	154.6032	28-FEB-2010	5534.058	5886.660	11229.00	0.2564440	1.3048770E-02	52.29348

Instrument : CHAMBER 207  
 Detector : 78910  
 Standard ID : AESS-042  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 24-AUG-2009 08:44:06  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 24-AUG-2009 14:15:04  
 Average Efficiency : 0.2567169  
 Average Efficiency Error : 7.0834220E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	188.7090	28-FEB-2010	2987.560	3301.824	14325.00	0.2565888	1.1039187E-02	52.32441
NP-237	159.6558	28-FEB-2010	4434.563	4905.877	12409.00	0.2590533	1.3159815E-02	57.42267
CM-244	150.5208	28-FEB-2010	5530.790	5883.765	10855.00	0.2546263	1.2963978E-02	55.85357

Instrument : CHAMBER 208  
 Detector : 78911  
 Standard ID : AESS-048  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 24-AUG-2009 08:44:11  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 24-AUG-2009 14:15:14  
 Average Efficiency : 0.2558721  
 Average Efficiency Error : 7.0590605E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	191.8350	28-FEB-2010	2990.613	3299.492	14536.00	0.2561232	1.1016136E-02	49.47414
NP-237	161.5530	28-FEB-2010	4436.795	4902.883	12269.00	0.2531039	1.2859914E-02	57.37383
CM-244	151.1856	28-FEB-2010	5533.327	5886.561	11065.00	0.2584097	1.3152145E-02	53.34291

Instrument : CHAMBER 209  
 Detector : 79188  
 Standard ID : AESS-001  
 Standard Reference Date : 20-FEB-2008 09:54:53  
 Calibration Analysis Date/Time : 27-JUL-2009 11:47:13  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 13:59:46  
 Average Efficiency : 0.3720503  
 Average Efficiency Error : 1.0203380E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	208.6698	28-FEB-2010	2989.310	3300.226	22310.00	0.3611241	1.5431225E-02	61.07782
NP-237	171.0024	28-FEB-2010	4435.667	4905.853	19559.00	0.3812561	1.9256754E-02	78.47396
CM-244	158.1060	28-FEB-2010	5530.947	5884.845	17057.00	0.3798239	1.9212671E-02	62.16251

Instrument : CHAMBER 210  
 Detector : 79189  
 Standard ID : AESS-002  
 Standard Reference Date : 19-FEB-2008 11:05:22  
 Calibration Analysis Date/Time : 27-JUL-2009 11:47:19  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 13:59:55  
 Average Efficiency : 0.3939427  
 Average Efficiency Error : 1.0785731E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	200.1144	28-FEB-2010	2990.620	3297.977	22918.00	0.3868399	1.6524704E-02	56.73992
NP-237	200.4990	28-FEB-2010	4435.731	4905.552	24207.00	0.4024462	2.0287881E-02	74.58759
CM-244	196.5558	28-FEB-2010	5534.352	5886.824	22110.00	0.3960794	1.9982373E-02	58.11366

Instrument : CHAMBER 211  
 Detector : 79190  
 Standard ID : AESS-003  
 Standard Reference Date : 15-FEB-2008 13:12:27  
 Calibration Analysis Date/Time : 27-JUL-2009 11:47:25  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:00:03  
 Average Efficiency : 0.3799735  
 Average Efficiency Error : 1.0408110E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	202.9740	28-FEB-2010	2988.121	3301.259	22155.00	0.3687188	1.5757136E-02	56.93997
NP-237	203.2080	28-FEB-2010	4436.737	4902.524	23738.00	0.3893826	1.9632483E-02	71.62598
CM-244	197.2236	28-FEB-2010	5532.952	5886.368	21725.00	0.3879907	1.9577414E-02	62.12684

Instrument : CHAMBER 212  
 Detector : 79191  
 Standard ID : AESS-004  
 Standard Reference Date : 14-FEB-2008 09:35:18  
 Calibration Analysis Date/Time : 27-JUL-2009 11:47:32  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:00:11  
 Average Efficiency : 0.3809828  
 Average Efficiency Error : 1.0432592E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	206.1222	28-FEB-2010	2989.135	3301.447	22739.00	0.3726791	1.5921319E-02	60.42460
NP-237	204.2586	28-FEB-2010	4434.433	4904.665	23808.00	0.3885271	1.9588865E-02	78.17927
CM-244	198.8100	28-FEB-2010	5534.267	5887.313	21781.00	0.3859496	1.9473951E-02	58.94521

Instrument : CHAMBER 213  
 Detector : 79192  
 Standard ID : AESS-005  
 Standard Reference Date : 14-FEB-2008 09:35:18  
 Calibration Analysis Date/Time : 27-JUL-2009 11:47:39  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:00:20  
 Average Efficiency : 0.3632684  
 Average Efficiency Error : 9.9503463E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	210.7452	28-FEB-2010	2990.470	3298.036	22131.00	0.3547624	1.5160903E-02	63.50857
NP-237	209.5938	28-FEB-2010	4436.689	4901.687	23169.00	0.3684698	1.8581852E-02	80.13203
CM-244	202.7478	28-FEB-2010	5531.037	5883.842	21347.00	0.3709584	1.8720919E-02	62.77599

Instrument : CHAMBER 214  
 Detector : 79193  
 Standard ID : AESS-006  
 Standard Reference Date : 14-FEB-2008 09:35:18  
 Calibration Analysis Date/Time : 27-JUL-2009 11:47:45  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:00:29  
 Average Efficiency : 0.3836091  
 Average Efficiency Error : 1.0504629E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	203.6952	28-FEB-2010	2990.553	3297.788	22693.00	0.3763517	1.6078612E-02	56.27348
NP-237	204.7038	28-FEB-2010	4436.227	4901.574	23647.00	0.3850555	1.9414932E-02	74.54285
CM-244	195.0060	28-FEB-2010	5531.780	5885.252	21759.00	0.3931459	1.9837169E-02	56.86452

Instrument : CHAMBER 215  
 Detector : 79194  
 Standard ID : AESS-007  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 27-JUL-2009 11:47:51  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:00:38  
 Average Efficiency : 0.3803512  
 Average Efficiency Error : 1.0415906E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	206.7342	28-FEB-2010	2989.364	3302.121	22674.00	0.3705170	1.5829490E-02	58.59007
NP-237	205.0260	28-FEB-2010	4437.186	4903.222	23893.00	0.3884499	1.9584402E-02	72.67680
CM-244	199.6806	28-FEB-2010	5534.359	5882.968	21950.00	0.3872738	1.9539375E-02	61.41080

Instrument : CHAMBER 216  
 Detector : 79195  
 Standard ID : AESS-008  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 27-JUL-2009 11:47:57  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:00:46  
 Average Efficiency : 0.3731616  
 Average Efficiency Error : 1.0220583E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	206.0418	28-FEB-2010	2990.730	3302.451	22182.00	0.3636904	1.5542008E-02	60.14384
NP-237	209.2716	28-FEB-2010	4434.761	4905.361	23781.00	0.3787806	1.9097654E-02	75.39853
CM-244	199.6488	28-FEB-2010	5530.680	5884.547	21648.00	0.3820059	1.9275997E-02	60.78160

Instrument : CHAMBER 217  
 Detector : 79410  
 Standard ID : AESS-009  
 Standard Reference Date : 19-FEB-2008 11:05:22  
 Calibration Analysis Date/Time : 27-JUL-2009 11:48:04  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:00:55  
 Average Efficiency : 0.3778184  
 Average Efficiency Error : 1.0346431E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	203.3736	28-FEB-2010	2988.264	3300.395	22447.00	0.3728177	1.5929710E-02	59.20551
NP-237	204.0192	28-FEB-2010	4433.666	4904.432	23270.00	0.3801880	1.9172091E-02	76.02460
CM-244	197.2128	28-FEB-2010	5535.108	5883.550	21438.00	0.3827657	1.9316062E-02	61.20031

Instrument : CHAMBER 218  
 Detector : 79411  
 Standard ID : AESS-010  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 27-JUL-2009 11:48:10  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:01:03  
 Average Efficiency : 0.3940997  
 Average Efficiency Error : 1.0791861E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	202.0008	28-FEB-2010	2991.480	3299.092	22843.00	0.3820206	1.6319500E-02	60.57081
NP-237	202.9926	28-FEB-2010	4433.463	4904.366	24456.00	0.4015617	2.0241646E-02	78.79704
CM-244	196.2330	28-FEB-2010	5534.949	5883.207	22582.00	0.4054522	2.0451389E-02	60.53443

Instrument : CHAMBER 219  
 Detector : 79412  
 Standard ID : AESS-011  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 27-JUL-2009 11:48:16  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:01:48  
 Average Efficiency : 0.3662424  
 Average Efficiency Error : 1.0028155E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	212.8284	28-FEB-2010	2991.558	3298.478	22686.00	0.3600933	1.5384067E-02	58.88719
NP-237	214.4868	28-FEB-2010	4436.677	4902.329	24003.00	0.3730206	1.8805804E-02	79.43044
CM-244	208.4184	28-FEB-2010	5533.300	5887.374	21804.00	0.3685999	1.8598294E-02	60.23553

Instrument : CHAMBER 220  
 Detector : 79413  
 Standard ID : AESS-012  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 27-JUL-2009 11:48:23  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:02:00  
 Average Efficiency : 0.3800345  
 Average Efficiency Error : 1.0404716E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	206.2200	28-FEB-2010	2990.238	3297.635	22946.00	0.3758968	1.6057028E-02	61.95944
NP-237	205.8930	28-FEB-2010	4436.067	4906.404	23867.00	0.3863981	1.9481128E-02	76.81815
CM-244	203.1954	28-FEB-2010	5530.768	5883.799	21903.00	0.3797704	1.9161157E-02	61.74461



Instrument : CHAMBER 221  
 Detector : 79414  
 Standard ID : AESS-013  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 27-JUL-2009 11:48:29  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:02:09  
 Average Efficiency : 0.3757081  
 Average Efficiency Error : 1.0287202E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	203.6544	28-FEB-2010	2988.031	3301.906	22489.00	0.3730499	1.5939282E-02	52.97857
NP-237	210.2526	28-FEB-2010	4434.520	4906.347	23758.00	0.3766535	1.8990556E-02	73.94412
CM-244	201.9108	28-FEB-2010	5532.427	5886.301	21697.00	0.3785694	1.9102205E-02	60.49401

Instrument : CHAMBER 222  
 Detector : 79415  
 Standard ID : AESS-014  
 Standard Reference Date : 19-FEB-2008 11:05:22  
 Calibration Analysis Date/Time : 27-JUL-2009 11:48:37  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:02:19  
 Average Efficiency : 0.3486046  
 Average Efficiency Error : 9.5541952E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	214.7088	28-FEB-2010	2988.828	3299.834	21348.00	0.3358505	1.4359185E-02	53.28439
NP-237	211.7160	28-FEB-2010	4436.567	4903.132	22784.00	0.3587198	1.8092748E-02	75.86924
CM-244	207.3882	28-FEB-2010	5532.999	5885.314	21129.00	0.3587538	1.8106727E-02	62.25880

Instrument : CHAMBER 223  
 Detector : 79416  
 Standard ID : AESS-015  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 27-JUL-2009 11:48:43  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:02:29  
 Average Efficiency : 0.3842350  
 Average Efficiency Error : 1.0522764E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	204.0270	28-FEB-2010	2988.719	3302.203	22642.00	0.3749019	1.6017098E-02	52.37010
NP-237	200.6460	28-FEB-2010	4434.717	4901.802	23720.00	0.3940558	1.9868227E-02	70.08206
CM-244	195.9270	28-FEB-2010	5534.370	5883.775	21616.00	0.3886585	1.9611971E-02	55.34917

Instrument : CHAMBER 224  
 Detector : 79417  
 Standard ID : AESS-016  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 27-JUL-2009 11:48:51  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:02:37  
 Average Efficiency : 0.3844876  
 Average Efficiency Error : 1.0532029E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	204.0534	28-FEB-2010	2991.902	3302.451	22483.00	0.3722161	1.5903715E-02	55.77303
NP-237	199.3962	28-FEB-2010	4433.496	4905.621	23986.00	0.4009725	2.0215105E-02	74.29817
CM-244	198.6402	28-FEB-2010	5531.081	5884.107	21855.00	0.3876156	1.9557375E-02	62.08027

Instrument : CHAMBER 225  
 Detector : 79418  
 Standard ID : AESS-017  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 27-JUL-2009 11:48:57  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:02:46  
 Average Efficiency : 0.3784786  
 Average Efficiency Error : 1.0361850E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	210.0798	28-FEB-2010	2989.698	3301.928	23097.00	0.3714026	1.5863828E-02	56.57831
NP-237	208.5846	28-FEB-2010	4436.047	4902.115	24170.00	0.3862496	1.9471634E-02	72.01178
CM-244	205.5828	28-FEB-2010	5533.662	5882.674	22249.00	0.3812986	1.9235564E-02	61.39241

Instrument : CHAMBER 226  
 Detector : 79419  
 Standard ID : AESS-018  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 27-JUL-2009 11:49:04  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:02:55  
 Average Efficiency : 0.3808596  
 Average Efficiency Error : 1.0428368E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	202.1856	28-FEB-2010	2990.229	3299.048	22549.00	0.3767624	1.6097387E-02	54.38462
NP-237	208.8990	28-FEB-2010	4436.278	4902.399	23852.00	0.3805940	1.9188609E-02	81.14477
CM-244	198.1458	28-FEB-2010	5532.943	5886.259	21774.00	0.3871692	1.9535474E-02	57.36676

Instrument : CHAMBER 227  
 Detector : 79420  
 Standard ID : AESS-019  
 Standard Reference Date : 19-FEB-2008 11:05:22  
 Calibration Analysis Date/Time : 27-JUL-2009 11:49:10  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:03:04  
 Average Efficiency : 0.3843335  
 Average Efficiency Error : 1.0524626E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	204.6468	28-FEB-2010	2988.495	3300.898	22690.00	0.3745091	1.5999891E-02	56.91222
NP-237	202.9140	28-FEB-2010	4435.132	4906.286	23781.00	0.3906433	1.9695761E-02	72.78109
CM-244	199.3140	28-FEB-2010	5532.133	5886.196	22245.00	0.3930259	1.9827209E-02	61.27127

Instrument : CHAMBER 228  
 Detector : 79421  
 Standard ID : AESS-020  
 Standard Reference Date : 14-FEB-2008 21:55:55  
 Calibration Analysis Date/Time : 27-JUL-2009 11:49:16  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:03:13  
 Average Efficiency : 0.3819269  
 Average Efficiency Error : 1.0460673E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	205.5870	28-FEB-2010	2990.613	3298.829	22551.00	0.3705553	1.5832171E-02	51.70354
NP-237	203.4984	28-FEB-2010	4434.639	4905.792	23625.00	0.3869812	1.9512173E-02	70.48917
CM-244	197.1096	28-FEB-2010	5531.072	5884.538	22079.00	0.3946491	1.9910410E-02	54.39862

Instrument : CHAMBER 229  
 Detector : 79422  
 Standard ID : AESS-021  
 Standard Reference Date : 19-FEB-2008 15:31:52  
 Calibration Analysis Date/Time : 27-JUL-2009 11:49:22  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:03:22  
 Average Efficiency : 0.3798401  
 Average Efficiency Error : 1.0399979E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	208.3608	28-FEB-2010	2990.805	3298.464	23010.00	0.3730097	1.5933167E-02	54.32673
NP-237	210.1548	28-FEB-2010	4434.226	4906.242	23918.00	0.3793714	1.9126525E-02	69.91097
CM-244	200.7390	28-FEB-2010	5533.427	5882.943	22277.00	0.3907950	1.9714409E-02	60.50524

Instrument : CHAMBER 230  
 Detector : 79423  
 Standard ID : AESS-022  
 Standard Reference Date : 14-FEB-2008 21:55:55  
 Calibration Analysis Date/Time : 27-JUL-2009 11:49:29  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:03:31  
 Average Efficiency : 0.3762562  
 Average Efficiency Error : 1.0304146E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	209.6724	28-FEB-2010	2989.308	3297.622	22698.00	0.3656987	1.5623449E-02	50.65837
NP-237	206.8830	28-FEB-2010	4433.975	4905.433	24027.00	0.3871273	1.9516820E-02	69.68443
CM-244	203.0208	28-FEB-2010	5531.188	5884.956	21996.00	0.3817128	1.9258413E-02	56.82364

Instrument : CHAMBER 231  
 Detector : 79424  
 Standard ID : AESS-023  
 Standard Reference Date : 14-FEB-2008 21:55:55  
 Calibration Analysis Date/Time : 27-JUL-2009 11:49:35  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:03:40  
 Average Efficiency : 0.3847702  
 Average Efficiency Error : 1.0534914E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	207.4764	28-FEB-2010	2990.586	3298.189	23057.00	0.3754197	1.6035730E-02	56.58625
NP-237	207.4998	28-FEB-2010	4432.432	4903.240	24264.00	0.3897645	1.9648222E-02	77.05042
CM-244	199.8804	28-FEB-2010	5533.660	5887.186	22354.00	0.3940257	1.9876782E-02	61.75343

Instrument : CHAMBER 232  
 Detector : 79425  
 Standard ID : AESS-024  
 Standard Reference Date : 14-FEB-2008 21:55:55  
 Calibration Analysis Date/Time : 27-JUL-2009 11:49:42  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:03:48  
 Average Efficiency : 0.3748871  
 Average Efficiency Error : 1.0271599E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	203.5218	28-FEB-2010	2989.229	3299.258	21761.00	0.3612023	1.5439365E-02	56.38522
NP-237	205.6662	28-FEB-2010	4433.403	4904.597	23806.00	0.3858308	1.9452941E-02	74.06577
CM-244	198.3060	28-FEB-2010	5534.062	5886.338	21708.00	0.3856767	1.9460704E-02	58.09093

Instrument : CHAMBER 233  
 Detector : 79426  
 Standard ID : AESS-025  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 27-JUL-2009 11:49:48  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:03:57  
 Average Efficiency : 0.3793921  
 Average Efficiency Error : 1.0403312E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	195.5670	28-FEB-2010	2989.053	3300.219	21850.00	0.3774274	1.6132066E-02	56.42078
NP-237	167.9916	28-FEB-2010	4437.148	4902.933	19321.00	0.3833666	1.9365741E-02	74.45728
CM-244	157.2432	28-FEB-2010	5534.654	5884.028	16885.00	0.3782761	1.9136583E-02	61.18657

Instrument : CHAMBER 234  
 Detector : 79427  
 Standard ID : AESS-026  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 27-JUL-2009 11:49:54  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:04:08  
 Average Efficiency : 0.3700874  
 Average Efficiency Error : 1.0797138E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	199.5072	28-FEB-2010	2990.497	3297.542	21594.00	0.3656335	1.8451264E-02	61.40455
NP-237	168.0294	28-FEB-2010	4434.922	4904.935	19043.00	0.3777652	1.9085610E-02	76.29016
CM-244	160.5822	28-FEB-2010	5534.289	5887.217	16745.00	0.3673259	1.8584441E-02	59.63282

Instrument : CHAMBER 235  
 Detector : 79428  
 Standard ID : AESS-027  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 27-JUL-2009 11:50:01  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:04:17  
 Average Efficiency : 0.3932829  
 Average Efficiency Error : 1.1475780E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	193.4238	28-FEB-2010	2988.334	3300.717	21681.00	0.3786630	1.9108076E-02	53.32552
NP-237	161.6154	28-FEB-2010	4435.003	4906.236	19404.00	0.4001970	2.0215055E-02	77.72460
CM-244	148.1754	28-FEB-2010	5532.236	5886.409	16945.00	0.4028875	2.0380763E-02	59.12006

Instrument : CHAMBER 236  
 Detector : 79429  
 Standard ID : AESS-028  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 27-JUL-2009 11:50:07  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:04:27  
 Average Efficiency : 0.3837650  
 Average Efficiency Error : 1.1193846E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	199.6542	28-FEB-2010	2987.761	3298.777	22073.00	0.3734792	1.8843459E-02	56.09225
NP-237	168.1992	28-FEB-2010	4435.283	4906.214	19676.00	0.3898810	1.9691262E-02	74.38795
CM-244	156.7614	28-FEB-2010	5532.557	5887.291	17304.00	0.3888687	1.9666921E-02	61.23972

Instrument : CHAMBER 237  
 Detector : 79430  
 Standard ID : AESS-029  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 27-JUL-2009 11:50:14  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:04:36  
 Average Efficiency : 0.3796787  
 Average Efficiency Error : 1.1077547E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	201.5742	28-FEB-2010	2990.197	3297.861	21831.00	0.3658611	1.8460920E-02	57.27552
NP-237	169.7700	28-FEB-2010	4432.935	4904.354	19680.00	0.3864051	1.9515611E-02	75.85569
CM-244	154.8234	28-FEB-2010	5530.478	5884.662	17077.00	0.3885164	1.9652124E-02	63.51448

Instrument : CHAMBER 238  
 Detector : 79431  
 Standard ID : AESS-030  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 27-JUL-2009 11:50:20  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:04:46  
 Average Efficiency : 0.3810317  
 Average Efficiency Error : 1.1114767E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	198.9792	28-FEB-2010	2987.703	3299.637	22045.00	0.3742708	1.8883610E-02	56.22876
NP-237	166.3758	28-FEB-2010	4437.459	4902.787	19439.00	0.3894599	1.9672327E-02	69.82738
CM-244	157.1856	28-FEB-2010	5533.171	5886.843	16955.00	0.3799904	1.9222379E-02	58.92646

Instrument : CHAMBER 239  
 Detector : 79432  
 Standard ID : AESS-031  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 27-JUL-2009 11:50:26  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:04:55  
 Average Efficiency : 0.3927835  
 Average Efficiency Error : 1.0770131E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	193.6650	28-FEB-2010	2990.694	3302.472	22065.00	0.3848595	1.6447702E-02	55.29106
NP-237	162.9186	28-FEB-2010	4436.142	4902.540	19439.00	0.3976750	2.0087343E-02	70.90855
CM-244	153.1968	28-FEB-2010	5534.989	5884.715	17391.00	0.3998017	2.0218691E-02	58.92552

Instrument : CHAMBER 240  
 Detector : 79433  
 Standard ID : AESS-032  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 27-JUL-2009 11:50:32  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:05:04  
 Average Efficiency : 0.3772089  
 Average Efficiency Error : 1.0348574E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	195.2364	28-FEB-2010	2990.448	3302.009	21172.00	0.3663063	1.5662992E-02	53.41883
NP-237	165.9822	28-FEB-2010	4434.377	4905.282	19119.00	0.3839507	1.9397326E-02	73.43593
CM-244	153.7938	28-FEB-2010	5531.249	5885.600	16917.00	0.3873951	1.9597435E-02	58.29160

Instrument : CHAMBER 241  
 Detector : 79434  
 Standard ID : AESS-033  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 27-JUL-2009 11:50:38  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:05:13  
 Average Efficiency : 0.3940109  
 Average Efficiency Error : 1.0806140E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	192.4158	28-FEB-2010	2990.069	3301.257	21921.00	0.3848144	1.6447132E-02	59.39081
NP-237	161.7816	28-FEB-2010	4433.036	4904.033	19316.00	0.3979853	2.0104248E-02	71.72956
CM-244	147.2670	28-FEB-2010	5530.409	5885.133	16898.00	0.4041099	2.0443266E-02	59.86270

Instrument : CHAMBER 242  
 Detector : 79435  
 Standard ID : AESS-034  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 27-JUL-2009 11:50:45  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:05:21  
 Average Efficiency : 0.3872019  
 Average Efficiency Error : 1.0618003E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	200.5488	28-FEB-2010	2987.986	3300.537	22304.00	0.3756698	1.6052835E-02	60.14239
NP-237	167.2962	28-FEB-2010	4434.402	4905.006	19728.00	0.3930755	1.9852022E-02	81.49045
CM-244	154.4388	28-FEB-2010	5535.112	5883.069	17513.00	0.3993755	2.0195547E-02	60.38340

Instrument : CHAMBER 243  
 Detector : 79436  
 Standard ID : AESS-035  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 27-JUL-2009 11:50:51  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:05:30  
 Average Efficiency : 0.3689618  
 Average Efficiency Error : 1.0121634E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	198.6666	28-FEB-2010	2988.831	3301.144	21270.00	0.3616530	1.5463094E-02	51.17657
NP-237	168.2934	28-FEB-2010	4435.437	4901.520	19256.00	0.3813798	1.9266052E-02	75.58389
CM-244	158.8128	28-FEB-2010	5533.039	5887.402	16593.00	0.3679604	1.8618485E-02	58.44908

Instrument : CHAMBER 244  
 Detector : 79437  
 Standard ID : AESS-036  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 27-JUL-2009 11:50:57  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:05:39  
 Average Efficiency : 0.3687662  
 Average Efficiency Error : 1.0117218E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	201.3204	28-FEB-2010	2990.561	3301.814	21334.00	0.3579595	1.5304583E-02	62.36397
NP-237	167.4312	28-FEB-2010	4433.746	4904.768	18977.00	0.3778012	1.9088112E-02	75.63606
CM-244	156.4188	28-FEB-2010	5531.146	5885.854	16722.00	0.3765100	1.9049343E-02	61.05648



Instrument : CHAMBER 245  
 Detector : 79438  
 Standard ID : AESS-037  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 27-JUL-2009 11:51:02  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:05:48  
 Average Efficiency : 0.3877061  
 Average Efficiency Error : 1.0631136E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	197.7372	28-FEB-2010	2990.519	3298.200	22136.00	0.3781450	1.6160103E-02	62.31918
NP-237	167.1294	28-FEB-2010	4434.025	4906.060	19910.00	0.3970917	2.0053044E-02	78.86944
CM-244	154.7664	28-FEB-2010	5533.264	5882.788	17268.00	0.3929479	1.9873664E-02	61.71907

Instrument : CHAMBER 246  
 Detector : 78912  
 Standard ID : AESS-038  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 27-JUL-2009 11:51:08  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:05:57  
 Average Efficiency : 0.3708842  
 Average Efficiency Error : 1.0172031E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	200.1408	28-FEB-2010	2989.883	3302.161	21584.00	0.3642771	1.5572389E-02	64.71516
NP-237	170.0886	28-FEB-2010	4436.171	4902.069	19259.00	0.3774192	1.9065937E-02	76.67652
CM-244	157.7460	28-FEB-2010	5533.279	5887.441	16761.00	0.3742064	1.8932275E-02	58.21912

Instrument : CHAMBER 247  
 Detector : 79440  
 Standard ID : AESS-039  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 27-JUL-2009 11:51:13  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:06:06  
 Average Efficiency : 0.3957888  
 Average Efficiency Error : 1.0855773E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	192.2418	28-FEB-2010	2989.314	3301.154	21842.00	0.3837782	1.6403578E-02	54.27637
NP-237	159.1506	28-FEB-2010	4435.427	4902.237	19566.00	0.4097880	2.0697797E-02	74.12901
CM-244	151.7142	28-FEB-2010	5535.390	5885.574	17262.00	0.4007001	2.0265834E-02	60.50509

Instrument : CHAMBER 248  
 Detector : 79441  
 Standard ID : AESS-040  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 27-JUL-2009 11:51:19  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:06:15  
 Average Efficiency : 0.3937030  
 Average Efficiency Error : 1.0792862E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	194.4828	28-FEB-2010	2989.045	3301.474	22331.00	0.3878492	1.6573036E-02	60.09726
NP-237	166.8174	28-FEB-2010	4436.389	4902.813	19896.00	0.3975548	2.0076567E-02	79.69174
CM-244	155.0100	28-FEB-2010	5534.872	5884.178	17540.00	0.3984762	2.0149769E-02	58.60526

Instrument : CHAMBER 249  
 Detector : 79442  
 Standard ID : AESS-041  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 27-JUL-2009 11:51:24  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:10:21  
 Average Efficiency : 0.3675877  
 Average Efficiency Error : 1.0082438E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	203.9034	28-FEB-2010	2991.808	3298.538	21645.00	0.3585607	1.5327478E-02	53.17529
NP-237	171.2268	28-FEB-2010	4433.459	4906.270	19414.00	0.3779393	1.9090647E-02	76.86456
CM-244	159.5796	28-FEB-2010	5535.492	5886.613	16816.00	0.3711205	1.8775435E-02	56.57472

Instrument : CHAMBER 250  
 Detector : 79443  
 Standard ID : AESS-042  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 27-JUL-2009 11:51:30  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:07:02  
 Average Efficiency : 0.3960947  
 Average Efficiency Error : 1.0862177E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	188.7090	28-FEB-2010	2988.616	3300.155	21788.00	0.3900070	1.6670316E-02	52.60693
NP-237	159.6558	28-FEB-2010	4432.911	4904.182	19368.00	0.4043324	2.0424359E-02	73.85986
CM-244	150.5208	28-FEB-2010	5530.811	5885.622	16966.00	0.3969653	2.0080892E-02	59.65899

Instrument : CHAMBER 251  
 Detector : 79444  
 Standard ID : AESS-043  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 27-JUL-2009 11:51:36  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:07:11  
 Average Efficiency : 0.3862193  
 Average Efficiency Error : 1.0589682E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	197.7708	28-FEB-2010	2990.845	3297.824	22101.00	0.3774794	1.6131971E-02	54.21589
NP-237	168.7422	28-FEB-2010	4433.069	4905.749	19931.00	0.3937052	1.9881824E-02	74.21349
CM-244	156.3252	28-FEB-2010	5534.571	5885.360	17400.00	0.3919745	1.9822748E-02	57.06868

Instrument : CHAMBER 252  
 Detector : 79445  
 Standard ID : AESS-044  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 27-JUL-2009 11:51:43  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:07:24  
 Average Efficiency : 0.3698718  
 Average Efficiency Error : 1.0146284E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	194.4510	28-FEB-2010	2990.916	3302.142	21075.00	0.3660958	1.5654918E-02	61.30944
NP-237	166.6248	28-FEB-2010	4434.879	4906.631	18642.00	0.3729277	1.8845377E-02	80.38726
CM-244	155.8290	28-FEB-2010	5534.322	5884.528	16473.00	0.3722862	1.8838966E-02	60.16105

Instrument : CHAMBER 253  
 Detector : 79446  
 Standard ID : AESS-045  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 27-JUL-2009 11:51:49  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:07:35  
 Average Efficiency : 0.4175173  
 Average Efficiency Error : 1.1444525E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	186.9936	28-FEB-2010	2987.796	3301.166	22755.00	0.4110381	1.7559895E-02	55.81194
NP-237	160.8066	28-FEB-2010	4435.182	4903.720	20118.00	0.4169668	2.1054644E-02	75.83978
CM-244	145.8384	28-FEB-2010	5533.610	5884.813	17722.00	0.4279359	2.1636952E-02	56.91713

Instrument : CHAMBER 254  
 Detector : 79447  
 Standard ID : AESS-046  
 Standard Reference Date : 19-FEB-2008 19:35:48  
 Calibration Analysis Date/Time : 27-JUL-2009 11:51:54  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:07:52  
 Average Efficiency : 0.4058467  
 Average Efficiency Error : 1.1127573E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	194.7474	28-FEB-2010	2991.474	3298.982	22591.00	0.3918256	1.6740572E-02	58.61956
NP-237	164.6658	28-FEB-2010	4434.396	4906.361	20593.00	0.4168403	2.1043487E-02	82.24182
CM-244	151.3824	28-FEB-2010	5533.560	5883.122	17929.00	0.4170516	2.1083934E-02	61.14439

Instrument : CHAMBER 255  
 Detector : 79448  
 Standard ID : AESS-047  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 27-JUL-2009 11:52:00  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:08:10  
 Average Efficiency : 0.3643631  
 Average Efficiency Error : 9.9972216E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	197.4804	28-FEB-2010	2992.107	3299.169	20953.00	0.3583827	1.5326263E-02	55.06876
NP-237	168.3948	28-FEB-2010	4434.844	4902.471	18382.00	0.3638436	1.8389078E-02	74.38364
CM-244	154.6032	28-FEB-2010	5531.565	5882.529	16422.00	0.3740352	1.8928226E-02	58.14114

Instrument : CHAMBER 256  
 Detector : 79449  
 Standard ID : AESS-048  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 27-JUL-2009 11:52:06  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:08:26  
 Average Efficiency : 0.3831320  
 Average Efficiency Error : 1.0509511E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	191.8350	28-FEB-2010	2989.102	3301.350	21361.00	0.3761188	1.6080733E-02	55.66320
NP-237	161.5530	28-FEB-2010	4435.732	4901.991	18891.00	0.3897299	1.9691780E-02	78.88689
CM-244	151.1856	28-FEB-2010	5533.871	5883.102	16615.00	0.3870071	1.9581940E-02	56.91294

# LUCAS CELL COUNTERS

# General Engineering Laboratories

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

## Lucas Cell Calibration Package

	YES	NO	Comments
1) Is all calibration standard information enclosed for: 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"/>	
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: Kelli S. Demee

Date: 8/29/08

Reviewed By: Mark J. Idem

Date: 9/12/08

Effective Date: 9/24/08

# Ra-226 Cell Constants

Standard ID: 0299-G  
 Volume added (mL): 0.1  
 Standard Reference Activity (DPM/mL): 2446.35

Lucas cell #	Cell constant	Standard Source	Date/Time of count	Date/time flushed to cell	Date/time end of degas	Bkg Counts	Bkg cpm	total counts	time min	count	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
101	1.796	Average 1.751	6/11/2008 22:40	6/11/2008 14:55	6/5/2008 14:10	8	0.267	8239	30	274.63	244.63	6.03125	0.32292	3102	0.9963
101	1.729	Stdev 0.039	8/15/2008 12:50	8/15/2008 9:25	8/12/2008 16:10	8	0.267	4800	30	160.00	244.63	2.71875	0.14236	3167	0.9962
101	1.728		7/31/2008 15:35	7/31/2008 8:55	7/28/2008 10:55	8	0.267	4938	30	164.60	244.63	2.91667	0.27778	3152	0.9963
102	1.877	Average 1.847	6/11/2008 23:15	6/11/2008 15:20	6/5/2008 14:10	8	0.267	7998	30	256.60	244.63	6.04861	0.32986	3102	0.9963
102	1.832	Stdev 0.026	8/4/2008 16:35	8/4/2008 9:45	8/1/2008 13:30	8	0.267	4570	30	152.33	244.63	2.84375	0.28472	3156	0.9963
102	1.832		7/31/2008 16:10	7/31/2008 9:20	7/28/2008 10:55	8	0.267	4680	30	156.00	244.63	2.93403	0.28472	3152	0.9963
103	1.864	Average 1.752	6/11/2008 13:40	6/11/2008 9:40	6/5/2008 14:10	8	0.267	8620	30	287.33	244.63	5.81250	0.16667	3102	0.9963
103	1.867	Stdev 0.098	7/31/2008 16:40	7/31/2008 9:50	7/28/2008 10:55	7	0.233	4862	30	162.07	244.63	2.95486	0.28472	3152	0.9963
103	1.704		8/4/2008 17:10	8/4/2008 10:15	8/1/2008 13:30	7	0.233	4796	30	159.87	244.63	2.86458	0.28819	3156	0.9963
104	1.937	Average 1.973	6/11/2008 14:10	6/11/2008 10:00	6/5/2008 14:10	6	0.200	8955	30	298.50	244.63	5.82639	0.17361	3102	0.9963
104	1.917	Stdev 0.080	6/24/2008 17:20	6/24/2008 14:10	6/20/2008 9:50	8	0.267	7275	30	242.50	244.63	4.18056	0.13194	3115	0.9963
104	2.064		7/31/2008 17:20	7/31/2008 10:15	7/28/2008 10:55	8	0.267	5964	30	198.80	244.63	2.97222	0.29514	3152	0.9963
105	1.916	Average 1.749	8/15/2008 13:55	8/15/2008 9:55	8/12/2008 16:10	8	0.267	5327	30	177.57	244.63	2.73958	0.16667	3167	0.9962
105	1.700	Stdev 0.149	7/31/2008 17:55	7/31/2008 10:45	7/28/2008 10:55	4	0.133	4933	30	164.43	244.63	2.99306	0.29861	3152	0.9963
105	1.831		8/4/2008 18:35	8/4/2008 11:05	8/1/2008 13:30	1	0.033	4805	30	153.50	244.63	2.89931	0.31250	3156	0.9963
106	1.594	Average 1.486	8/15/2008 14:30	8/15/2008 10:15	8/12/2008 16:10	8	0.267	4441	30	148.03	244.63	2.75347	0.17708	3167	0.9962
106	1.441	Stdev 0.094	7/31/2008 18:25	7/31/2008 11:15	7/28/2008 10:55	8	0.267	4208	30	140.27	244.63	3.01389	0.29861	3152	0.9963
106	1.422		8/19/2008 8:00	8/18/2008 16:00	8/15/2008 9:25	8	0.267	4132	30	137.73	244.63	3.27431	0.68667	3170	0.9962
107	1.779	Average 1.773	6/11/2008 15:50	6/11/2008 11:10	6/5/2008 14:10	8	0.267	8232	30	274.40	244.63	5.87500	0.19444	3102	0.9963
107	1.751	Stdev 0.020	7/31/2008 19:05	7/31/2008 11:40	7/28/2008 10:55	7	0.233	5121	30	170.70	244.63	3.03125	0.30903	3152	0.9963
107	1.790		8/4/2008 19:40	8/4/2008 12:00	8/1/2008 13:30	8	0.267	5105	30	170.17	244.63	2.93750	0.31944	3156	0.9963
108	1.755	Average 1.840	6/11/2008 17:00	6/11/2008 11:30	6/5/2008 14:10	7	0.233	8081	30	268.37	244.63	5.88889	0.22917	3102	0.9963
108	1.937	Stdev 0.092	6/25/2008 20:00	6/25/2008 15:40	6/20/2008 9:50	8	0.267	8413	30	280.43	244.63	5.24306	0.18056	3116	0.9963
108	1.827		8/15/2008 15:09	8/15/2008 10:15	8/12/2008 16:10	8	0.267	5071	30	169.03	244.63	2.75347	0.19792	3167	0.9962
109	1.846	Average 1.512	6/11/2008 17:35	6/11/2008 11:45	6/5/2008 14:10	8	0.267	7570	30	252.33	244.63	5.89931	0.24306	3102	0.9963
109	1.441	Stdev 0.117	8/1/2008 8:55	7/31/2008 13:05	7/28/2008 10:55	6	0.200	3694	30	129.80	244.63	3.09028	0.82639	3152	0.9963
109	1.448		8/4/2008 20:40	8/4/2008 13:40	8/1/2008 13:30	8	0.267	4226	30	140.87	244.63	3.00694	0.29167	3156	0.9963
110	1.864	Average 1.544	6/24/2008 21:15	6/24/2008 15:05	6/20/2008 9:50	8	0.267	6214	30	207.13	244.63	4.21875	0.26684	3115	0.9963
110	1.566	Stdev 0.133	8/15/2008 15:35	8/15/2008 10:50	8/12/2008 16:10	8	0.267	4377	30	145.90	244.63	2.77778	0.19792	3167	0.9962
110	1.401		8/4/2008 21:10	8/4/2008 14:05	8/1/2008 13:30	8	0.267	4103	30	136.77	244.63	3.02431	0.29514	3156	0.9963
111	1.832	Average 1.575	6/24/2008 22:30	6/24/2008 15:30	6/20/2008 9:50	7	0.233	6071	30	202.37	244.63	4.23611	0.29167	3115	0.9963
111	1.517	Stdev 0.057	8/1/2008 10:30	7/31/2008 14:00	7/28/2008 10:55	8	0.267	4120	30	137.33	244.63	3.12847	0.65417	3152	0.9963
111	1.576		8/4/2008 21:35	8/4/2008 14:30	8/1/2008 13:30	7	0.233	4636	30	154.53	244.63	3.04167	0.29514	3156	0.9963
112	1.797	Average 1.648	6/11/2008 22:10	6/11/2008 14:30	6/5/2008 14:10	8	0.267	8239	30	274.63	244.63	6.01389	0.31944	3102	0.9963
112	1.588	Stdev 0.130	8/1/2008 11:00	7/31/2008 14:00	7/28/2008 10:55	8	0.267	4294	30	143.13	244.63	3.12847	0.87500	3152	0.9963
112	1.559		8/4/2008 22:00	8/4/2008 14:50	8/1/2008 13:30	8	0.267	4599	30	153.30	244.63	3.05556	0.29861	3156	0.9963

10/8/2010

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 19	500	<del>6/13/08 1410</del>						
Cal 13	500	<del>6/15/08 1410</del>						
Cal 10	500	<del>6/15/08 1410</del>						
Cal 14	500	<del>6/15/08 1410</del>						
Cal 24	500	<del>6/15/08 1410</del>						
Cal 21	500	6/12/08 0950	6/24/08 1410	6/19/08 1720	104	1	8	7275
<del>Cal 20</del>	500	<del>6/12/08 0950</del>	<del>6/12/08 1430</del>	<del>6/24/08 1820</del>	<del>107</del>	<del>1</del>	<del>8</del>	<del>18</del>
<del>Cal 25</del>	500	<del>6/12/08 0950</del>	<del>6/12/08 1450</del>	<del>6/24/08 1921</del>	<del>108</del>	<del>1</del>	<del>8</del>	<del>7547</del>
Cal 36	500	6/12/08 0950	6/24/08 1505	6/24/08 2115	110	1	8	6214
Cal 37	500	6/12/08 0950	6/12/08 1530	6/24/08 2230	111	1	7	6071
<del>Cal 17</del>	500	<del>6/12/08 0950</del>	<del>6/12/08 1545</del>	<del>6/24/08 2305</del>	<del>112</del>	<del>1</del>	<del>8</del>	<del>5592</del>
<del>Cal 3</del>	500	<del>6/12/08 0950</del>	<del>6/12/08 1405</del>	<del>6/25/08 1708</del>	<del>109</del>	<del>1</del>	<del>8</del>	<del>8275</del>
<del>Cal 32</del>	500	<del>6/12/08 0950</del>	<del>6/12/08 1420</del>	<del>6/25/08 1740</del>	<del>101</del>	<del>1</del>	<del>8</del>	<del>3362</del>
<del>Cal 41</del>	500	<del>6/12/08 0950</del>	<del>6/12/08 1445</del>	<del>6/25/08 1820</del>	<del>103</del>	<del>1</del>	<del>8</del>	<del>8905</del>
<del>Cal 39</del>	500	<del>6/12/08 0950</del>	<del>6/12/08 1510</del>	<del>6/25/08 1851</del>	<del>105</del>	<del>1</del>	<del>8</del>	<del>9300</del>
<del>Cal 43</del>	500	<del>6/12/08 0950</del>	<del>6/12/08 1525</del>	<del>6/25/08 1930</del>	<del>109</del>	<del>1</del>	<del>8</del>	<del>8121</del>
<del>Cal 47</del>	500	<del>6/12/08 0950</del>	<del>6/12/08 1540</del>	<del>6/25/08 2000</del>	<del>100</del>	<del>1</del>	<del>8</del>	<del>8413</del>



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
Ca147	500	6/5/08 1410	6/11/08 0940	6/11/08 1340	103	1	8	8220
Ca13	500	6/5/08 1410	6/11/08 1000	6/11/08 1410	104	1	6	8955
<del>Ca127</del>	<del>500</del>	<del>6/5/08 1410</del>	<del>6/11/08 1015</del>	<del>6/11/08 1440</del>	<del>105</del>	<del>1</del>	<del>4</del>	<del>9424</del>
<del>Ca140</del>	<del>500</del>	<del>6/5/08 1410</del>	<del>6/11/08 1045</del>	<del>6/11/08 1510</del>	<del>106</del>	<del>1</del>	<del>8</del>	<del>3534</del>
Ca125	500	6/5/08 1410	6/11/08 1110	6/11/08 1550	107	1	8	8232
Ca136	500	6/5/08 1410	6/11/08 1130	6/11/08 1700	108	1	7	8081
Ca121	500	6/5/08 1410	6/11/08 1145	6/11/08 1735	109	1	8	7570
<del>Ca132</del>	<del>500</del>	<del>6/5/08 1410</del>	<del>6/11/08 1350</del>	<del>6/11/08 2040</del>	<del>110</del>	<del>1</del>	<del>8</del>	<del>4366</del>
<del>Ca134</del>	<del>500</del>	<del>6/5/08 1410</del>	<del>6/11/08 1415</del>	<del>6/11/08 2115</del>	<del>111</del>	<del>1</del>	<del>6</del>	<del>6792</del>
Ca143	500	6/5/08 1410	6/11/08 1430	6/11/08 2210	110	1	8	5867
Ca117	500	6/5/08 1410	6/11/08 1455	6/11/08 2240	101	1	8	8239
Ca141	500	6/5/08 1410	6/11/08 1520	6/11/08 2315	102	1	8	7690
Ca111	500	6/5/08 1410						
Ca130	500	6/5/08 1410						
Ca17	500	6/5/08 1410						
Ca19	500	6/5/08 1410						
Ca16	500	6/5/08 1410						
Ca18	500	6/5/08 1410						
Ca135	500	6/5/08 1410						

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8/29/08

Ra-226 Verification Sheet

rig 1

Sample ID	Volume (mL)	End Degas Date/Time	End De-em Date/Time	Start Count Date/Time	Cell #	Det #	Background CPM	Total Counts
Cal 14	500	7/28/08 1055	7/31/08 0855	7/31/08 1535	101	1	8	4938
Cal 144	500	7/28/08 1055	7/31/08 0920	7/31/08 1610	102	1	8	4680
Cal 140	500	7/28/08 1055	7/31/08 0950	7/31/08 1640	103	1	7	4862
Cal 119	500	7/28/08 1055	7/31/08 1015	7/31/08 1720	104	1	8	5964
Cal 130	500	7/28/08 1055	7/31/08 1045	7/31/08 1755	105	1	4	4933
Cal 146	500	7/28/08 1055	7/31/08 1115	7/31/08 1825	106	1	8	4209
Cal 113	500	7/28/08 1055	7/31/08 1140	7/31/08 1905	107	1	7	5721
<del>Cal 113</del>	<del>500</del>	<del>7/28/08 1055</del>	<del>7/31/08 1205</del>	<del>8/1/08 0815</del>	<del>108</del>	<del>1</del>	<del>8</del>	<del>3759</del>
Cal 142	500	7/28/08 1055	7/31/08 1305	8/1/08 0855	109	1	6	3894
<del>Cal 113</del>	<del>500</del>	<del>7/28/08 1055</del>	<del>7/31/08 1330</del>	<del>8/1/08 0930</del>	<del>110</del>	<del>1</del>	<del>6</del>	<del>3185</del>
Cal 143	500	7/28/08 1055	7/31/08 1400	8/1/08 1030	111	1	8	4120
Cal 137	500	7/28/08 1055	7/31/08 1415	8/1/08 1100	112	1	8	4294

100  
8/2/08

Ra-226 Verification Sheet

Run 1

VP  
8/29/08

Sample ID	Volume (mL)	End Degas Date/Time	End De-em Date/Time	Start Count Date/Time	Cell #	Det #	Background CPM	Total Counts
<del>41</del>	500	<del>8/11/08 1330</del>	<del>8/4/08 0615</del>	<del>8/4/08 1550</del>	101	1	8	3638
44	500	8/11/08 1330	8/4/08 0645	8.4.08 1635	102	1	8	4570
30	500	8/11/08 1330	8/4/08 1015	8.4.08 1710	103	1	7	4796
<del>19</del>	500	<del>8/11/08 1330</del>	<del>8/4/08 1035</del>	<del>8.4.08 1745</del>	104	1	6	4733
35	500	8/11/08 1330	8/4/08 1105	8.4.08 1835	105	1	1	4605
<del>46</del>	500	<del>8/11/08 1330</del>	<del>8/4/08 1130</del>	<del>8.4.08 1910</del>	106	1	6	3725
13	500	8/11/08 1330	8/4/08 1200	8.4.08 1940	107	1	8	5105
<del>25</del>	500	<del>8/11/08 1330</del>	<del>8/4/08 1310</del>	<del>8.4.08 2010</del>	108	1	8	4575
42	500	8/11/08 1330	8/4/08 1340	8.4.08 2040	109	1	8	4226
15	500	8/11/08 1330	8/4/08 1405	8.4.08 2110	110	1	8	4103
43	500	8/11/08 1330	8/4/08 1430	8.4.08 2135	111	1	7	4636
37	500	8/11/08 1330	8/4/08 1450	8.4.08 2200	112	1	8	4599

VP 8/29/08

Ra-226 Verification Sheet

Fix 1

Sample ID	Volume (mL)	End Degas Date/Time	End De-em Date/Time	Start Count Date/Time	Cell #	Det #	Background CPM	Total Counts
		<del>8/11/08 1305</del>						
Cal 15		8/12/08 1610	8/15/08 0925	8/15/08 1250	101	1	8	4900
Cal 37		8/12/08 1610	8/15/08 0955	8/15/08 1355	105	1	8	5327
Cal 43		8/12/08 1610	8/15/08 1015	8/15/08 1430	106	1	8	4441
Cal 44		8/12/08 1610	8/15/08 1030	8/15/08 1510	109	1	8	5071
Cal 13		8/12/08 1610	8/15/08 1050	8/15/08 1535	110	1	8	4377
<del>Cal 15</del>	<del>500</del>	<del>8/15/08 0925</del>	<del>8/18/08 1000</del>	<del>8-18-08 1700</del>	<del>104</del>	<del>1</del>	<del>4132</del>	<del>462</del>
CAL-15	500	8/15/08 0925	8/18/08 1600	8/19/08 0800	106	1	8	4132

8/15/08

8/15/08

# Verification for Ra-226 Standard 0299-G

4/2/2008	Isotope	Detector CPM	BKG CPM	NET CPM	Detector Eff	Standard Mass. Used (G)	Source DPM/G
D. Roy	0299-G N1	2536.9600	52.4000	2484.5600	1.917186	0.5057	2562.667649
	0299-G N2	2520.2500	52.4000	2467.8500	1.917186	0.5056	2545.935781
	0299-G N3	2532.5000	52.4000	2480.1000	1.917186	0.5042	2565.677715
						Average =	2558.093715

Mean Value (Counting) = 2558.093715  
 Stdev = 10.63610098

Certificate Value = 2437.6 dpm/mL  
 Lower Limit = 2536.821513 dpm/mL  
 Upper Limit = 2579.365917 dpm/mL  
 Rule 1 Pass/Fail = **Fail** \*exception taken due to full recovery of standard  
 Two sigma = 21.27220197 dpm/mL  
 10 % of Mean = 255.8093715 dpm/mL  
 Rule 2 (Pass/Fail) = **Pass**

### Verification Rules

- Rule 1 = The certificate value (NOT including any uncertainty) shall lie within the 95% confidence interval determined from the mean and two sigma standard deviation of the three measurements
- Rule 2 = The two sigma value used for the 95% confidence interval shall not exceed 10% of the mean value of the three verification measurements.
- Rule 3 = The determined mean value shall be within 10% of the certificate value.

The analyst prepared three standard verification sources for Ra-226 source 0299-G by transferring portions of the standard into tared glass liquid scintillation vials. One mL of DI Water and ten mLs of Ready Gel liquid scintillation cocktail was added to each vial and the vials were shaken to mix. A Blank vial was prepared in a similar fashion using 1 mL of DI water and 10 mL of Ready Gel cocktail. The standard verification vials and Background source were dark adapted for two hours and counted on LSC Gold for Radium source standard verification. The Ra-226 efficiency calibration which was used for verification calculations was performed on 4/02/08 using source 0024-A (Ra-226). Calibration data is recorded in this logbook under Ra-226 0024. Each verification source calculation was performed as follows:

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

10/8/12/08  
 Nancy E. Jackson 4/9/08  
 David Roy 4/10/08



# Standard Traceability Log Rad

Source Material Info		A Solution Material Info	
Parent Code:	0299	Isotope:	Radium-226
Prepared By:	Angela Johnson	Prepared By:	Angela Johnson
Carrier Conc:	0.5 M HCL	Prep Date:	09/15/2000
Reference Date:	12/15/1999	Verification Date:	01/23/2008
Ampoule Mass (g):	5.0368 g	Expiration Date:	01/23/2009
Uncertainty:	+/- 2.5 %	Primary Code:	0299-A
LogBook No:	RC S 027 128	Dilution(mL):	100 mL
		Mass of Parent(g):	4.6634 g
		Density(g/mL):	1.0012
		Balance ID:	

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

$(\text{Mass of parent(g)}) * (\text{Parm Activity (kBq/g)}) * (\text{conversion dpm to kBq}) / (\text{Dilution Vol}) = \text{Parent Activity (dpm/mL)}$
$(\text{Mass of parent(g)}) * (\text{Parm Activity (kBq/g)}) * (\text{conversion dpm to kBq}) / \text{Density (g/mL)} / (\text{Dilution Vol}) = \text{Parent Activity (dpm/g)}$
$(4.6634 \text{ g}) * (43.75 \text{ kBq/g}) * (60000 \text{ dpm/kBq}) / (100 \text{ mL}) = 122414.2500 \text{ dpm/mL}$
$(4.6634 \text{ g}) * (43.75 \text{ kBq/g}) * (60000 \text{ dpm/kBq}) / (1.0012 \text{ g/mL}) / (100 \text{ mL}) = 122273.3377 \text{ dpm/g}$

### Secondary Standards

Prep Date	Preparer	Mass Primary	Dilution (mL)	Code	Conc dpm/mL	Verification Date	Expiration Date
08/26/2003	Angela Johnson	1.9909	100	0299-E	2434.34 dpm/mL	11/04/2004	11/04/2005
08/26/2003	Angela Johnson	1.9872	100	0299-F	2429.82 dpm/mL	08/26/2004	08/26/2005
04/05/2005	Amanda Fehr	5.0018	250	0299-G	2446.3471 dpm/mL	04/02/2008	04/02/2009

GEL Laboratories LLC  
Version 1.0 9/18/2000

*140  
8/28/08*

## General Engineering Laboratories Verification Source Preparation Sheet

Applicable SOP Number GL-KAD-A-008 Isotope Ka-226  
 Date Standards Prepared 4/5/05 Cocktail Type Used N/A  
 Standard ID 0299-6 Matrix of Vial/Planchett N/A  
 Amount Used (g or ml) 0.1 N/A  
 Standard Activity (DPM/g or ml) 2446.347 Type of Scintillation Vial N/A  
 Reference Date 12/15/99 Pipette ID Used 1429303  
 Expiration Date 4/12/09 Balance ID Used 36040216  
 Residue/Carrier Agent 0.5M 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				

No. of Standards

Prepared By: Kyle B. Dancer Date: 8/23/05  
 Reviewed By: John G. Adams Date: 8/28/08

## General Engineering Laboratories Verification Source Preparation Sheet

Applicable SOP Number GL-KAD-A-008 Isotope La-226  
 Date Standards Prepared 4/15/05 Cocktail Type Used N/A  
 Standard ID 02991-6 Matrix of Vial/Planchett N/A  
 Amount Used (g or ml) 0.1 N/A  
 Standard Activity (DPM/g or ml) 2446.347 Type of Scintillation Vial N/A  
 Reference Date 12/15/99 Pipette ID Used 1429303  
 Expiration Date 4/12/09 Balance ID Used 36040216  
 Residue/Carrier Agent 0.5M 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				
25	CAL 25				
26	CAL 26				
27	CAL 27				
28	CAL 28				
29	CAL 29				
30	CAL 30				

8/22/08  
 8/22/08

Prepared By: Kelli Powell Date: 8/22/08  
 Reviewed By: John J. Identi Date: 8/22/08

Rev 1 RLM.9/10/97



## General Engineering Laboratories Verification Source Preparation Sheet

Applicable SOP Number GL-KAP-A-008 Isotope Ka-226  
 Date Standards Prepared 4/15/05 Cocktail Type Used N/A  
 Standard ID 0299-6 Matrix of Vial/Planchett N/A  
 Amount Used (g or ml) 0.1 Type of Scintillation Vial N/A  
 Standard Activity (DPM/g or ml) 2446.347 Pipette ID Used 1429303  
 Reference Date 12/15/99 Balance ID Used 36040216  
 Expiration Date 4/12/09 Quenching Agent N/A  
 Residue/Carrier Agent 0.5M HCl

	Standard Number	Quenching Vol (uL)/ Residue Volume (mL)	Initial Wt. (g)	Final Wt. (g)	Net Wt. (mg)
31	CAL 31				
32	CAL 32				
33	CAL 33				
34	CAL 34				
35	CAL 35				
36	CAL 36				
37	CAL 37				
38	CAL 38				
39	CAL 39				
40	CAL 40				
41	CAL 41				
42	CAL 42				
43	CAL 43				
44	CAL 44				
45	CAL 45				

N/A  
 8/25/08

Prepared By: Kelli Brownlee Date: 8/25/08  
 Reviewed By: James G. Jones Date: 8/29/08

Rev 1 RLM 9/10/97

## General Engineering Laboratories Verification Source Preparation Sheet

Applicable SOP Number GL-KAD-A-003 Isotope Po-226  
 Date Standards Prepared 4/15/05 Cocktail Type Used N/A  
 Standard ID 0299-G Matrix of Vial/Planchett N/A  
 Amount Used (g or ml) 0.1 Type of Scintillation Vial N/A  
 Standard Activity (DPM/g or mL) 2446.347 Pipette ID Used 1429303  
 Reference Date 12/15/99 Balance ID Used 36040216  
 Expiration Date 4/12/09 Quenching Agent N/A  
 Residue/Carrier Agent 0.5M HCl

	Standard Number	Quenching Vol (uL) Residue Volume (mL)	Initial Wt. (g)	Final Wt. (g)	Net Wt. (g)
46	CAL 46				<del>1.0000</del>
47	CAL 47				<del>1.0000</del>
48	CAL 48				<del>1.0000</del>

Prepared By: Vello's Dione Date: 8/1/05  
 Reviewed By: John J. Adams Date: 3/28/08

0299



Nycomed Amersham plc  
Radiation & Radioactivity  
Calibration Laboratory  
Amersham Laboratories  
White Lion Road  
Amersham  
Buckinghamshire  
HP7 9LL

ISSUED  
FOR:

AEA Technology plc  
Isotrak  
Amersham Laboratories  
White Lion Road  
Amersham  
Buckinghamshire  
HP7 9LL

ion Principal radionuclide: Radium-226

Product code: RAY44  
Solution number: R4/131/89

ment Reference time: 1200 GMT on 15 December 1999

data Nuclear data quoted on this certificate are taken from the Joint European File, Version 2.2.

ion of The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor  $k = 2.00$ , which  
inties for a  $t$ -distribution with  $\nu_{\text{eff}} = \infty$  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

Date of  
issue

17<sup>th</sup> December 1999

1008/8/1999

588

Nycomed  
Amersham

# Ra-226 WATER

Batch : LCSVER  
 Date : 8/20/2008  
 Analyst : KSD1

Procedure Code : LUC26RAL  
 Parmname : Radium-226

MDA : 1 pCi/L  
 Instrument Used : LUCAS CELL DETECTOR

Bkg Count Time: 30 min

Sample ID	Sample Vol L	Count Time min	Gross counts cts	Cell # num	Cell Const. num	BKG cpm	Ra-226 MDA pCi/L	Ra-226 RESULT pCi/L	Ra-226 ERROR pCi/L	COUNT DATE/TIME
Ver 1	0.500	30	738	101	1.751	0.267	0.4737	21.7600	1.5957	8/26/2008 16:10
Ver 2	0.500	30	770	102	1.647	0.267	0.5038	24.1604	1.7334	8/26/2008 17:05
Ver 3	0.500	30	716	103	1.752	0.267	0.4735	21.0967	1.5715	8/26/2008 17:45
Ver 4	0.500	30	820	104	1.973	0.200	0.3728	21.4823	1.4866	8/26/2008 18:15
Ver 5	0.500	30	656	106	1.486	0.267	0.5576	22.7382	1.7722	8/26/2008 19:00
Ver 6	0.500	30	860	107	1.773	0.267	0.4674	25.0613	1.6986	8/26/2008 19:35
Ver 7	0.500	30	867	108	1.940	0.267	0.4505	24.3515	1.6436	8/26/2008 20:10
Ver 8	0.500	30	756	110	1.544	0.267	0.5372	25.2853	1.8313	8/26/2008 20:40
Ver 9	0.500	30	827	111	1.575	0.133	0.3989	27.2897	1.8735	8/26/2008 21:10
VER 10	0.500	30	851	112	1.648	0.267	0.5042	26.7480	1.8227	8/26/2008 21:45

WJ  
8/25/08

Sample ID	Sample Dup	Det #	Run Date	Sample Type	Standard ID	NC	NC units	Recovery/RPD
Ver 1		1	8/26/2008 13:00	LCS	0638-F	24.10	pCi/L	90%
Ver 2		1	8/26/2008 13:30	LCS	0638-F	24.10	pCi/L	100%
Ver 3		1	8/26/2008 13:55	LCS	0638-F	24.10	pCi/L	88%
Ver 4		1	8/26/2008 14:25	LCS	0638-F	24.10	pCi/L	89%
Ver 5		1	8/26/2008 14:45	LCS	0638-F	24.10	pCi/L	94%
Ver 6		1	8/26/2008 15:05	LCS	0638-F	24.10	pCi/L	104%
Ver 7		1	8/26/2008 15:25	LCS	0638-F	24.10	pCi/L	101%
Ver 8		1	8/26/2008 15:40	LCS	0638-F	24.10	pCi/L	105%
Ver 9		1	8/26/2008 15:55	LCS	0638-F	24.10	pCi/L	113%
Ver 10		1	8/26/2008 16:10	LCS	0638-F	24.10	pCi/L	111%

DEGASSING DATE/TIME	DE-EMAN. DATE/TIME	DEGASS-DE-EM	dE-EM-COUNT	constant	constant	constant	Net CPM	Ingrowth constant
8/21/2008 15:30	8/26/2008 13:00	117.50	3.17	0.5882	0.9764	1.0019	24.3333	0.5754
8/21/2008 15:30	8/26/2008 13:30	118.00	3.58	0.5897	0.9733	1.0019	25.4000	0.5751
8/21/2008 15:30	8/26/2008 13:55	118.42	3.83	0.5910	0.9715	1.0019	23.6000	0.5752
8/21/2008 15:30	8/26/2008 14:25	118.92	3.83	0.5925	0.9715	1.0019	27.1333	0.5767
8/21/2008 15:30	8/26/2008 14:45	119.25	4.25	0.5936	0.9684	1.0019	21.6000	0.5759
8/21/2008 15:30	8/26/2008 15:05	119.58	4.50	0.5946	0.9666	1.0019	28.4000	0.5758
8/21/2008 15:30	8/26/2008 15:25	119.92	4.75	0.5956	0.9648	1.0019	28.6333	0.5757
8/21/2008 15:30	8/26/2008 15:40	120.17	5.00	0.5964	0.9630	1.0019	24.9333	0.5754
8/21/2008 15:30	8/26/2008 15:55	120.42	5.25	0.5971	0.9611	1.0019	27.4333	0.5750
8/21/2008 15:30	8/26/2008 16:10	120.67	5.58	0.5979	0.9587	1.0019	28.1000	0.5743

*Handwritten signature*

Ra-226 Verification Sheet

Via 1

Sample ID	Volume (mL)	End Degas Date/Time	End De-em Date/Time	Start Count Date/Time	Cell #	Det #	Background CPM	Total Counts
VEN 1	500	8/21/08 1530	8/21/08 1300	8/21/08 1610	101	1	8	138
VEN 2	500	8/21/08 1530	8/21/08 1330	8/21/08 1765	102	1	8	770
VEN 3	500	8/21/08 1530	8/21/08 1355	8/22/08 1748	103	1	8	716
VEN 4	500	8/21/08 1530	8/21/08 1425	8/22/08 1815	104	1	8	820
VEN 5	500	8/21/08 1530	8/21/08 1445	8/22/08 1900	106	1	8	656
VEN 6	500	8/21/08 1530	8/21/08 1505	8/22/08 1935	107	1	8	800
VEN 7	500	8/21/08 1530	8/21/08 1525	8/22/08 2010	108	1	8	867
VEN 8	500	8/21/08 1530	8/21/08 1540	8/22/08 2040	110	1	8	756
VEN 9	500	8/21/08 1530	8/21/08 1555	8/22/08 2110	111	1	4	827
VEN 10	500	8/21/08 1530	8/21/08 1610	8/22/08 2145	112	1	8	851
VEN 11	500	8/21/08 1530						
VEN 12	500	8/21/08 1530						

VP 8/22/08

# Verification for Ra-226 Standard 0638-F

D Roy  
12/27/2007

Standard	Detector Eff Mass. Used (mL)	Source DPM/mL
	1.0000	261.3311626
	1.0000	257.6330801
	1.0000	256.8977889
	Average =	258.6206772

Isotope	Detector CPM	BKG CPM	NET CPM	Detector Eff Mass. Used (mL)	Source DPM/mL
0638-F N1	1239.9000	31.5000	1208.4000	4.624018	261.3311626
0638-F N2	1222.8000	31.5000	1191.3000	4.624018	257.6330801
0638-F N3	1219.4000	31.5000	1187.9000	4.624018	256.8977889
Mean Value (Counting) =	258.6206772	96.8384646	Pass		
Stdev =	2.375965421	0.00918707	Rule 3 (Pass/Fail)		

Certificate Value = 267.1  
 Lower Limit = 253.8687464  
 Upper Limit = 263.3726081  
 Rule 1 Pass/Fail **Fail**  
 Two sigma = 4.751930843  
 10 % of Mean = 25.86206772  
 Rule 2 (Pass/Fail) **Pass**

\*exception taken due to full recovery of standard

## Verification Rules

- Rule 1 = The certificate value (NOT including any uncertainty) shall lie within the 95% confidence interval determined from the mean and two sigma standard deviation of the three measurements
- Rule 2 = The two sigma value used for the 95% confidence interval shall not exceed 10% of the mean value of the three verification measurements.
- Rule 3 = The determined mean value shall be within 5% of the certificate value.

The analyst prepared three standard verification sources for Ra-226 source 0638-F by transferring portions of the standard into tared glass liquid scintillation vials. One mL of DI Water and 10 mL Ready Gel liquid scintillation cocktail was added to each vial and the vials were shaken to mix. A Blank vial was prepared in a similar fashion using 1 mL of DI water and 10 mL of Ready Gel cocktail. The standard verification vials and Background source were dark adapted for two hours and counted on LSC YELLOW using source standard verification. The Ra-226 efficiency calibration which was used for verification calculations was performed on 12/27/07 using source 0024-A (Ra-226). Calibration data is recorded in this logbook under Ra-226 (0024-A). Each verification source calculation was performed as follows:

$$\text{Source dpm/g} = (A - B)/(C)(D)$$

where:

- A = Ver. source cpm,
- B = BKG cpm,
- C = System efficiency, (cpm/dpm), and
- D = mass used for standard verification.

Reference RAD SOP M-001

  
 Amanda L. Fehr 1/4/07  
 1/4/07

**General Engineering Laboratories  
Verification Source Preparation Sheet**

Applicable SOP Number GL-RAD-A-008

Isotope Ra-226

Date Standards Prepared 12/18/07

Cocktail Type Used N/A

Standard ID 0638-F

Matrix of Vial/Planchett N/A

Amount Used (g or ml) 0.1

N/A

Standard Activity (DPM/g or mL) 267.519

Type of Scintillation Vial N/A

Reference Date 1/23/04

Pipette ID Used 1429303

Expiration Date 12/20/08

Balance ID Used 3604046

Residue/Carrier Agent 0.1M HCl

Quenching Agent 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				
10	ver 10				
11	ver 11				
12	ver 12				
13	ver 13				
14	ver 14				
15	ver 15				

Prepared By: Kelli Percece Date 8/29/08

Reviewed By: Mary G. Jones Date 8/29/08

Rev 1 RLM 9/10/97



**General Engineering Laboratories  
Verification Source Preparation Sheet**

Applicable SOP Number GL-MAP-A-008

Isotope Ka-226

Date Standards Prepared 12/18/07

Cocktail Type Used N/A

Standard ID 0638-P

Matrix of Vial/Planchett N/A

Amount Used (g or ml) 12.1

N/A

N/A

Standard Activity (DPM/g or mL) 267-519

Type of Scintillation Vial N/A

Reference Date 1/23/04

Pipette ID Used 1429303

Expiration Date 12/20/08

Balance ID Used 3604046

Residue/Carrier Agent 0.1u HCl

Quenching Agent N/A

	Standard Number	Quenching Vol (uL)/ Residue Volume(mL)	Initial Wt. (g)	Final Wt. (g)	Net Wt. (mg)
16	VER 16				
17	VER 17				
18	VER 18				
19	VER 19				
20	VER 20				
21	VER 21				
22	VER 22				
23	VER 23				
24	VER 24				

None 2/28/08

Prepared By: Kelly Daniel Date 8/29/08

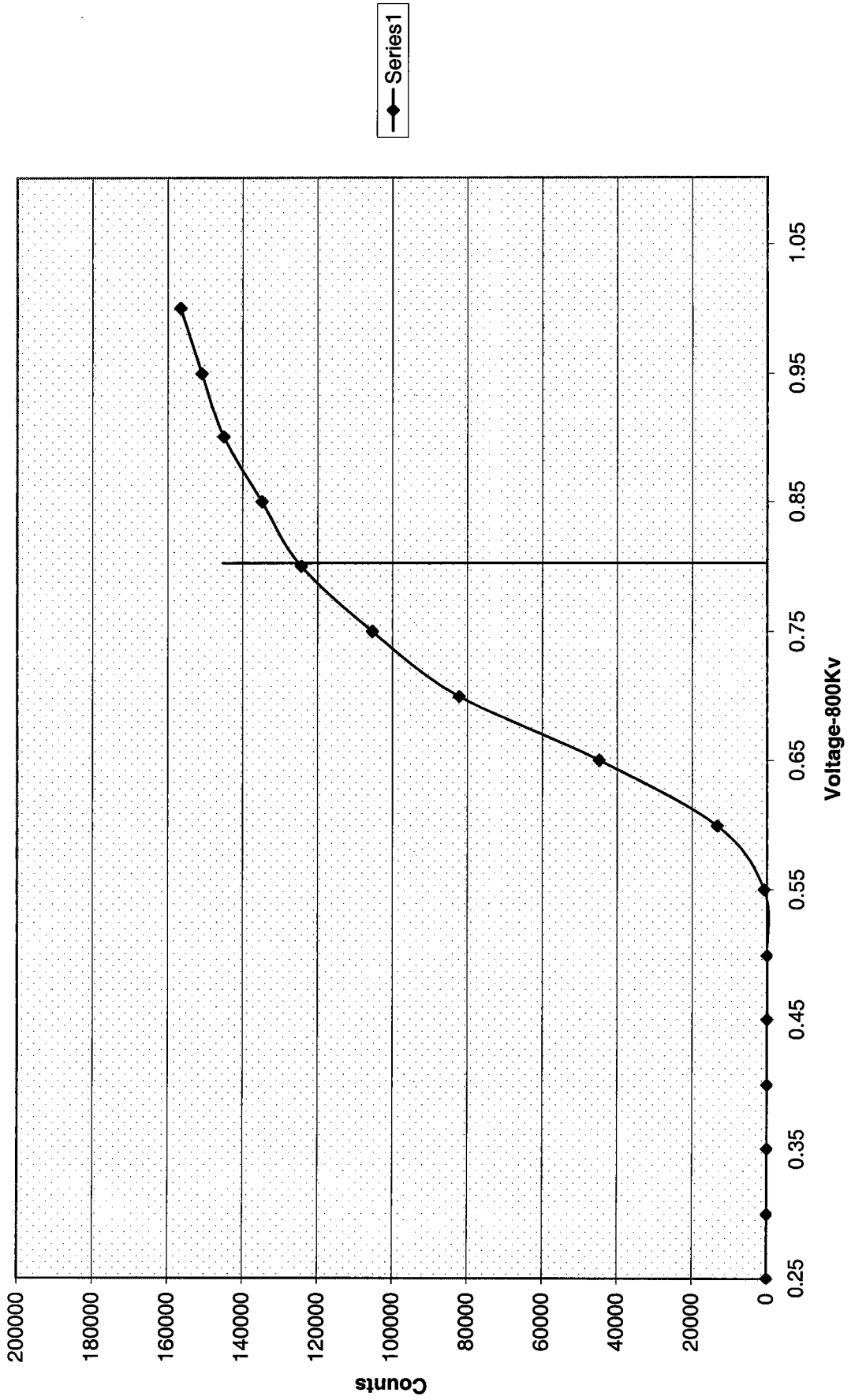
Reviewed By: John J. Adams Date 3/28/08

VOLTAGE CURVE 08

Voltage Curve Ludlum # 1				
Volts	Counts	Date	Time	Detector
0.00	0	8/19/2008	11:00	1
0.05	0	8/19/2008	11:00	1
0.10	0	8/19/2008	11:00	1
0.15	0	8/19/2008	11:00	1
0.20	0	8/19/2008	11:00	1
0.25	0	8/19/2008	11:00	1
0.30	0	8/19/2008	11:00	1
0.35	0	8/19/2008	11:00	1
0.40	0	8/19/2008	11:00	1
0.45	0	8/19/2008	11:00	1
0.50	0	8/19/2008	11:00	1
0.55	813	8/19/2008	11:00	1
0.60	13369	8/19/2008	11:00	1
0.65	44807	8/19/2008	11:00	1
0.70	82131	8/19/2008	11:00	1
0.75	105365	8/19/2008	11:00	1
0.80	124405	8/19/2008	11:00	1
0.85	134938	8/19/2008	11:00	1
0.90	145048	8/19/2008	11:00	1
0.95	150949	8/19/2008	11:00	1
1.00	156594	8/19/2008	11:00	1

*MD  
Shaner*

Ludlum 1 Voltage Curve



KO 8/29/08

101	1.751	8/29/2008
102	1.647	8/29/2008
103	1.752	8/29/2008
104	1.973	8/29/2008
105	1.749	8/29/2008
106	1.486	8/29/2008
107	1.773	8/29/2008
108	1.840	8/29/2008
109	1.512	8/29/2008
110	1.544	8/29/2008
111	1.575	8/29/2008
112	1.648	8/29/2008

# General Engineering Laboratories

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

## Lucas Cell Calibration Package

	YES	NO	Comments
1) Is all calibration standard information enclosed for: the primary standard certificate?	✓	✓	
the second standard(s) documentation?	✓	✓	
standard preparation information?	✓	✓	
standard < 1 Year old or verified?	✓	✓	
2) Is the efficiency calibration report included ?	✓	✓	
3) Is the raw count data included for: Cell constant determination?	✓	✓	
Plateau generation?	✓	✓	
4) Are the calibration verifications included?	✓	✓	
5) Are the instrument settings included: HVPS settings?	✓	✓	
6) Has the CELLEFF.xls file been updated ?	✓	✓	
7) Have the calibration dates been updated in ALPHALIMS ?	✓	✓	

Prepared By: Kelli Donnell

Date: 12/19/08

Reviewed By: Mark G. Adams

Date: 12/19/08

Effective Date: 12/19/08

NU 12/19/08

### Ra-226 Cell Constants

Standard Reference date: 12/15/1999  
 standard ID: 0299-G  
 Volume added (mL): 0.1  
 Standard Reference Activity (DPM/mL): 2446.35

Lucas cell #	Cell constant	Standard Source	Date/Time of count	Date/Time flushed to cell	Date/Time end of degas	bkg cpm	total counts	count time min	cpm	Known activity dpm	11 (days) end-degas to flush	12 (days) end-flush to count	13 (days) Std Ref Date to count	Decay from Std Ref Date to count
201	2.021	Average	9/15/2008 15:45	9/15/2008 9:05	9/12/2008 13:20	0.267	5596	30	186.53	243.02	2.82292	0.27778	3198	0.9962
201	2.043	Sidev	9/18/2008 13:00	9/18/2008 8:10	9/15/2008 9:05	0.267	5949	30	198.30	243.02	2.96181	0.20139	3201	0.9962
201	1.915		9/25/2008 19:35	9/25/2008 9:15	9/22/2008 10:00	0.267	5361	30	178.70	243.02	2.96875	0.49056	3208	0.9962
202	2.436	Average	9/15/2008 16:20	9/15/2008 9:35	9/12/2008 13:20	0.267	6779	30	225.97	243.02	2.84375	0.28125	3198	0.9962
202	2.209	Sidev	9/18/2008 13:50	9/18/2008 8:45	9/15/2008 9:35	0.267	6425	30	214.17	243.02	2.96528	0.21181	3201	0.9962
202	2.137		10/21/2008 13:50	10/20/2008 13:45	10/13/2008 16:00	0.267	9248	30	308.27	243.02	6.90625	1.00347	3234	0.9962
203	2.255	Average	9/15/2008 16:50	9/15/2008 10:00	9/12/2008 13:20	0.267	6300	30	210.00	243.02	2.86111	0.28472	3198	0.9962
203	2.273	Sidev	9/18/2008 14:25	9/18/2008 9:15	9/15/2008 10:00	0.267	6613	30	220.43	243.02	2.96875	0.21528	3201	0.9962
203	2.234		9/25/2008 21:00	9/25/2008 10:15	9/22/2008 10:00	0.267	6298	30	209.93	243.02	3.01042	0.44782	3208	0.9962
204	2.184	Average	9/15/2008 17:25	9/15/2008 10:30	9/12/2008 13:20	0.267	6132	30	204.40	243.02	2.88194	0.28819	3198	0.9962
204	2.300	Sidev	9/18/2008 14:55	9/18/2008 9:35	9/15/2008 10:30	0.267	6671	30	222.37	243.02	2.96181	0.22222	3201	0.9962
204	2.096		9/30/2008 14:05	9/30/2008 9:10	9/28/2008 9:45	0.133	7535	30	251.17	243.02	3.97569	0.20486	3213	0.9962
205	1.677	Average	10/21/2008 8:30	10/20/2008 14:05	10/13/2008 16:00	0.267	7584	30	252.80	243.02	6.32014	0.76736	3233	0.9962
205	1.730	Sidev	9/18/2008 16:00	9/18/2008 10:05	9/15/2008 10:55	0.167	4989	30	166.63	243.02	2.96528	0.24653	3201	0.9962
205	1.990		9/30/2008 14:45	9/30/2008 9:40	9/28/2008 9:45	0.187	7170	30	239.00	243.02	3.89653	0.21181	3213	0.9962
206	2.240	Average	9/15/2008 21:10	9/15/2008 11:25	9/12/2008 13:20	0.233	6216	30	207.20	243.02	2.32014	0.40825	3198	0.9962
206	2.293	Sidev	9/18/2008 16:35	9/18/2008 10:25	9/15/2008 11:25	0.267	6604	30	220.13	243.02	2.95833	0.25694	3201	0.9962
206	2.245		9/30/2008 15:20	9/30/2008 10:15	9/28/2008 9:45	0.267	8125	30	270.83	243.02	4.02083	0.21181	3213	0.9962
207	2.187	Average	9/15/2008 21:40	9/15/2008 11:50	9/12/2008 13:20	0.267	6084	30	203.13	243.02	2.33750	0.40972	3198	0.9962
207	2.141	Sidev	9/18/2008 17:55	9/18/2008 10:40	9/15/2008 11:50	0.267	6105	30	203.50	243.02	2.95139	0.30208	3201	0.9962
207	2.110		9/30/2008 16:00	9/30/2008 10:45	9/28/2008 9:45	0.233	7856	30	255.20	243.02	4.04167	0.21875	3213	0.9962
208	2.239	Average	9/15/2008 22:15	9/15/2008 12:15	9/12/2008 13:20	0.267	6288	30	208.60	243.02	2.85486	0.41667	3198	0.9962
208	2.243	Sidev	9/18/2008 19:30	9/18/2008 11:00	9/15/2008 12:15	0.133	6374	30	212.47	243.02	2.94786	0.41290	3201	0.9962
208	2.148		9/30/2008 16:55	9/30/2008 11:10	9/28/2008 9:45	0.695	7691	30	236.03	243.02	4.96989	0.89569	3213	0.9962
209	2.471	Average	9/15/2008 22:45	9/15/2008 13:50	9/12/2008 13:20	0.033	7073	30	235.77	243.02	3.02083	0.37153	3198	0.9962
209	2.212	Sidev	9/18/2008 19:15	9/18/2008 11:15	9/15/2008 13:50	0.067	6170	30	205.67	243.02	2.89236	0.33333	3201	0.9962
209	2.420		9/30/2008 17:25	9/30/2008 11:40	9/28/2008 9:45	0.100	8795	30	293.17	243.02	4.07986	0.23958	3213	0.9962
210	2.320	Average	9/15/2008 23:15	9/15/2008 14:15	9/12/2008 13:20	0.033	6665	30	222.17	243.02	3.03819	0.37500	3198	0.9962
210	2.210	Sidev	9/18/2008 19:45	9/18/2008 11:30	9/15/2008 14:15	0.100	6142	30	204.73	243.02	2.88542	0.34375	3201	0.9962
210	2.230		9/30/2008 18:00	9/30/2008 12:05	9/28/2008 9:45	0.033	8116	30	270.53	243.02	4.09722	0.24653	3213	0.9962
211	2.140	Average	9/15/2008 23:50	9/15/2008 14:30	9/12/2008 13:20	0.033	6150	30	205.00	243.02	3.04661	0.36889	3198	0.9962
211	2.238	Sidev	9/18/2008 22:20	9/18/2008 12:35	9/15/2008 14:30	0.133	6207	30	206.90	243.02	2.92014	0.40625	3201	0.9962
211	2.136		9/30/2008 18:30	9/30/2008 13:35	9/28/2008 9:45	0.100	7917	30	263.90	243.02	4.15972	0.20486	3213	0.9962
212	2.405	Average	9/16/2008 0:20	9/15/2008 14:50	9/12/2008 13:20	0.033	6926	30	230.87	243.02	3.06250	0.39583	3198	0.9962
212	2.315	Sidev	9/18/2008 22:55	9/18/2008 12:50	9/15/2008 14:50	0.267	6405	30	213.50	243.02	2.91667	0.42014	3201	0.9962
212	2.244		9/30/2008 19:50	9/30/2008 14:00	9/28/2008 9:45	0.267	8287	30	276.23	243.02	4.17708	0.24306	3213	0.9962

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# Verification for Ra-226 Standard 0299-G

4/2/2008	Isotope	Detector CPM	BKG CPM	NET CPM	Detector Eff	Standard Mass. Used (G)	Source DPM/G
D. Roy	0299-G N1	2536.9600	52.4000	2484.5600	1.917186	0.5057	2562.667649
	0299-G N2	2520.2500	52.4000	2467.8500	1.917186	0.5056	2545.935781
	0299-G N3	2532.5000	52.4000	2480.1000	1.917186	0.5042	2565.677715
						Average =	2558.093715

Mean Value (Counting) = 2558.093715      Pass  
 Stdev = 10.63610098      Rule 3 (Pass/Fail)

Certificate Value = 2437.6      dpm/mL  
 Lower Limit = 2536.821513      dpm/mL  
 Upper Limit = 2579.365917      dpm/mL  
 Rule 1 Pass/Fail      Fail      \*exception taken due to full recovery of standard  
 Two sigma = 21.27220197      dpm/mL  
 10 % of Mean = 255.8093715      dpm/mL  
 Rule 2 (Pass/Fail)      Pass

### Verification Rules

- Rule 1 = The certificate value (NOT including any uncertainty) shall lie within the 95% confidence interval determined from the mean and two sigma standard deviation of the three measurements
- Rule 2 = The two sigma value used for the 95% confidence interval shall not exceed 10% of the mean value of the three verification measurements.
- Rule 3 = The determined mean value shall be within 10% of the certificate value.

The analyst prepared three standard verification sources for Ra-226 source 0299-G by transferring portions of the standard into tared glass liquid scintillation vials. One mL of DI Water and ten mLs of Ready Gel liquid scintillation cocktail was added to each vial and the vials were shaken to mix. A Blank vial was prepared in a similar fashion using 1 mL of DI water and 10 mL of Ready Gel cocktail. The standard verification vials and Background source were dark adapted for two hours and counted on LSC Gold for Radium source standard verification. The Ra-226 efficiency calibration which was used for verification calculations was performed on 4/02/08 using source 0024-A (Ra-226). Calibration data is recorded in this logbook under Ra-226 0024. Each verification source calculation was performed as follows:

Source dpm/g = (A - B)/(C)(D)

where:

- A = Ver. source cpm,
- B = BKG cpm,
- C = System efficiency, (cpm/dpm), and
- D = mass used for standard verification.

BAD.SOP.M-001

Not 12/19/08  
 11/11/08  
 Nancy E. Johnson 4/9/08  
 Daniel Dwyer 4/10/08



# Standard Traceability Log Rad

Source Material Info		A Solution Material Info	
Parent Code:	0299	Isotope:	Radium-226
Prepared By:	Angela Johnson	Prepared By:	Angela Johnson
Carrier Conc:	0.5 M HCL	Prep Date:	09/15/2000
Reference Date:	12/15/1999	Verification Date:	01/23/2008
Ampoule Mass (g):	5.0368 g	Expiration Date:	01/23/2009
Uncertainty:	+/- 2.5 %	Primary Code:	0299-A
LogBook No:	RC S 027 128	Dilution(mL):	100 mL
		Mass of Parent(g):	4.6634 g
		Density(g/mL):	1.0012
		Balance ID:	

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

$$(\text{Mass of parent(g)}) * (\text{Parm Activity (kBq/g)}) * (\text{conversion dpm to kBq}) / (\text{Dilution Vol}) = \text{Parent Activity (dpm/mL)}$$

$$(\text{Mass of parent(g)}) * (\text{Parm Activity (kBq/g)}) * (\text{conversion dpm to kBq}) / \text{Density (g/mL)} / (\text{Dilution Vol}) = \text{Parent Activity (dpm/g)}$$

$$(4.6634 \text{ g}) * (43.75 \text{ kBq/g}) * (60000 \text{ dpm/kBq}) / (100 \text{ mL}) = 122414.2500 \text{ dpm/mL}$$

$$(4.6634 \text{ g}) * (43.75 \text{ kBq/g}) * (60000 \text{ dpm/kBq}) / (1.0012 \text{ g/mL}) / (100 \text{ mL}) = 122273.3377 \text{ dpm/g}$$

### Secondary Standards

Prep Date	Preparer	Mass Primary	Dilution (mL)	Code	Conc dpm/mL	Verification Date	Expiration Date
08/26/2003	Angela Johnson	1.9909	100	0299-E	2434.34 dpm/mL	11/04/2004	11/04/2005
08/26/2003	Angela Johnson	1.9872	100	0299-F	2429.82 dpm/mL	08/26/2004	08/26/2005
04/05/2005	Amanda Fehr	5.0018	250	0299-G	2446.3471 dpm/mL	04/02/2008	04/02/2009

GEL Laboratories LLC  
Version 1.0 9/18/2000

*all the 12/19/08*  
*len 12/19/08*



0299

UKAS ACCREDITED CALIBRATION LABORATORY No. 0146

Reference time for solution number R4/131/89:	1200 GMT on 15 December 1999
Radioactive concentration of radium-226:	43.75 kilobecquerels per gram of solution
which is equivalent to:	1.183 microcuries per gram of solution
Mass of solution:	5.0368 grams
Total activity of radium-226:	220.4 kilobecquerels
which is equivalent to:	5.956 microcuries
Recommended half life:	1600 years
Method of measurement:	
The activity of the solution was measured using a high pressure re-entrant ionisation chamber calibrated with a large number of absolutely standardised solutions.	

Calibration date: 15 December 1999  
The calibration date is provided for added information only, and must not be confused with the reference date on pages 1 and 2 of the certificate. It is the reference date that must be used in all calculations relating to the values of activity.

Expanded uncertainty in the radioactive concentration quoted above:  $\pm 2.5\%$   
Combined Type A uncertainty:  $\pm 0.2\%$   
Combined Type B uncertainty:  $\pm 1.3\%$

Radiochemical The estimated activities of any radioactive impurities found by high-resolution gamma ray spectrometry, or in any other examination of the solution, are listed below expressed as percentages of the activity of the principal radionuclide at the reference time.

Carrier free in 0.5M HCl

This product meets the quality assurance requirements for achieving traceability to NIST as defined in ANSI N42.22-1995.

1 year = 365.25 days

At the reference date radium-226 was shown to be in radioactive equilibrium with its daughter nuclides down the decay chain to polonium-214 and thallium-210, the precursors of lead-210. The ionisation chamber was calibrated using a standard supplied by the National Institute of Standards and Technology, Washington DC, USA.

*Handwritten:* 12/19/99  
12/19/98

# Ra-226 WATER

Batch : LCSVER  
 Date : 10/31/2008  
 Analyst : KSD1

Procedure Code : LUC26RAL

Parname : Radium-226

MDA : 1 pCi/L

Instrument Used : LUCAS CELL DETECTOR

Bkg Count Time: 30 min

Sample ID	Sample Vol L	Count Time min	Gross counts cts	Cell # num	Cell Const. num	BKG cpm	Ra-226 MDA pCi/L	Ra-226 RESULT pCi/L	Ra-226 ERROR pCi/L	COUNT DATE/TIME
VER 1	0.500	30	1014	201	1.993	0.267	0.3504	22.1841	1.3817	11/17/2008 15:10
VER 2	0.500	30	1056	202	2.261	0.267	0.3089	20.3702	1.2427	11/17/2008 15:45
VER 3	0.500	30	726	203	2.254	0.267	0.5419	24.4866	1.8110	10/30/2008 16:05
VER 4	0.500	30	737	204	2.193	0.267	0.5519	25.3188	1.8580	10/30/2008 18:20
VER 5	0.500	30	937	205	1.799	0.267	0.3882	22.6936	1.4718	11/17/2008 16:20
VER 6	0.500	30	780	206	2.259	0.267	0.5373	26.1045	1.8604	10/30/2008 20:20
VER 7	0.500	30	711	207	2.146	0.267	0.5705	25.2245	1.8858	10/30/2008 22:00
VER 3	<del>0.500</del>	<del>30</del>	<del>593</del>	<del>208</del>	<del>2.283</del>	<del>0.267</del>	<del>0.5132</del>	<del>16.9552</del>	<del>1.4723</del>	<del>11/20/2008 16:40</del>
VER 9	0.500	30	630	209	2.291	0.133	0.4042	21.0513	1.6596	10/30/2008 23:40
VER 10	0.500	30	691	210	2.253	0.033	0.2527	23.7356	1.7736	10/31/2008 1:15
VER 11	0.500	30	1067	211	2.171	0.267	0.3314	22.0840	1.3401	11/17/2008 21:55
VER 12	0.500	30	648	212	2.322	0.133	0.4223	22.6294	1.7586	10/31/2008 9:15

12/19/08  
 12/19/08



Sample ID	Sample Dup	Det #	Run Date	Sample Type	Standard ID	NC	NC units	Recovery/RPD
201		2	11/17/2008 10:20	LCS	0638-F	24.10	pCi/L	92%
202		2	11/17/2008 10:45	LCS	0638-F	24.10	pCi/L	85%
203		2	10/30/2008 11:05	LCS	0638-F	24.10	pCi/L	102%
204		2	10/30/2008 12:30	LCS	0638-F	24.10	pCi/L	105%
205		2	11/17/2008 11:10	LCS	0638-F	24.10	pCi/L	94%
206		2	10/30/2008 13:10	LCS	0638-F	24.10	pCi/L	108%
207		2	10/30/2008 13:25	LCS	0638-F	24.10	pCi/L	105%
208		2	11/20/2008 11:45	LCS	0638-F	24.10	pCi/L	70% <i>W</i>
209		2	10/30/2008 14:05	LCS	0638-F	24.10	pCi/L	87% <i>W</i>
210		2	10/30/2008 14:25	LCS	0638-F	24.10	pCi/L	98% <i>W</i>
211		2	11/17/2008 12:20	LCS	0638-F	24.10	pCi/L	92%
212		2	10/30/2008 14:55	LCS	0638-F	24.10	pCi/L	94%

*W*  
*12/18/08*

DEGASSING DATE/TIME	DE-EMAN. DATE/TIME	DEGASS-DE-EM	dE-EM-COUNT	constant	constant	constant	Net CPM	Ingrowth constant
11/10/2008 15:35	11/17/2008 10:20	162.75	4.83	0.7073	0.9642	1.0019	33.5333	0.6833
11/10/2008 15:35	11/17/2008 10:45	163.17	5.00	0.7083	0.9630	1.0019	34.9333	0.6833
10/27/2008 14:20	10/30/2008 11:05	68.75	5.00	0.4049	0.9630	1.0019	23.9333	0.3907
10/27/2008 14:20	10/30/2008 12:30	70.17	5.83	0.4113	0.9569	1.0019	24.3000	0.3943
11/10/2008 15:35	11/17/2008 11:10	163.58	5.17	0.7092	0.9617	1.0019	30.9667	0.6833
10/27/2008 14:20	10/30/2008 13:10	70.83	7.17	0.4142	0.9473	1.0019	25.7333	0.3931
10/27/2008 14:20	10/30/2008 13:25	71.08	8.58	0.4153	0.9373	1.0019	23.4330	0.3900
11/17/2008 11:10	11/20/2008 11:45	72.58	4.92	0.4219	0.9696	1.0019	17.5900	0.4073
10/27/2008 14:20	10/30/2008 14:05	71.75	9.58	0.4182	0.9302	1.0019	20.8670	0.3898
10/27/2008 14:20	10/30/2008 14:25	72.08	10.83	0.4197	0.9215	1.0019	23.0003	0.3875
11/10/2008 15:35	11/17/2008 12:20	164.75	9.58	0.7117	0.9302	1.0019	35.3000	0.6633
10/27/2008 14:20	10/30/2008 14:55	72.58	18.33	0.4219	0.8707	1.0019	21.4670	0.3681

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*W*  
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*W*  
*12/18/08*



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
<del>VEN 1</del>	<del>500</del>	<del>10/27/08 1420</del>	<del>10/30/08 1045</del>	<del>10/30/08 1500</del>	<del>201</del>	<del>2</del>	<del>4</del>	<del>152</del>
<del>VEN 2</del>	<del>500</del>	<del>10/27/08 1420</del>	<del>10/30/08 1005</del>	<del>10/30/08 1535</del>	<del>202</del>	<del>2</del>	<del>4</del>	<del>189</del>
VEN 3	500	10/27/08 1420	10/30/08 1105	10/30/08 1605	203	2	8	726
VEN 4	500	10/27/08 1420	10/30/08 1230	10/30/08 1820	204	2	8	737
<del>VEN 5</del>	<del>500</del>	<del>10/27/08 1420</del>	<del>10/30/08 1050</del>	<del>10/30/08 1900</del>	<del>205</del>	<del>2</del>	<del>6</del>	<del>663</del>
VEN 6	500	10/27/08 1420	10/30/08 1310	10/30/08 2020	206	2	8	780
VEN 7	500	10/27/08 1420	10/30/08 1425	10/30/08 2200	207	2	8	711
<del>VEN 8</del>	<del>500</del>	<del>10/27/08 1420</del>	<del>10/30/08 1345</del>	<del>10/30/08 2300</del>	<del>208</del>	<del>2</del>	<del>4</del>	<del>497</del>
VEN 9	500	10/27/08 1420	10/30/08 1405	10/30/08 2340	209	2	4	630
VEN 10	500	10/27/08 1420	10/30/08 1425	10/31/08 0115	210	2	1	691
<del>VEN 11</del>	<del>500</del>	<del>10/27/08 1420</del>	<del>10/30/08 1440</del>	<del>10/31/08 0835</del>	<del>211</del>	<del>2</del>	<del>3</del>	<del>423</del>
VEN 12	500	10/27/08 1420	10/30/08 1455	10/31/08 0915	212	2	4	648

VP  
12/18/08

12/18/08

12/18/08

12/18/08

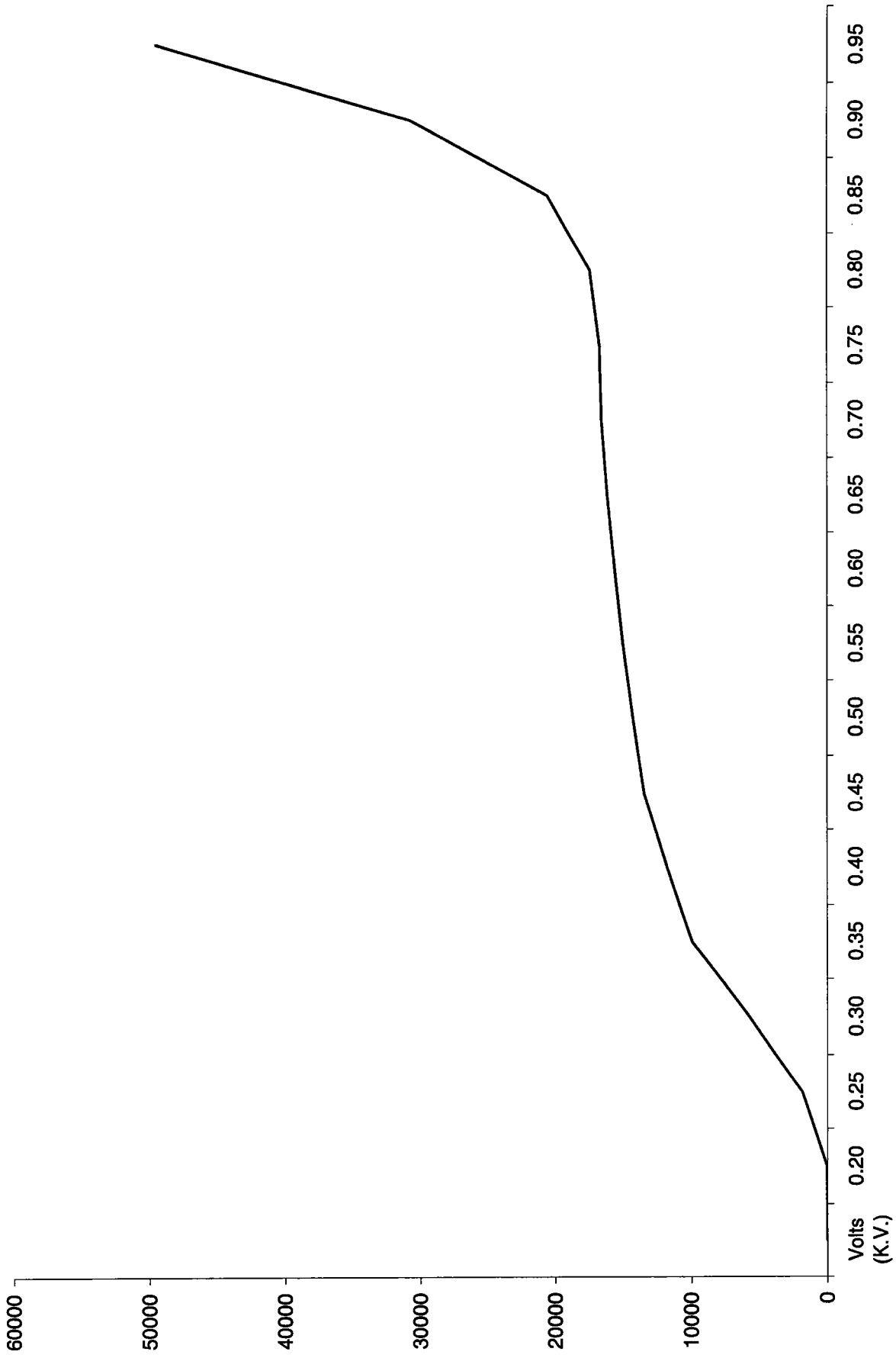
12/18/08

12/18/08









mut 12/19/08  
VW 12/19/08

201	1.993	12/19/2008
202	2.261	12/19/2008
203	2.254	12/19/2008
204	2.193	12/19/2008
205	1.799	12/19/2008
206	2.259	12/19/2008
207	2.146	12/19/2008
209	2.291	12/19/2008
210	2.253	12/19/2008
211	2.171	12/19/2008
212	2.322	12/19/2008

*Next  
12/19/08*



# General Engineering Laboratories

2040 Savage Road, Charleston, SC 29414

(843)556-8171

## Lucas Cell Calibration Package

	YES	NO	Comments
1) Is all calibration standard information enclosed for: the primary standard certificate? the secondary standard(s) documentation? standard preparation information? standard < 1 Year old or verified?	✓		
	✓		
	✓		
	✓		
2) Is the efficiency calibration report included ?	✓		
3) Is the raw count data included for: Cell constant determination? Plateau generation?	✓		
	✓		
4) Are the calibration verifications included?	✓		
5) Are the instrument settings included: HVPS settings?	✓		
6) Has the CELLEFF.xls file been updated ?	✓		
7) Have the calibration dates been updated in ALPHALIMS ?	✓		

Prepared By: Kellipanel

Date: 2/3/09

Reviewed By: M. G. Hens

Date: 2/4/09

Effective Date: 2/4/09

# Ra-226 Cell Constants

Standard Reference date: 12/15/1999  
standard ID: 0299-G  
Volume added (mL): 0.1  
Standard Reference Activity (DPM/mL): 2446.35

Lucas cell #	Cell constant	Standard Source	Date/Time of count	Date/Time flushed to cell	Date/time end of degas	bkg cpm	total counts	count time min	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	1.867	Average	1/20/2009 11:05	1/19/2009 10:10	1/9/2009 15:45	0.267	9355	30	311.83	243.67	9.76736	1.03819	3324	0.9961
301	2.184	Stdev	1/29/2009 11:50	1/29/2009 8:50	1/26/2009 13:00	0.267	6239	30	207.97	243.67	2.82639	0.12500	3333	0.9961
301	2.011		1/26/2009 14:35	1/26/2009 9:25	1/22/2009 9:10	0.267	7282	30	242.73	243.67	4.01042	0.21528	3331	0.9961
302	2.082	Average	1/30/2009 11:30	1/30/2009 8:30	1/26/2009 13:00	0.267	7401	30	246.70	243.67	3.81250	0.12500	3334	0.9961
302	2.225	Stdev	1/29/2009 13:30	1/29/2009 9:20	1/26/2009 13:00	0.233	6335	30	211.17	243.67	2.84722	0.17361	3334	0.9961
302	2.086		1/26/2009 15:30	1/26/2009 9:55	1/22/2009 9:10	0.267	7555	30	251.83	243.67	4.03125	0.23264	3331	0.9961
303	1.958	Average	1/20/2009 13:40	1/19/2009 11:00	1/9/2009 15:45	0.267	9695	30	323.17	243.67	9.80208	1.11111	3325	0.9961
303	2.218	Stdev	1/22/2009 20:35	1/22/2009 10:05	1/19/2009 15:00	0.267	5938	30	197.93	243.67	2.79514	0.43750	3327	0.9961
303	2.231		1/26/2009 17:20	1/26/2009 10:25	1/22/2009 9:10	0.267	8028	30	267.60	243.67	4.05208	0.28819	3331	0.9961

305	1.897	Average	1/20/2009 14:50	1/19/2009 11:35	1/9/2009 15:45	0.200	9357	30	311.90	243.67	9.82639	1.13542	3325	0.9961
305	2.191	Stdev	1/22/2009 21:50	1/22/2009 11:05	1/19/2009 15:00	0.267	5921	30	197.37	243.67	2.83681	0.44792	3327	0.9961
305	2.083		1/26/2009 23:00	1/26/2009 11:20	1/22/2009 9:10	0.267	7280	30	242.67	243.67	4.09028	0.48611	3331	0.9961
306	1.730	Average	1/20/2009 15:20	1/19/2009 11:50	1/9/2009 15:45	0.167	8521	30	284.03	243.67	9.83681	1.14593	3325	0.9961
306	1.891	Stdev	1/29/2009 14:30	1/29/2009 10:20	1/26/2009 13:00	0.233	4869	30	162.30	243.67	2.88889	0.17361	3334	0.9961
306	1.821		1/26/2009 23:30	1/26/2009 11:50	1/22/2009 9:10	0.267	6387	30	212.90	243.67	4.11111	0.48611	3331	0.9961
307	1.818	Average	1/20/2009 15:50	1/19/2009 12:05	1/9/2009 15:45	0.267	8944	30	298.13	243.67	9.84722	1.15625	3325	0.9961
307	2.095	Stdev	1/30/2009 12:55	1/30/2009 9:10	1/26/2009 13:00	0.267	7442	30	248.07	243.67	3.84028	0.15625	3335	0.9961
307	1.881		1/27/2009 0:05	1/26/2009 12:10	1/22/2009 9:10	0.267	6598	30	219.93	243.67	4.12500	0.49653	3331	0.9961
308	2.129	Average	1/29/2009 15:50	1/29/2009 11:05	1/26/2009 13:00	0.133	6149	30	204.97	243.67	2.92014	0.19792	3334	0.9961
308	1.858	Stdev	1/23/2009 9:35	1/22/2009 13:45	1/19/2009 15:00	0.267	4829	30	160.97	243.67	2.94792	0.82639	3327	0.9961
308	1.862		1/27/2009 8:30	1/26/2009 13:15	1/22/2009 9:10	0.267	6226	30	207.53	243.67	4.17014	0.80208	3331	0.9961
309	1.857	Average	1/20/2009 17:20	1/19/2009 13:35	1/9/2009 15:45	0.033	9149	30	304.97	243.67	9.90972	1.15625	3325	0.9961
309	1.964	Stdev	1/23/2009 10:30	1/22/2009 14:05	1/19/2009 15:00	0.267	5100	30	170.00	243.67	2.96181	0.85069	3327	0.9961
309	1.810		1/27/2009 9:05	1/26/2009 13:30	1/22/2009 9:10	0.267	6046	30	201.53	243.67	4.18056	0.81597	3331	0.9961

311	2.140	Average	1/29/2009 16:40	1/29/2009 11:20	1/26/2009 13:00	0.267	6176	30	205.87	243.67	2.93056	0.22222	3334	0.9961
311	2.212	Stdev	1/23/2009 12:20	1/22/2009 14:25	1/19/2009 15:00	0.267	5698	30	189.93	243.67	2.97569	0.91319	3328	0.9961
311	1.988		1/27/2009 10:15	1/26/2009 13:45	1/22/2009 9:10	0.267	6607	30	220.23	243.67	4.19097	0.85417	3331	0.9961
312	1.871	Average	1/20/2009 19:16	1/19/2009 14:10	1/9/2009 15:45	0.100	9135	30	304.50	243.67	9.93403	1.21250	3325	0.9961
312	2.014	Stdev	1/29/2009 17:10	1/29/2009 11:35	1/26/2009 13:00	0.167	5814	30	193.80	243.67	2.94097	0.23264	3334	0.9961
312	1.946		1/27/2009 11:10	1/26/2009 14:00	1/22/2009 9:10	0.267	6446	30	214.87	243.67	4.20139	0.88194	3331	0.9961

K0 213109











# Verification for Ra-226 Standard 0299-G

4/2/2008	Isotope	Detector CPM	BKG CPM	NET CPM	Detector Eff	Standard Mass. Used (G)	Source DPM/G
D. Roy	0299-G N1	2536.9600	52.4000	2484.5600	1.917186	0.5057	2562.667649
	0299-G N2	2520.2500	52.4000	2467.8500	1.917186	0.5056	2545.935781
	0299-G N3	2532.5000	52.4000	2480.1000	1.917186	0.5042	2565.677715
						Average =	2558.093715

Mean Value (Counting) = 2558.093715  
 Stdev = 10.63610098

104.944421 Pass  
 0.00415782 Rule 3 (Pass/Fail)

Certificate Value = 2437.6 dpm/mL  
 Lower Limit = 2536.821513 dpm/mL  
 Upper Limit = 2579.365917 dpm/mL  
 Rule 1 Pass/Fail Fail \*exception taken due to full recovery of standard  
 Two sigma = 21.27220197 dpm/mL  
 10 % of Mean = 255.8093715 dpm/mL  
 Rule 2 (Pass/Fail) Pass

## Verification Rules

- Rule 1 = The certificate value (NOT including any uncertainty) shall lie within the 95% confidence interval determined from the mean and two sigma standard deviation of the three measurements
- Rule 2 = The two sigma value used for the 95% confidence interval shall not exceed 10% of the mean value of the three verification measurements.
- Rule 3 = The determined mean value shall be within 10% of the certificate value.

The analyst prepared three standard verification sources for Ra-226 source 0299-G by transferring portions of the standard into tared glass liquid scintillation vials. One mL of DI Water and ten mLs of Ready Gel liquid scintillation cocktail was added to each vial and the vials were shaken to mix. A Blank vial was prepared in a similar fashion using 1 mL of DI water and 10 mL of Ready Gel cocktail. The standard verification vials and Background source were dark adapted for two hours and counted on LSC Gold for Radium source standard verification. The Ra-226 efficiency calibration which was used for verification calculations was performed on 4/02/08 using source 0024-A (Ra-226). Calibration data is recorded in this logbook under Ra-226 0024. Each verification source calculation was performed as follows:

$$\text{Source dpm/g} = (A - B)/(C)(D)$$

where:

- A = Ver. source cpm,
- B = BKG cpm,
- C = System efficiency, (cpm/dpm), and
- D = mass used for standard verification.

IRAD-SOP-M-001

*Handwritten notes:*  
 5/10/08  
 LSC 23103  
 1.5 ml water for 30 sec





# Standard Traceability Log Rad

Source Material Info		A Solution Material Info	
Parent Code:	0299	Isotope:	Radium-226
Prepared By:	Angela Johnson	Prepared By:	Angela Johnson
Carrier Conc:	0.5 M HCL	Prep Date:	09/15/2000
Reference Date:	12/15/1999	Verification Date:	01/23/2008
Ampoule Mass (g):	5.0368 g	Expiration Date:	01/23/2009
Uncertainty:	+/- 2.5 %	Primary Code:	0299-A
LogBook No:	RC S 027 128	Dilution(mL):	100 mL
		Mass of Parent(g):	4.6634 g
		Density(g/mL):	1.0012
		Balance ID:	

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

$$(\text{Mass of parent(g)}) * (\text{Parm Activity (kBq/g)}) * (\text{conversion dpm to kBq}) / (\text{Dilution Vol}) = \text{Parent Activity (dpm/mL)}$$

$$(\text{Mass of parent(g)}) * (\text{Parm Activity (kBq/g)}) * (\text{conversion dpm to kBq}) / \text{Density (g/mL)} / (\text{Dilution Vol}) = \text{Parent Activity (dpm/g)}$$

$$(4.6634 \text{ g}) * (43.75 \text{ kBq/g}) * (60000 \text{ dpm/kBq}) / (100 \text{ mL}) = 122414.2500 \text{ dpm/mL}$$

$$(4.6634 \text{ g}) * (43.75 \text{ kBq/g}) * (60000 \text{ dpm/kBq}) / (1.0012 \text{ g/mL}) / (100 \text{ mL}) = 122273.3377 \text{ dpm/g}$$

### Secondary Standards

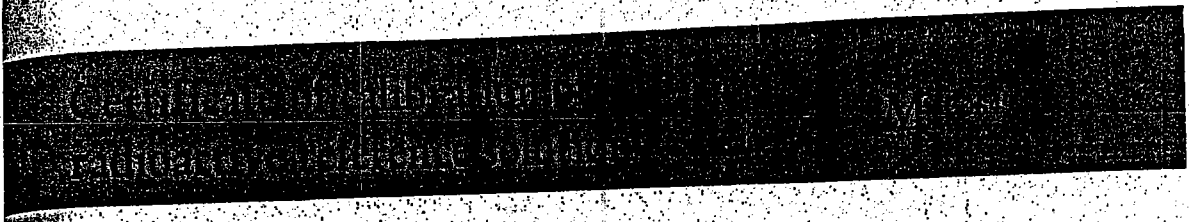
Prep Date	Preparer	Mass Primary	Dilution (mL)	Code	Conc dpm/mL	Verification Date	Expiration Date
08/26/2003	Angela Johnson	1.9909	100	0299-E	2434.34 dpm/mL	11/04/2004	11/04/2005
08/26/2003	Angela Johnson	1.9872	100	0299-F	2429.82 dpm/mL	08/26/2004	08/26/2005
04/05/2005	Amanda Fehr	5.0018	250	0299-G	2446.3471 dpm/mL	04/02/2008	04/02/2009

GEL Laboratories LLC  
Version 1.0 9/18/2000

LD 2/3/09  
ALLA 2/4/09



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 purity: 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 form: Carrier free in 0.5M HCL

Conformance: This product meets the quality assurance requirements for achieving traceability to NIST as defined in ANSI N42.22-1995.

1 year = 365.25 days

At the reference date radium-226 was shown to be in radioactive equilibrium with its daughter nuclides down the decay chain to polonium-214 and thallium-210, the precursors of lead-210. The ionisation chamber was calibrated using a standard supplied by the National Institute of Standards and Technology, Washington DC, USA.

KB 21/3/09  
WMA 21/11/09

# Ra-226 WATER

Batch : LCSVER  
 Date : 1/2/2009  
 Analyst : KSD1

Procedure Code : LUC26RAL  
 Parmname : Radium-226  
 MDA : 1 pCi/L

Instrument Used : LUCAS CELL DETECTOR

Bkg Count Time: 30 min

Sample ID	Sample Vol L	Count Time min	Gross counts cts	Cell # num	Cell Const. num	BKG cpm	Ra-226 MDA pCi/L	Ra-226 RESULT pCi/L	Ra-226 ERROR pCi/L	COUNT DATE/TIME
1	0.500	30	656	301	2.021	0.267	0.4919	20.0589	1.5634	1/30/2009 15:05
1	0.500	30	655	302	2.131	0.267	0.5554	22.6149	1.7640	2/2/2009 13:40
2	0.500	30	914	303	2.136	0.267	0.4647	26.4838	1.7397	1/30/2009 15:40
3	0.500	30	791	305	2.057	0.267	0.4845	23.8718	1.6891	1/30/2009 17:05
4	0.500	30	768	306	1.747	0.267	0.5709	27.2885	1.9605	1/30/2009 17:37
2	0.500	30	720	307	1.931	0.267	0.6113	27.3779	2.0335	2/2/2009 14:15
5	0.500	30	730	308	1.950	0.267	0.5149	23.3957	1.7254	1/30/2009 19:05
6	0.500	30	764	309	1.877	0.267	0.5908	28.0944	2.0238	1/31/2009 10:20
7	0.500	30	594	311	2.114	0.267	0.5510	20.3087	1.6667	1/31/2009 17:20
8	0.500	30	542	312	1.944	0.267	0.8009	26.8983	2.3154	2/2/2009 8:25

601112  
 CW

*Handwritten signature*

Sample ID	Cell #	Det #	Run Date	Sample Type	Standard ID	NC	NC units	Recovery/RPD
1	301	3	1/30/2009 10:40	LCS	0638-F	24.10	pCi/L	83%
2	302	3	2/2/2009 9:15	LCS	0638-F	24.10	pCi/L	94%
2	303	3	1/30/2009 11:05	LCS	0638-F	24.10	pCi/L	110%
3	305	3	1/30/2009 11:30	LCS	0638-F	24.10	pCi/L	99%
4	306	3	1/30/2009 11:45	LCS	0638-F	24.10	pCi/L	113%
2	307	3	2/2/2009 9:40	LCS	0638-F	24.10	pCi/L	114%
5	308	3	1/30/2009 12:00	LCS	0638-F	24.10	pCi/L	97%
3	309	3	1/30/2009 13:05	LCS	0638-F	24.10	pCi/L	117%
7	311	3	1/30/2009 13:20	LCS	0638-F	24.10	pCi/L	84%
8	312	3	1/30/2009 13:40	LCS	0638-F	24.10	pCi/L	112%

DEGASSING DATE/TIME	DE-EMAN. DATE/TIME	DEGASS-DE-EM	dE-EM-COUNT	constant	constant	Net CPM	Ingrowth constant
1/26/2009 16:05	1/30/2009 10:40	90.58	4.42	0.9672	1.0019	21.6000	0.4800
1/30/2009 10:00	2/2/2009 9:15	71.25	4.42	0.9672	1.0019	21.5667	0.4032
1/26/2009 16:05	1/30/2009 11:05	91.00	4.58	0.9660	1.0019	30.1997	0.4809
1/26/2009 16:05	1/30/2009 11:30	91.42	5.58	0.9587	1.0019	26.1000	0.4788
1/26/2009 16:05	1/30/2009 11:45	91.67	5.87	0.9567	1.0019	25.3330	0.4787
1/30/2009 10:00	2/2/2009 9:40	71.67	4.58	0.9660	1.0019	23.7330	0.4044
1/26/2009 16:05	1/30/2009 12:00	91.92	7.08	0.9479	1.0019	24.0667	0.4753
1/26/2009 16:05	1/30/2009 13:05	93.00	21.25	0.8518	1.0019	25.1997	0.4305
1/26/2009 16:05	1/30/2009 13:20	93.25	28.00	0.8095	1.0019	19.5330	0.4099
1/26/2009 16:05	1/30/2009 13:40	93.58	66.75	0.6041	1.0019	17.7997	0.3067

5/11/12  
 071  
 LEWA 2141.04





## Verification for Ra-226 Standard 0638-F

D. Roy 2/2/2009	Isotope	Value	Uncertainty
	0638-F #1	24.629	1.7426
	0638-F #2	24.438	1.7557
	0638-F #3	22.791	1.6808
<b>Mean Value (Counting) =</b>	23.953	99.60	<b>Pass</b>
<b>Stdev =</b>	1.010781096		<b>Rule 3 (Pass/Fail)</b>
<b>Target =</b>	24.05		
<b>Lower Limit =</b>	21.93100448		
<b>Upper Limit =</b>	25.97412886		
<b>Rule 1 Pass/Fail</b>	<b>Pass</b>		
<b>Two sigma =</b>	2.021562191		
<b>10 % of Mean =</b>	2.395256667		
<b>Rule 2 (Pass/Fail)</b>	<b>Pass</b>		

- Rule 1 = The certificate value (NOT including any uncertainty) shall lie within the 95% confidence interval determined from the mean and two sigma standard deviation of the three measurements**
- Rule 2 = The two sigma value used for the 95% confidence interval shall not exceed 10% of the mean value of the three verification measurements.**
- Rule 3 = The determined mean value shall be within 5% of the certificate value.**

The analyst prepared three standard verification sources for standard 0638-F using 0.1 mL for each source. Each source was counted using routine Lucas cell procedures. Calibration for 0299-G was used in this verification.

140 24109  
*[Signature]* 2/2/09  
 Amanda L. Lehn  
 2/4/09



## General Engineering Laboratories Verification Source Preparation Sheet

Applicable SOP Number GL-RAD-008 Isotope Pb-226  
 Date Standards Prepared <sup>2/11/09</sup> 2/13/2007 Cocktail Type Used N/A  
 Standard ID 0630-F Matrix of Vial/Planchett N/A  
 Amount Used (g or ml) 0.1 ml Type of Scintillation Vial N/A  
 Standard Activity (DPM/g or mL) 267.519 dpm/ml Pipette ID Used 1429303  
 Reference Date 1/23/2004 Balance ID Used N/A  
 Expiration Date 2/14/09 Quenching Agent N/A  
 Residue/Carrier Agent 0.1 ml H<sub>2</sub>O

	Standard Number	Quenching Vol (uL)/ 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				

LO 2/13/09

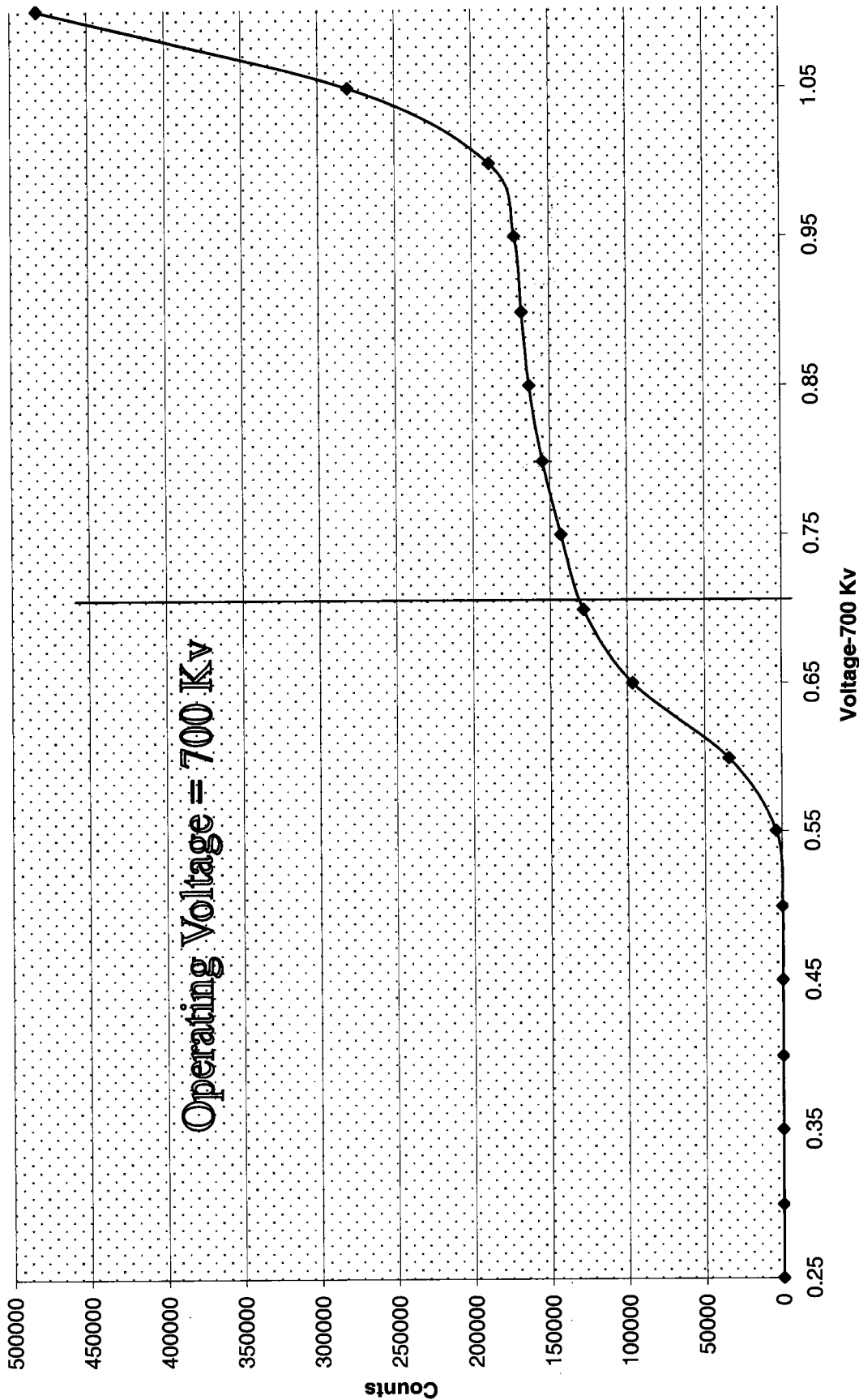
Prepared By: Kelli Brunell Date 2/13/09  
 Reviewed By: [Signature] Date 2/14/09

## Voltage Curve 1-09

Voltage Curve Ludlum # 3				
Volts	Counts	Date	Time	Detector
0.00	0	1/20/2009	13:45	3
0.05	0	1/20/2009	13:46	3
0.10	0	1/20/2009	13:47	3
0.15	0	1/20/2009	13:48	3
0.20	0	1/20/2009	13:49	3
0.25	0	1/20/2009	14:00	3
0.30	0	1/20/2009	14:01	3
0.35	0	1/20/2009	14:02	3
0.40	0	1/20/2009	14:03	3
0.45	0	1/20/2009	14:04	3
0.50	0	1/20/2009	14:05	3
0.55	3914	1/20/2009	14:06	3
0.60	34392	1/20/2009	14:07	3
0.65	96643	1/20/2009	14:08	3
0.70	128361	1/20/2009	14:09	3
0.75	142888	1/20/2009	14:10	3
0.80	154583	1/20/2009	14:11	3
0.85	163087	1/20/2009	14:12	3
0.90	167801	1/20/2009	14:13	3
0.95	172317	1/20/2009	14:14	3
1.00	188508	1/20/2009	14:15	3

KLA 2/4/09  
 LW  
 2/3/09

Ludlum 3 Voltage Curve



LCM  
2/11/09

KO 213109

301	2.021	2/4/2009
302	2.131	2/4/2009
303	2.136	2/4/2009
305	2.057	2/4/2009
306	1.747	2/4/2009
307	1.931	2/4/2009
308	1.950	2/4/2009
309	1.877	2/4/2009
311	2.114	2/4/2009
312	1.944	2/4/2009

RE UT  
2/4/09

~~RE UT~~  
2/4/09  
RE UT  
2/4/09

# General Engineering Laboratories

2040 Savage Road, Charleston, SC 29414

(843)556-8171

## Lucas Cell Calibration Package

	YES	NO	Comments
1) Is all calibration standard information enclosed for: the primary standard certificate? the secondary standard(s) documentation? standard preparation information? standard < 1 Year old or verified?	✓		
	✓		
	✓		
	✓		
2) Is the efficiency calibration report included?	✓		
3) Is the raw count data included for: Cell constant determination? Plateau generation?	✓		
	✓		
4) Are the calibration verifications included?	✓		
5) Are the instrument settings included: HVPS settings?	✓		
6) Has the CELLEFF.xls file been updated?	✓		
7) Have the calibration dates been updated in ALPHALIMS?	✓		

Prepared By: Kelli Dorrell

Date: 2/28/09

Reviewed By: Angela Johnson

Date: 3/2/09

Effective Date: 3/2/09

# Ra-226 Cell Constants

Standard Reference date : 12/15/1999  
 standard ID : 0.299-G  
 Volume added (mL) : 0.1  
 Standard Reference Activity (DPM/mL) : 2446.35

Lucas cell #	Call constant	Standard Source	Date/Time of count	Date/Time flushed to cell	Date/Time end of degas	bkg cpm	total counts	count time min	cpm	Known activity dpm	11 (days) end-degas to flush	12 (days) end-flush to count	13 (days) Std Ref Date to count	Decay from Std Ref Date to count
401	1.689	Average	2/23/2009 16:15	2/23/2009 10:30	2/20/2009 17:25	0.267	4580	30	152.67	243.66	2.71181	0.23958	3359	0.9960
401	1.585	Stdev	2/27/2009 13:15	2/27/2009 9:00	2/23/2009 16:05	0.267	5474	30	182.47	243.66	3.70486	0.17708	3363	0.9960
401	1.448		2/25/2009 14:40	2/25/2009 7:55	2/20/2009 17:25	0.267	5677	30	189.23	243.66	4.60417	0.28125	3361	0.9960
402	2.133	Average	2/23/2009 16:55	2/23/2009 11:05	2/20/2009 17:25	0.267	5817	30	193.90	243.66	2.73611	0.24306	3359	0.9960
402	2.173	Stdev	2/27/2009 14:10	2/27/2009 9:30	2/23/2009 16:05	0.267	7507	30	250.23	243.66	3.72569	0.19444	3363	0.9960
402	2.048		2/25/2009 15:25	2/25/2009 8:15	2/20/2009 17:25	0.267	8017	30	267.23	243.66	4.61806	0.29861	3361	0.9960
403	1.475	Average	2/23/2009 18:30	2/23/2009 11:30	2/20/2009 17:25	0.267	4011	30	133.70	243.66	2.75347	0.29167	3359	0.9960
403	1.495	Stdev	2/27/2009 14:50	2/27/2009 10:00	2/23/2009 16:05	0.267	5182	30	172.73	243.66	3.74853	0.20139	3363	0.9960
403	1.419		2/25/2009 15:55	2/25/2009 8:35	2/20/2009 17:25	0.267	5582	30	185.40	243.66	4.63194	0.30556	3361	0.9960
404	1.792	Average	2/23/2009 19:05	2/23/2009 13:10	2/20/2009 17:25	0.267	5005	30	166.83	243.66	2.82292	0.24653	3359	0.9960
404	2.142	Stdev	2/27/2009 15:25	2/27/2009 10:30	2/23/2009 16:05	0.267	7443	30	248.10	243.66	3.76736	0.20486	3363	0.9960
404	1.859		2/25/2009 20:20	2/25/2009 8:55	2/20/2009 17:25	0.267	7075	30	235.83	243.66	4.64583	0.47569	3361	0.9960
405	2.066	Average	3/2/2009 13:40	3/2/2009 10:30	2/25/2009 14:00	0.267	8602	30	286.73	243.66	4.85417	0.13194	3366	0.9960
405	1.899	Stdev	2/27/2009 16:00	2/27/2009 10:55	2/23/2009 16:05	0.267	6612	30	220.40	243.66	3.78472	0.21181	3363	0.9960
405	1.745		2/25/2009 20:55	2/25/2009 10:10	2/20/2009 17:25	0.267	6721	30	224.03	243.66	4.69792	0.44792	3361	0.9960
409	1.805	Average	2/24/2009 0:30	2/23/2009 15:20	2/20/2009 17:25	0.267	5039	30	167.97	243.66	2.91319	0.38194	3359	0.9960
409	2.153	Stdev	2/3/2009 21:10	2/3/2009 15:00	1/30/2009 10:50	0.267	7949	30	264.97	243.67	4.17361	0.25694	3339	0.9960
409	2.149		2/27/2009 16:35	2/27/2009 11:30	2/23/2009 16:05	0.267	7516	30	250.53	243.66	3.80903	0.21181	3363	0.9960
410	1.869	Average	2/26/2009 8:50	2/25/2009 13:05	2/20/2009 17:25	0.267	6838	30	227.93	243.66	4.31944	0.82292	3361	0.9960
410	1.965	Stdev	2/4/2009 8:30	2/3/2009 15:30	1/30/2009 10:50	0.267	6708	30	223.60	243.67	4.19444	0.70853	3339	0.9960
410	1.824		2/24/2009 8:00	2/23/2009 15:40	2/20/2009 17:25	0.267	4840	30	161.33	243.66	2.92708	0.68056	3359	0.9960
411	1.824	Average	2/24/2009 8:40	2/23/2009 15:55	2/20/2009 17:25	0.267	4839	30	161.30	243.66	2.93750	0.69792	3359	0.9960
411	1.911	Stdev	2/27/2009 17:45	2/27/2009 12:20	2/23/2009 16:05	0.267	6357	30	211.90	243.66	3.84375	0.22569	3363	0.9960
411	1.836		2/26/2009 9:30	2/25/2009 13:40	2/20/2009 17:25	0.267	6734	30	224.47	243.66	4.84375	0.82639	3361	0.9960
412	1.947	Average	2/26/2009 10:15	2/25/2009 14:05	2/20/2009 17:25	0.267	7137	30	237.90	243.66	4.86111	0.84028	3361	0.9960
412	2.131	Stdev	2/27/2009 18:20	2/27/2009 12:45	2/23/2009 16:05	0.267	7495	30	249.83	243.66	3.86111	0.23264	3363	0.9960
412	1.822		2/24/2009 9:40	2/23/2009 16:10	2/20/2009 17:25	0.267	4818	30	160.60	243.66	2.94792	0.72917	3359	0.9960

EffErr 0.123705 <- Put in Machines.xls (Lucas Cell Tab)

*Angela J. ... 3/2/09*  
*Miki Davel 3/2/09*

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401	1.574	3/2/2009
402	2.118	3/2/2009
403	1.463	3/2/2009
404	1.931	3/2/2009
405	1.903	3/2/2009
409	2.036	3/2/2009
410	1.886	3/2/2009
411	1.824	3/2/2009
412	1.967	3/2/2009

## General Engineering Laboratories Verification Source Preparation Sheet

Applicable SOP Number GLRAD-A-008 Isotope Pu-239  
 Date Standards Prepared 4/15/09 Cocktail Type Used NA  
 Standard ID 02996 Matrix of Vial/Planchett NA  
 Amount Used (g or ml) 0.1 Type of Scintillation Vial NA  
 Standard Activity (DPM/g or mL) 2446.347 Pipette ID Used 1429303  
 Reference Date 4/15/09 Balance ID Used 3604026  
 Expiration Date 4/15/09 Quenching Agent NA  
 Residue/Carrier Agent 0.5M HCl

	Standard Number	Quenching Vol (uL) Residue Volume(mL)	Initial Wt. (g)	Final Wt. (g)	Net Wt. (mg)
3	CA13				
43	CA143				
7	CA17				
42	CA142				
13	CA143				
44	CA144				
30	CA130				
48	CA148				
36	CA136				
35	CA135				
38	CA138				
15	CA115				
14	CA114				
46	CA146				
47	CA147				

*W 3/2/09*

Prepared By: Kell Deneo Date: 3/2/09  
 Reviewed By: Angie J. Ghera Date: 3/2/09





# Standard Traceability Log Rad

Source Material Info		A Solution Material Info	
Parent Code:	0299	Isotope:	Radium-226
Prepared By:	Angela Johnson	Prepared By:	Angela Johnson
Carrier Conc:	0.5 M HCL	Prep Date:	09/15/2000
Reference Date:	12/15/1999	Verification Date:	01/23/2008
Ampoule Mass (g):	5.0368 g	Expiration Date:	01/23/2009
Uncertainty:	+/- 2.5 %	Primary Code:	0299-A
LogBook No:	RC S 027 128	Dilution(mL):	100 mL
		Mass of Parent(g):	4.6634 g
		Density(g/mL):	1.0012
		Balance ID:	

643

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

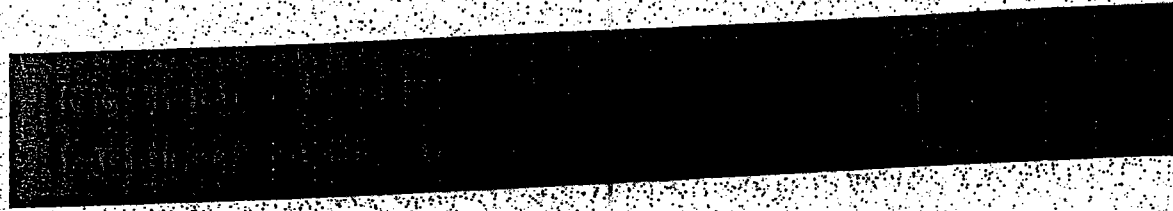
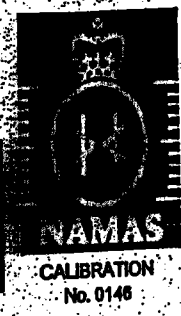
$(\text{Mass of parent(g)}) * (\text{Parent Activity (kBq/g)}) * (\text{conversion dpm to kBq}) / (\text{Dilution Vol}) = \text{Parent Activity (dpm/mL)}$
$(\text{Mass of parent(g)}) * (\text{Parent Activity (kBq/g)}) * (\text{conversion dpm to kBq}) / \text{Density (g/mL)} / (\text{Dilution Vol}) = \text{Parent Activity (dpm/g)}$
$(4.6634 \text{ g}) * (43.75 \text{ kBq/g}) * (60000 \text{ dpm/kBq}) / (100 \text{ mL}) = 122414.2500 \text{ dpm/mL}$
$(4.6634 \text{ g}) * (43.75 \text{ kBq/g}) * (60000 \text{ dpm/kBq}) / (1.0012 \text{ g/mL}) / (100 \text{ mL}) = 122273.3377 \text{ dpm/g}$

## Secondary Standards

Prep Date	Preparer	Mass Primary	Dilution (mL)	Code	Conc dpm/mL	Verification Date	Expiration Date
08/26/2003	Angela Johnson	1.9909	100	0299-E	2434.34 dpm/mL	11/04/2004	11/04/2005
08/26/2003	Angela Johnson	1.9872	100	0299-F	2429.82 dpm/mL	08/26/2004	08/26/2005
04/05/2005	Amanda Fehr	5.0018	250	0299-G	2446.3471 dpm/mL	04/02/2008	04/02/2009

8-21-00  
Nycomed Amersham plc  
Amersham Laboratories

0299



Nycomed Amersham plc  
Radiation & Radioactivity  
Calibration Laboratory  
Amersham Laboratories  
White Lion Road  
Amersham  
Buckinghamshire  
HP7 9LL

ISSUED  
FOR:

AEA Technology plc  
Isotrak  
Amersham Laboratories  
White Lion Road  
Amersham  
Buckinghamshire  
HP7 9LL

ion Principal radionuclide: Radium-226

Product code: RAY44  
Solution number: R4/131/89

ment Reference time: 1200 GMT on 15 December 1999

data Nuclear data quoted on this certificate are taken from the Joint European File, Version 2.2.

ion of The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor  $k = 2.00$ , which  
inties for a  $t$ -distribution with  $\nu_{eff} = \infty$  effective degrees of freedom corresponds to a coverage probability of approximately  
95%. The uncertainty evaluation has been carried out in accordance with UKAS requirements.

Unless indicated, all other uncertainties are expressed at the confidence level associated with one standard  
uncertainty.

The format used for the uncertainties in the values of radionuclidic purity is illustrated in the following examples;

6.5(21)	-	6.5 ± 2.1
6.54(21)	-	6.54 ± 0.21
6.543(21)	-	6.543 ± 0.021

ved  
ory

Date of  
issue 644  
17<sup>th</sup> December 1999

Nycomed  
Amersham  
Via 31/05

# Verification for Ra-226 Standard 0299-G

4/2/2008	Isotope	Detector CPM	BKG CPM	NET CPM	Detector Eff	Standard Mass. Used (G)	Source DPM/G
D. Roy	0299-G N1	2536.9600	52.4000	2484.5600	1.917186	0.5057	2562.667649
	0299-G N2	2520.2500	52.4000	2467.8500	1.917186	0.5056	2545.935781
	0299-G N3	2532.5000	52.4000	2480.1000	1.917186	0.5042	2565.677715
						Average =	2558.093715

Mean Value (Counting) = 2558.093715      **Pass**  
 Stdev = 10.63610098      0.00415782      **Rule 3 (Pass/Fail)**

Certificate Value = 2437.6      dpm/mL  
 Lower Limit = 2536.821513      dpm/mL  
 Upper Limit = 2579.365917      dpm/mL  
**Rule 1 Pass/Fail**      \*exception taken due to full recovery of standard  
 Two sigma = 21.27220197      dpm/mL  
 10 % of Mean = 255.8093715      dpm/mL  
**Rule 2 (Pass/Fail)**      **Pass**

### Verification Rules

- Rule 1 =** The certificate value (NOT including any uncertainty) shall lie within the 95% confidence interval determined from the mean and two sigma standard deviation of the three measurements
- Rule 2 =** The two sigma value used for the 95% confidence interval shall not exceed 10% of the mean value of the three verification measurements.
- Rule 3 =** The determined mean value shall be within 10% of the certificate value.

The analyst prepared three standard verification sources for Ra-226 source 0299-G by transferring portions of the standard into tared glass liquid scintillation vials. One mL of DI Water and ten mLs of Ready Gel liquid scintillation cocktail was added to each vial and the vials were shaken to mix. A Blank vial was prepared in a similar fashion using 1 mL of DI water and 10 mL of Ready Gel cocktail. The standard verification vials and Background source were dark adapted for two hours and counted on LSC Gold for Radium source standard verification. The Ra-226 efficiency calibration which was used for verification calculations was performed on 4/02/08 using source 0024-A (Ra-226). Calibration data is recorded in this logbook under Ra-226 0024. Each verification source calculation was performed as follows:

$$\text{Source dpm/g} = (A - B)/(C)(D)$$

where:

- A = Ver. source cpm,
- B = BKG cpm,
- C = System efficiency, (cpm/dpm), and
- D = mass used for standard verification.

RAD.SOP.M-001

*Henry St. Johnson 4/19/08*  
*David Dwyer 4/10/08*  
*WMS*







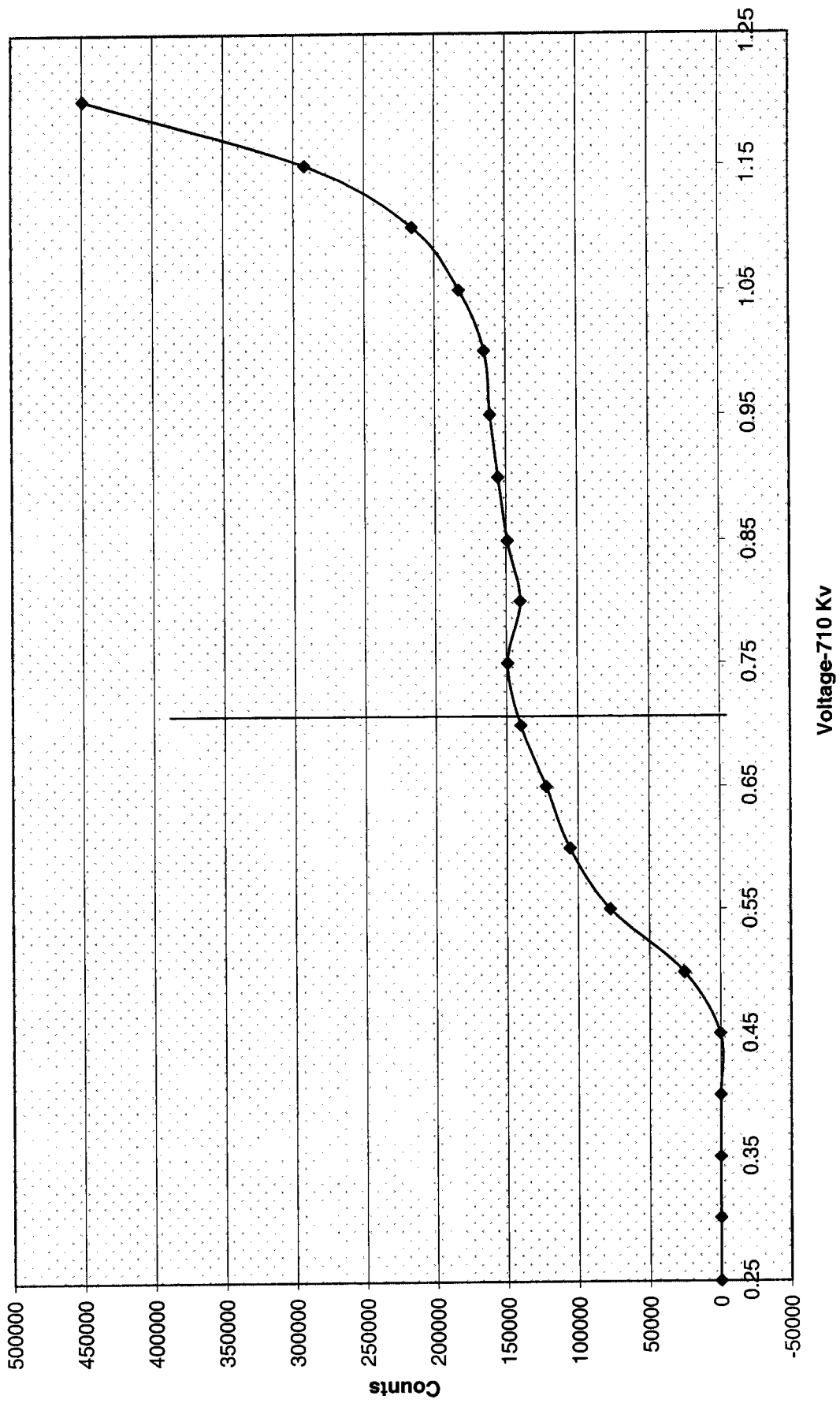








Ludlum 4 Voltage Curve



10/3/04

# General Engineering Laboratories

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

## Lucas Cell Calibration Package (501-512)

	YES	NO	Comments
1) Is all calibration standard information enclosed for: the primary standard certificate? the secondary 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) Is the efficiency calibration report included?	<input checked="" type="checkbox"/>		
3) Is the raw count data included for: Cell constant determination? Plateau generation?	<input checked="" type="checkbox"/>		
	<input checked="" type="checkbox"/>		
4) Are the calibration verifications included?	<input checked="" type="checkbox"/>		
5) Are the instrument settings included: HVPS settings?	<input checked="" type="checkbox"/>		
	<input checked="" type="checkbox"/>		
6) Has the CELLEFF.xls file been updated?	<input checked="" type="checkbox"/>		
7) Have the calibration dates been updated in ALPHALIMS?	<input checked="" type="checkbox"/>		

Prepared By: Kelli S. Dancer

Date: 3/24/09

Reviewed By: Angela Johnson

Date: 3/25/09

Effective Date: 3/25/09

# Ra-226 Cell Constants

standard ID: 0299-E  
Volume added (mL): 0.1  
Standard Reference Activity (DPM/mL): 2434.34

Lucas cell #	Cell constant	Standard Source	Date/Time of count	Date/time flushed to cell	Date/time end of degas	total counts	count time min	Known activity dpm	t1 (days) end-degas to flush	t2 (days) end-flush to count	t3 (days) Std Ref Date to count	Decay from Std Ref Date to count	
501	1.927	15	3/6/2009 7:50	3/3/2009 8:15	2/25/2009 14:00	5281	30	176.03	243.03	5.76042	2.98264	3369	0.9960
501	2.086	9	3/11/2009 10:40	3/10/2009 12:50	3/5/2009 14:00	7611	30	253.70	243.03	4.95139	0.90972	3374	0.9960
501	2.247	42	3/12/2009 13:30	3/12/2009 9:10	3/6/2009 15:25	10210	30	340.33	243.03	5.73958	0.18056	3376	0.9960
502	1.772	16	3/18/2009 8:25	3/17/2009 12:50	3/10/2009 14:00	7951	30	265.03	243.03	6.95739	0.81597	3381	0.9960
502	2.045	14	3/11/2009 11:15	3/10/2009 13:20	3/5/2009 14:00	7474	30	249.13	243.03	4.97222	0.91319	3374	0.9960
502	1.816	19	3/12/2009 14:20	3/12/2009 9:35	3/6/2009 15:25	8243	30	274.77	243.03	5.75694	0.19792	3376	0.9960
503	1.581	46	3/6/2009 9:20	3/5/2009 9:20	2/25/2009 14:00	7250	30	241.67	243.03	7.80556	1.00000	3369	0.9960
503	1.633	42	3/19/2009 20:15	3/19/2009 15:15	3/12/2009 12:10	8282	30	276.07	243.03	7.12847	0.20833	3383	0.9960
503	1.588	44	3/12/2009 14:50	3/12/2009 10:00	3/6/2009 15:25	7214	30	240.47	243.03	5.77431	0.20139	3378	0.9960
504	1.592	47	3/6/2009 10:30	3/5/2009 9:40	2/25/2009 14:00	7262	30	242.07	243.03	7.81944	1.03472	3369	0.9960
504	1.611	34	3/11/2009 12:30	3/10/2009 14:05	3/5/2009 14:00	5889	30	196.30	243.03	5.00347	0.93403	3375	0.9960
504	1.641	19	3/19/2009 20:50	3/19/2009 15:30	3/12/2009 12:10	8310	30	277.00	243.03	7.13889	0.22222	3383	0.9960
505	2.364	16	3/6/2009 12:40	3/5/2009 10:05	2/25/2009 14:00	10654	30	355.13	243.03	7.83681	1.10764	3370	0.9960
505	2.438	23	3/11/2009 13:00	3/10/2009 14:30	3/5/2009 14:00	8924	30	297.47	243.03	5.02083	0.93750	3375	0.9960
505	2.190	7	3/12/2009 17:01	3/12/2009 10:50	3/6/2009 15:25	9884	30	329.47	243.03	5.80903	0.25764	3376	0.9960
506	1.902	25	3/6/2009 13:10	3/5/2009 10:30	2/25/2009 14:00	8576	30	285.87	243.03	7.85417	1.11111	3370	0.9960
506	2.124	47	3/11/2009 13:30	3/10/2009 15:05	3/5/2009 14:00	7804	30	260.13	243.03	5.04514	0.93403	3375	0.9960
506	1.965	13	3/12/2009 17:40	3/12/2009 11:15	3/6/2009 15:25	8954	30	298.47	243.03	5.82639	0.26736	3376	0.9960
507	1.708	23	3/6/2009 13:45	3/5/2009 10:55	2/25/2009 14:00	7695	30	256.50	243.03	7.87153	1.11806	3370	0.9960
507	1.722	25	3/11/2009 14:20	3/10/2009 15:27	3/5/2009 14:00	6315	30	210.50	243.03	5.06042	0.95347	3375	0.9960
507	1.674	43	3/12/2009 18:30	3/12/2009 11:35	3/6/2009 15:25	7535	30	251.17	243.03	5.84028	0.28819	3376	0.9960
508	1.605	39	3/6/2009 14:20	3/5/2009 11:25	2/25/2009 14:00	7236	30	241.20	243.03	7.89236	1.12153	3370	0.9960
508	1.497	44	3/19/2009 21:30	3/19/2009 15:45	3/12/2009 12:10	7581	30	252.03	243.03	7.14931	0.23958	3383	0.9960
508	1.499	3	3/12/2009 20:45	3/12/2009 12:10	3/6/2009 15:25	6680	30	222.67	243.03	5.86458	0.35764	3376	0.9960
509	1.730	28	3/6/2009 14:50	3/5/2009 11:45	2/25/2009 14:00	7795	30	259.83	243.03	7.90625	1.12847	3370	0.9960
509	1.857	39	3/11/2009 15:25	3/10/2009 16:05	3/5/2009 14:00	6810	30	227.00	243.03	5.08681	0.97222	3375	0.9960
509	1.806	36	3/12/2009 21:20	3/12/2009 12:35	3/6/2009 15:25	8049	30	268.30	243.03	5.88194	0.36458	3376	0.9960
510	1.460	9	3/6/2009 15:25	3/5/2009 12:10	2/25/2009 14:00	6578	30	219.27	243.03	7.92361	1.13542	3370	0.9960
510	1.433	28	3/11/2009 16:05	3/10/2009 16:20	3/5/2009 14:00	5246	30	174.87	243.03	5.09722	0.98958	3375	0.9960
510	1.481	35	3/12/2009 21:55	3/12/2009 12:50	3/6/2009 15:25	6589	30	219.63	243.03	5.89236	0.37847	3376	0.9960
511	1.839	34	3/6/2009 16:30	3/5/2009 13:20	2/25/2009 14:00	8316	30	277.20	243.03	7.97222	1.13194	3370	0.9960
511	1.995	46	3/12/2009 16:50	3/10/2009 16:35	3/5/2009 14:00	7283	30	242.77	243.03	5.10764	1.01042	3375	0.9960
511	2.041	37	3/12/2009 22:40	3/12/2009 13:10	3/6/2009 15:25	9088	30	302.27	243.03	5.90625	0.39583	3376	0.9960
512	1.796	48	3/11/2009 17:35	3/10/2009 16:50	3/5/2009 14:00	6542	30	218.07	243.03	5.11806	1.03125	3375	0.9960
512	2.100	38	3/12/2009 23:15	3/12/2009 13:30	3/6/2009 15:25	9322	30	310.73	243.03	5.92014	0.40625	3376	0.9960
512	1.972	48	3/18/2009 13:00	3/17/2009 14:00	3/10/2009 14:00	8653	30	288.43	243.03	7.00000	0.95833	3382	0.9960

\*Backgrounds are not significant enough to be considered in calculations. ANSI N42.25-1997 (B.2).

Errr 0.143768 <- Put in Machines.xls (Lucas Cell Tab)

Calibration  
Ra-226 Verification-Sheet  
3/19/09

Cal # 5

no 3124109  
3119109

3/19/09

Sample ID	Volume (mL)	End Degas Date/Time	End De-em Date/Time	Start Count Date/Time	Cell #	Det #	Background CPM	Total Counts
Cal 15	500	2/25/09 1400	3/3/09 0815	3/6/09 0750	501	5	8	5781
<del>Cal 14</del>	<del>500</del>	<del>2/25/09 1400</del>	<del>2/25/09 0845</del>	<del>3/6/09 0840</del>	<del>502</del>	<del>5</del>	<del>1</del>	<del>4700</del>
		2/25/09 1400	3/3/09		503	5	100 3/3/09	6800
Cal 46	500	2/25/09 1400	3/5/09 0920	3/6/09 0900	503	5	3	7250
Cal 47	500	2/25/09 1400	3/5/09 0940	3/6/09 1030	504	5	1	7262
Cal 48	500	2/25/09 1400	3/5/09 1005	3/6/09 1040	505	5	3	10654
Cal 45	500	2/25/09 1400	3/5/09 1030	3/6/09 1016	506	5	8	8576
Cal 23	500	2/25/09 1400	3/5/09 1055	3/6/09 1345	507	5	4	7695
Cal 39	500	2/25/09 1400	3/5/09 1125	3/6/09 1420	508	5	1	7236
Cal 28	500	2/25/09 1400	3/5/09 1145	3/6/09 1450	509	5	8	7795
Cal 9	500	2/25/09 1400	3/5/09 1210	3/6/09 1525	510	5	2	6578
Cal 34	500	2/25/09 1400	3/5/09 1220	3/6/09 1630	511	5	6	8316

Calibration

Ra-226 Verification Sheet

219 3116109

Sample ID	Volume (mL)	End Degas Date/Time	End De-em Date/Time	Start Count Date/Time	Cell #	Det #	Background CPM	Total Counts
Cal 9	500	3/5/09 1400	3/10/09 1250	3/11/09 1040	501	5	8	7611
Cal 14	500	3/5/09 1400	3/10/09 1370	3/11/09 1115	502	5	5	7474
<del>Cal 15</del>	<del>500</del>	<del>3/5/09 1400</del>	<del>3/10/09 1345</del>	<del>3/11/09 1155</del>	<del>503</del>	<del>5</del>	<del>8</del>	<del>7352</del>
Cal 16	500	3/5/09 1400	3/10/09 1405	3/11/09 1230	504	5	4	5889
Cal 17	500	3/5/09 1400	3/10/09 1430	3/11/09 1280	505	5	2	8924
Cal 17	500	3/5/09 1400	3/10/09 1505	3/11/09 1530	506	5	8	7804
<del>Cal 18</del>	<del>500</del>	<del>3/5/09 1400</del>	<del>3/10/09 1527</del>	<del>3/11/09 1410</del>	<del>507</del>	<del>5</del>	<del>4</del>	<del>6315</del>
<del>Cal 19</del>	<del>500</del>	<del>3/5/09 1400</del>	<del>3/10/09 1550</del>	<del>3/11/09 1455</del>	<del>508</del>	<del>5</del>	<del>4</del>	<del>6443</del>
Cal 29	500	3/5/09 1400	3/10/09 1605	3/11/09 1525	509	5	8	6810
Cal 28	500	3/5/09 1400	3/10/09 1620	3/11/09 1610	510	5	3	5246
Cal 44	500	3/5/09 1400	3/10/09 1635	3/11/09 1650	511	5	8	7283
Cal 48	500	3/5/09 1400	3/10/09 1650	3/11/09 1735	512	5	8	6542

219 3124109

219 3124109

219 3124109

219 3116109







# Ra-226 Calibration Sheet

Standard ID: 0124109

Volume Added (mL): 1.1

Expiration Date: 4/12/09

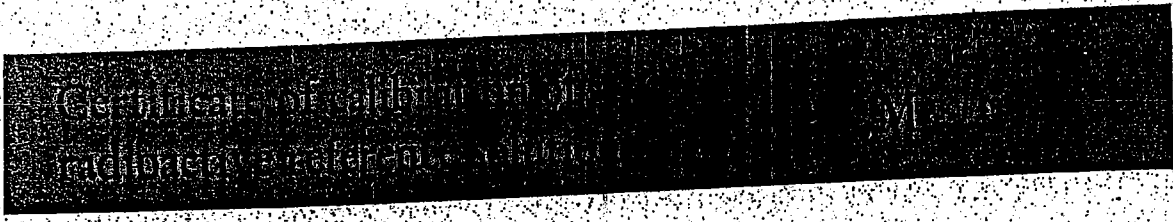
Sample ID	Volume (mL)	End Degas Date/Time	End De-em Date/Time	Start Count Date/Time	Cell #	Det #	Total Counts
Cal 42	500	3/12/09 1210	3/12/09 1515	3/19/09 2015	503	85	8282
Cal 19	500	3/12/09 1210	3/12/09 1530	3/19/09 2030	504	5	8310
Cal 44	500	3/12/09 1210	3/12/09 1545	3/19/09 2130	508	5	7561
<del>Cal 30</del>	<del>500</del>	<del>3/12/09 1210</del>	<del>3/12/09 1600</del>	<del>3/19/09 2200</del>	<del>509</del>	<del>5</del>	<del>7442</del>

3/25/09  
3/25/09

8-21-00

Nycomed Amersham plc  
Amersham Laboratories

0299



Nycomed Amersham plc  
Radiation & Radioactivity  
Calibration Laboratory  
Amersham Laboratories  
White Lion Road  
Amersham  
Buckinghamshire  
HP7 9LL

ISSUED  
FOR:

AEA Technology plc  
Isotrak  
Amersham Laboratories  
White Lion Road  
Amersham  
Buckinghamshire  
HP7 9LL

ion Principal radionuclide: Radium-226

Product code: RAY44  
Solution number: R4/131/89

ment Reference time: 1200 GMT on 15 December 1999

data Nuclear data quoted on this certificate are taken from the Joint European File, Version 2.2.

ion of The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor  $k = 2.00$ , which  
inties for a  $t$ -distribution with  $v_{eff} = \infty$  effective degrees of freedom corresponds to a coverage probability of approximately  
95%. The uncertainty evaluation has been carried out in accordance with UKAS requirements.

Unless indicated, all other uncertainties are expressed at the confidence level associated with one standard  
uncertainty.

The format used for the uncertainties in the values of radionuclidic purity is illustrated in the following examples;

6.5(21)	-	6.5 ± 2.1
6.54(21)	-	6.54 ± 0.21
6.543(21)	-	6.543 ± 0.021

ved

Date of 660 17<sup>th</sup> December 1999



# Standard Traceability Log Rad

Source Material Info	
Parent Code:	0299
Prepared By:	Angela Johnson
Carrier Conc:	0.5 M HCL
Reference Date:	12/15/1999
Ampoule Mass (g):	5.0368 g
Uncertainty:	+/- 2.5 %
LogBook No:	RC S 027 128

A Solution Material Info	
Isotope:	Radium-226
Prepared By:	Angela Johnson
Prep Date:	09/15/2000
Verification Date:	01/23/2008
Expiration Date:	01/23/2009
Primary Code:	0299-A
Dilution(mL):	100 mL
Mass of Parent(g):	4.6634 g
Density(g/mL):	1.0012
Balance ID:	

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

$$(\text{Mass of parent(g)}) * (\text{Parm Activity (kBq/g)}) * (\text{conversion dpm to kBq}) / (\text{Dilution Vol}) = \text{Parent Activity (dpm/mL)}$$

$$(\text{Mass of parent(g)}) * (\text{Parm Activity (kBq/g)}) * (\text{conversion dpm to kBq}) / \text{Density (g/mL)} / (\text{Dilution Vol}) = \text{Parent Activity (dpm/g)}$$

$$(4.6634 \text{ g}) * (43.75 \text{ kBq/g}) * (60000 \text{ dpm/kBq}) / (100 \text{ mL}) = 122414.2500 \text{ dpm/mL}$$

$$(4.6634 \text{ g}) * (43.75 \text{ kBq/g}) * (60000 \text{ dpm/kBq}) / (1.0012 \text{ g/mL}) / (100 \text{ mL}) = 122273.3377 \text{ dpm/g}$$

### Secondary Standards

Prep Date	Preparer	Mass Primary	Dilution (mL)	Code	Conc dpm/mL	Verification Date	Expiration Date
08/26/2003	Angela Johnson	1.9909	100	0299-E	2434.34 dpm/mL	11/04/2004	11/04/2005
08/26/2003	Angela Johnson	1.9872	100	0299-F	2429.82 dpm/mL	08/26/2004	08/26/2005
04/05/2005	Amanda Fehr	5.0018	250	0299-G	2446.3471 dpm/mL	04/02/2008	04/02/2009

GEL Laboratories LLC  
Version 1.0 9/18/2000

*Kelli Dorell*

# Verification for Ra-226 Standard 0299-G

4/2/2008	Isotope	Detector CPM	BKG CPM	NET CPM	Detector Eff	Standard Mass. Used (G)	Source DPM/G
D. Roy	0299-G N1	2536.9600	52.4000	2484.5600	1.917186	0.5057	2562.667649
	0299-G N2	2520.2500	52.4000	2467.8500	1.917186	0.5056	2545.935781
	0299-G N3	2532.5000	52.4000	2480.1000	1.917186	0.5042	2565.677715
						Average =	2558.093715

Mean Value (Counting) = 2558.093715  
 Stdev = 10.63610098

Certificate Value = 2437.6 dpm/mL  
 Lower Limit = 2536.821513 dpm/mL  
 Upper Limit = 2579.365917 dpm/mL  
 Rule 1 Pass/Fail = **Fail** \*exception taken due to full recovery of standard  
 Two sigma = 21.27220197 dpm/mL  
 10 % of Mean = 255.8093715 dpm/mL  
 Rule 2 (Pass/Fail) = **Pass**

### Verification Rules

- Rule 1 = The certificate value (NOT including any uncertainty) shall lie within the 95% confidence interval determined from the mean and two sigma standard deviation of the three measurements
- Rule 2 = The two sigma value used for the 95% confidence interval shall not exceed 10% of the mean value of the three verification measurements.
- Rule 3 = The determined mean value shall be within 10% of the certificate value.

The analyst prepared three standard verification sources for Ra-226 source 0299-G by transferring portions of the standard into tared glass liquid scintillation vials. One mL of DI Water and ten mLs of Ready Gel liquid scintillation cocktail was added to each vial and the vials were shaken to mix. A Blank vial was prepared in a similar fashion using 1 mL of DI water and 10 mL of Ready Gel cocktail. The standard verification vials and Background source were dark adapted for two hours and counted on LSC Gold for Radium source standard verification. The Ra-226 efficiency calibration which was used for verification calculations was performed on 4/02/08 using source 0024-A (Ra-226). Calibration data is recorded in this logbook under Ra-226 0024. Each verification source calculation was performed as follows:

$$\text{Source dpm/g} = (A - B)/(C)(D)$$

where:

- A = Ver. source cpm,
- B = BKG cpm,
- C = System efficiency, (cpm/dpm), and
- D = mass used for standard verification.

BAD.SOP.M-001

*Handwritten notes:*  
 New Source 3/24/09  
 4/19/08  
 David Dwyer 4/10/08

**General Engineering Laboratories**  
**Verification Source Preparation Sheet**  
*Calibration*

Applicable SOP Number GL RAD-A-008 Isotope RA-226  
 Date Standards Prepared 4/15/09 Cocktail Type Used NA  
 Standard ID 0249-G Matrix of Vial/Planchett NA  
 Amount Used (g or ml) 0.1 NA  
 Standard Activity (DPM/g or ml) 2446.347 Type of Scintillation Vial NA  
 Reference Date 12/15/99 Pipette ID Used 1429303  
 Expiration Date 4/2/09 Balance ID Used 36240216  
 Residue/Carrier Agent D.5M HCl Quenching Agent NA

	Standard Number	Quenching Vol (uL) Residue Volume (mL)	Initial Wt. (g)	Final Wt. (g)	Net Wt. (mg)
15	Ca115				
46	Ca146				
47	Ca147				
16	Ca116				
25	Ca125				
23	Ca123				
39	Ca139				
28	Ca128				
9	Ca19				
34	Ca134				
42	Ca142				
19	Ca119				
44	Ca144				
7	Ca17				
13	Ca113				

VLD 3/24/09

Prepared By: Kelli D'Amico Date 3/24/09  
 Reviewed By: \_\_\_\_\_ Date \_\_\_\_\_

Rev 1 RLM 9/10/97



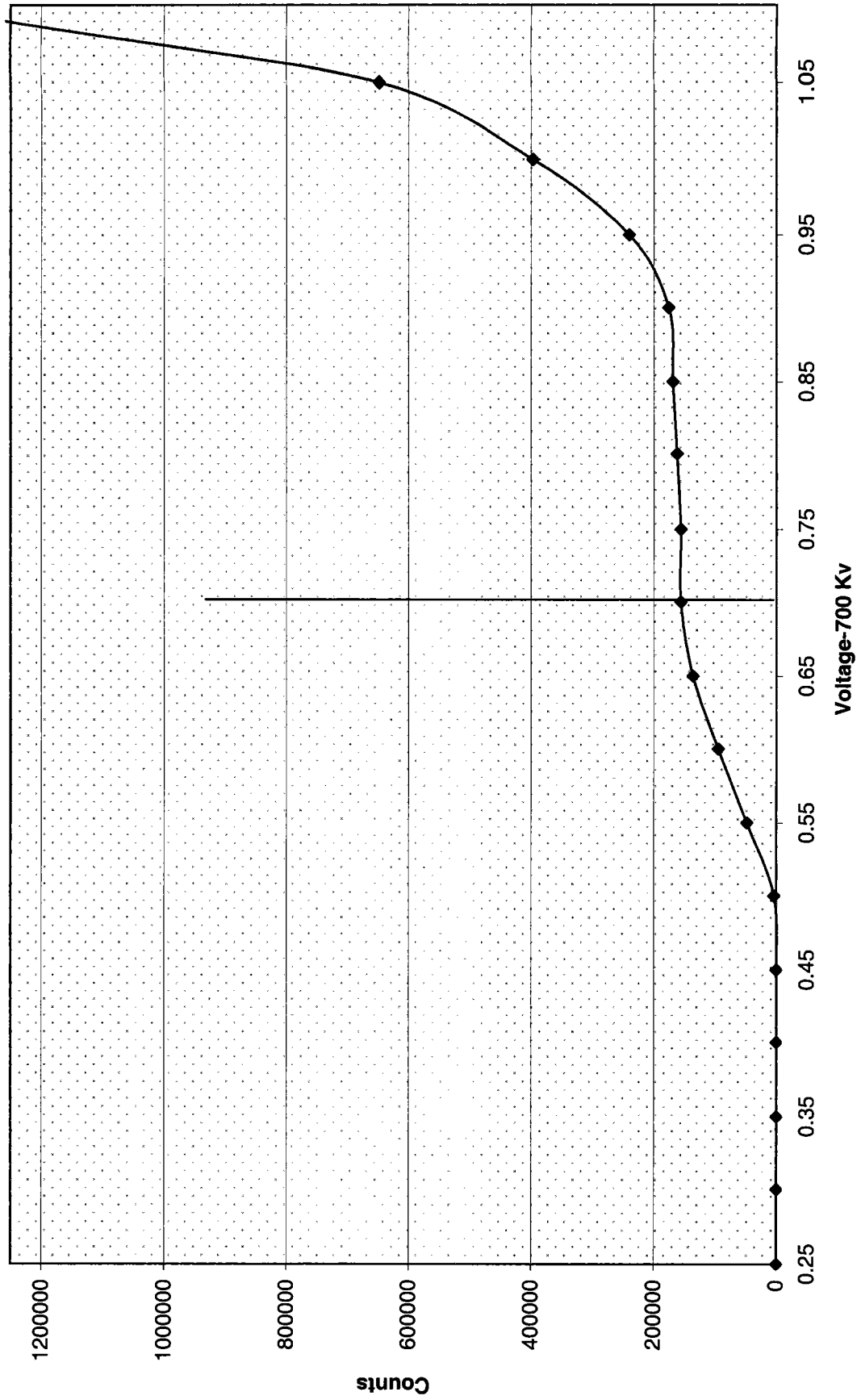
Voltage

Voltage Curve Ludlum # 5				
Volts	Counts	Date	Time	Detector
0.00	0	2/25/2009	9:20	5
0.05	0	2/25/2009	9:20	5
0.10	0	2/25/2009	9:20	5
0.15	0	2/25/2009	9:20	5
0.20	0	2/25/2009	9:20	5
0.25	0	2/25/2009	9:20	5
0.30	0	2/25/2009	9:20	5
0.35	0	2/25/2009	9:20	5
0.40	0	2/25/2009	9:20	5
0.45	0	2/25/2009	9:20	5
0.50	3611	2/25/2009	9:20	5
0.55	47984	2/25/2009	9:20	5
0.60	94752	2/25/2009	9:20	5
0.65	135854	2/25/2009	9:20	5
0.70	155952	2/25/2009	9:20	5
0.75	155696	2/25/2009	9:20	5
0.80	161972	2/25/2009	9:20	5
0.85	168840	2/25/2009	9:20	5
0.90	175598	2/25/2009	9:20	5
0.95	239969	2/25/2009	9:20	5
1.00	397249	2/25/2009	9:20	5

UD 3/25/09



# Ludlum 5 Voltage Curve



KAP 3/24/09

# Ra-226 WATER

Batch : LCSVER  
 Date : 2/20/2008  
 Analyst : DXM2

Procedure Code : LUC26RAL  
 Parmname : Radium-226  
 MDA : 1 pCi/L

Bkg Count Time: 30 min Instrument Used : LUCAS CELL DETECTOR

Sample ID	Sample Vol L	Count Time min	Gross counts cts	Cell # num	Cell Const. num	BKG cpm	Ra-226 MDA pCi/L	Ra-226 RESULT pCi/L	Ra-226 ERROR pCi/L	COUNT DATE/TIME
Ver 1	0.500	30	766	501	2.087	0.267	0.6041	28.8142	2.0728	3/16/2009 15:10
Ver 2	0.500	30	537	502	1.878	0.167	0.5682	23.0223	1.9747	3/16/2009 19:25
Ver 3	0.500	30	518	503	1.601	0.267	0.8071	25.9035	2.2832	3/16/2009 20:20
Ver 4	0.500	30	701	504	1.615	0.267	0.6021	26.2570	1.9774	3/20/2009 19:00
Ver 5	0.500	30	680	505	2.331	0.033	0.2559	23.5744	1.7758	3/16/2009 22:00
Ver 6	0.500	30	893	506	2.004	0.267	0.4859	27.0593	1.7988	3/20/2009 19:40
Ver 7	0.500	30	488	507	1.701	0.267	0.7287	22.0004	2.0008	3/16/2009 23:00
Ver 8	0.500	30	544	508	1.534	0.033	0.3760	27.7023	2.3344	3/16/2009 23:30
Ver 9	0.500	30	768	509	1.798	0.267	0.5430	25.9694	1.8657	3/20/2009 20:50
Ver 10	0.500	30	432	510	1.458	0.033	0.3700	21.6379	2.0476	3/17/2009 5:00
Ver 11	0.500	30	577	511	1.959	0.267	0.5934	21.2369	1.7694	3/17/2009 5:35
Ver 12	0.500	30	723	512	1.956	0.267	0.5945	26.7349	1.9815	3/17/2009 6:10

Sample ID	Sample Dup	Det #	Run Date	Sample Type	Standard ID	NC	NC units	Recovery/RPD
501		5	3/16/2009 15:10	LCS	0638-F	24.05	pCi/L	120%
502		5	3/16/2009 19:25	LCS	0638-F	24.05	pCi/L	96%
503		5	3/16/2009 20:20	LCS	0638-F	24.05	pCi/L	108%
504		5	3/20/2009 19:00	LCS	0638-F	24.05	pCi/L	109%
505		5	3/16/2009 22:00	LCS	0638-F	24.05	pCi/L	98%
506		5	3/20/2009 19:40	LCS	0638-F	24.05	pCi/L	113%
507		5	3/16/2009 23:00	LCS	0638-F	24.05	pCi/L	91%
508		5	3/16/2009 23:30	LCS	0638-F	24.05	pCi/L	115%
509		5	3/20/2009 20:50	LCS	0638-F	24.05	pCi/L	108%
510		5	3/17/2009 5:00	LCS	0638-F	24.05	pCi/L	90%
511		5	3/17/2009 5:35	LCS	0638-F	24.05	pCi/L	88%
512		5	3/17/2009 6:10	LCS	0638-F	24.05	pCi/L	111%

DEGASSING DATE/TIME	DE-EMAN. DATE/TIME	DEGASS-DE-EM	dE-EM-COUNT	constant	constant	constant	Net CPM	Ingrowth constant
3/13/2009 15:30	3/16/2009 9:45	66.25	5.42	0.3936	0.9599	1.0019	25.2667	0.3785
3/13/2009 15:30	3/16/2009 10:10	66.67	9.25	0.3955	0.9325	1.0019	17.7333	0.3695
3/13/2009 15:30	3/16/2009 10:30	67.00	9.83	0.3970	0.9284	1.0019	17.0000	0.3693
3/16/2009 14:00	3/20/2009 13:05	95.08	5.92	0.5122	0.9563	1.0019	23.1000	0.4908
3/13/2009 15:30	3/16/2009 11:25	67.92	10.58	0.4012	0.9232	1.0019	22.6333	0.3711
3/16/2009 14:00	3/20/2009 13:20	95.33	6.33	0.5131	0.9533	1.0019	29.5000	0.4901
3/13/2009 15:30	3/16/2009 13:50	70.33	9.17	0.4120	0.9331	1.0019	15.9997	0.3852
3/13/2009 15:30	3/16/2009 13:50	70.33	9.67	0.4120	0.9296	1.0019	18.1000	0.3837
3/16/2009 14:00	3/20/2009 13:45	95.75	7.08	0.5147	0.9479	1.0019	25.3333	0.4888
3/13/2009 5:30	3/16/2009 14:25	80.92	14.58	0.4571	0.8957	1.0019	14.3667	0.4103
3/13/2009 5:30	3/16/2009 14:45	81.25	14.83	0.4585	0.8941	1.0019	18.9663	0.4107
3/13/2009 5:30	3/16/2009 15:00	81.50	15.17	0.4595	0.8918	1.0019	23.8330	0.4106

Ra-226 Verification Sheet

Sample ID	Volume (mL)	End Degas Date/Time	End De-em Date/Time	Start Count Date/Time	Cell #	Det #	Background CPM	Total Counts
NUN 1	500	3/16/09 1530	3/16/09 0945	3/16/09 1510 <del>3/16/09 1510</del> <del>3/16/09 1510</del>	501	5	8	766
NUN 2	500	3/13/09 1530	3/16/09 1010	3/16/09 1925	502	5	85 <del>140 3124109</del>	537
NUN 3	500	3/13/09 1530	3/16/09 1030	3/16/09 2020	503	5	8	518
<del>NUN 4</del>	<del>500</del>	<del>3/13/09 1530</del>	<del>3/16/09 1100</del>	<del>3/16/09 2115</del>	<del>504</del>	<del>5</del>	<del>8</del>	<del>577</del>
NUN 5	500	3/13/09 1530	3/16/09 1125	3/16/09 2200	505	5	8 <del>140 3124109</del>	680
<del>NUN 6</del>	<del>500</del>	<del>3/13/09 1530</del>	<del>3/16/09 1155</del>	<del>3/16/09 2230</del>	<del>506</del>	<del>5</del>	<del>8</del>	<del>707</del>
NUN 7	500	3/13/09 1530	3/16/09 1320	3/16/09 2300	507	5	8	488
NUN 8	500	3/13/09 1530	3/16/09 1350	3/16/09 2330	508	5	8 <del>140 3124109</del>	544
<del>NUN 9</del>	<del>500</del>	<del>3/13/09 1530</del>	<del>3/16/09 1410</del>	<del>3/17/09 0445</del> <del>3/17/09 0345</del>	<del>509</del>	<del>5</del>	<del>8</del>	<del>640</del>
NUN 10	500	3/13/09 1530	3/16/09 1415	3/17/09 0500 <del>3/17/09</del>	510	5	8 <del>140 3124109</del>	432
NUN 11	500	3/13/09 1530	3/16/09 1445	3/17/09 0535	511	5	8	577
NUN 12	500	3/13/09 1530	3/16/09 1500	3/17/09 0610	512	5	8	723

140  
3124109

140  
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3/25/09  
3/25/09

3/17/09  
140

# Ra-226 Verification Sheet

Standard ID: 0638F

Volume Added (mL): 0.1

Expiration Date: 12/10

Sample ID	Volume (mL)	End Degas Date/Time	End De-em Date/Time	Start Count Date/Time	Cell #	Det #	Background Counts	Total Counts
<del>VEN 1</del>	<del>500</del>	<del>3/16/09 1400</del>	<del>3/20/09 1245</del>	<del>3/20/09 1820</del>	<del>501</del>	<del>5</del>	<del>8</del>	<del>70</del>
VEN 2	500	3/16/09 1400	3/20/09 1305	3/20/09 1900	504	5	8	701
VEN 3	500	3/16/09 1400	3/20/09 1320	3/30/09 1940	506	5	8	893
VEN 4	500	3/16/09 1400	3/20/09 1345	3/30/09 2050	509	5	8	768

VEN 3/24/09

VEN 3/24/09

VEN 3/24/09



# GEL Standard Traceability Log Rad

Source Material Info		A Solution Material Info	
Parent Code:	0638	Isotope:	Radium-226
Prepared By:	Amanda Fehr	Prepared By:	Amanda Fehr
Carrier Conc:	0.1M HCl	Prep Date:	01/16/2006
Reference Date:	01/23/2004	Verification Date:	03/04/2007
Ampoule Mass (g):	5.01065 g	Expiration Date:	03/04/2008
Uncertainty:	+/- 3.3 %	Primary Code:	0638-A
LogBook No:	RC-S-037-037	Dilution(mL):	100 mL
		Mass of Parent(g):	4.8398 g
		Density(g/mL):	1.0266
		Balance ID:	38080204

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

$(\text{Mass of parent(g)}) * (\text{Parm Activity (dps)}) * (\text{conversion dpm to dps}) / (\text{Ampoule Mass(g)} * (\text{Dilution Vol})) = \text{Parent Activity (dpm/mL)}$
$(\text{Mass of parent(g)}) * (\text{Parm Activity (dps)}) * (\text{conversion dpm to dps}) / \text{Density} / (\text{Ampoule Mass (g)} * (\text{Dilution Vol})) = \text{Parent Activity (dpm/g)}$
$(4.8398 \text{ g}) * (23530 \text{ dps}) * (60 \text{ dpm/dps}) / (5.01065 \text{ g} * 100 \text{ mL}) = 13636.6133 \text{ dpm/mL}$
$(4.8398 \text{ g}) * (23530 \text{ dps}) * (60 \text{ dpm/dps}) / (1.0266 \text{ g/mL}) / (5.01065 \text{ g} * 100 \text{ mL}) = 13282.9676 \text{ dpm/g}$

### Secondary Standards

Prep Date	Preparer	Mass Primary	Dilution (mL)	Code	Conc dpm/mL	Verification Date	Expiration Date
01/17/2006	Amanda Fehr	2.1041	100	0638-B	279.0211 dpm/mL	01/17/2007	01/17/2008
07/17/2006	Mary Aders	2.1313	100	0638-C	282.6281 dpm/mL	07/26/2006	07/26/2007
03/28/2007	Daniel Roy	2.1025	100	0638-D	279.2744 dpm/ml	04/08/2007	04/08/2008
03/28/2007	Daniel Roy	45.468	250	0638-E	2415.7999 dpm/ml	04/09/2008	04/08/2009
12/18/2007	Daniel Roy	2.014	100	0638-F	267.519 dpm/ml	02/02/2009	02/02/2010
02/12/2008	Daniel Roy	.5004	100	0638-G	66.468 dpm/ml	03/04/2008	03/04/2009
07/23/2008	Daniel Roy	5.0607	250	0638-H	268.8845 dpm/ml	07/23/2008	07/23/2009

## Verification for Ra-226 Standard 0638-F

D. Roy	<b>Isotope</b>	<b>Value</b>	<b>Uncertainty</b>
2/2/2009	0638-F #1	24.629	1.7426
	0638-F #2	24.438	1.7557
	0638-F #3	22.791	1.6808
<b>Mean Value (Counting) =</b>	23.953	99.60	<b>Pass</b>
<b>Stdev =</b>	1.010781096		<b>Rule 3 (Pass/Fail)</b>
<b>Target =</b>	24.05		
<b>Lower Limit =</b>	21.93100448		
<b>Upper Limit =</b>	25.97412886		
<b>Rule 1 Pass/Fail</b>	<b>Pass</b>		
<b>Two sigma =</b>	2.021562191		
<b>10 % of Mean =</b>	2.395256667		
<b>Rule 2 (Pass/Fail)</b>	<b>Pass</b>		

**Rule 1 = The certificate value (NOT including any uncertainty) shall lie within the 95% confidence interval determined from the mean and two sigma standard deviation of the three measurements**

**Rule 2 = The two sigma value used for the 95% confidence interval shall not exceed 10% of the mean value of the three verification measurements.**

**Rule 3 = The determined mean value shall be within 5% of the certificate value.**

The analyst prepared three standard verification sources for standard 0638-F using 0.1 mL for each source. Each source was counted using routine Lucas cell procedures. Calibration for 0299-G was used in this verification.

140 3124109



**General Engineering Laboratories**

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

**Lucas Cell Calibration Package**

	YES	NO	Comments
1) Is all calibration standard information enclosed for: the primary standard certificate?	✓		
the second standard(s) documentation?	✓		
standard preparation information?	✓		
standard < 1 Year old or verified?	✓		
2) Is the efficiency calibration report included ?	✓		
3) Is the raw count data included for: Cell constant determination?	✓		
Plateau generation?	✓		
4) Are the calibration verifications included?	✓		
5) Are the instrument settings included: HVPS settings?	✓		
6) Has the CELLEFF.xls file been updated ?	✓		
7) Have the calibration dates been updated in ALPHALIMS ?	✓		

Prepared By: KDD/Denee

Date: 8/4/09

Reviewed By: Angela Denee

Date: 8/6/09

Effective Date: 8/4/09

KD 8/6/09

# Ra-226 Cell Constants

Standard Reference date: 12/15/1999  
Standard ID: 0299-G  
Volume added (mL): 0.1  
Standard Reference Activity (DPM/mL): 2446.3471

Lucas cell #	Cell constant	Standard Source	Date/Time of count	Date/time flushed to cell	Date/time end of degas	total counts	count time min	Known activity dpm	t1 (days)		t2 (days)		t3 (days)		Decay from Std Ref Date to count
									end-flush to flush	to flush	end-flush to count	to count	Std Ref Date to count	Std Ref Date to count	
601	2.164	Average	5/26/2009 13:30	5/26/2009 9:30	5/19/2009 14:00	10883	30	362.77	244.63	6.81250	0.16667	3451	3451	0.9959	
601	2.253	Stdev	5/22/2009 12:55	5/22/2009 9:15	5/19/2009 14:00	6378	30	212.60	244.63	2.80208	0.15278	3447	3447	0.9959	
601	2.126		5/29/2009 14:45	5/29/2009 9:50	5/22/2009 10:45	10735	30	357.83	244.63	6.96181	0.20486	3454	3454	0.9959	
602	2.007	Average	5/29/2009 15:20	5/29/2009 10:15	5/22/2009 10:45	10133	30	337.77	244.63	6.97917	0.21181	3454	3454	0.9959	
602	2.194	Stdev	5/26/2009 14:05	5/26/2009 9:55	5/19/2009 14:00	11033	30	367.77	244.63	6.82986	0.17361	3451	3451	0.9959	
602	2.304		6/2/2009 14:45	6/2/2009 11:30	5/29/2009 9:50	8575	30	285.83	244.63	4.06944	0.13542	3458	3458	0.9959	
604	2.244	Average	6/2/2009 15:50	6/2/2009 11:50	5/29/2009 9:50	8321	30	277.37	244.63	4.08333	0.16667	3458	3458	0.9959	
604	2.076	Stdev	5/29/2009 15:55	5/29/2009 10:45	5/22/2009 12:00	10451	30	348.37	244.63	6.94792	0.21528	3454	3454	0.9959	
604	2.079		5/26/2009 15:45	5/26/2009 10:20	5/19/2009 14:00	10372	30	345.73	244.63	6.84722	0.22569	3451	3451	0.9959	
605	2.096	Average	5/26/2009 16:15	5/26/2009 10:50	5/19/2009 14:00	10474	30	349.13	244.63	6.86806	0.22569	3451	3451	0.9959	
605	2.228	Stdev	5/22/2009 16:25	5/22/2009 10:45	5/19/2009 14:00	6318	30	210.60	244.63	2.86458	0.23611	3447	3447	0.9959	
605	2.122		5/29/2009 17:15	5/29/2009 11:05	5/22/2009 12:50	10587	30	352.90	244.63	6.92708	0.25694	3454	3454	0.9959	
606	2.543	Average	5/29/2009 17:45	5/29/2009 13:10	5/26/2009 9:30	7816	30	260.53	244.63	3.15278	0.19097	3454	3454	0.9959	
606	2.202	Stdev	5/26/2009 16:45	5/26/2009 12:25	5/22/2009 12:00	8057	30	288.57	244.63	4.01736	0.18056	3451	3451	0.9959	
606	2.298		6/2/2009 18:20	6/2/2009 12:55	5/29/2009 9:50	8495	30	283.17	244.63	4.12847	0.22569	3458	3458	0.9959	
607	2.454	Average	6/2/2009 19:00	6/2/2009 13:10	5/29/2009 9:50	9057	30	301.90	244.63	4.13889	0.24306	3458	3458	0.9959	
607	2.572	Stdev	5/29/2009 19:00	5/29/2009 13:25	5/26/2009 9:55	7832	30	261.07	244.63	3.14583	0.23264	3454	3454	0.9959	
607	2.325		5/26/2009 17:15	5/26/2009 12:50	5/22/2009 12:00	8527	30	284.23	244.63	4.03472	0.18403	3451	3451	0.9959	
609	2.277	Average	5/26/2009 19:20	5/26/2009 13:10	5/22/2009 12:00	8261	30	275.37	244.63	4.04861	0.25694	3451	3451	0.9959	
609	2.280	Stdev	5/22/2009 19:20	5/22/2009 12:00	5/19/2009 14:00	6473	30	215.77	244.63	2.91667	0.30556	3447	3447	0.9959	
609	2.392		5/29/2009 19:40	5/29/2009 13:45	5/26/2009 10:20	7261	30	242.03	244.63	3.14236	0.24653	3454	3454	0.9959	
611	2.488	Average	5/29/2009 20:20	5/29/2009 14:00	5/26/2009 10:50	7510	30	250.33	244.63	3.13194	0.26389	3454	3454	0.9959	
611	2.245	Stdev	5/26/2009 22:00	5/26/2009 13:25	5/22/2009 12:00	8010	30	267.00	244.63	4.05903	0.35764	3451	3451	0.9959	
611	2.187		6/2/2009 19:50	6/2/2009 13:25	5/29/2009 9:50	8052	30	288.40	244.63	4.14931	0.26736	3458	3458	0.9959	

EffEr 0.066051 ← Put in Machines.xls (Lucas Cell Tab)

Backgrounds are not significant enough to be included in calculations ANSI N42.25-1997 (B.2).

*Original of 9/16/09*  
*WJ 8/16/09*

601	2.181	8/4/2009
602	2.168	8/4/2009
604	2.133	8/4/2009
605	2.149	8/4/2009
606	2.348	8/4/2009
607	2.45	8/4/2009
609	2.316	8/4/2009
611	2.307	8/4/2009

<b>Lucas</b>	<b>Ra-226</b>	
Oldest Cal	01/23/2008	
<b>Detector</b>	<b>Eff Error</b>	<b>Cal Date</b>
1	0.0958	8/29/2008
2	0.0772	12/19/2008
3	0.0608	1/23/2008
4	0.1237	3/2/2009
5	0.1438	3/25/2009
6	0.0661	8/4/2009
7	0.0855	11/21/2008

**General Engineering Laboratories  
Calibration Source Preparation Sheet**

Applicable SOP Number GL-RAD-A-008

Isotope Ra226

Date Standards Prepared 4/5/05

Cocktail Type Used NA

Standard ID 0299-G

Matrix of Vial/Planchett NA

Amount Used (g or ml) 0.1

NA  
NA

Standard Activity (DPM/g or mL) 2446.3471

Type of Scintillation Vial NA

Reference Date 12/15/99

Pipette ID Used 1429303

Expiration Date 1/26/10

Balance ID Used 38080204

Residue/Carrier Agent 0.1M HCl

Quenching Agent NA

	Standard Number	Quenching Vol (uL)/ 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				

JBG  
8/4/09

JBG  
8/4/09

Prepared By: Kelli Rowell Date 8/4/09

Reviewed By: Angel J Gh Date 8/4/09

Rev 1 RLM 9/10/97









# Ra-226 Calibration Sheet

Standard ID: ~~10386~~ 0299-G  
 Volume Added (mL): 0.1 419 814101  
 Expiration Date: ~~11/26/10~~ 419 514109

Sample ID	Volume (mL)	End Degas Date/Time	End De-em Date/Time	Start Count Date/Time	Cell #	Det #	Total Counts
Cal 9	500	5/19/09 1400	5/26/09 1430	5/26/09 1330	601	6	10883
Cal 10	500	5/19/09 1400	5/26/09 1455	5/26/09 1405	602	6	11033
Cal 11	500	5/19/09 1400	5/26/09 1020	5/26/09 1545	604	6	10372
Cal 12	500	5/19/09 1400	5/26/09 1050	5/26/09 1615	605	6	10474
Cal 1	500	5/22/09 1200	5/26/09 1725	5/26/09 1645	606	6	8557
Cal 2	500	5/22/09 1200	5/26/09 1750	5/26/09 1715	607	6	8527
Cal 3	500	5/22/09 1200	5/26/09 1310	5/26/09 1920	609	6	8261
Cal 4	500	5/22/09 1200	5/26/09 1325	5/26/09 2200	611	6	8010
				608			

419 814109  
 419 814109

EEC

8-21-00

Nycomed Amersham plc  
Amersham Laboratories

0299

CALIBRATION  
No. 0146

ISSUED BY: Nycomed Amersham plc  
Radiation & Radioactivity  
Calibration Laboratory  
Amersham Laboratories  
White Lion Road  
Amersham  
Buckinghamshire  
HP7 9LL

ISSUED FOR: AEA Technology plc  
Isotrak  
Amersham Laboratories  
White Lion Road  
Amersham  
Buckinghamshire  
HP7 9LL

Description Principal radionuclide: Radium-226

Product code: RAY44  
Solution number: R4/131/89

Measurement Reference time: 1200 GMT on 15 December 1999

Nuclear data Nuclear data quoted on this certificate are taken from the Joint European File, Version 2.2.

Expression of uncertainties The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor  $k = 2.00$ , which for a  $t$ -distribution with  $\nu_{eff} = \infty$  effective degrees of freedom corresponds to a coverage probability of approximately 95%. The uncertainty evaluation has been carried out in accordance with UKAS requirements.

Unless indicated, all other uncertainties are expressed at the confidence level associated with one standard uncertainty.

The format used for the uncertainties in the values of radionuclidic purity is illustrated in the following examples;

6.5(21)	-	6.5 ± 2.1
6.54(21)	-	6.54 ± 0.21
6.543(21)	-	6.543 ± 0.021

Approved  
Signature

Date of issue

17<sup>th</sup> December 1999

## Verification for Ra-226 Standard 0299-G

M. Aders 1/26/2009	Isotope	Value DPM	Uncertainty
	0299-A #1	220.970	0.2670
	0299-A #2	241.730	0.2670
	0299-A #3	257.470	0.2670
<b>Mean Value (Counting) =</b>	240.057	98.52	<b>Pass</b>
<b>Stdev =</b>	18.30744475		<b>Rule 3 (Pass/Fail)</b>
<b>Target =</b>	243.67		
<b>Lower Limit =</b>	203.4417772		
<b>Upper Limit =</b>	276.6715562		
<b>Rule 1 Pass/Fail</b>	<b>Pass</b>		
<b>Two sigma =</b>	36.6148895		
<b>10 % of Mean =</b>	24.00566667		
<b>Rule 2 (Pass/Fail)</b>	<b>Fail</b>	<b>*exception taken due to full recovery of standard</b>	

- Rule 1 = The certificate value (NOT including any uncertainty) shall lie within the 95% confidence interval determined from the mean and two sigma standard deviation of the three measurements**
- Rule 2 = The two sigma value used for the 95% confidence interval shall not exceed 10% of the mean value of the three verification measurements.**
- Rule 3 = The determined mean value shall be within 5% of the certificate value.**

The analyst prepared three standard verification sources for standard 0299-A using 0.1 mL for each source. Each standard was degassed and transferred according to SOP GL-RAD-A-008. Each source was counted using Ra-226 procedures.

*M. Aders 241.730*  
*August 9th 8/4/09*

# Ra-226 Cell Constants

Standard Reference date: 12/15/1999  
standard ID: 0299-G  
Volume added (mL): 0.1  
Standard Reference Activity (DPM/mL): 2446.35

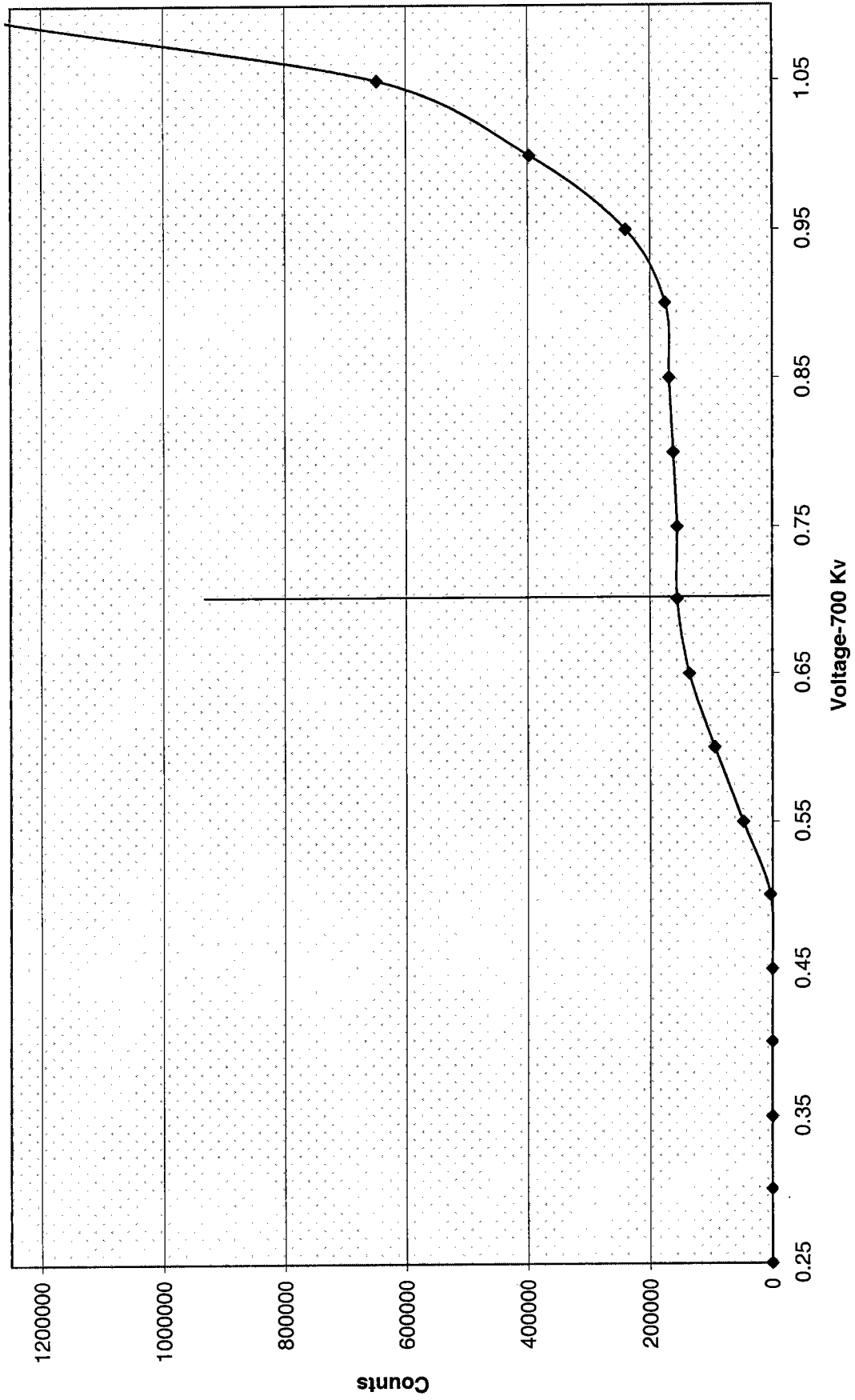
Lucas cell #	Cell constant	Standard Source	Date/Time of count	Date/Time flushed to cell	Date/time end of degas	bkg cpm	total counts	count time min	cpm	Known activity dpm	t1 (days) end-degas to flush	t2 (days) end-flush to count	t3 (days) Std Ref Date to count	Decay from Std Ref Date to count
301	2.021	43	39839.60764	39839.39236	39835.38194	0.267	7282	30	242.73	243.6698	4.01041667	0.2152778	3330.607639	0.996055555
302	2.131	47	39839.64583	39839.41319	39835.38194	0.267	7555	30	251.83	243.6698	4.03125	0.2326389	3330.645833	0.996055551
303	2.136	19	39839.72222	39839.43403	39835.38194	0.267	8028	30	267.60	243.6697	4.05208333	0.2881944	3330.722222	0.996055419

VOLTAGE CURVE 3\_08

Voltage Curve Ludlum # 6				
Volts	Counts	Date	Time	Detector
0.00	0	5/20/2009	9:00	6
0.05	0	5/20/2009	9:01	6
0.10	0	5/20/2009	9:02	6
0.15	0	5/20/2009	9:03	6
0.20	0	5/20/2009	9:04	6
0.25	0	5/20/2009	9:05	6
0.30	0	5/20/2009	9:06	6
0.35	0	5/20/2009	9:07	6
0.40	0	5/20/2009	9:08	6
0.45	512	5/20/2009	9:09	6
0.50	3625	5/20/2009	9:10	6
0.55	47990	5/20/2009	9:11	6
0.60	94752	5/20/2009	9:12	6
0.65	135854	5/20/2009	9:13	6
0.70	155952	5/20/2009	9:14	6
0.75	155700	5/20/2009	9:15	6
0.80	161972	5/20/2009	9:16	6
0.85	168860	5/20/2009	9:17	6
0.90	175598	5/20/2009	9:18	6
0.95	239969	5/20/2009	9:19	6
1.00	397270	5/20/2009	9:20	6

*W 8/4/09*

Ludlum 6 Voltage Curve



WGS

# Ra-226 WATER

Batch : LCSVER  
Date : 6/2/2009  
Analyst : KSD1

Procedure Code : LUC26RAL  
Parmname : Radium-226

MDA : 1 pCi/L

Instrument Used : LUCAS CELL DETECTOR

Bkg Count Time: 30 min

Sample ID	Sample Vol L	Count Time min	Gross counts cts	Cell # num	Cell Const. num	BKG cpm	Ra-226 MDA pCi/L	Ra-226 RESULT pCi/L	Ra-226 ERROR pCi/L	COUNT DATE/TIME
ver 1	0.800	30	1018	601	2.181	0.267	0.2115	13.4431	0.8356	6/8/2009 15:35
ver 2	0.800	30	994	602	2.168	0.100	0.1442	13.2563	0.8279	6/8/2009 16:05
ver 3	0.800	30	955	604	2.133	0.167	0.1786	12.9119	0.8254	6/8/2009 16:40
ver 4	0.800	30	1144	605	2.149	0.267	0.2143	15.3201	0.8971	6/8/2009 17:15
ver 5	0.800	30	1046	606	2.348	0.233	0.1867	12.8971	0.7895	6/8/2009 18:30
ver 6	0.800	30	1001	607	2.450	0.267	0.1893	11.8239	0.7413	6/8/2009 19:15
ver 7	0.800	30	1060	609	2.316	0.267	0.2007	13.2848	0.8089	6/8/2009 20:05
ver 8	0.800	30	943	611	2.307	0.267	0.2053	12.0754	0.7806	6/8/2009 23:10

Handwritten notes: 8/6/09 and 8/16/09

Sample ID	Cell #	Det #	Run Date	Sample Type	Standard ID	NC	NC units	Recovery/RPD
ver 1	601	6	6/8/2009 15:35	LCS	0638-F	15.03	pCi/L	89%
ver 2	602	6	6/8/2009 16:05	LCS	0638-F	15.03	pCi/L	88%
ver 3	604	6	6/8/2009 16:40	LCS	0638-F	15.03	pCi/L	86%
ver 4	605	6	6/8/2009 17:15	LCS	0638-F	15.03	pCi/L	102%
ver 5	606	6	6/8/2009 18:30	LCS	0638-F	15.03	pCi/L	86%
ver 6	607	6	6/8/2009 19:15	LCS	0638-F	15.03	pCi/L	79%
ver 7	609	6	6/8/2009 20:05	LCS	0638-F	15.03	pCi/L	88%
ver 8	611	6	6/8/2009 23:10	LCS	0638-F	15.03	pCi/L	80%

DEGASSING DATE/TIME	DE-EMAN. DATE/TIME	DEGASS-DE-EM	dE-EM-COUNT	constant	constant	constant	Net CPM	Ingrowth constant
6/2/2009 12:40	6/8/2009 12:15	143.58	3.33	0.6618	0.9751	1.0019	33.6667	0.6466
6/2/2009 12:40	6/8/2009 12:40	144.00	3.42	0.6628	0.9745	1.0019	33.0333	0.6472
6/2/2009 12:40	6/8/2009 13:05	144.42	3.58	0.6639	0.9733	1.0019	31.6663	0.6474
6/2/2009 12:40	6/8/2009 13:30	144.83	3.75	0.6650	0.9721	1.0019	37.8667	0.6476
6/2/2009 12:40	6/8/2009 13:50	145.17	4.67	0.6658	0.9654	1.0019	34.6333	0.6440
6/2/2009 12:40	6/8/2009 14:15	145.58	5.00	0.6668	0.9630	1.0019	33.0997	0.6434
6/2/2009 12:40	6/8/2009 14:35	145.92	5.50	0.6677	0.9593	1.0019	35.0667	0.6417
6/2/2009 12:40	6/8/2009 15:00	146.33	8.17	0.6687	0.9402	1.0019	31.1663	0.6299

Handwritten notes:   
 8/16/09   
 11/18/10/16







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:  $\gamma$ -impurities (other than decay products) <0.1%

5.01065 grams 0.1M HCl solution with 50  $\mu$ g/g Ba carrier.

P O NUMBER 3231RD, Item 5

SOURCE PREPARED BY:

M. D. Currie  
M. D. Currie, Radiochemist

Q A APPROVED:

RCUW 1/26/04

# Standard Traceability Log Rad

Source Material Info	
Parent Code:	0638
Prepared By:	Amanda Fehr
Carrier Conc:	0.1M HCl
Reference Date:	01/23/2004
Ampoule Mass (g):	5.01065 g
Uncertainty:	+/- 3.3 %
LogBook No:	RC-S-037-037

A Solution Material Info	
Isotope:	Radium-226
Prepared By:	Amanda Fehr
Prep Date:	01/16/2006
Verification Date:	04/09/2009
Expiration Date:	04/09/2010
Primary Code:	0638-A
Dilution(mL):	100 mL
Mass of Parent(g):	4.8398 g
Density(g/mL):	1.0266
Balance ID:	38080204

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

$$(\text{Mass of parent(g)}) * (\text{Parm Activity (dps)}) * (\text{conversion dpm to dps}) / (\text{Ampoule Mass(g)} * (\text{Dilution Vol})) = \text{Parent Activity (dpm/mL)}$$

$$(\text{Mass of parent(g)}) * (\text{Parm Activity (dps)}) * (\text{conversion dpm to dps}) / \text{Density} / (\text{Ampoule Mass (g)} * (\text{Dilution Vol})) = \text{Parent Activity (dpm/g)}$$

$$(4.8398 \text{ g}) * (23530 \text{ dps}) * (60 \text{ dpm/dps}) / (5.01065 \text{ g} * 100 \text{ mL}) = 13636.6133 \text{ dpm/mL}$$

$$(4.8398 \text{ g}) * (23530 \text{ dps}) * (60 \text{ dpm/dps}) / (1.0266 \text{ g/mL}) / (5.01065 \text{ g} * 100 \text{ mL}) = 13282.9676 \text{ dpm/g}$$

WMO 8/14/09

## Secondary Standards

Prep Date	Preparer	Mass Primary	Dilution (mL)	Code	Conc dpm/mL	Verification Date	Expiration Date
01/17/2006	Amanda Fehr	2.1041	100	0638-B	279.0211 dpm/mL	01/17/2007	01/17/2008
07/17/2006	Mary Aders	2.1313	100	0638-C	282.6281 dpm/mL	07/26/2006	07/26/2007
03/28/2007	Daniel Roy	2.1025	100	0638-D	279.2744 dpm/ml	04/08/2007	04/08/2008
03/28/2007	Daniel Roy	45.468	250	0638-E	2415.7999 dpm/ml	04/09/2009	04/09/2010
12/18/2007	Daniel Roy	2.014	100	0638-F	267.519 dpm/ml	02/02/2009	02/02/2010
02/12/2008	Daniel Roy	.5004	100	0638-G	66.468 dpm/ml	03/02/2009	03/02/2010
07/23/2008	Daniel Roy	5.0607	250	0638-H	268.8845 dpm/ml	07/17/2009	07/17/2010

GEL Laboratories LLC  
Version 1.0 9/18/2000

W084116

# Verification for Ra-226 Standard 0638-F

D. Roy 2/2/2009	Isotope	Value	Uncertainty
	0638-F #1	24.629	1.7426
	0638-F #2	24.438	1.7557
	0638-F #3	22.791	1.6808
<b>Mean Value (Counting) =</b>	23.953	99.60	<b>Pass</b>
<b>Stdev =</b>	1.010781096		<b>Rule 3 (Pass/Fail)</b>
<b>Target =</b>	24.05		
<b>Lower Limit =</b>	21.93100448		
<b>Upper Limit =</b>	25.97412886		
<b>Rule 1 Pass/Fail</b>	<b>Pass</b>		
<b>Two sigma =</b>	2.021562191		
<b>10 % of Mean =</b>	2.395256667		
<b>Rule 2 (Pass/Fail)</b>	<b>Pass</b>		

Rule 1 = The certificate value (NOT including any uncertainty) shall lie within the 95% confidence interval determined from the mean and two sigma standard deviation of the three measurements

Rule 2 = The two sigma value used for the 95% confidence interval shall not exceed 10% of the mean value of the three verification measurements.

Rule 3 = The determined mean value shall be within 5% of the certificate value.

The analyst prepared three standard verification sources for standard 0638-F using 0.1 mL for each source. Each source was counted using routine Lucas cell procedures. Calibration for 0299-G was used in this verification.

*Handwritten notes:*  
 0638-F #1  
 2/2/2009  
 Amanda [Signature]

# Radium-226 Que Sheet

General Engineering Laboratories, Radiochemistry Division

02/03/2009

Batch #: 838839

Analyst: KSDI

First Client Due Date:

Internal Due Date: 02/07/2009

Spike Isotope: Radium-226 Spike Code: 0003-1

Expiration Date: 12/27/08 Vol: 1

Nom Conc:

LCS Isotope: Radium-226 LCS Code: 003000

Expiration Date: 12/27/08 Vol: 1

Nom Conc:

Prep Date: 12/27/08 Pipet ID: \_\_\_\_\_ Initials: VSD Witness: \_\_\_\_\_

Sample Count Time: 30 (Min)

Bkg Count Time: 30 (Min)

Sample I	Client Description	Type	Hazard Code	Matrix	Min CRDL	Client	Vol (mL)	End Init Degas Date/Tin	End LN Date/Time	De-em Date/Time	Start Count Date/Time	Cell #	Det #	Bkg counts	Total Counts
1201770521-1	LCS for batch 838839	LCS	GROUND	WAJ 1	1 pCi/L	QC ACCOUNT	500	1/26/09 10:05	1/26/09 11:30	1/30/09 17:05	1/30/09 17:05	305	3	9	741
1201770522-1	LCS for batch 838839	LCS	GROUND	WAJ 1	1 pCi/L	QC ACCOUNT	500	1/26/09 10:05	1/26/09 11:45	1/30/09 17:57	1/30/09 17:57	304	3	9	748
1201770523-1	LCS for batch 838839	LCS	GROUND	WAJ 1	1 pCi/L	QC ACCOUNT	500	1/26/09 10:05	1/26/09 12:00	1/30/09 17:05	1/30/09 17:05	305	3	9	743

VO 8/16/09

Data Reviewed By:

Comments: \_\_\_\_\_  
 Instrument ID #: \_\_\_\_\_  
 LUGAS: 5028, LUGAS: 13047, LUGAS: 90899, LUGAS: 102753, LUGAS: 132286, LFC6: 17055

# Radium-226 Liquid

Filename : RA226.XLS  
 File type : Excel  
 Version # : 1.2.3

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

Spike S/N : N/A  
 Spike Exp Date : N/A  
 Spike Activity (dpm/ml): N/A  
 Spike Volume Added: N/A

Batch : 838839

Analyst : KSD1

Prep Date : 1/26/2009

Ra-226 Abundance : 1

Ra-226 Method Uncertainty : 0.0918

Procedure Code : LUC26RAL

Parname : Radium-226

Required MDA : 1 pCi/L

Half-life of Ra-226 : 1600 years

Half-life of Rn-222: 3.823 days

Batch counted on : LUCAS CELL DETECTOR

BKG Count time : 30 min

Sample ID	Sample Aliquot L	Sample Aliquot StDev. L	Sample Date/Time	Count Raw Data			Weekly Background			Detector Efficiency (cpm/dpm)	
				Cell Number	Counting Time (min.)	Gross Counts	Gross CPM	Counts	CPM		Count Time (min.)
1201770521.1	0.5000	2.0256E-05	1/26/2009 0:00	305	30	791	26.367	8	0.267	30	1.9930
1201770522.1	0.5000	2.0256E-05	1/26/2009 0:00	306	30	768	25.600	8	0.267	30	1.9500
1201770523.1	0.5000	2.0256E-05	1/26/2009 0:00	308	30	730	24.333	8	0.267	30	2.0010

*Handwritten notes:*  
 UNSM105  
 1/26/09



Detector Efficiency Error (cpm/dpm)	Cell Calibration Date	Cell Calibration Due Date	De-Gas Date/Time	Rn-222 Ingrow End Date/Time	Count Start Date/Time	De-Gas to Ingrowth	Rn-222 Corrections Ingrowth to Count	During Count	Ra-226 Decay
0.06082	1/23/2008	1/22/2009	1/26/2009 16:05	1/30/2009 11:30	1/30/2009 17:05	0.499	0.959	1.002	1.000
0.06082	1/23/2008	1/22/2009	1/26/2009 16:05	1/30/2009 11:45	1/30/2009 17:37	0.500	0.957	1.002	1.000
0.06082	1/23/2008	1/22/2009	1/26/2009 16:05	1/30/2009 12:00	1/30/2009 19:05	0.501	0.948	1.002	1.000

K0816104  
*[Handwritten signature]*

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

Results Decision Level pCi/L	Critical Level pCi/L	MDA pCi/L	Sample Act. Conc. pCi/L	Sample Act. Error pCi/L	Net Count Rate CPM	Net Count Rate Error CPM	2 SIGMA		Sample QC	Sample Type	RPD	RER	Nominal pCi/L	Recovery
							Counting Uncertainty pCi/L	Total Prop. Uncertainty pCi/L						
0.2932	0.2070	0.5083	24.6287	0.0707	26.1000	0.9422	1.7426	5.5940		LCS			24.0486	102.4%
0.2997	0.2116	0.5196	24.4384	0.0710	25.3333	0.9286	1.7557	5.5591		LCS			24.0486	101.6%
0.2942	0.2077	0.5101	22.7906	0.0715	24.0667	0.9055	1.6808	5.1982		LCS			24.0486	94.8%

11/28/10  
(15)

# **GAS FLOW PROPORTIONAL COUNTERS**


**General Engineering Laboratories**

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

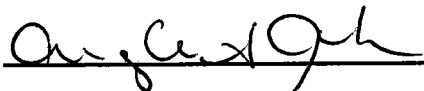
**Gas Flow Proportional Counter Calibration Package**

Method: Pa-228 (AC)

	YES	NO	Comments
1) Is all calibration standard information enclosed for: primary standard certificate? secondary 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?			Average Efficiency
	<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"/>		
5) Is the method Carrier Standardization included?			N/A

Prepared By: 

Date: 7/2/09

Reviewed By: 

Date: 7/2/09

Effective Date: 7/2/09

# Ra-228 Calibration PROTEAN Detectors

Detector #	Source #	Seperation date	Count date	Ac-228 decay (dec)	Spike Vol. Ra-228 (mL)	Std. Act. Ra-228 dpm/mL	Standard Nominal	raw beta counts	ct. time (min)	Beta cpm	corrected* cpm	Ra-228 eff (cpm/dpm)	Seperation time	
													Decay Corrected	Volume corrected
1A	1	7/1/09 10:45	7/1/2009 13:36	0.7249	1.5	6363.2	9544.8	13564	3	4521.3	6237.434348	0.6535		
1A	2	7/1/09 10:45	7/1/2009 13:52	0.7032	1.5	6363.2	9544.8	12775	3	4258.3	6055.521583	0.6344		
1A	3	7/1/09 10:45	7/1/2009 13:48	0.7083	1.5	6363.2	9544.8	12750	3	4250.0	6000.085083	0.6286	Average EFF	
1A	4	7/1/09 10:45	7/1/2009 13:41	0.7170	1.5	6363.2	9544.8	12410	3	4136.7	5769.683602	0.6045	0.6303	
1B	1	7/1/09 10:45	7/1/2009 13:41	0.7174	1.5	6363.2	9544.8	13292	3	4430.7	6176.07771	0.6471		
1B	2	7/1/09 10:45	7/1/2009 13:36	0.7246	1.5	6363.2	9544.8	13274	3	4424.7	6106.181463	0.6397		
1B	3	7/1/09 10:45	7/1/2009 13:52	0.7031	1.5	6363.2	9544.8	12699	3	4233.0	6020.43969	0.6308	Average EFF	
1B	4	7/1/09 10:45	7/1/2009 13:48	0.7082	1.5	6363.2	9544.8	12072	3	4024.0	5682.267909	0.5953	0.6282	
1C	1	7/1/09 10:45	7/1/2009 13:48	0.7085	1.5	6363.2	9544.8	12813	3	4271.0	6028.410186	0.6316		
1C	2	7/1/09 10:45	7/1/2009 13:41	0.7172	1.5	6363.2	9544.8	12979	3	4326.3	6032.15531	0.6320		
1C	3	7/1/09 10:45	7/1/2009 13:36	0.7245	1.5	6363.2	9544.8	12755	3	4251.7	5868.722998	0.6149	Average EFF	
1C	4	7/1/09 10:45	7/1/2009 13:52	0.7030	1.5	6363.2	9544.8	11917	3	3972.3	5650.765354	0.5920	0.6176	
1D	1	7/1/09 10:45	7/1/2009 13:52	0.7033	1.5	6363.2	9544.8	12473	3	4157.7	5911.258105	0.6193		
1D	2	7/1/09 10:45	7/1/2009 13:48	0.7084	1.5	6363.2	9544.8	12484	3	4161.3	5874.170562	0.6154		
1D	3	7/1/09 10:45	7/1/2009 13:41	0.7171	1.5	6363.2	9544.8	12289	3	4096.3	5712.363902	0.5985	Average EFF	
1D	4	7/1/09 10:45	7/1/2009 13:36	0.7243	1.5	6363.2	9544.8	12115	3	4038.3	5575.47435	0.5841	0.6043	
2A	1	7/1/09 10:45	7/1/2009 13:57	0.6960	1.5	6363.2	9544.8	12499	3	4166.3	5986.085459	0.6272		
2A	2	7/1/09 10:45	7/1/2009 14:15	0.6728	1.5	6363.2	9544.8	12103	3	4034.3	5996.6905	0.6283		
2A	3	7/1/09 10:45	7/1/2009 14:09	0.6815	1.5	6363.2	9544.8	11968	3	3989.3	5854.110901	0.6133	Average EFF	
2A	4	7/1/09 10:45	7/1/2009 14:02	0.6899	1.5	6363.2	9544.8	11855	3	3951.7	5728.227222	0.6001	0.6172	
2B	1	7/1/09 10:45	7/1/2009 14:02	0.6903	1.5	6363.2	9544.8	12471	3	4157.0	6022.266434	0.6309		
2B	2	7/1/09 10:45	7/1/2009 13:57	0.6958	1.5	6363.2	9544.8	12492	3	4164.0	5984.232843	0.6270		
2B	3	7/1/09 10:45	7/1/2009 14:15	0.6727	1.5	6363.2	9544.8	11892	3	3964.0	5892.884561	0.6174	Average EFF	
2B	4	7/1/09 10:45	7/1/2009 14:09	0.6814	1.5	6363.2	9544.8	11539	3	3846.3	5644.974311	0.5914	0.6167	
2C	1	7/1/09 10:45	7/1/2009 14:08	0.6817	1.5	6363.2	9544.8	12050	3	4016.7	5892.005142	0.6173		
2C	2	7/1/09 10:45	7/1/2009 14:02	0.6901	1.5	6363.2	9544.8	11914	3	3971.3	5754.571355	0.6029		
2C	3	7/1/09 10:45	7/1/2009 13:58	0.6957	1.5	6363.2	9544.8	11994	3	3998.0	5746.92868	0.6021	Average EFF	
2C	4	7/1/09 10:45	7/1/2009 14:15	0.6726	1.5	6363.2	9544.8	10889	3	3629.7	5396.37168	0.5654	0.5969	
2D	1	7/1/09 10:45	7/1/2009 14:15	0.6729	1.5	6363.2	9544.8	12010	3	4003.3	5949.493049	0.6233		
2D	2	7/1/09 10:45	7/1/2009 14:08	0.6816	1.5	6363.2	9544.8	12124	3	4041.3	5929.303014	0.6212		
2D	3	7/1/09 10:45	7/1/2009 14:02	0.6900	1.5	6363.2	9544.8	12168	3	4056.0	5878.360714	0.6159	Average EFF	
2D	4	7/1/09 10:45	7/1/2009 13:58	0.6954	1.5	6363.2	9544.8	11692	3	3897.3	5604.158523	0.5871	0.6119	
3A	1	7/1/09 10:45	7/1/2009 14:19	0.6675	1.5	6363.2	9544.8	11194	3	3731.3	5589.748519	0.5856		
3A	2	7/1/09 10:45	7/1/2009 14:30	0.6482	1.5	6363.2	9544.8	14227	4	3556.8	5486.792678	0.5748		
3A	3	7/1/09 10:45	7/1/2009 14:35	0.6548	1.5	6363.2	9544.8	14180	4	3545.0	5414.108112	0.5672	Average EFF	
3A	4	7/1/09 10:45	7/1/2009 14:25	0.6608	1.5	6363.2	9544.8	13754	4	3438.5	5203.464549	0.5452	0.5682	
3B	1	7/1/09 10:45	7/1/2009 14:25	0.6612	1.5	6363.2	9544.8	15370	4	3842.5	5811.010789	0.6088		
3B	2	7/1/09 10:45	7/1/2009 14:20	0.6673	1.5	6363.2	9544.8	11695	3	3898.3	5842.303251	0.6121		
3B	3	7/1/09 10:45	7/1/2009 14:35	0.6481	1.5	6363.2	9544.8	14905	4	3726.3	5749.171166	0.6023	Average EFF	
3B	4	7/1/09 10:45	7/1/2009 14:30	0.6547	1.5	6363.2	9544.8	14220	4	3555.0	5430.231301	0.5689	0.5980	
3C	1	7/1/09 10:45	7/1/2009 14:29	0.6552	1.5	6363.2	9544.8	15644	4	3911.0	5969.527404	0.6254		
3C	2	7/1/09 10:45	7/1/2009 14:25	0.6611	1.5	6363.2	9544.8	15964	4	3991.0	6036.911214	0.6325		
3C	3	7/1/09 10:45	7/1/2009 14:20	0.6672	1.5	6363.2	9544.8	11701	3	3900.3	5846.033242	0.6125	Average EFF	
3C	4	7/1/09 10:45	7/1/2009 14:35	0.6480	1.5	6363.2	9544.8	14729	4	3682.3	5682.352456	0.5953	0.6164	
3D	1	7/1/09 10:45	7/1/2009 14:35	0.6484	1.5	6363.2	9544.8	15152	4	3788.0	5842.430209	0.6121		
3D	2	7/1/09 10:45	7/1/2009 14:30	0.6550	1.5	6363.2	9544.8	15168	4	3792.0	5789.343603	0.6065		
3D	3	7/1/09 10:45	7/1/2009 14:25	0.6610	1.5	6363.2	9544.8	15295	4	3823.8	5785.011122	0.6061	Average EFF	
3D	4	7/1/09 10:45	7/1/2009 14:20	0.6670	1.5	6363.2	9544.8	10942	3	3647.3	5468.022172	0.5729	0.5994	
4A	1	7/1/09 10:45	7/1/2009 14:40	0.6418	1.5	6363.2	9544.8	15298	4	3824.5	5959.288371	0.6243		
4A	2	7/1/09 10:45	7/1/2009 15:00	0.6187	1.5	6363.2	9544.8	14897	4	3724.3	6019.957238	0.6307		
4A	3	7/1/09 10:45	7/1/2009 14:53	0.6266	1.5	6363.2	9544.8	15050	4	3762.5	6005.095127	0.6291	Average EFF	
4A	4	7/1/09 10:45	7/1/2009 14:48	0.6325	1.5	6363.2	9544.8	14462	4	3615.5	5715.951787	0.5989	0.6208	
4B	1	7/1/09 10:45	7/1/2009 14:48	0.6329	1.5	6363.2	9544.8	15335	4	3833.8	6057.768128	0.6347		
4B	2	7/1/09 10:45	7/1/2009 14:41	0.6416	1.5	6363.2	9544.8	15513	4	3878.3	6044.745331	0.6333		
4B	3	7/1/09 10:45	7/1/2009 15:00	0.6186	1.5	6363.2	9544.8	14521	4	3630.3	5868.58525	0.6148	Average EFF	
4B	4	7/1/09 10:45	7/1/2009 14:53	0.6265	1.5	6363.2	9544.8	14328	4	3582.0	5717.547589	0.5990	0.6205	
4C	1	7/1/09 10:45	7/1/2009 14:53	0.6268	1.5	6363.2	9544.8	14733	4	3683.3	5876.583259	0.6157		
4C	2	7/1/09 10:45	7/1/2009 14:48	0.6327	1.5	6363.2	9544.8	14902	4	3725.5	5888.011911	0.6169		
4C	3	7/1/09 10:45	7/1/2009 14:41	0.6414	1.5	6363.2	9544.8	14856	4	3714.0	5790.010842	0.6066	Average EFF	
4C	4	7/1/09 10:45	7/1/2009 15:00	0.6185	1.5	6363.2	9544.8	13733	4	3433.3	5550.795964	0.5816	0.6052	
4D	1	7/1/09 10:45	7/1/2009 15:00	0.6188	1.5	6363.2	9544.8	14167	4	3541.8	5723.884149	0.5997		
4D	2	7/1/09 10:45	7/1/2009 14:53	0.6267	1.5	6363.2	9544.8	14204	4	3551.0	5666.467573	0.5937		
4D	3	7/1/09 10:45	7/1/2009 14:48	0.6326	1.5	6363.2	9544.8	14131	4	3532.8	5584.07765	0.5850	Average EFF	
4D	4	7/1/09 10:45	7/1/2009 14:41	0.6413	1.5	6363.2	9544.8	13978	4	3494.5	5449.182717	0.5709	0.5873	
5A	1	7/1/09 10:45	7/1/2009 15:06	0.6112	1.5	6363.2	9544.8	14870	4	3717.5	6082.165089	0.6372		
5A	2	7/1/09 10:45	7/1/2009 15:21	0.5943	1.5	6363.2	9544.8	14487	4	3621.8	6094.223373	0.6385		
5A	3	7/1/09 10:45	7/1/2009 15:17	0.5996	1.5	6363.2	9544.8	14259	4	3564.8	5945.170793	0.6229	Average EFF	
5A	4	7/1/09 10:45	7/1/2009 15:12	0.6047	1.5	6363.2	9544.8	13957	4	3489.3	5770.592799	0.6046	0.6258	
5B	1	7/1/09 10:45	7/1/2009 15:12	0.6050	1.5	6363.2	9544.8	14869	4	3717.3	6144.005028	0.6437		
5B	2	7/1/09 10:45	7/1/2009 15:06	0.6111	1.5	6363.2	9544.8	14821	4	3705.3	6063.072791	0.6352		
5B	3	7/1/09 10:45	7/1/2009 15:21	0.5942	1.5	6363.2	9544.8	14289	4	3572.3	6011.872812	0.6299	Average EFF	
5B	4	7/1/09 10:45	7/1/2009 15:17	0.5995	1.5	6363.2	9544.8	13809	4	3452.3	5758.629577	0.6033	0.6280	
5C	1	7/1/09 10:45	7/1/2009 15:17	0.5994	1.5	6363.2	9544.8	14676	4	3669.0	6120.953053	0.6413		
5C	2	7/1/09 10:45	7/1/2009 15:12	0.6049	1.5	6363.2	9544.8	15122	4	3780.5	6249.917577	0.6548		
5C	3	7/1/09 10:45	7/1/2009 15:07	0.6108	1.5	6363.2	9544.8	14958	4	3739.5	6121.8025	0.6414	Average EFF	

7/21/09

5C	4	7/1/09 10:45	7/1/2009 15:21	0.5941	1.5	6363.2	9544.8	13831	4	3457.8	5819.905873	0.6097	0.6368
5D	1	7/1/09 10:45	7/1/2009 15:21	0.5943	1.5	6363.2	9544.8	14321	4	3580.3	6024.014899	0.6311	
5D	2	7/1/09 10:45	7/1/2009 15:17	0.5993	1.5	6363.2	9544.8	14642	4	3680.5	6107.538025	0.6399	
5D	3	7/1/09 10:45	7/1/2009 15:12	0.6048	1.5	6363.2	9544.8	14443	4	3610.8	5970.409434	0.6255	Average EFF
5D	4	7/1/09 10:45	7/1/2009 15:07	0.6107	1.5	6363.2	9544.8	13954	4	3488.5	5711.973074	0.5984	0.6237
6A	1	7/1/09 10:45	7/1/2009 15:27	0.5885	1.5	6363.2	9544.8	14018	4	3504.5	5955.42076	0.6239	
6A	2	7/1/09 10:45	7/1/2009 15:40	0.5735	1.5	6363.2	9544.8	12283	3.5	3509.4	6118.819734	0.6411	
6A	3	7/1/09 10:45	7/1/2009 15:36	0.5779	1.5	6363.2	9544.8	12111	3.5	3460.3	5987.187856	0.6273	Average EFF
6A	4	7/1/09 10:45	7/1/2009 15:32	0.5826	1.5	6363.2	9544.8	11598	3.5	3313.7	5687.952648	0.5959	0.6221
6B	1	7/1/09 10:45	7/1/2009 15:32	0.5824	1.5	6363.2	9544.8	12151	3.5	3471.7	5961.398905	0.6246	
6B	2	7/1/09 10:45	7/1/2009 15:27	0.5885	1.5	6363.2	9544.8	14371	4	3592.8	6105.389624	0.6397	
6B	3	7/1/09 10:45	7/1/2009 15:40	0.5734	1.5	6363.2	9544.8	11705	3.5	3344.3	5831.983307	0.6110	Average EFF
6B	4	7/1/09 10:45	7/1/2009 15:36	0.5779	1.5	6363.2	9544.8	11388	3.5	3253.7	5630.295163	0.5899	0.6163
6C	1	7/1/09 10:45	7/1/2009 15:36	0.5778	1.5	6363.2	9544.8	12161	3.5	3474.6	6013.224586	0.6300	
6C	2	7/1/09 10:45	7/1/2009 15:32	0.5821	1.5	6363.2	9544.8	12083	3.5	3452.3	5930.638446	0.6213	
6C	3	7/1/09 10:45	7/1/2009 15:27	0.5883	1.5	6363.2	9544.8	13638	4	3409.5	5795.433731	0.6072	Average EFF
6C	4	7/1/09 10:45	7/1/2009 15:40	0.5733	1.5	6363.2	9544.8	11218	3.5	3205.1	5590.212659	0.5857	0.6111
6D	1	7/1/09 10:45	7/1/2009 15:40	0.5732	1.5	6363.2	9544.8	11987	3.5	3424.9	5974.547886	0.6259	
6D	2	7/1/09 10:45	7/1/2009 15:36	0.5777	1.5	6363.2	9544.8	12183	3.5	3480.9	6025.235519	0.6313	
6D	3	7/1/09 10:45	7/1/2009 15:32	0.5819	1.5	6363.2	9544.8	11882	3.5	3394.9	5833.810262	0.6112	Average EFF
6D	4	7/1/09 10:45	7/1/2009 15:27	0.5881	1.5	6363.2	9544.8	13018	4	3254.5	5533.899914	0.5798	0.6120
7A	1	7/1/09 10:45	7/1/2009 15:46	0.5673	1.5	6363.2	9544.8	12007	3.5	3430.6	6047.285606	0.6336	
7A	2	7/1/09 10:45	7/1/2009 16:00	0.5525	1.5	6363.2	9544.8	11655	3.5	3330.0	6027.30696	0.6315	
7A	3	7/1/09 10:45	7/1/2009 15:56	0.5569	1.5	6363.2	9544.8	11445	3.5	3270.0	5871.972756	0.6152	Average EFF
7A	4	7/1/09 10:45	7/1/2009 15:50	0.5627	1.5	6363.2	9544.8	11121	3.5	3177.4	5846.694018	0.5916	0.6180
7B	1	7/1/09 10:45	7/1/2009 15:51	0.5622	1.5	6363.2	9544.8	11968	3.5	3419.4	6082.664171	0.6373	
7B	2	7/1/09 10:45	7/1/2009 15:46	0.5673	1.5	6363.2	9544.8	12050	3.5	3442.9	6069.322745	0.6359	
7B	3	7/1/09 10:45	7/1/2009 16:00	0.5524	1.5	6363.2	9544.8	11675	3.5	3335.7	6038.785014	0.6327	Average EFF
7B	4	7/1/09 10:45	7/1/2009 15:56	0.5567	1.5	6363.2	9544.8	11271	3.5	3220.3	5784.331251	0.6060	0.6280
7C	1	7/1/09 10:45	7/1/2009 15:56	0.5566	1.5	6363.2	9544.8	11781	3.5	3366.0	6047.202464	0.6336	
7C	2	7/1/09 10:45	7/1/2009 15:51	0.5621	1.5	6363.2	9544.8	11760	3.5	3360.0	5978.073192	0.6263	
7C	3	7/1/09 10:45	7/1/2009 15:46	0.5670	1.5	6363.2	9544.8	11766	3.5	3361.7	5928.878357	0.6212	Average EFF
7C	4	7/1/09 10:45	7/1/2009 16:00	0.5523	1.5	6363.2	9544.8	10888	3.5	3110.9	5632.598965	0.5901	0.6178
7D	1	7/1/09 10:45	7/1/2009 16:00	0.5522	1.5	6363.2	9544.8	11805	3.5	3315.7	6004.271132	0.6291	
7D	2	7/1/09 10:45	7/1/2009 15:56	0.5565	1.5	6363.2	9544.8	11920	3.5	3405.7	6119.509991	0.6411	
7D	3	7/1/09 10:45	7/1/2009 15:51	0.5619	1.5	6363.2	9544.8	11933	3.5	3409.4	6067.346561	0.6357	Average EFF
7D	4	7/1/09 10:45	7/1/2009 15:46	0.5668	1.5	6363.2	9544.8	11305	3.5	3230.0	5698.36602	0.5970	0.6257
8A	1	7/1/09 10:45	7/1/2009 16:06	0.5466	1.5	6363.2	9544.8	11673	3.5	3335.1	6101.651756	0.6393	
8A	2	7/1/09 10:45	7/1/2009 16:19	0.5333	1.5	6363.2	9544.8	11172	3.5	3192.0	5985.379105	0.6271	
8A	3	7/1/09 10:45	7/1/2009 16:15	0.5377	1.5	6363.2	9544.8	11258	3.5	3216.6	5982.329368	0.6268	Average EFF
8A	4	7/1/09 10:45	7/1/2009 16:10	0.5424	1.5	6363.2	9544.8	10977	3.5	3136.3	5782.059146	0.6058	0.6247
8B	1	7/1/09 10:45	7/1/2009 16:10	0.5423	1.5	6363.2	9544.8	11583	3.5	3309.4	6102.412618	0.6393	
8B	2	7/1/09 10:45	7/1/2009 16:06	0.5466	1.5	6363.2	9544.8	11758	3.5	3359.4	6146.082528	0.6439	
8B	3	7/1/09 10:45	7/1/2009 16:19	0.5332	1.5	6363.2	9544.8	11499	3.5	3285.4	6161.727069	0.6456	Average EFF
8B	4	7/1/09 10:45	7/1/2009 16:15	0.5376	1.5	6363.2	9544.8	10844	3.5	3098.3	5763.600098	0.6038	0.6332
8C	1	7/1/09 10:45	7/1/2009 16:15	0.5375	1.5	6363.2	9544.8	11539	3.5	3296.9	6133.762218	0.6426	
8C	2	7/1/09 10:45	7/1/2009 16:10	0.5422	1.5	6363.2	9544.8	11774	3.5	3364.0	6204.011354	0.6500	
8C	3	7/1/09 10:45	7/1/2009 16:06	0.5465	1.5	6363.2	9544.8	11611	3.5	3317.4	6070.574762	0.6380	Average EFF
8C	4	7/1/09 10:45	7/1/2009 16:19	0.5331	1.5	6363.2	9544.8	10809	3.5	3088.3	5793.080291	0.6069	0.6339
8D	1	7/1/09 10:45	7/1/2009 16:19	0.5330	1.5	6363.2	9544.8	11301	3.5	3228.9	6057.336905	0.6346	
8D	2	7/1/09 10:45	7/1/2009 16:15	0.5374	1.5	6363.2	9544.8	11412	3.5	3260.6	6067.58377	0.6357	
8D	3	7/1/09 10:45	7/1/2009 16:10	0.5421	1.5	6363.2	9544.8	11660	3.5	3331.4	6145.674775	0.6439	Average EFF
8D	4	7/1/09 10:45	7/1/2009 16:06	0.5464	1.5	6363.2	9544.8	10918	3.5	3119.4	5709.327085	0.5982	0.6281
9A	1	7/1/09 10:45	7/1/2009 16:24	0.5280	1.5	6363.2	9544.8	11805	3.5	3315.7	6280.207813	0.6580	
9A	2	7/1/09 10:45	7/1/2009 16:42	0.5106	1.5	6363.2	9544.8	11281	3.5	3223.1	6313.016372	0.6614	
9A	3	7/1/09 10:45	7/1/2009 16:33	0.5196	1.5	6363.2	9544.8	11301	3.5	3228.9	6214.402502	0.6511	Average EFF
9A	4	7/1/09 10:45	7/1/2009 16:29	0.5236	1.5	6363.2	9544.8	10987	3.5	3139.1	5995.155865	0.6281	0.6496
9B	1	7/1/09 10:45	7/1/2009 16:29	0.5235	1.5	6363.2	9544.8	11151	3.5	3186.0	6085.406803	0.6376	
9B	2	7/1/09 10:45	7/1/2009 16:24	0.5280	1.5	6363.2	9544.8	11462	3.5	3274.9	6202.821366	0.6499	
9B	3	7/1/09 10:45	7/1/2009 16:42	0.5104	1.5	6363.2	9544.8	11004	3.5	3144.0	6160.125852	0.6454	Average EFF
9B	4	7/1/09 10:45	7/1/2009 16:33	0.5195	1.5	6363.2	9544.8	10581	3.5	3023.1	5819.569586	0.6097	0.6356
9C	1	7/1/09 10:45	7/1/2009 16:33	0.5194	1.5	6363.2	9544.8	11026	3.5	3150.3	6064.890483	0.6354	
9C	2	7/1/09 10:45	7/1/2009 16:29	0.5235	1.5	6363.2	9544.8	11281	3.5	3223.1	6157.122814	0.6451	
9C	3	7/1/09 10:45	7/1/2009 16:24	0.5279	1.5	6363.2	9544.8	11016	3.5	3147.4	5962.583098	0.6247	Average EFF
9C	4	7/1/09 10:45	7/1/2009 16:42	0.5103	1.5	6363.2	9544.8	10297	3.5	2942.0	5765.244836	0.6040	0.6273
9D	1	7/1/09 10:45	7/1/2009 16:38	0.5146	1.5	6363.2	9544.8	11135	3.5	3181.4	6182.4976	0.6477	
9D	2	7/1/09 10:45	7/1/2009 16:33	0.5193	1.5	6363.2	9544.8	11412	3.5	3260.6	6278.391381	0.6578	
9D	3	7/1/09 10:45	7/1/2009 16:29	0.5234	1.5	6363.2	9544.8	11340	3.5	3240.0	6190.682442	0.6486	Average EFF
9D	4	7/1/09 10:45	7/1/2009 16:24	0.5278	1.5	6363.2	9544.8	10912	3.5	3117.7	5907.401951	0.6189	0.6433
10A	1	7/1/09 10:45	7/1/2009 16:47	0.5057	1.5	6363.2	9544.8	10991	3.5	3140.3	6209.984837	0.6506	
10A	2	7/1/09 10:45	7/1/2009 17:12	0.4824	1.5	6363.2	9544.8	11959	4	2989.8	6198.168046	0.6494	
10A	3	7/1/09 10:45	7/1/2009 16:58	0.4958	1.5	6363.2	9544.8	10553	3.5	3015.1	6081.381423	0.6371	Average EFF
10A	4	7/1/09 10:45	7/1/2009 16:53	0.5003	1.5	6363.2	9544.8	10338	3.5	2953.7	5903.409852	0.6185	0.6389
10B	1	7/1/09 10:45	7/1/2009 17:03	0.4910	1.5	6363.2	9544.8	11110	4	2777.5	5856.748417	0.5927	
10B	2	7/1/09 10:45	7/1/2009 16:47	0.5057	1.5	6363.2	9544.8	10812	3.5	3089.1	6109.231533	0.6401	
10B	3	7/1/09 10:45	7/1/2009 17:12	0.4822	1.5	6363.2	9544.8	11422	4	2855.5	5921.333197	0.6204	Average EFF
10B	4	7/1/09 10:45	7/1/2009 16:58	0.4957	1.5	6363.2	9544.8	9967	3.5	2847.7	5744.946895	0.6019	0.6137
10C	1	7/1/09 10:45	7/1/2009 16:58	0.4956	1.5	6363.2	9544.8	10482	3.5	2994.9	6042.548531	0.6331	
10C	2	7/1/09 10:45	7/1										

10D	3	7/1/09 10:45	7/1/2009 16:53	0.5000	1.5	6363.2	9544.8	10643	3.5	3040.9	6081.577364	0.6372	Average EFF
10D	4	7/1/09 10:45	7/1/2009 16:48	0.5053	1.5	6363.2	9544.8	10064	3.5	2875.4	5690.501596	0.5962	0.6320
11A	1	7/1/09 10:45	7/1/2009 11:56	0.8745	1.5	6363.2	9544.8	14773	3	4924.3	5631.22443	0.5900	
11A	2	7/1/09 10:45	7/1/2009 12:08	0.8547	1.5	6363.2	9544.8	14429	3	4809.7	5627.17636	0.5896	
11A	3	7/1/09 10:45	7/1/2009 12:04	0.8607	1.5	6363.2	9544.8	14454	3	4818.0	5597.851728	0.5865	Average EFF
11A	4	7/1/09 10:45	7/1/2009 12:00	0.8677	1.5	6363.2	9544.8	14013	3	4671.0	5383.193838	0.5640	0.5825
11B	1	7/1/09 10:45	7/1/2009 12:00	0.8681	1.5	6363.2	9544.8	16203	3	5401.0	6221.768068	0.6518	
11B	2	7/1/09 10:45	7/1/2009 11:56	0.8742	1.5	6363.2	9544.8	16106	3	5368.7	6141.073627	0.6434	
11B	3	7/1/09 10:45	7/1/2009 12:08	0.8545	1.5	6363.2	9544.8	15643	3	5214.3	6102.154531	0.6393	Average EFF
11B	4	7/1/09 10:45	7/1/2009 12:04	0.8606	1.5	6363.2	9544.8	15133	3	5044.3	5861.738123	0.6141	0.6372
11C	1	7/1/09 10:45	7/1/2009 12:04	0.8609	1.5	6363.2	9544.8	15637	3	5212.3	6054.305139	0.6343	
11C	2	7/1/09 10:45	7/1/2009 12:00	0.8680	1.5	6363.2	9544.8	15919	3	5308.3	6113.481467	0.6405	
11C	3	7/1/09 10:45	7/1/2009 11:56	0.8740	1.5	6363.2	9544.8	16452	3	5484.0	6274.376359	0.6574	Average EFF
11C	4	7/1/09 10:45	7/1/2009 12:08	0.8544	1.5	6363.2	9544.8	14887	3	4962.3	5808.157492	0.6085	0.6352
11D	1	7/1/09 10:45	7/1/2009 12:08	0.8548	1.5	6363.2	9544.8	15607	3	5202.3	6085.822645	0.6376	
11D	2	7/1/09 10:45	7/1/2009 12:04	0.8608	1.5	6363.2	9544.8	15944	3	5314.7	6174.138045	0.6469	
11D	3	7/1/09 10:45	7/1/2009 12:00	0.8679	1.5	6363.2	9544.8	16098	3	5366.0	6182.989937	0.6478	Average EFF
11D	4	7/1/09 10:45	7/1/2009 11:56	0.8738	1.5	6363.2	9544.8	15191	3	5063.7	5794.733717	0.6071	0.6348
12A	1	7/1/09 10:45	7/1/2009 12:15	0.8437	1.5	6363.2	9544.8	15450	3	5150.0	6104.026984	0.6395	
12A	2	7/1/09 10:45	7/1/2009 12:28	0.8234	1.5	6363.2	9544.8	15016	3	5005.3	6078.958269	0.6369	
12A	3	7/1/09 10:45	7/1/2009 12:24	0.8296	1.5	6363.2	9544.8	14984	3	4994.7	6020.558384	0.6308	Average EFF
12A	4	7/1/09 10:45	7/1/2009 12:20	0.8358	1.5	6363.2	9544.8	14530	3	4843.3	5794.58497	0.6071	0.6286
12B	1	7/1/09 10:45	7/1/2009 12:20	0.8362	1.5	6363.2	9544.8	15404	3	5134.7	6140.835636	0.6433	
12B	2	7/1/09 10:45	7/1/2009 12:15	0.8437	1.5	6363.2	9544.8	15607	3	5202.3	6166.05496	0.6460	
12B	3	7/1/09 10:45	7/1/2009 12:28	0.8232	1.5	6363.2	9544.8	15060	3	5020.0	6097.91718	0.6389	Average EFF
12B	4	7/1/09 10:45	7/1/2009 12:24	0.8295	1.5	6363.2	9544.8	14553	3	4851.0	5848.11587	0.6127	0.6352
12C	1	7/1/09 10:45	7/1/2009 12:24	0.8300	1.5	6363.2	9544.8	15183	3	5061.0	6097.649845	0.6388	
12C	2	7/1/09 10:45	7/1/2009 12:20	0.8361	1.5	6363.2	9544.8	15651	3	5217.0	6239.881493	0.6537	
12C	3	7/1/09 10:45	7/1/2009 12:15	0.8436	1.5	6363.2	9544.8	15216	3	5072.0	6012.519531	0.6299	Average EFF
12C	4	7/1/09 10:45	7/1/2009 12:28	0.8231	1.5	6363.2	9544.8	14117	3	4705.7	5716.805229	0.5989	0.6304
12D	1	7/1/09 10:45	7/1/2009 12:28	0.8235	1.5	6363.2	9544.8	15174	3	5058.0	6141.959419	0.6435	
12D	2	7/1/09 10:45	7/1/2009 12:24	0.8298	1.5	6363.2	9544.8	15137	3	5045.7	6080.699807	0.6371	
12D	3	7/1/09 10:45	7/1/2009 12:20	0.8359	1.5	6363.2	9544.8	15418	3	5139.3	6148.142699	0.6441	Average EFF
12D	4	7/1/09 10:45	7/1/2009 12:15	0.8434	1.5	6363.2	9544.8	14566	3	4855.3	5758.75774	0.6031	0.6320
13A	1	7/1/09 10:45	7/1/2009 12:33	0.8153	1.5	6363.2	9544.8	15230	3	5076.7	6226.552932	0.6524	
13A	2	7/1/09 10:45	7/1/2009 12:50	0.7902	1.5	6363.2	9544.8	14784	3	4928.0	6236.596242	0.6534	
13A	3	7/1/09 10:45	7/1/2009 12:41	0.8031	1.5	6363.2	9544.8	14851	3	4950.3	6164.384216	0.6458	Average EFF
13A	4	7/1/09 10:45	7/1/2009 12:37	0.8090	1.5	6363.2	9544.8	14183	3	4727.7	5843.553624	0.6122	0.6410
13B	1	7/1/09 10:45	7/1/2009 12:37	0.8094	1.5	6363.2	9544.8	15625	3	5208.3	6434.850276	0.6742	
13B	2	7/1/09 10:45	7/1/2009 12:33	0.8153	1.5	6363.2	9544.8	15450	3	5150.0	6316.496573	0.6618	
13B	3	7/1/09 10:45	7/1/2009 12:50	0.7901	1.5	6363.2	9544.8	14689	3	4896.3	6197.297391	0.6493	Average EFF
13B	4	7/1/09 10:45	7/1/2009 12:41	0.8029	1.5	6363.2	9544.8	14377	3	4792.3	5968.757323	0.6253	0.6526
13C	1	7/1/09 10:45	7/1/2009 12:41	0.8033	1.5	6363.2	9544.8	15426	3	5142.0	6401.251014	0.6707	
13C	2	7/1/09 10:45	7/1/2009 12:37	0.8093	1.5	6363.2	9544.8	15315	3	5105.0	6307.973396	0.6609	
13C	3	7/1/09 10:45	7/1/2009 12:33	0.8152	1.5	6363.2	9544.8	15288	3	5096.0	6251.048762	0.6549	Average EFF
13C	4	7/1/09 10:45	7/1/2009 12:50	0.7900	1.5	6363.2	9544.8	14222	3	4740.7	6001.209943	0.6287	0.6538
13D	1	7/1/09 10:45	7/1/2009 12:50	0.7903	1.5	6363.2	9544.8	14492	3	4830.7	6112.65055	0.6404	
13D	2	7/1/09 10:45	7/1/2009 12:46	0.7958	1.5	6363.2	9544.8	14858	3	4952.7	6223.19528	0.6520	
13D	3	7/1/09 10:45	7/1/2009 12:37	0.8082	1.5	6363.2	9544.8	14873	3	4957.7	6126.881339	0.6419	Average EFF
13D	4	7/1/09 10:45	7/1/2009 12:33	0.8151	1.5	6363.2	9544.8	14389	3	4796.3	5884.197712	0.6165	0.6377
14A	1	7/1/09 10:45	7/1/2009 12:54	0.7834	1.5	6363.2	9544.8	14463	3	4821.0	6153.596507	0.6447	
14A	2	7/1/09 10:45	7/1/2009 13:17	0.7507	1.5	6363.2	9544.8	14137	3	4712.3	6277.53373	0.6577	
14A	3	7/1/09 10:45	7/1/2009 13:13	0.7571	1.5	6363.2	9544.8	14022	3	4674.0	6173.627369	0.6468	Average EFF
14A	4	7/1/09 10:45	7/1/2009 13:02	0.7727	1.5	6363.2	9544.8	13451	3	4483.7	5802.830587	0.6080	0.6393
14B	1	7/1/09 10:45	7/1/2009 13:01	0.7730	1.5	6363.2	9544.8	14039	3	4679.7	6054.030301	0.6343	
14B	2	7/1/09 10:45	7/1/2009 12:54	0.7834	1.5	6363.2	9544.8	14398	3	4799.3	6126.324754	0.6418	
14B	3	7/1/09 10:45	7/1/2009 13:17	0.7505	1.5	6363.2	9544.8	13475	3	4491.7	5984.510182	0.6270	Average EFF
14B	4	7/1/09 10:45	7/1/2009 13:13	0.7569	1.5	6363.2	9544.8	13077	3	4359.0	5758.643863	0.6033	0.6266
14C	1	7/1/09 10:45	7/1/2009 13:12	0.7573	1.5	6363.2	9544.8	14116	3	4705.3	6213.281445	0.6510	
14C	2	7/1/09 10:45	7/1/2009 13:02	0.7729	1.5	6363.2	9544.8	14187	3	4729.0	6118.427365	0.6410	
14C	3	7/1/09 10:45	7/1/2009 12:55	0.7832	1.5	6363.2	9544.8	14409	3	4803.0	6132.734423	0.6425	Average EFF
14C	4	7/1/09 10:45	7/1/2009 13:17	0.7505	1.5	6363.2	9544.8	13229	3	4409.7	5875.993199	0.6156	0.6375
14D	1	7/1/09 10:45	7/1/2009 13:17	0.7508	1.5	6363.2	9544.8	13927	3	4642.3	6183.314452	0.6478	
14D	2	7/1/09 10:45	7/1/2009 13:12	0.7572	1.5	6363.2	9544.8	14089	3	4696.3	6202.348821	0.6498	
14D	3	7/1/09 10:45	7/1/2009 13:02	0.7728	1.5	6363.2	9544.8	13912	3	4637.3	6000.768164	0.6287	Average EFF
14D	4	7/1/09 10:45	7/1/2009 12:55	0.7830	1.5	6363.2	9544.8	13545	3	4515.0	5766.084113	0.6041	0.6326

\*Background is considered negligible

SampleID	Instr	Time (min.)	Alpha Counts	Beta Counts	Count Start Time	Count End Time
1 1A		3	126	13564	7/1/2009 13:36	7/1/2009 13:39
2 1A		3	136	12775	7/1/2009 13:52	7/1/2009 13:55
3 1A		3	135	12750	7/1/2009 13:48	7/1/2009 13:51
4 1A		3	142	12410	7/1/2009 13:41	7/1/2009 13:44
1 1B		3	115	13292	7/1/2009 13:41	7/1/2009 13:44
2 1B		3	136	13274	7/1/2009 13:36	7/1/2009 13:39
3 1B		3	131	12699	7/1/2009 13:52	7/1/2009 13:55
4 1B		3	129	12072	7/1/2009 13:48	7/1/2009 13:51
1 1C		3	207	12813	7/1/2009 13:48	7/1/2009 13:51
2 1C		3	221	12979	7/1/2009 13:41	7/1/2009 13:44
3 1C		3	189	12755	7/1/2009 13:36	7/1/2009 13:39
4 1C		3	179	11917	7/1/2009 13:52	7/1/2009 13:55
1 1D		3	558	12473	7/1/2009 13:52	7/1/2009 13:55
2 1D		3	582	12484	7/1/2009 13:48	7/1/2009 13:51
3 1D		3	632	12289	7/1/2009 13:41	7/1/2009 13:44
4 1D		3	568	12115	7/1/2009 13:36	7/1/2009 13:39
1 2A		3	424	12499	7/1/2009 13:57	7/1/2009 14:00
2 2A		3	449	12103	7/1/2009 14:15	7/1/2009 14:18
3 2A		3	419	11968	7/1/2009 14:09	7/1/2009 14:12
4 2A		3	417	11855	7/1/2009 14:02	7/1/2009 14:05
1 2B		3	42	12471	7/1/2009 14:02	7/1/2009 14:05
2 2B		3	39	12492	7/1/2009 13:57	7/1/2009 14:00
3 2B		3	54	11892	7/1/2009 14:15	7/1/2009 14:18
4 2B		3	69	11539	7/1/2009 14:09	7/1/2009 14:12
1 2C		3	504	12050	7/1/2009 14:08	7/1/2009 14:11
2 2C		3	527	11914	7/1/2009 14:02	7/1/2009 14:05
3 2C		3	496	11994	7/1/2009 13:58	7/1/2009 14:01
4 2C		3	499	10889	7/1/2009 14:15	7/1/2009 14:18
1 2D		3	543	12010	7/1/2009 14:15	7/1/2009 14:18
2 2D		3	508	12124	7/1/2009 14:08	7/1/2009 14:11
3 2D		3	542	12168	7/1/2009 14:02	7/1/2009 14:05
4 2D		3	544	11692	7/1/2009 13:58	7/1/2009 14:01
1 3A		3	1397	11194	7/1/2009 14:19	7/1/2009 14:22
2 3A		4	1809	14227	7/1/2009 14:35	7/1/2009 14:39
3 3A		4	1757	14180	7/1/2009 14:30	7/1/2009 14:34
4 3A		4	1725	13754	7/1/2009 14:25	7/1/2009 14:29
1 3B		4	914	15370	7/1/2009 14:25	7/1/2009 14:29
2 3B		3	731	11695	7/1/2009 14:20	7/1/2009 14:23
3 3B		4	960	14905	7/1/2009 14:35	7/1/2009 14:39
4 3B		4	922	14220	7/1/2009 14:30	7/1/2009 14:34
1 3C		4	671	15644	7/1/2009 14:29	7/1/2009 14:33
2 3C		4	722	15964	7/1/2009 14:25	7/1/2009 14:29
3 3C		3	558	11701	7/1/2009 14:20	7/1/2009 14:23
4 3C		4	647	14729	7/1/2009 14:35	7/1/2009 14:39
1 3D		4	651	15152	7/1/2009 14:35	7/1/2009 14:39
2 3D		4	722	15168	7/1/2009 14:30	7/1/2009 14:34
3 3D		4	684	15295	7/1/2009 14:25	7/1/2009 14:29
4 3D		3	466	10942	7/1/2009 14:20	7/1/2009 14:23
1 4A		4	412	15298	7/1/2009 14:40	7/1/2009 14:44
2 4A		4	407	14897	7/1/2009 15:00	7/1/2009 15:04
3 4A		4	389	15050	7/1/2009 14:53	7/1/2009 14:57

419  
7/2/09



4 4A	4	417	14462	7/1/2009 14:48	7/1/2009 14:52
1 4B	4	58	15335	7/1/2009 14:48	7/1/2009 14:52
2 4B	4	61	15513	7/1/2009 14:41	7/1/2009 14:45
3 4B	4	53	14521	7/1/2009 15:00	7/1/2009 15:04
4 4B	4	72	14328	7/1/2009 14:53	7/1/2009 14:57
1 4C	4	532	14733	7/1/2009 14:53	7/1/2009 14:57
2 4C	4	545	14902	7/1/2009 14:48	7/1/2009 14:52
3 4C	4	486	14856	7/1/2009 14:41	7/1/2009 14:45
4 4C	4	540	13733	7/1/2009 15:00	7/1/2009 15:04
1 4D	4	1158	14167	7/1/2009 15:00	7/1/2009 15:04
2 4D	4	1192	14204	7/1/2009 14:53	7/1/2009 14:57
3 4D	4	1136	14131	7/1/2009 14:48	7/1/2009 14:52
4 4D	4	1149	13978	7/1/2009 14:41	7/1/2009 14:45
1 5A	4	424	14870	7/1/2009 15:06	7/1/2009 15:10
2 5A	4	395	14487	7/1/2009 15:21	7/1/2009 15:25
3 5A	4	403	14259	7/1/2009 15:17	7/1/2009 15:21
4 5A	4	389	13957	7/1/2009 15:12	7/1/2009 15:16
1 5B	4	428	14869	7/1/2009 15:12	7/1/2009 15:16
2 5B	4	440	14821	7/1/2009 15:06	7/1/2009 15:10
3 5B	4	420	14289	7/1/2009 15:21	7/1/2009 15:25
4 5B	4	414	13809	7/1/2009 15:17	7/1/2009 15:21
1 5C	4	436	14676	7/1/2009 15:17	7/1/2009 15:21
2 5C	4	443	15122	7/1/2009 15:12	7/1/2009 15:16
3 5C	4	433	14958	7/1/2009 15:07	7/1/2009 15:11
4 5C	4	416	13831	7/1/2009 15:21	7/1/2009 15:25
1 5D	4	451	14321	7/1/2009 15:21	7/1/2009 15:25
2 5D	4	452	14642	7/1/2009 15:17	7/1/2009 15:21
3 5D	4	444	14443	7/1/2009 15:12	7/1/2009 15:16
4 5D	4	414	13954	7/1/2009 15:07	7/1/2009 15:11
1 6A	4	272	14018	7/1/2009 15:27	7/1/2009 15:31
2 6A	3.5	246	12283	7/1/2009 15:40	7/1/2009 15:44
3 6A	3.5	231	12111	7/1/2009 15:36	7/1/2009 15:40
4 6A	3.5	229	11598	7/1/2009 15:32	7/1/2009 15:35
1 6B	3.5	540	12151	7/1/2009 15:32	7/1/2009 15:36
2 6B	4	592	14371	7/1/2009 15:27	7/1/2009 15:31
3 6B	3.5	498	11705	7/1/2009 15:40	7/1/2009 15:44
4 6B	3.5	498	11388	7/1/2009 15:36	7/1/2009 15:40
1 6C	3.5	462	12161	7/1/2009 15:36	7/1/2009 15:40
2 6C	3.5	468	12083	7/1/2009 15:32	7/1/2009 15:36
3 6C	4	534	13638	7/1/2009 15:27	7/1/2009 15:31
4 6C	3.5	455	11218	7/1/2009 15:40	7/1/2009 15:44
1 6D	3.5	456	11987	7/1/2009 15:40	7/1/2009 15:44
2 6D	3.5	468	12183	7/1/2009 15:36	7/1/2009 15:40
3 6D	3.5	496	11882	7/1/2009 15:32	7/1/2009 15:36
4 6D	4	525	13018	7/1/2009 15:27	7/1/2009 15:31
1 7A	3.5	466	12007	7/1/2009 15:46	7/1/2009 15:50
2 7A	3.5	491	11655	7/1/2009 16:00	7/1/2009 16:04
3 7A	3.5	444	11445	7/1/2009 15:56	7/1/2009 15:59
4 7A	3.5	477	11121	7/1/2009 15:50	7/1/2009 15:54
1 7B	3.5	418	11968	7/1/2009 15:51	7/1/2009 15:54
2 7B	3.5	448	12050	7/1/2009 15:46	7/1/2009 15:50
3 7B	3.5	460	11675	7/1/2009 16:00	7/1/2009 16:04

4 7B	3.5	413	11271	7/1/2009 15:56	7/1/2009 16:00
1 7C	3.5	471	11781	7/1/2009 15:56	7/1/2009 16:00
2 7C	3.5	457	11760	7/1/2009 15:51	7/1/2009 15:54
3 7C	3.5	454	11766	7/1/2009 15:46	7/1/2009 15:50
4 7C	3.5	406	10888	7/1/2009 16:00	7/1/2009 16:04
1 7D	3.5	359	11605	7/1/2009 16:00	7/1/2009 16:04
2 7D	3.5	391	11920	7/1/2009 15:56	7/1/2009 16:00
3 7D	3.5	386	11933	7/1/2009 15:51	7/1/2009 15:55
4 7D	3.5	400	11305	7/1/2009 15:46	7/1/2009 15:50
1 8A	3.5	348	11673	7/1/2009 16:06	7/1/2009 16:09
2 8A	3.5	340	11172	7/1/2009 16:19	7/1/2009 16:22
3 8A	3.5	298	11258	7/1/2009 16:15	7/1/2009 16:18
4 8A	3.5	327	10977	7/1/2009 16:10	7/1/2009 16:13
1 8B	3.5	124	11583	7/1/2009 16:10	7/1/2009 16:13
2 8B	3.5	112	11758	7/1/2009 16:06	7/1/2009 16:09
3 8B	3.5	110	11499	7/1/2009 16:19	7/1/2009 16:23
4 8B	3.5	102	10844	7/1/2009 16:15	7/1/2009 16:18
1 8C	3.5	202	11539	7/1/2009 16:15	7/1/2009 16:18
2 8C	3.5	196	11774	7/1/2009 16:10	7/1/2009 16:14
3 8C	3.5	203	11611	7/1/2009 16:06	7/1/2009 16:09
4 8C	3.5	207	10809	7/1/2009 16:19	7/1/2009 16:23
1 8D	3.5	240	11301	7/1/2009 16:19	7/1/2009 16:23
2 8D	3.5	248	11412	7/1/2009 16:15	7/1/2009 16:18
3 8D	3.5	233	11660	7/1/2009 16:10	7/1/2009 16:14
4 8D	3.5	235	10918	7/1/2009 16:06	7/1/2009 16:10
1 9A	3.5	39	11605	7/1/2009 16:24	7/1/2009 16:28
2 9A	3.5	49	11281	7/1/2009 16:42	7/1/2009 16:46
3 9A	3.5	47	11301	7/1/2009 16:33	7/1/2009 16:36
4 9A	3.5	64	10987	7/1/2009 16:29	7/1/2009 16:32
1 9B	3.5	53	11151	7/1/2009 16:29	7/1/2009 16:32
2 9B	3.5	39	11462	7/1/2009 16:24	7/1/2009 16:28
3 9B	3.5	45	11004	7/1/2009 16:42	7/1/2009 16:46
4 9B	3.5	51	10581	7/1/2009 16:33	7/1/2009 16:36
1 9C	3.5	49	11026	7/1/2009 16:33	7/1/2009 16:36
2 9C	3.5	49	11281	7/1/2009 16:29	7/1/2009 16:32
3 9C	3.5	40	11016	7/1/2009 16:24	7/1/2009 16:28
4 9C	3.5	60	10297	7/1/2009 16:42	7/1/2009 16:46
1 9D	3.5	65	11135	7/1/2009 16:38	7/1/2009 16:41
2 9D	3.5	53	11412	7/1/2009 16:33	7/1/2009 16:37
3 9D	3.5	54	11340	7/1/2009 16:29	7/1/2009 16:32
4 9D	3.5	77	10912	7/1/2009 16:24	7/1/2009 16:28
1 10A	3.5	71	10991	7/1/2009 16:47	7/1/2009 16:51
2 10A	4	106	11959	7/1/2009 17:12	7/1/2009 17:16
3 10A	3.5	70	10553	7/1/2009 16:58	7/1/2009 17:01
4 10A	3.5	95	10338	7/1/2009 16:53	7/1/2009 16:56
1 10B	4	139	11110	7/1/2009 17:03	7/1/2009 17:07
2 10B	3.5	102	10812	7/1/2009 16:47	7/1/2009 16:51
3 10B	4	103	11422	7/1/2009 17:12	7/1/2009 17:16
4 10B	3.5	110	9967	7/1/2009 16:58	7/1/2009 17:01
1 10C	3.5	74	10482	7/1/2009 16:58	7/1/2009 17:01
2 10C	3.5	79	10535	7/1/2009 16:53	7/1/2009 16:57
3 10C	3.5	87	10723	7/1/2009 16:47	7/1/2009 16:51

4 10C	4	95	11066	7/1/2009 17:13	7/1/2009 17:17
1 10D	4	102	12021	7/1/2009 17:13	7/1/2009 17:17
2 10D	3.5	75	10614	7/1/2009 16:58	7/1/2009 17:01
3 10D	3.5	78	10643	7/1/2009 16:53	7/1/2009 16:57
4 10D	3.5	81	10064	7/1/2009 16:48	7/1/2009 16:51
1 11A	3	31	14773	7/1/2009 11:56	7/1/2009 11:59
2 11A	3	23	14429	7/1/2009 12:08	7/1/2009 12:11
3 11A	3	33	14454	7/1/2009 12:04	7/1/2009 12:07
4 11A	3	49	14013	7/1/2009 12:00	7/1/2009 12:03
1 11B	3	43	16203	7/1/2009 12:00	7/1/2009 12:03
2 11B	3	53	16106	7/1/2009 11:56	7/1/2009 11:59
3 11B	3	46	15643	7/1/2009 12:08	7/1/2009 12:11
4 11B	3	42	15133	7/1/2009 12:04	7/1/2009 12:07
1 11C	3	27	15637	7/1/2009 12:04	7/1/2009 12:07
2 11C	3	38	15919	7/1/2009 12:00	7/1/2009 12:03
3 11C	3	33	16452	7/1/2009 11:56	7/1/2009 11:59
4 11C	3	46	14887	7/1/2009 12:08	7/1/2009 12:11
1 11D	3	43	15607	7/1/2009 12:08	7/1/2009 12:11
2 11D	3	42	15944	7/1/2009 12:04	7/1/2009 12:07
3 11D	3	32	16098	7/1/2009 12:00	7/1/2009 12:03
4 11D	3	39	15191	7/1/2009 11:56	7/1/2009 11:59
1 12A	3	29	15450	7/1/2009 12:15	7/1/2009 12:18
2 12A	3	28	15016	7/1/2009 12:28	7/1/2009 12:31
3 12A	3	31	14984	7/1/2009 12:24	7/1/2009 12:27
4 12A	3	46	14530	7/1/2009 12:20	7/1/2009 12:23
1 12B	3	26	15404	7/1/2009 12:20	7/1/2009 12:23
2 12B	3	31	15607	7/1/2009 12:15	7/1/2009 12:18
3 12B	3	34	15060	7/1/2009 12:28	7/1/2009 12:31
4 12B	3	49	14553	7/1/2009 12:24	7/1/2009 12:27
1 12C	3	24	15183	7/1/2009 12:24	7/1/2009 12:27
2 12C	3	44	15651	7/1/2009 12:20	7/1/2009 12:23
3 12C	3	46	15216	7/1/2009 12:15	7/1/2009 12:18
4 12C	3	60	14117	7/1/2009 12:28	7/1/2009 12:31
1 12D	3	48	15174	7/1/2009 12:28	7/1/2009 12:31
2 12D	3	37	15137	7/1/2009 12:24	7/1/2009 12:27
3 12D	3	25	15418	7/1/2009 12:20	7/1/2009 12:23
4 12D	3	59	14566	7/1/2009 12:15	7/1/2009 12:18
1 13A	3	50	15230	7/1/2009 12:33	7/1/2009 12:36
2 13A	3	36	14784	7/1/2009 12:50	7/1/2009 12:53
3 13A	3	41	14851	7/1/2009 12:41	7/1/2009 12:44
4 13A	3	49	14183	7/1/2009 12:37	7/1/2009 12:40
1 13B	3	39	15625	7/1/2009 12:37	7/1/2009 12:40
2 13B	3	41	15450	7/1/2009 12:33	7/1/2009 12:36
3 13B	3	37	14689	7/1/2009 12:50	7/1/2009 12:53
4 13B	3	47	14377	7/1/2009 12:41	7/1/2009 12:44
1 13C	3	54	15426	7/1/2009 12:41	7/1/2009 12:44
2 13C	3	41	15315	7/1/2009 12:37	7/1/2009 12:40
3 13C	3	36	15288	7/1/2009 12:33	7/1/2009 12:36
4 13C	3	34	14222	7/1/2009 12:50	7/1/2009 12:53
1 13D	3	47	14492	7/1/2009 12:50	7/1/2009 12:53
2 13D	3	50	14858	7/1/2009 12:46	7/1/2009 12:49
3 13D	3	43	14873	7/1/2009 12:37	7/1/2009 12:40

4 13D	3	47	14389	7/1/2009 12:33	7/1/2009 12:36
1 14A	3	44	14463	7/1/2009 12:54	7/1/2009 12:57
2 14A	3	41	14137	7/1/2009 13:17	7/1/2009 13:20
3 14A	3	45	14022	7/1/2009 13:13	7/1/2009 13:16
4 14A	3	51	13451	7/1/2009 13:02	7/1/2009 13:05
1 14B	3	42	14039	7/1/2009 13:01	7/1/2009 13:04
2 14B	3	36	14398	7/1/2009 12:54	7/1/2009 12:57
3 14B	3	47	13475	7/1/2009 13:17	7/1/2009 13:20
4 14B	3	47	13077	7/1/2009 13:13	7/1/2009 13:16
1 14C	3	26	14116	7/1/2009 13:12	7/1/2009 13:15
2 14C	3	35	14187	7/1/2009 13:02	7/1/2009 13:05
3 14C	3	37	14409	7/1/2009 12:55	7/1/2009 12:58
4 14C	3	38	13229	7/1/2009 13:17	7/1/2009 13:20
1 14D	3	16	13927	7/1/2009 13:17	7/1/2009 13:20
2 14D	3	32	14089	7/1/2009 13:12	7/1/2009 13:15
3 14D	3	16	13912	7/1/2009 13:02	7/1/2009 13:05
4 14D	3	47	13545	7/1/2009 12:55	7/1/2009 12:58

Radium-228 Liquid

Filename : RA228.XLS
Spike S/N : N/A
Spike Exp Date : N/A
Spike Activity (dpm/ml) : N/A
Spike Volume Added: N/A
LCS S/N : 0503-B
LCS Exp Date : 9/13/2009
LCS Activity (dpm/ml) : 182.42
LCS Volume Added: 2.00
Tracer S/N : 0112-J
Tracer Exp Date : 2/17/2010
Tracer Volume Added: 0.10
Re-228 Abundance : 1
Re-228 Method Uncertainty : 0.0784
Calibration Date : 6/2/2008
Calibration Due Date : 6/30/2009

Pipet, 0.1 ml Stdev : +/- 0.000701 ml
Pipet, 0.5 ml Stdev : +/- 0.002564 ml
Pipet, 1 ml Stdev : +/- 0.005480 ml
Procedure Code : GFC060SRL
Pararmine : Radium-228
Required MDA : 1 pCi/L
Half-life of Re-228 : 5.75 years
Half-life of Ac-228 : 6.13 hours
Batch counted on : PIC
BKG Count time : 500 min

Table with columns: Pos., Sample Characteristics, Counting Time, Detector ID, Count raw Data, Gross Counts, Beta, Detector Efficiency Error, Weekly Bkg Count, Separation Date/Time, Count Start Date/Time, Ra-228 Decay, Ac-228 Correction, Calculated Sample Recovery %, Sample Recovery Error %, Results Pos.

Notes:

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

\* indicates results calculated at 100% recovery

Decision Level	Critical Level	Required MDA	MDA	Sample Act. Conc.		Sample Error	Net Count Rate		Net Count Rate		Counting Uncertainty		Sample Type	Nominal pCi/L	Recovery
				pCi/L	Conc.		CPM	Rate	CPM	Rate	pCi/L	%			
0.3471	0.2451	1	0.6937	134.0279	0.0254	131.6880	2.9666	5.9178	21.6466	LCS	164.3409	81.6%			
0.3647	0.2575	1	0.7192	133.0399	0.0251	130.2590	2.9508	5.9071	21.4655	LCS	164.3409	81.0%			
0.5889	0.3790	1	0.9659	145.2921	0.0243	139.8173	3.0611	6.2347	23.3752	LCS	164.3409	88.4%			
0.4695	0.3314	1	0.8755	159.8828	0.0239	150.4760	3.1730	6.6057	25.6756	LCS	164.3409	97.3%			
0.4261	0.3008	1	0.8097	127.0000	0.0257	122.0633	2.8583	5.8279	20.5368	LCS	164.3409	77.3%			
0.7599	0.5395	1	1.2813	141.0616	0.0247	135.4387	3.0211	6.1673	22.7300	LCS	164.3409	85.8%			
0.3798	0.2681	1	0.7515	141.8559	0.0253	131.7993	2.9681	6.2613	22.9053	LCS	164.3409	86.3%			
0.4150	0.2830	1	0.8072	145.8182	0.0251	131.8887	2.9696	6.4352	23.5274	LCS	164.3409	88.7%			
0.6347	0.4481	1	1.1343	129.9854	0.0284	108.9047	2.7042	6.3116	21.1935	LCS	164.3409	78.9%			
0.9035	0.6379	1	1.5022	135.4510	0.0266	119.6900	2.8455	6.3115	21.9803	LCS	164.3409	82.4%			
0.6078	0.4291	1	1.0779	141.2594	0.0255	128.6447	2.9382	6.3235	22.8259	LCS	164.3409	86.0%			
0.5473	0.3864	1	0.9987	155.5960	0.0247	137.7700	3.0378	6.7244	25.0636	LCS	164.3409	94.7%			
0.6283	0.4436	1	1.1054	135.5336	0.0264	124.2433	2.8986	6.1761	21.9739	LCS	164.3409	82.5%			
0.9036	0.6379	1	1.4942	136.9155	0.0254	125.4287	2.9134	6.2333	22.1127	LCS	164.3409	88.8%			
0.7676	0.5419	1	1.3079	145.9826	0.0252	130.3400	2.9624	6.5032	23.5621	LCS	164.3409	90.0%			
0.7520	0.5309	1	1.3000	147.9661	0.0266	124.2633	2.8910	6.7471	24.0105	LCS	164.3409	82.1%			
0.4809	0.3395	1	0.9027	134.9611	0.0269	120.7040	2.8427	6.2312	21.9265	LCS	164.3409	80.0%			
0.8974	0.4924	1	1.2076	131.4742	0.0271	117.9500	2.8170	6.1544	21.3797	LCS	164.3409	89.0%			
0.6530	0.4610	1	1.1419	148.2299	0.0259	132.9873	2.9894	6.4406	23.6659	LCS	164.3409	95.2%			
0.7661	0.5409	1	1.3064	156.3706	0.0255	139.2187	3.0605	6.7377	25.2668	LCS	164.3409	81.7%			
0.6899	0.4871	1	1.1997	134.1863	0.0270	118.9960	2.8288	6.2523	21.8127	LCS	164.3409	83.4%			
0.6079	0.4292	1	1.0862	137.0396	0.0269	120.3027	2.8412	6.3436	22.2643	LCS	164.3409	88.8%			
0.9509	0.6713	1	1.5725	146.0056	0.0264	127.0307	2.9317	6.6044	23.6775	LCS	164.3409	88.0%			
0.4376	0.3090	1	0.8562	144.5849	0.0275	113.7227	2.7577	6.3903	21.8573	LCS	164.3409	88.8%			
0.4227	0.2984	1	0.8330	134.2390	0.0276	118.4887	2.8152	6.4094	22.3723	LCS	164.3409	92.4%			
0.4360	0.3079	1	0.8480	137.6373	0.0270	118.4887	2.8152	6.7858	24.6088	LCS	164.3409	92.6%			
0.3962	0.2797	1	0.7956	151.8935	0.0262	128.6313	2.9319	6.6518	23.4785	LCS	164.3409	77.8%			
0.4480	0.3091	1	0.8657	152.1131	0.0261	130.4707	2.9539	6.7499	24.6318	LCS	164.3409	82.2%			
0.8917	0.6931	1	1.1278	127.8251	0.0279	109.4120	2.7108	6.2072	20.8618	LCS	164.3409	89.2%			
0.7972	0.5629	1	1.1617	135.1471	0.0273	117.2540	2.8197	6.3699	21.9896	LCS	164.3409	86.1%			
0.5779	0.4080	1	1.0463	146.5864	0.0263	127.3240	2.9214	6.5922	23.7610	LCS	164.3409	86.1%			
0.8422	0.5946	1	1.4301	141.4935	0.0272	117.4880	2.8147	6.6441	23.0149	LCS	164.3409	79.4%			
0.4379	0.3091	1	0.8509	130.5505	0.0276	112.2200	2.7400	6.2478	21.2682	LCS	164.3409	81.4%			
0.7972	0.5629	1	1.3635	133.7974	0.0277	112.5273	2.7540	6.4182	21.9026	LCS	164.3409	87.8%			
0.4475	0.3159	1	0.8728	144.2924	0.0269	119.7633	2.8301	6.6832	23.4437	LCS	164.3409	91.8%			
0.8154	0.5757	1	1.3863	150.8313	0.0263	128.3747	2.9406	6.7718	24.4459	LCS	164.3409	81.8%			
0.4063	0.2868	1	0.8104	134.4151	0.0285	119.5507	2.7553	6.3927	21.8871	LCS	164.3409	82.2%			
0.4205	0.2969	1	0.8358	146.9063	0.0268	121.4093	2.8489	6.7565	23.8548	LCS	164.3409	89.4%			
0.4437	0.3182	1	0.8728	144.8386	0.0271	117.5853	2.8041	6.7699	23.5500	LCS	164.3409	86.1%			
0.3432	0.2423	1	0.6763	135.4546	0.0253	141.3227	3.0733	5.7736	21.8705	LCS	164.3409	80.1%			
0.3289	0.2322	1	0.6397	131.6931	0.0247	150.2887	3.1684	5.4434	21.2189	LCS	164.3409	80.1%			
0.2949	0.2082	1	0.5922	148.9038	0.0237	169.2980	3.3626	5.7929	23.8966	LCS	164.3409	92.4%			
0.3379	0.2385	1	0.6530	151.8473	0.0235	172.6707	3.3968	5.8549	24.3615	LCS	164.3409	92.4%			
0.4616	0.3400	1	0.8577	131.6889	0.0249	148.2120	3.2186	5.4891	21.2301	LCS	164.3409	80.1%			
0.7498	0.5287	1	1.2332	134.8566	0.0246	153.3873	3.2186	5.5463	21.7215	LCS	164.3409	82.1%			
0.4447	0.3140	1	0.8052	148.8317	0.0238	162.8880	3.3090	5.6232	23.8982	LCS	164.3409	90.8%			
0.6180	0.4363	1	1.0494	143.9479	0.0241	162.8880	3.3090	5.7315	23.1384	LCS	164.3409	87.6%			
0.3427	0.2420	1	0.6680	135.0873	0.0248	148.3533	3.1490	5.6202	21.7752	LCS	164.3409	82.2%			
0.5997	0.4234	1	1.0256	129.5009	0.0251	144.7940	3.1202	5.4697	20.8960	LCS	164.3409	78.9%			
0.3316	0.2341	1	0.6469	146.0021	0.0240	163.4967	3.3053	5.7852	23.4616	LCS	164.3409	88.8%			
0.6355	0.4487	1	1.0805	159.6717	0.0235	174.3747	3.4225	6.1425	25.6134	LCS	164.3409	97.2%			
0.3136	0.2214	1	0.6255	132.0625	0.0251	144.5507	3.1078	5.5650	21.3060	LCS	164.3409	80.4%			
1.4618	1.0321	1	2.2506	135.6135	0.0254	145.4707	3.1861	5.8215	21.9790	LCS	164.3409	82.5%			
0.3185	0.2249	1	0.6330	141.6298	0.0245	154.5427	3.2193	5.7718	22.7000	LCS	164.3409	86.2%			
0.3327	0.2349	1	0.6546	146.7439	0.0242	158.8520	3.2579	5.8988	23.6017	LCS	164.3409	89.3%			

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SampleID	Instr	Time (min.)	Alpha Counts	Beta Counts	Count Start Time	Count End Time	Machine
1	1A	15	36	1980	7/2/2009 8:39	7/2/2009 8:54	Protean
2	1B	15	27	1959	7/2/2009 8:40	7/2/2009 8:55	Protean
3	1C	15	44	2108	7/2/2009 8:40	7/2/2009 8:55	Protean
4	1D	15	108	2265	7/2/2009 8:40	7/2/2009 8:55	Protean
5	2A	15	69	1838	7/2/2009 8:40	7/2/2009 8:55	Protean
6	2B	15	8	2053	7/2/2009 8:40	7/2/2009 8:55	Protean
7	2C	15	96	1982	7/2/2009 8:40	7/2/2009 8:55	Protean
8	2D	15	93	1984	7/2/2009 9:08	7/2/2009 9:23	Protean
1	3A	15	233	1645	7/2/2009 9:08	7/2/2009 9:23	Protean
2	3B	15	99	1821	7/2/2009 9:08	7/2/2009 9:23	Protean
3	3C	15	96	1942	7/2/2009 9:08	7/2/2009 9:23	Protean
4	3D	15	90	2076	7/2/2009 9:08	7/2/2009 9:23	Protean
5	4A	15	79	1877	7/2/2009 9:08	7/2/2009 9:23	Protean
6	4B	15	13	1909	7/2/2009 9:08	7/2/2009 9:23	Protean
7	4C	15	97	1974	7/2/2009 9:09	7/2/2009 9:24	Protean
8	4D	15	181	1880	7/2/2009 9:25	7/2/2009 9:40	Protean
1	5A	15	53	1818	7/2/2009 9:26	7/2/2009 9:41	Protean
2	5B	15	59	1785	7/2/2009 9:26	7/2/2009 9:41	Protean
3	5C	15	43	2009	7/2/2009 9:26	7/2/2009 9:41	Protean
4	5D	15	59	2107	7/2/2009 9:26	7/2/2009 9:41	Protean
5	6A	15	35	1800	7/2/2009 9:27	7/2/2009 9:42	Protean
6	6B	15	71	1816	7/2/2009 9:27	7/2/2009 9:42	Protean
7	6C	15	81	1933	7/2/2009 9:27	7/2/2009 9:42	Protean
8	6D	15	81	1826	7/2/2009 9:47	7/2/2009 10:02	Protean
1	7A	15	75	1711	7/2/2009 9:48	7/2/2009 10:03	Protean
2	7B	15	59	1783	7/2/2009 9:48	7/2/2009 10:03	Protean
3	7C	15	74	1934	7/2/2009 9:48	7/2/2009 10:03	Protean
4	7D	15	83	1963	7/2/2009 9:48	7/2/2009 10:03	Protean
5	8A	15	49	1653	7/2/2009 9:48	7/2/2009 10:03	Protean
6	8B	15	20	1788	7/2/2009 9:48	7/2/2009 10:03	Protean
7	8C	15	34	1920	7/2/2009 9:48	7/2/2009 10:03	Protean
8	8D	15	45	1782	7/2/2009 10:07	7/2/2009 10:22	Protean
1	9A	15	17	1689	7/2/2009 10:06	7/2/2009 10:21	Protean
2	9B	15	13	1706	7/2/2009 10:06	7/2/2009 10:21	Protean
3	9C	15	13	1802	7/2/2009 10:06	7/2/2009 10:21	Protean
4	9D	15	15	1945	7/2/2009 10:06	7/2/2009 10:21	Protean
5	10A	15	10	1708	7/2/2009 10:07	7/2/2009 10:22	Protean
6	10B	15	19	1743	7/2/2009 10:07	7/2/2009 10:22	Protean
7	10C	15	15	1826	7/2/2009 10:07	7/2/2009 10:22	Protean
8	10D	15	14	1769	7/2/2009 10:22	7/2/2009 10:37	Protean
1	11A	15	19	2125	7/2/2009 7:26	7/2/2009 7:41	Protean
2	11B	15	22	2260	7/2/2009 7:26	7/2/2009 7:41	Protean
3	11C	15	13	2544	7/2/2009 7:26	7/2/2009 7:41	Protean
4	11D	15	14	2596	7/2/2009 7:26	7/2/2009 7:41	Protean
5	12A	15	17	2235	7/2/2009 7:26	7/2/2009 7:41	Protean
6	12B	15	10	2330	7/2/2009 7:26	7/2/2009 7:41	Protean
7	12C	15	16	2530	7/2/2009 7:26	7/2/2009 7:41	Protean
8	12D	15	10	2463	7/2/2009 7:26	7/2/2009 7:41	Protean
1	13A	15	11	2231	7/2/2009 7:49	7/2/2009 8:04	Protean
2	13B	15	13	2190	7/2/2009 7:49	7/2/2009 8:04	Protean
3	13C	15	11	2458	7/2/2009 7:49	7/2/2009 8:04	Protean

219  
7/2/09

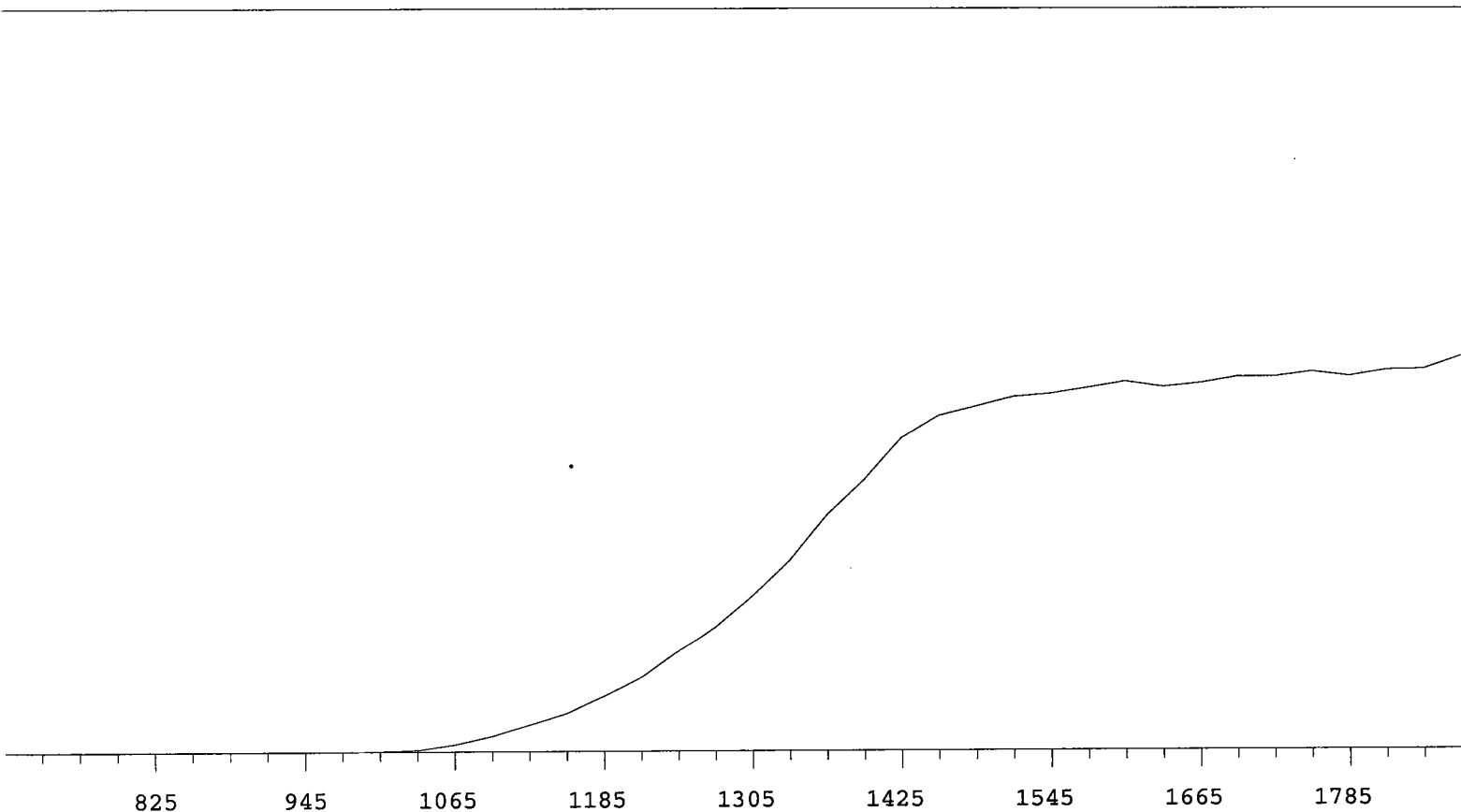
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4	13D	15	12	2635	7/2/2009 7:50	7/2/2009 8:05	Protean
5	14A	15	11	2173	7/2/2009 7:50	7/2/2009 8:05	Protean
6	14B	15	11	2281	7/2/2009 7:50	7/2/2009 8:05	Protean
7	14C	15	14	2323	7/2/2009 7:50	7/2/2009 8:05	Protean
8	14D	15	14	2388	7/2/2009 7:50	7/2/2009 8:05	Protean



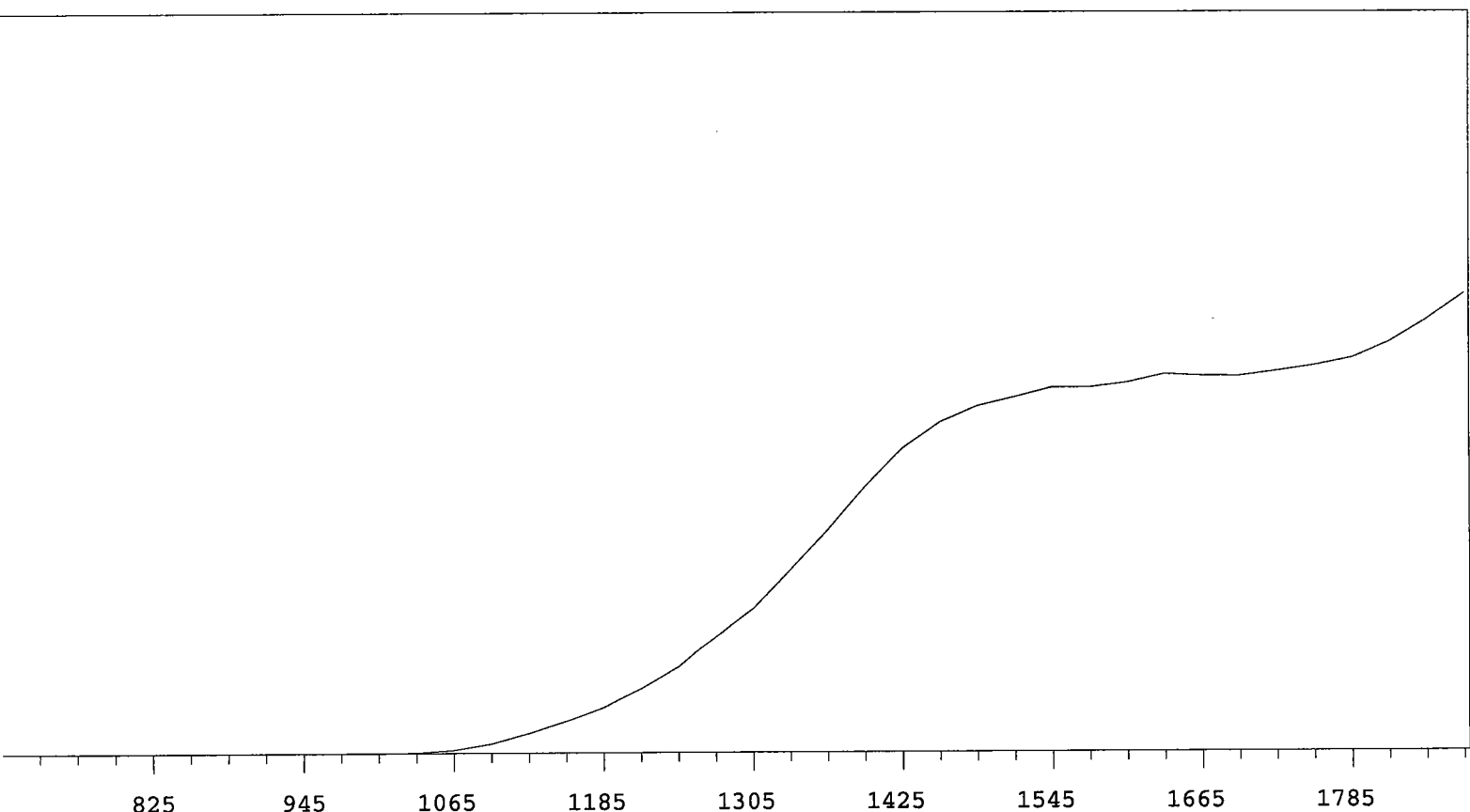
Ra-228 Protean	Cal Date A0	7/2/2009 A1	Exp Date A2	7/31/2009 A3	A4
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1B	6.28221E-01				
1C	6.17615E-01				
1D	6.04341E-01				
2A	6.17224E-01				
2B	6.16681E-01				
2C	5.96919E-01				
2D	6.11886E-01				
3A	5.68218E-01				
3B	5.98041E-01				
3C	6.16431E-01				
3D	5.99405E-01				
4A	6.20765E-01				
4B	6.20459E-01				
4C	6.05183E-01				
4D	5.87325E-01				
5A	6.25790E-01				
5B	6.28027E-01				
5C	6.36802E-01				
5D	6.23741E-01				
6A	6.22050E-01				
6B	6.16280E-01				
6C	6.11053E-01				
6D	6.12043E-01				
7A	6.17961E-01				
7B	6.27962E-01				
7C	6.17791E-01				
7D	6.25720E-01				
8A	6.24723E-01				
8B	6.33167E-01				
8C	6.33890E-01				
8D	6.28089E-01				
9A	6.496412E-01				
9B	6.356321E-01				
9C	6.273008E-01				
9D	6.432553E-01				
10A	6.389066E-01				
10B	6.137441E-01				
10C	6.249999E-01				
10D	6.319781E-01				
11A	5.82502E-01				
11B	6.37172E-01				
11C	6.35171E-01				
11D	6.34840E-01				
12A	6.28566E-01				
12B	6.35234E-01				
12C	6.30366E-01				
12D	6.31956E-01				
13A	6.40953E-01				

<b>13B</b>	6.52643E-01
<b>13C</b>	6.53798E-01
<b>13D</b>	6.37701E-01
<b>14A</b>	6.39290E-01
<b>14B</b>	6.26611E-01
<b>14C</b>	6.37531E-01
<b>14D</b>	6.32609E-01



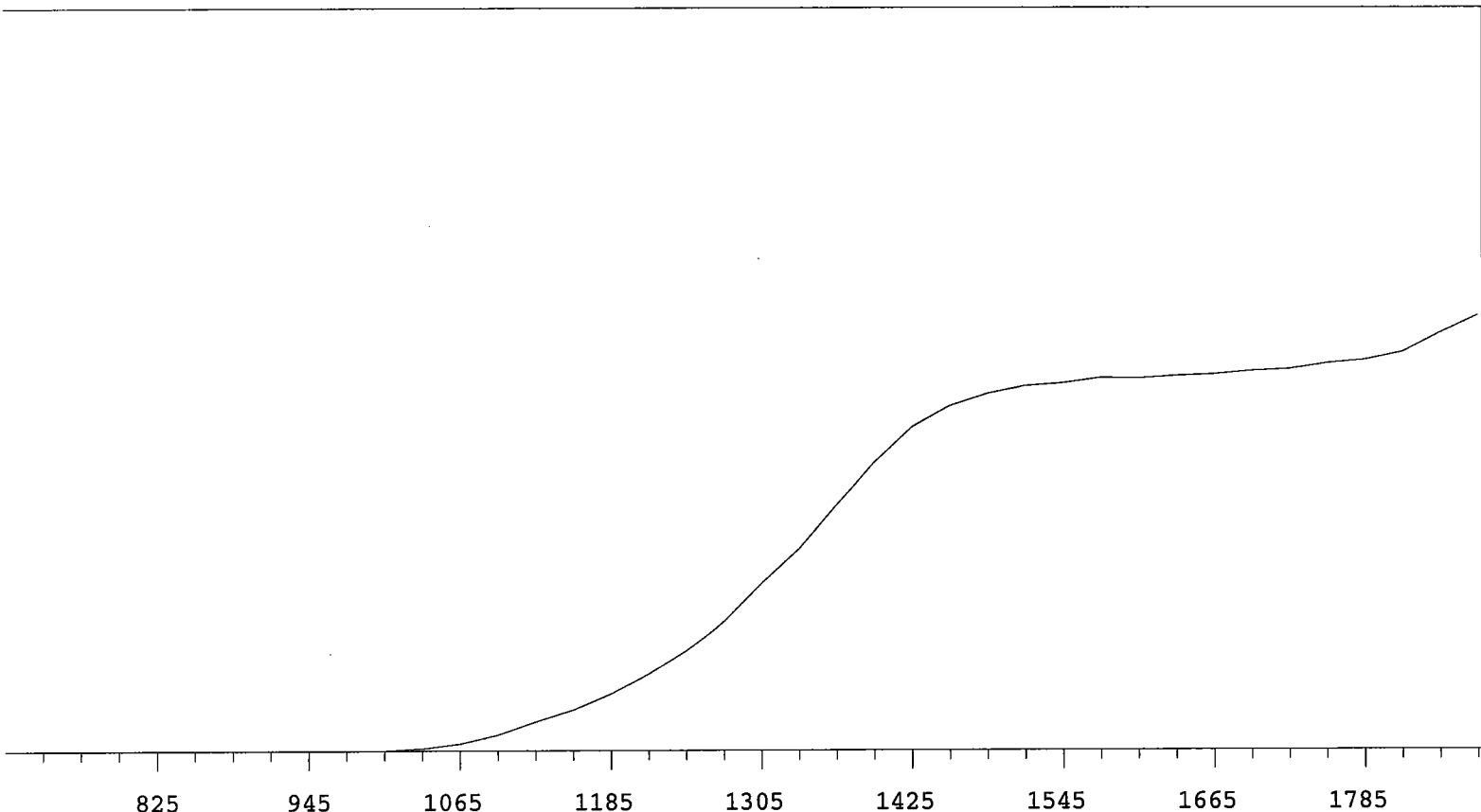
VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	1		1305	11640	+69.78
735	1		1335	14241	+62.88
765	0		1365	17534	+55.91
795	0	+0.00	1395	20127	+45.04
825	0	>100	1425	23254	+31.29
855	1	>100	1455	24902	+20.41
885	0	+55.56	1485	25605	+10.49
915	2	+66.67	1515	26310	+6.44
945	0	>100	1545	26535	+5.31
975	2	>100	1575	26953	+2.79
1005	42	>100	1605	27399	+1.83
1035	145	>100	1635	27000	+1.71
1065	544	>100	1665	27255	+1.62
1095	1136	>100	1695	27723	+3.14
1125	1967	>100	1725	27705	+1.56
1155	2845	>100	1755	28072	+1.15
1185	4078	>100	1785	27729	+1.43
1215	5483	+93.18	1815	28194	+3.24
1245	7400	+83.35	1845	28243	
1275	9328	+75.40	1875	29191	

Alpha Volts: 1575 Beta Volts: 1575

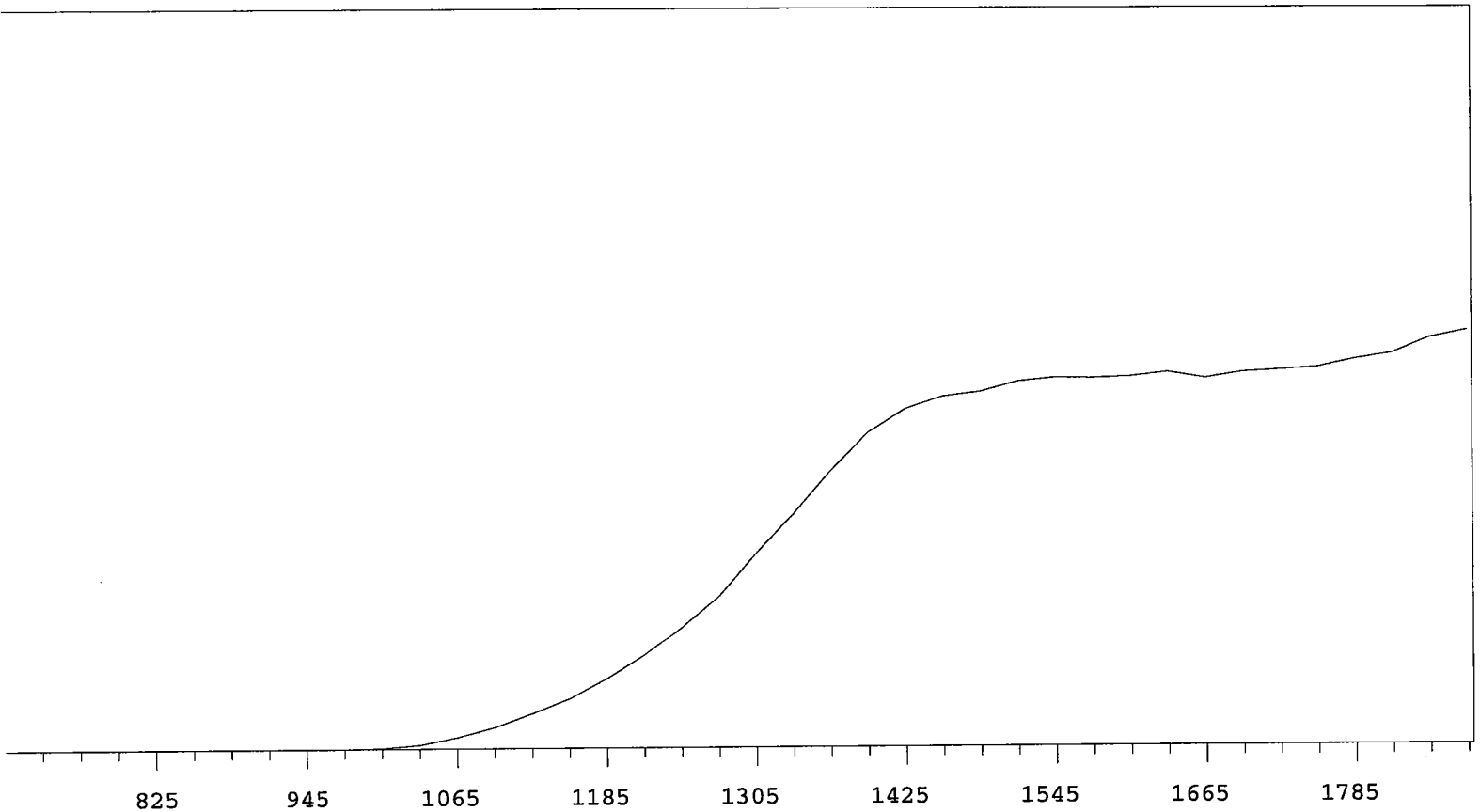


VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	1		1305	13188	+75.92
735	0		1335	16818	+67.60
765	0	+55.56	1365	20420	+59.86
795	1	+83.33	1395	24341	+47.85
825	1	+55.56	1425	27854	+35.51
855	0	>100	1455	30288	+23.26
885	1	+0.00	1485	31798	+14.54
915	0	+0.00	1515	32622	+8.32
945	1	>100	1545	33496	+5.11
975	0	>100	1575	33475	+4.43
1005	4	>100	1605	33903	+3.09
1035	56	>100	1635	34654	+2.46
1065	292	>100	1665	34485	+1.74
1095	890	>100	1695	34445	+1.84
1125	1841	>100	1725	34908	+3.91
1155	2936	>100	1755	35401	+6.80
1185	4179	>100	1785	36062	+10.27
1215	5837	>100	1815	37505	+14.30
1245	7821	+91.28	1845	39508	
1275	10638	+83.88	1875	41843	

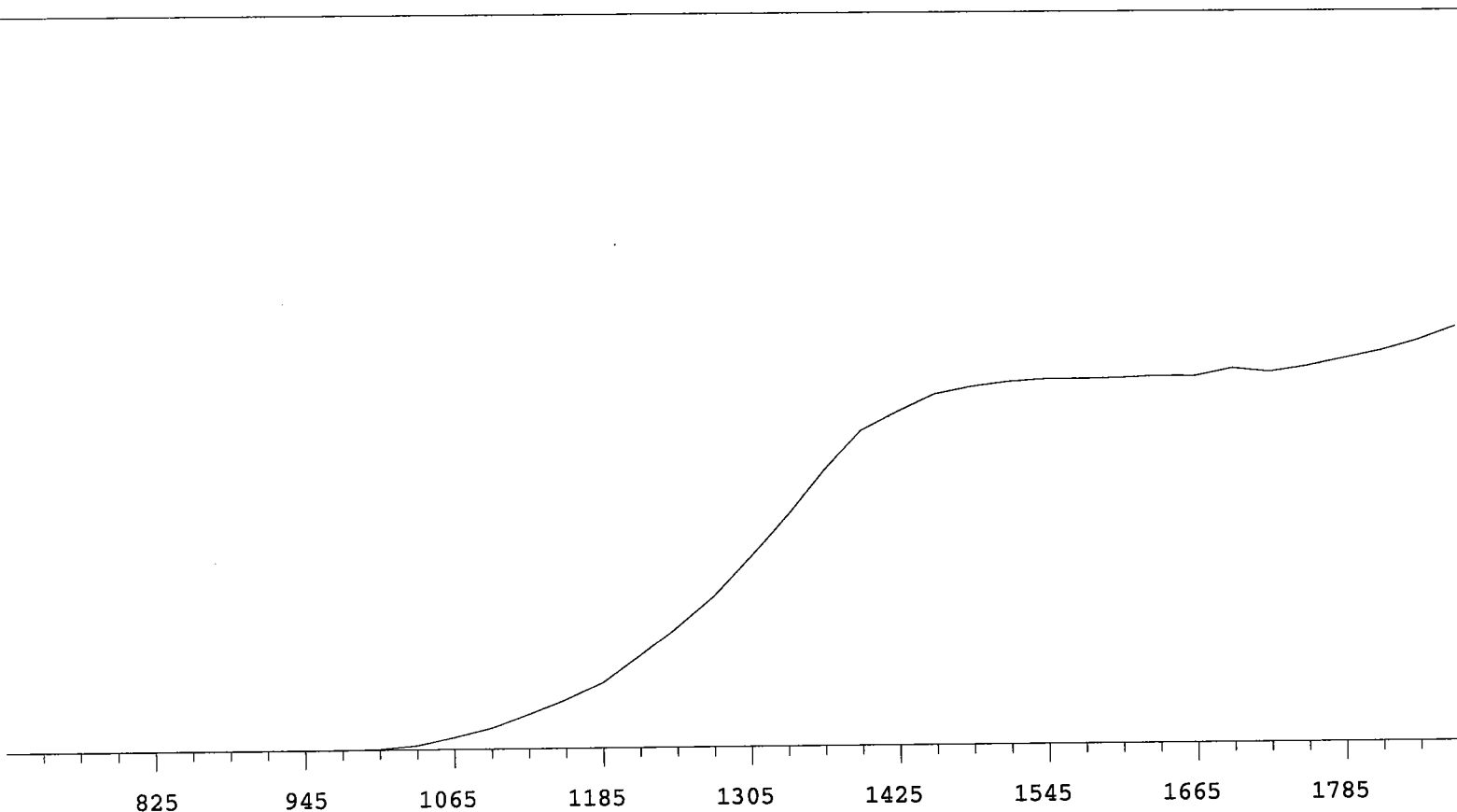
Alpha Volts: 1575 Beta Volts: 1575



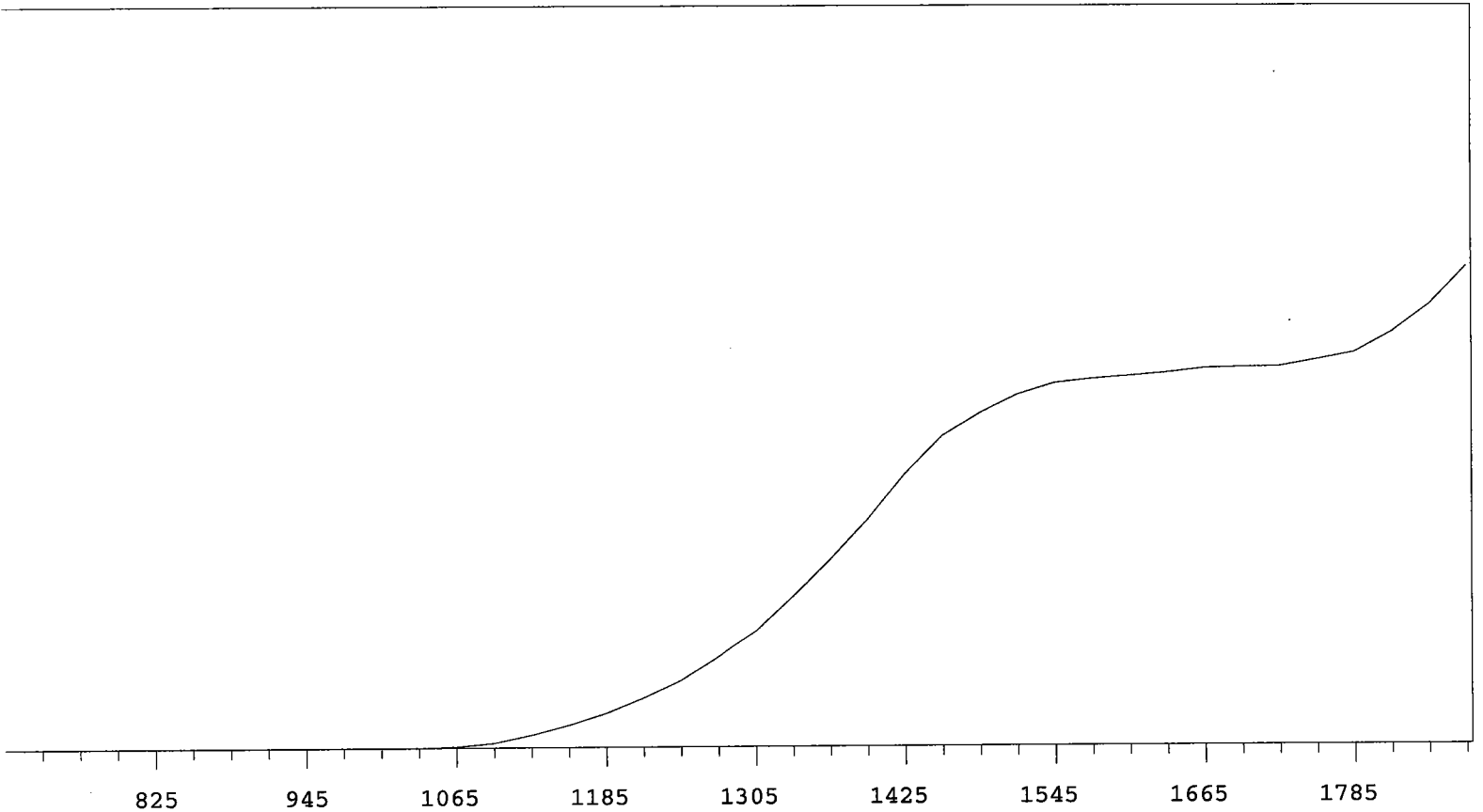
VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	1		1305	14817	+71.06
735	0		1335	17823	+63.34
765	1	+0.00	1365	21704	+53.63
795	0	>100	1395	25422	+42.55
825	1	-55.56	1425	28424	+29.21
855	1	+55.56	1455	30244	+18.11
885	0	>100	1485	31305	+10.10
915	1	>100	1515	31989	+6.07
945	0	>100	1545	32223	+3.43
975	4	>100	1575	32671	+2.15
1005	32	>100	1605	32621	+1.68
1035	206	>100	1635	32837	+1.52
1065	639	>100	1665	32961	+2.01
1095	1416	>100	1695	33249	+2.64
1125	2551	>100	1725	33409	+3.21
1155	3619	>100	1755	33931	+4.07
1185	5037	+98.68	1785	34234	+7.20
1215	6875	+91.19	1815	34909	+10.28
1245	8915	+85.53	1845	36660	
1275	11519	+77.28	1875	38205	



VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	0		1305	15202	+66.36
735	1		1335	18216	+57.86
765	0	+0.00	1365	21597	+45.58
795	1	+0.00	1395	24648	+32.96
825	0	+0.00	1425	26505	+19.92
855	1	>100	1455	27475	+11.42
885	0	>100	1485	27836	+7.08
915	0	>100	1515	28609	+4.51
945	0	>100	1545	28896	+2.93
975	8	>100	1575	28862	+1.66
1005	75	>100	1605	28969	+0.36
1035	303	>100	1635	29292	+0.80
1065	872	>100	1665	28836	+1.06
1095	1656	>100	1695	29279	+1.48
1125	2729	>100	1725	29439	+3.59
1155	3862	>100	1755	29642	+4.07
1185	5425	+98.19	1785	30243	+6.51
1215	7256	+88.82	1815	30699	+7.79
1245	9510	+81.89	1845	31876	
1275	11944	+74.07	1875	32444	

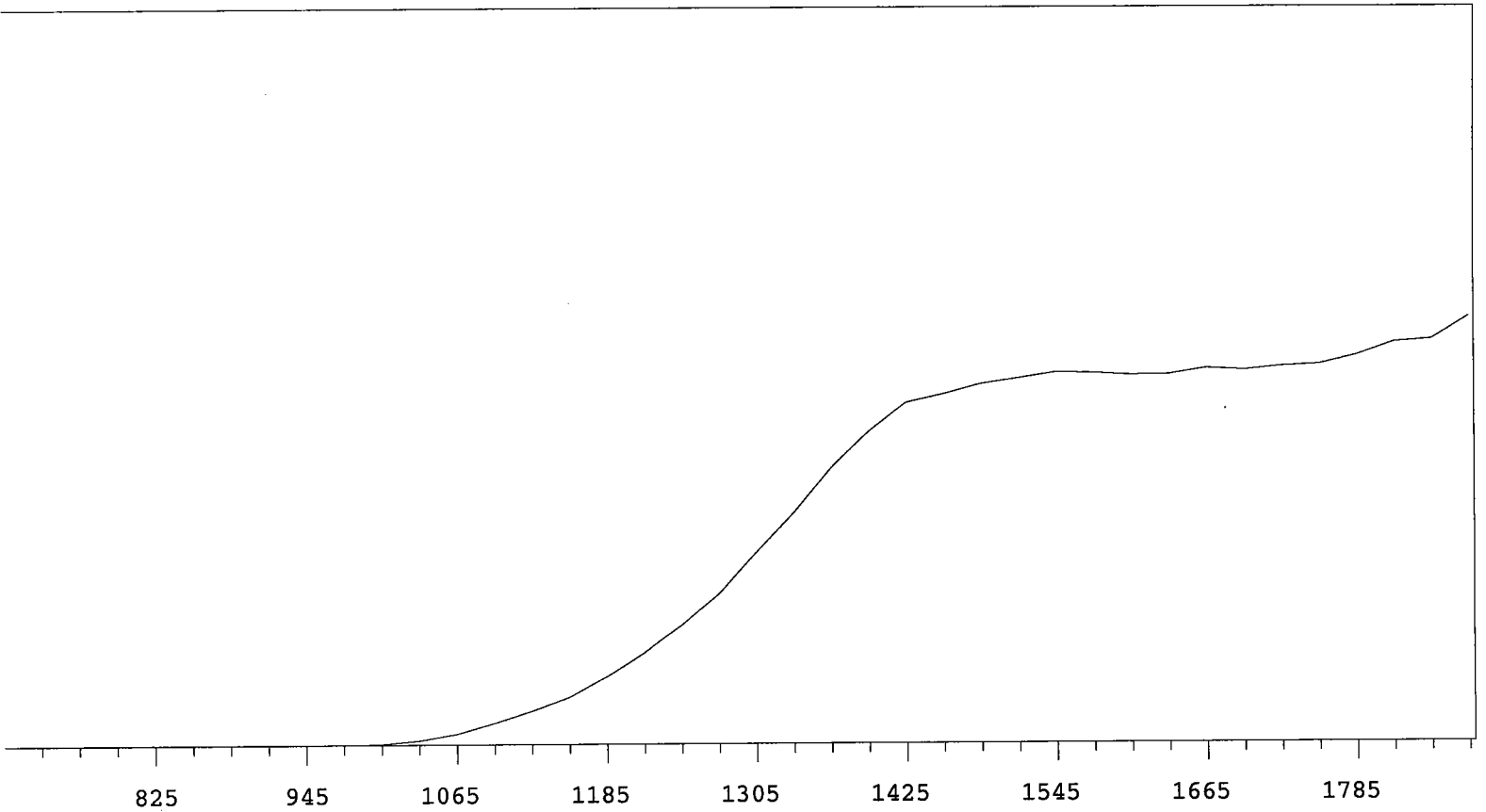


VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	0		1305	19017	+67.45
735	1		1335	23157	+59.23
765	0	+83.33	1365	27625	+45.78
795	0	-83.33	1395	31465	+32.72
825	1	>100	1425	33352	+20.41
855	0	>100	1455	35084	+11.74
885	1	+100.00	1485	35819	+7.11
915	1	>100	1515	36292	+3.35
945	2	>100	1545	36527	+1.63
975	12	>100	1575	36540	+0.87
1005	91	>100	1605	36585	+0.48
1035	421	>100	1635	36742	+1.76
1065	1239	>100	1665	36691	+1.53
1095	2155	>100	1695	37461	+1.89
1125	3527	>100	1725	37073	+3.07
1155	4974	>100	1755	37603	+4.02
1185	6647	+97.44	1785	38346	+6.58
1215	9250	+89.00	1815	39111	+7.95
1245	12041	+82.15	1845	40115	
1275	15094	+73.81	1875	41409	



VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	0		1305	12541	+83.18
735	1		1335	16192	+74.48
765	0		1365	20083	+67.17
795	0	>100	1395	24273	+58.43
825	0	>100	1425	29090	+46.86
855	0	>100	1455	33223	+34.56
885	0	>100	1485	35608	+22.67
915	0	>100	1515	37581	+13.63
945	1	>100	1545	38762	+8.18
975	2	>100	1575	39185	+4.42
1005	3	>100	1605	39484	+3.06
1035	14	>100	1635	39806	+2.61
1065	127	>100	1665	40264	+2.03
1095	500	>100	1695	40353	+2.32
1125	1332	>100	1725	40431	+3.28
1155	2373	>100	1755	41127	+7.09
1185	3614	>100	1785	41882	+12.40
1215	5227	>100	1815	44049	+18.52
1245	7060	+97.33	1845	46950	
1275	9574	+90.30	1875	51097	



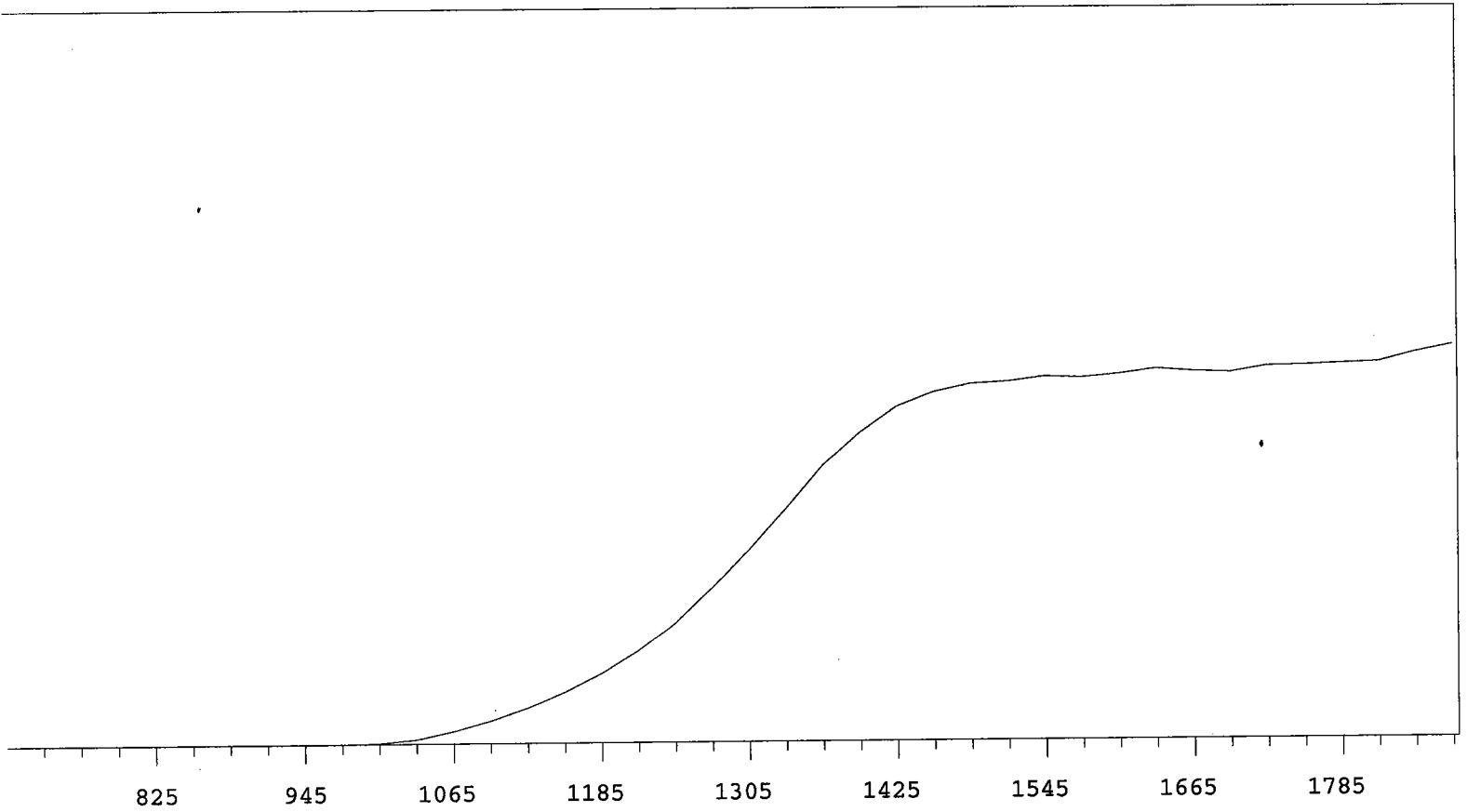


VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	1		1305	18216	+67.74
735	0		1335	21995	+58.11
765	0		1365	26173	+46.11
795	0	>100	1395	29479	+32.75
825	0	>100	1425	32186	+20.62
855	0	>100	1455	33022	+12.13
885	0	>100	1485	33981	+7.22
915	1	>100	1515	34520	+4.95
945	0	>100	1545	35095	+2.07
975	17	>100	1575	35014	+0.38
1005	87	>100	1605	34812	+0.55
1035	438	>100	1635	34859	+1.11
1065	1055	>100	1665	35460	+1.94
1095	2114	>100	1695	35273	+1.95
1125	3282	>100	1725	35629	+2.73
1155	4625	>100	1755	35811	+5.77
1185	6554	+97.66	1785	36656	+6.44
1215	8743	+88.09	1815	37896	+9.21
1245	11345	+81.31	1845	38145	
1275	14261	+74.60	1875	40283	

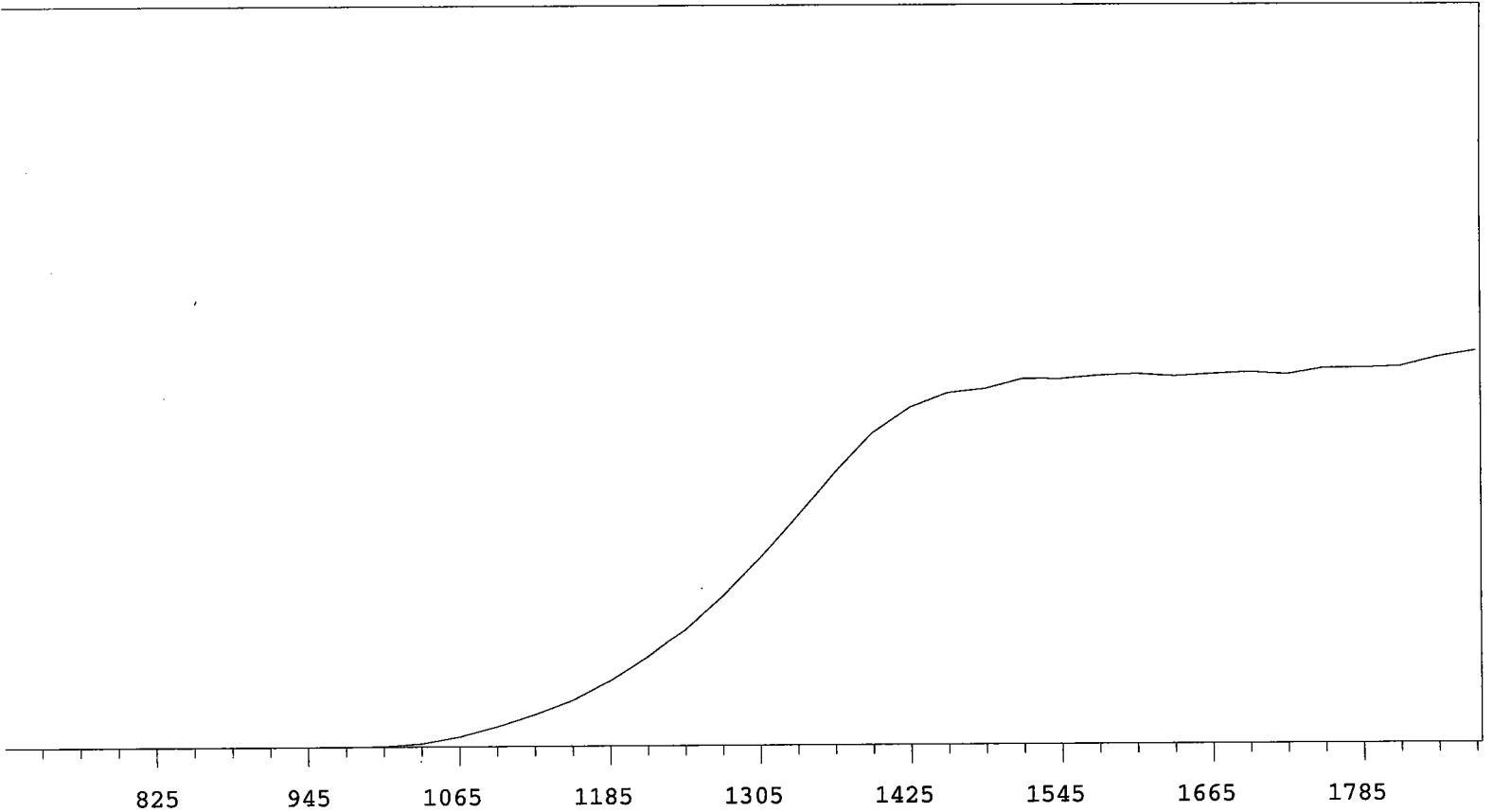
MPC 9600 Plateau  
Alpha Volts: 705

Instrument 2 MPC 9604 Detector D  
Beta Volts: 1575

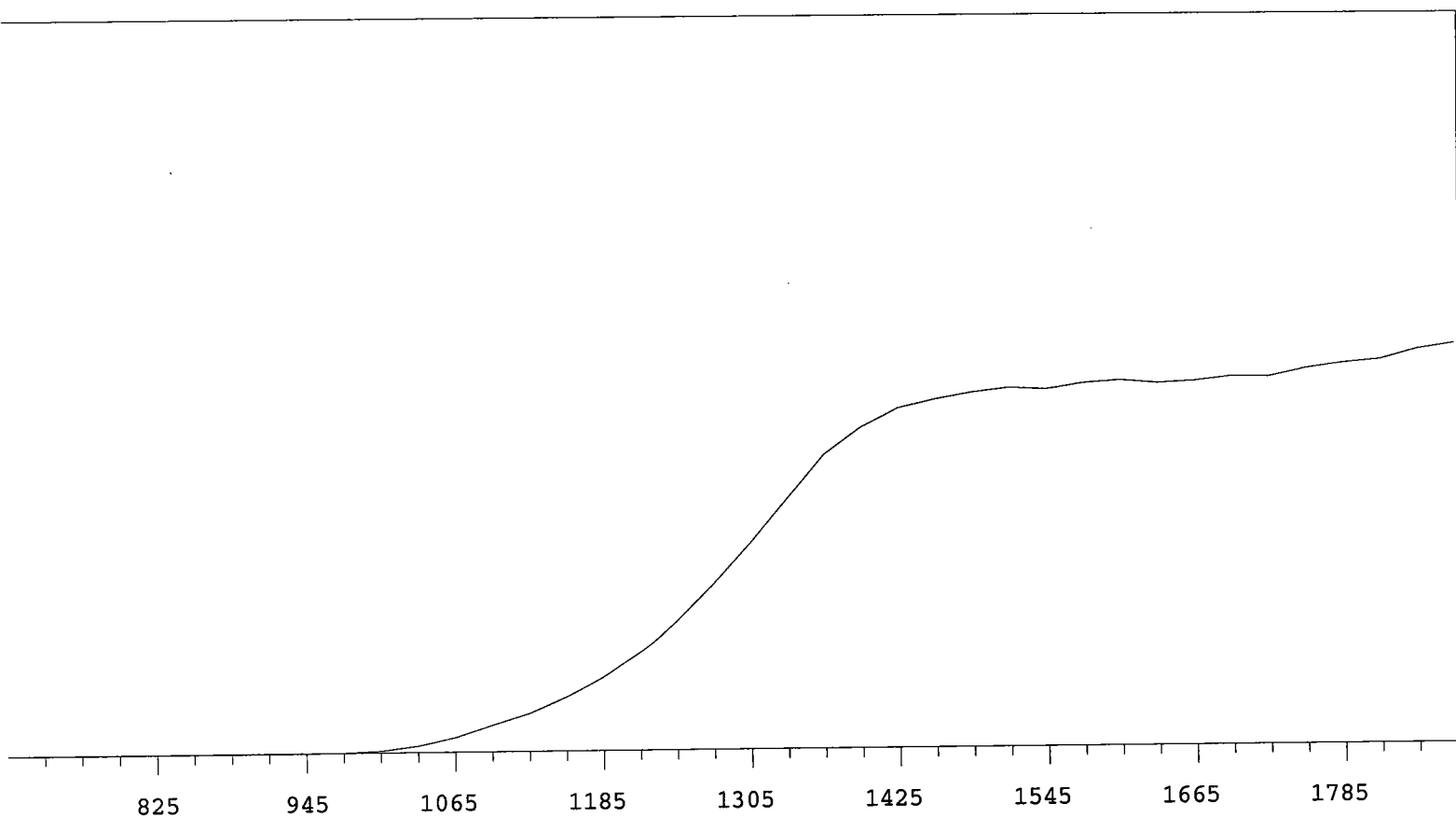
7/1/2009



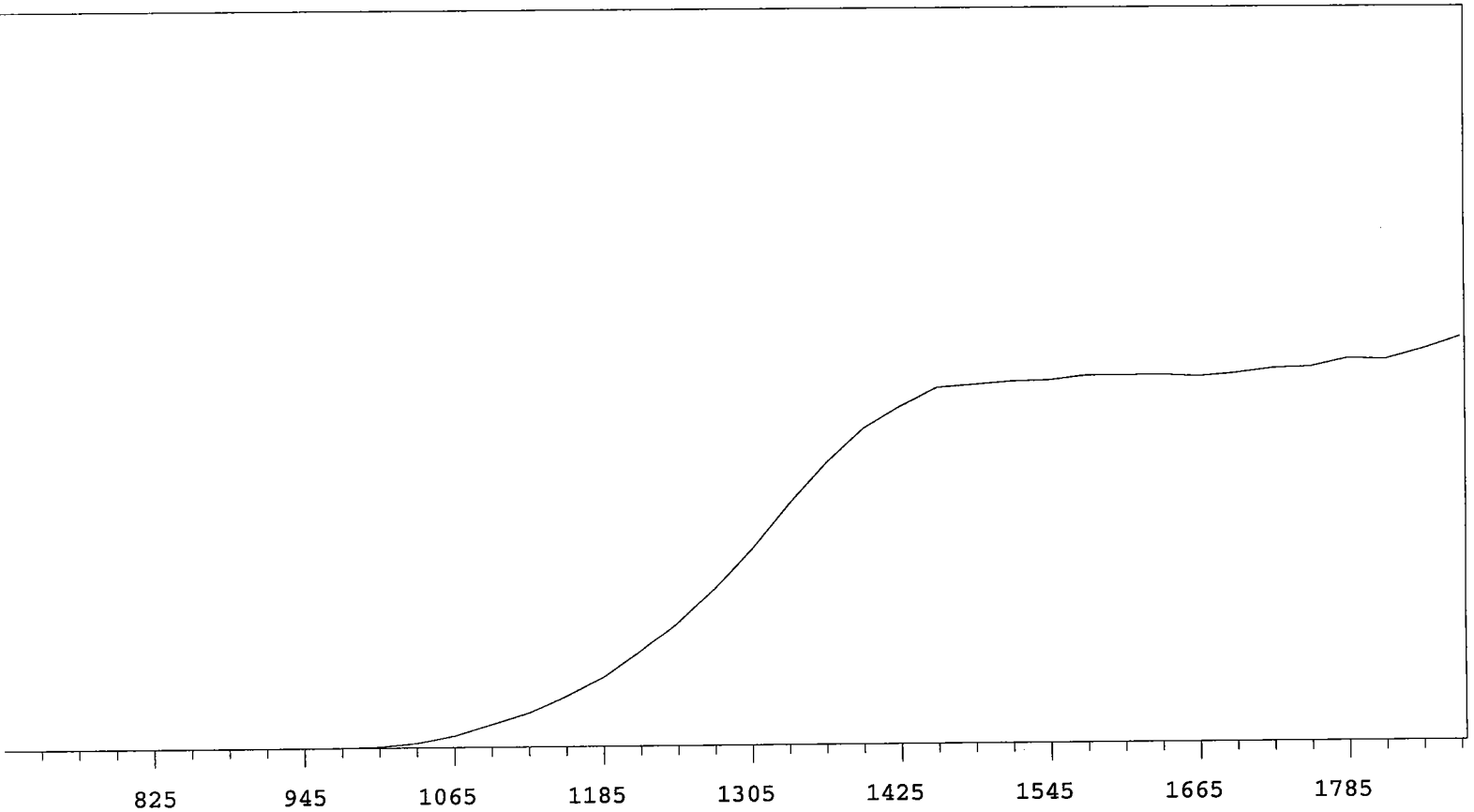
VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	1		1305	18675	+65.94
735	0		1335	22620	+55.69
765	0	+83.33	1365	26869	+44.63
795	2	+55.56	1395	29957	+32.08
825	1	>100	1425	32494	+20.49
855	0	>100	1455	33836	+11.98
885	0	>100	1485	34627	+6.45
915	0	>100	1515	34849	+3.22
945	2	>100	1545	35298	+1.98
975	9	>100	1575	35180	+2.37
1005	89	>100	1605	35503	+1.57
1035	439	>100	1635	36006	+0.99
1065	1198	>100	1665	35722	+0.89
1095	2164	>100	1695	35597	+0.93
1125	3436	>100	1725	36188	+1.86
1155	4917	>100	1755	36272	+1.90
1185	6762	+96.59	1785	36389	+2.55
1215	9006	+89.14	1815	36529	+4.39
1245	11800	+81.34	1845	37459	
1275	15132	+73.59	1875	38170	



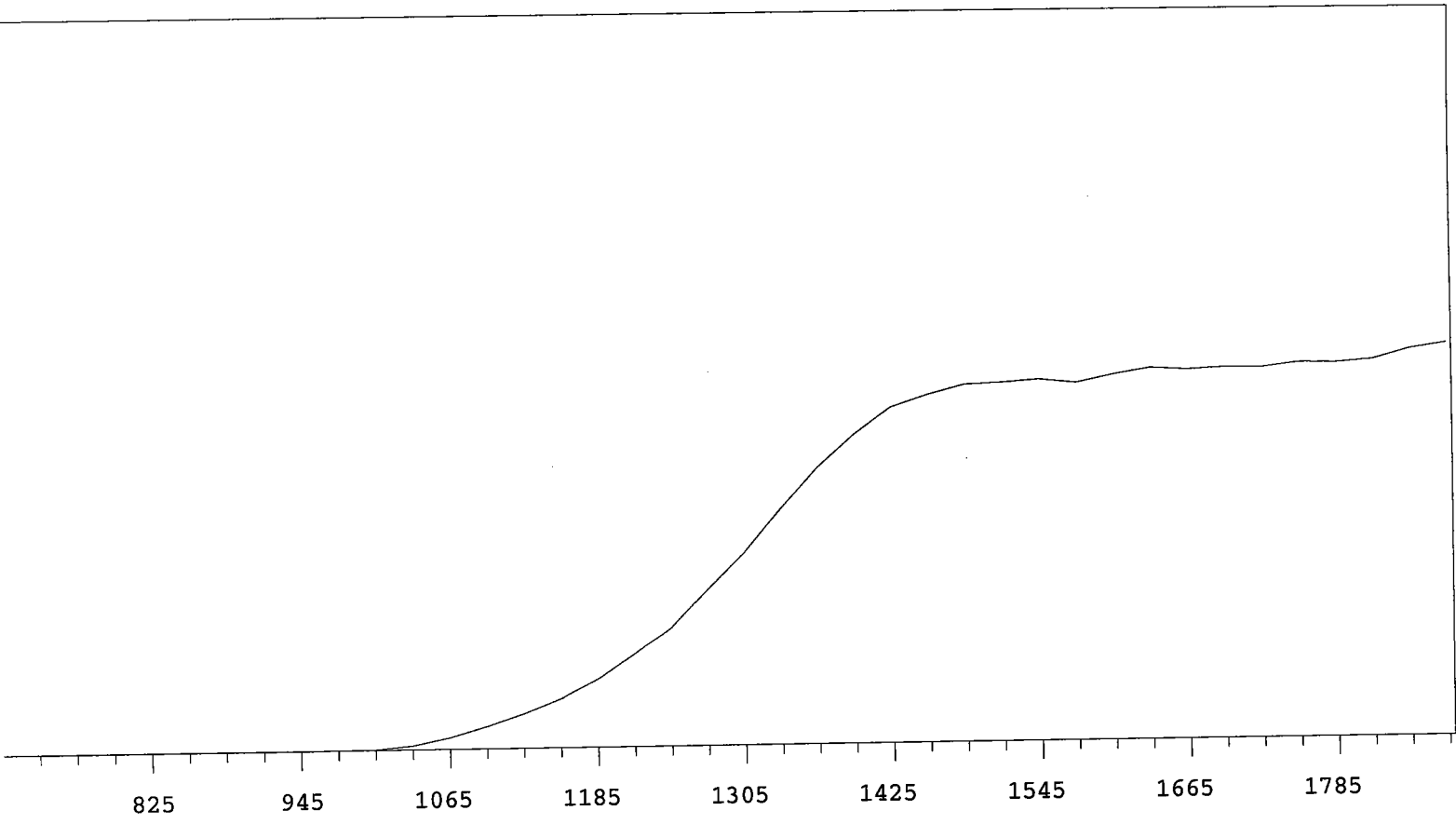
VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	1		1305	16654	+68.57
735	0		1335	20416	+59.26
765	0	+55.56	1365	24191	+47.28
795	1	>100	1395	27643	+34.04
825	1	+0.00	1425	29891	+21.08
855	1	>100	1455	31183	+12.30
885	0	>100	1485	31558	+6.67
915	0	>100	1515	32444	+4.05
945	0	>100	1545	32413	+2.90
975	9	>100	1575	32704	+0.81
1005	53	>100	1605	32837	+0.71
1035	302	>100	1635	32629	+0.49
1065	878	>100	1665	32797	+0.16
1095	1805	>100	1695	32964	+1.32
1125	2887	>100	1725	32746	+1.40
1155	4163	>100	1755	33308	+1.56
1185	5842	+99.81	1785	33318	+3.21
1215	7959	+90.90	1815	33456	+3.92
1245	10323	+83.03	1845	34283	
1275	13250	+75.91	1875	34815	



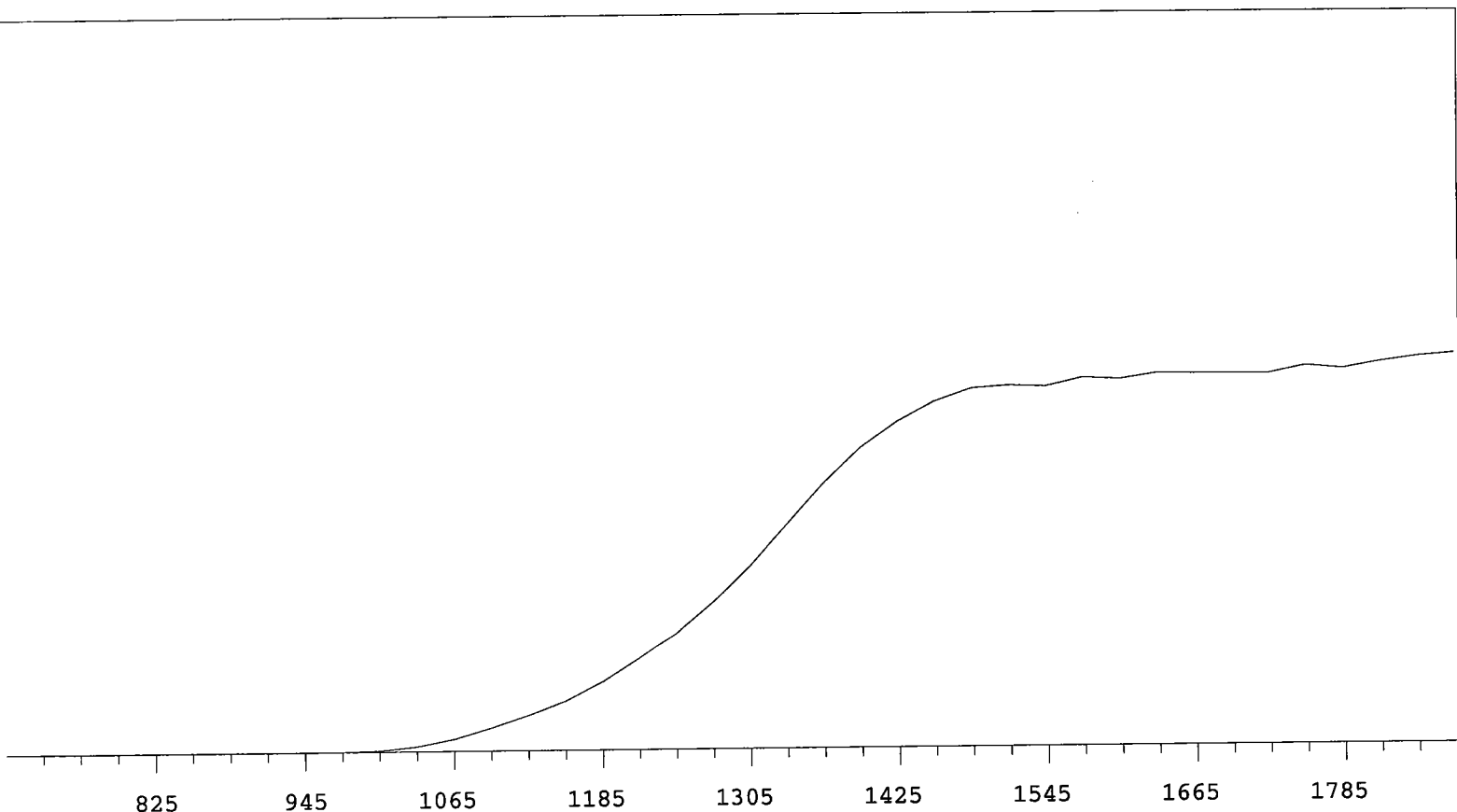
VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	1		1305	19810	+64.73
735	1		1335	23962	+52.62
765	0	-55.56	1365	28091	+39.27
795	0	>100	1395	30594	+25.61
825	1	>100	1425	32381	+14.86
855	3	+33.33	1455	33206	+8.91
885	0	+0.00	1485	33832	+4.41
915	1	>100	1515	34260	+3.01
945	2	>100	1545	34071	+2.33
975	29	>100	1575	34623	+1.34
1005	165	>100	1605	34848	+1.22
1035	613	>100	1635	34564	+0.89
1065	1394	>100	1665	34733	+1.01
1095	2558	>100	1695	35144	+2.76
1125	3702	>100	1725	35084	+3.66
1155	5222	>100	1755	35839	+3.97
1185	7161	+96.06	1785	36332	+5.39
1215	9507	+89.18	1815	36654	+5.35
1245	12552	+81.52	1845	37609	
1275	16030	+73.64	1875	38164	



VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	1		1305	21412	+66.80
735	1		1335	26262	+56.32
765	1		1365	30679	+43.71
795	0	>100	1395	34466	+31.61
825	0	+0.00	1425	36949	+20.14
855	0	>100	1455	38998	+11.16
885	1	>100	1485	39313	+5.34
915	1	>100	1515	39625	+2.44
945	1	>100	1545	39751	+2.04
975	17	>100	1575	40227	+1.45
1005	122	>100	1605	40228	+0.56
1035	533	>100	1635	40255	+0.13
1065	1287	>100	1665	40075	+1.22
1095	2493	>100	1695	40384	+1.95
1125	3753	>100	1725	40900	+3.50
1155	5482	>100	1755	41028	+3.05
1185	7538	+99.39	1785	41899	+3.71
1215	10305	+90.31	1815	41767	+5.64
1245	13415	+82.57	1845	42852	
1275	17141	+75.13	1875	44132	



VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	0		1305	14171	+66.45
735	1		1335	17362	+54.90
765	0	+0.00	1365	20310	+43.83
795	1	>100	1395	22647	+30.82
825	0	+83.33	1425	24551	+20.19
855	0	-83.33	1455	25440	+11.69
885	1	>100	1485	26124	+5.90
915	0	>100	1515	26245	+2.21
945	1	>100	1545	26428	+1.39
975	12	>100	1575	26151	+2.69
1005	51	>100	1605	26721	+2.72
1035	298	>100	1635	27168	+2.80
1065	848	>100	1665	27007	+0.87
1095	1649	>100	1695	27135	+0.70
1125	2535	>100	1725	27089	+1.24
1155	3602	>100	1755	27414	+1.43
1185	5036	+98.31	1785	27373	+3.21
1215	6880	+91.37	1815	27581	+4.34
1245	8822	+82.29	1845	28332	
1275	11546	+74.61	1875	28750	

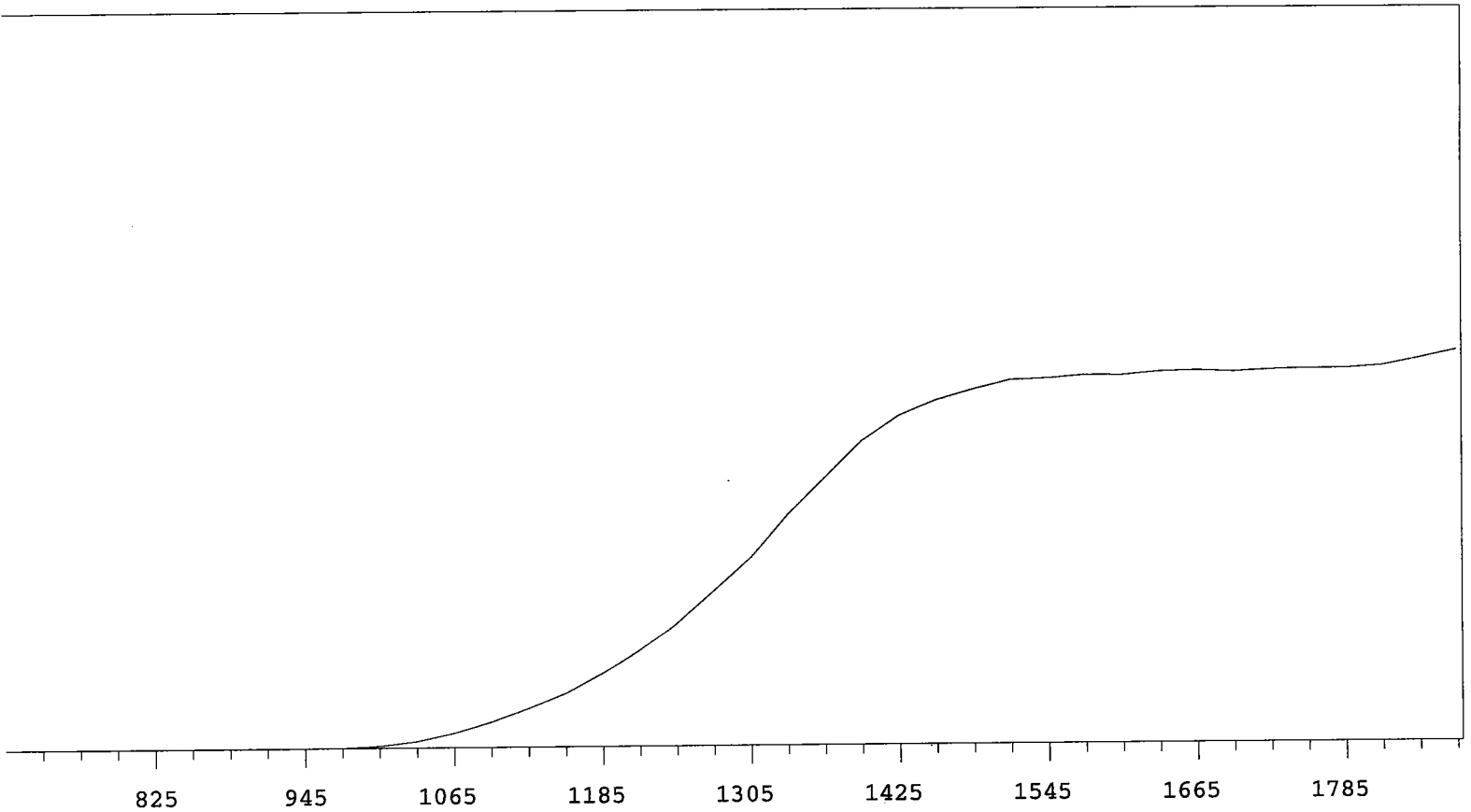


VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	0		1305	16442	+66.24
735	0		1335	20146	+57.40
765	0		1365	23769	+46.40
795	0	>100	1395	26926	+34.68
825	2	+55.56	1425	29276	+24.40
855	1	>100	1455	31037	+15.28
885	0	-55.56	1485	32197	+7.91
915	3	>100	1515	32425	+4.33
945	0	>100	1545	32314	+2.14
975	16	>100	1575	33071	+2.66
1005	114	>100	1605	32918	+2.52
1035	451	>100	1635	33435	+1.02
1065	1100	>100	1665	33382	+0.73
1095	2068	>100	1695	33349	+1.07
1125	3189	>100	1725	33324	+1.28
1155	4386	>100	1755	34001	+2.26
1185	6094	+94.81	1785	33701	+3.08
1215	8184	+87.09	1815	34304	+2.97
1245	10489	+78.88	1845	34744	
1275	13273	+72.66	1875	35012	

MPC 9600 Plateau  
Alpha Volts: 705

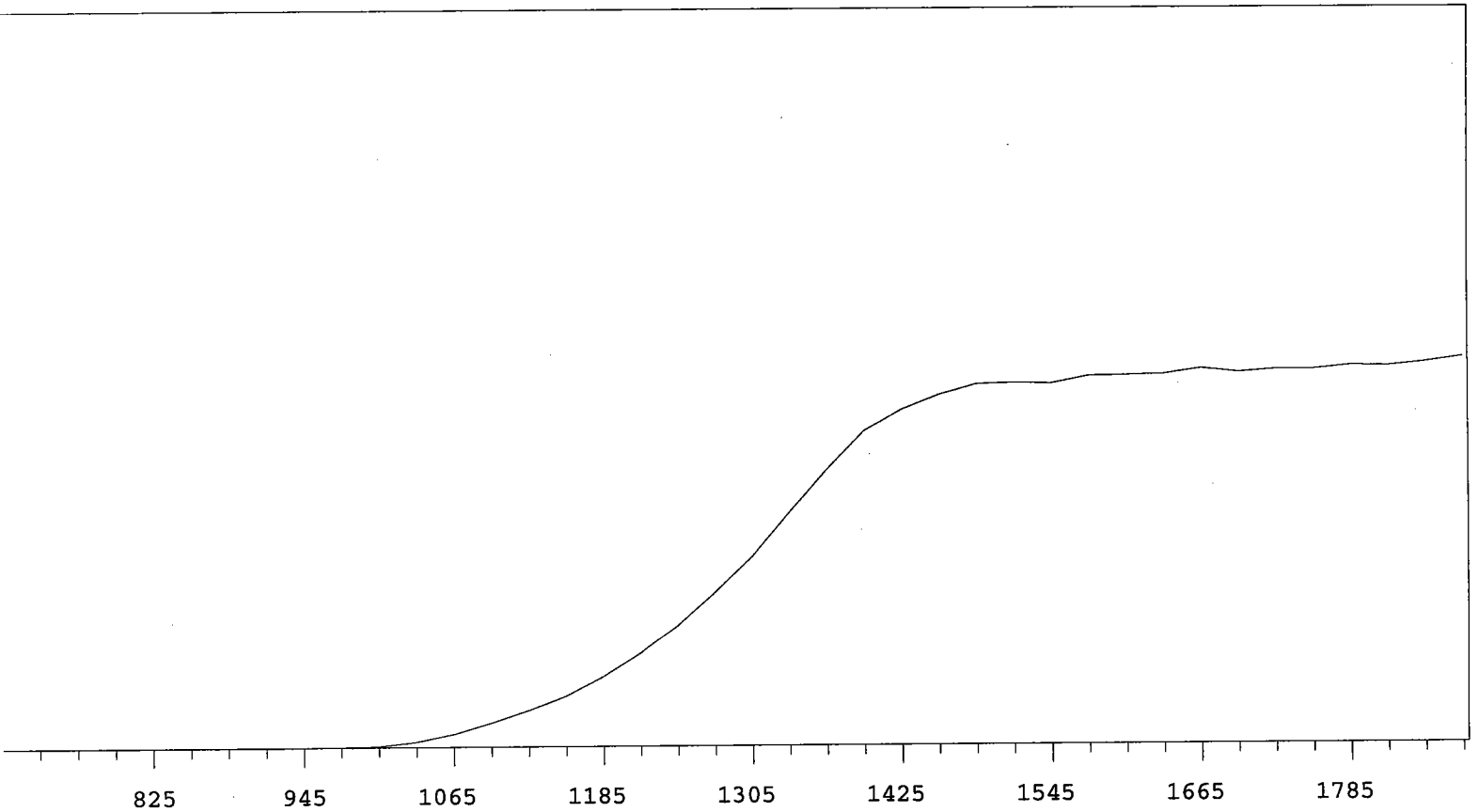
Instrument 4 MPC 9604 Detector B  
Beta Volts: 1575

7/1/2009



VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	0		1305	15747	+62.38
735	1		1335	19230	+54.19
765	0	+0.00	1365	22255	+44.46
795	1	>100	1395	25299	+32.45
825	0	>100	1425	27370	+22.24
855	0	>100	1455	28625	+14.10
885	0	>100	1485	29467	+8.56
915	0	>100	1515	30213	+5.29
945	2	>100	1545	30326	+2.77
975	31	>100	1575	30564	+1.57
1005	176	>100	1605	30548	+1.52
1035	550	>100	1635	30820	+0.85
1065	1218	>100	1665	30898	+0.79
1095	2114	>100	1695	30779	+0.44
1125	3212	>100	1725	30934	+0.45
1155	4416	>100	1755	31008	+0.96
1185	6066	+92.28	1785	30991	+2.01
1215	7936	+85.60	1815	31196	+3.80
1245	10288	+76.79	1845	31781	
1275	13020	+70.59	1875	32406	



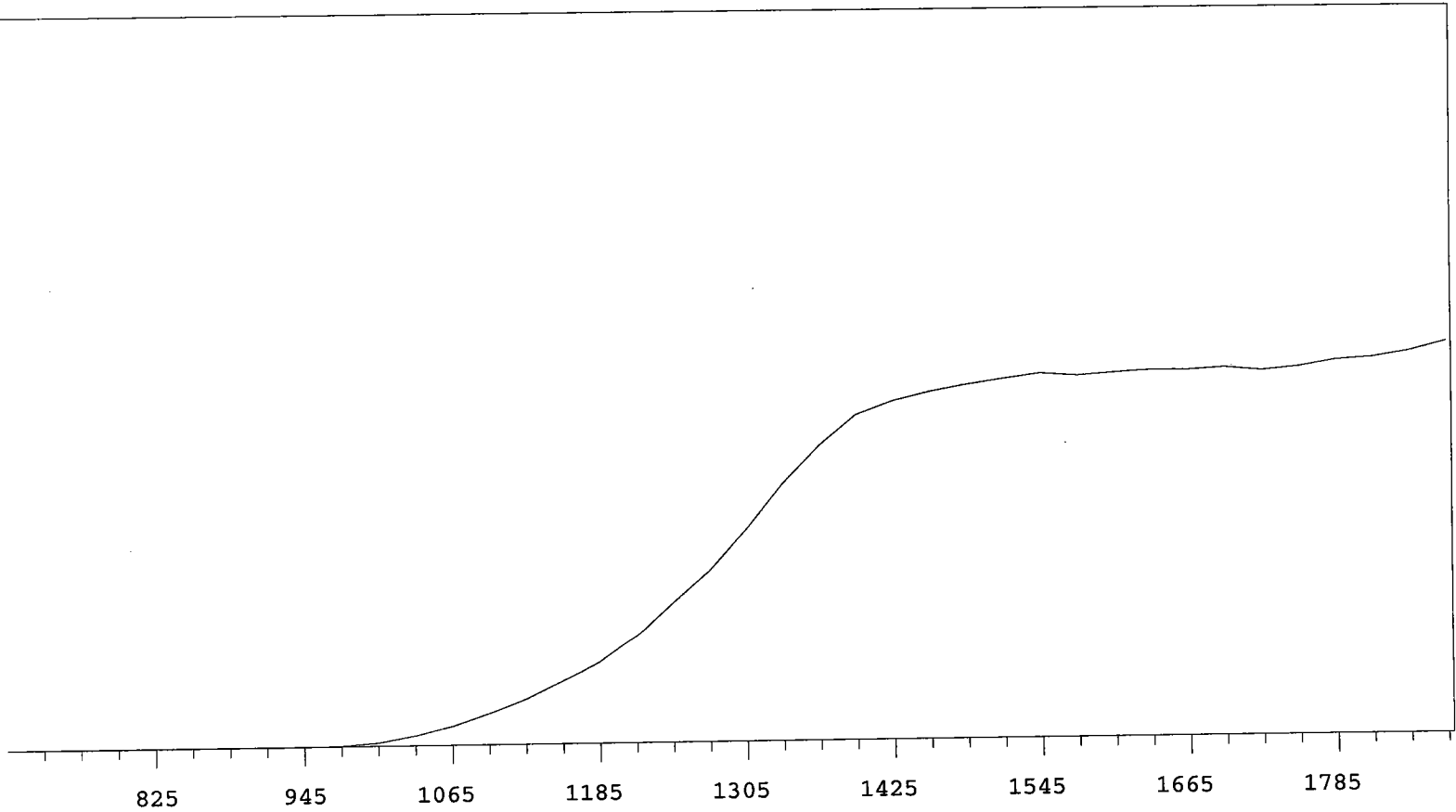


VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	0		1305	19796	+65.77
735	1		1335	24338	+57.55
765	0	+55.56	1365	28686	+45.86
795	2	+0.00	1395	32750	+32.27
825	0	-55.56	1425	34919	+20.83
855	1	>100	1455	36434	+11.45
885	0	>100	1485	37487	+5.80
915	0	>100	1515	37623	+3.32
945	2	>100	1545	37528	+2.07
975	24	>100	1575	38277	+2.12
1005	134	>100	1605	38338	+2.70
1035	558	>100	1635	38426	+1.12
1065	1361	>100	1665	39007	+1.06
1095	2511	>100	1695	38592	+0.64
1125	3762	>100	1725	38870	+0.63
1155	5246	>100	1755	38868	+1.30
1185	7268	+96.29	1785	39238	+1.45
1215	9733	+88.98	1815	39169	+2.34
1245	12701	+79.94	1845	39570	
1275	16176	+73.13	1875	40086	

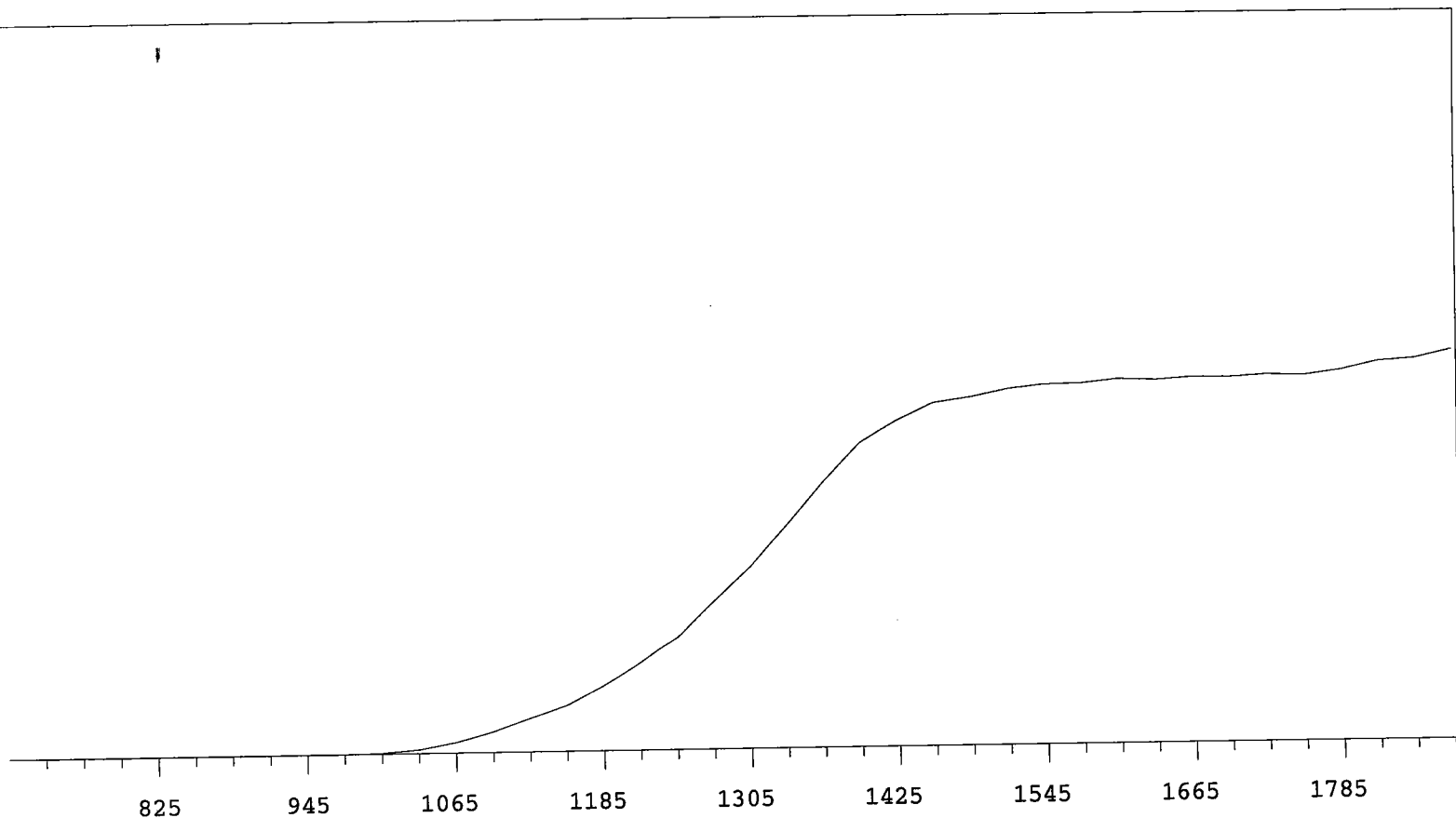
MPC 9600 Plateau  
Alpha Volts: 705

Instrument 4 MPC 9604 Detector D  
Beta Volts: 1575

7/1/2009



VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	1		1305	18491	+61.09
735	0		1335	22444	+51.56
765	0	+0.00	1365	25756	+37.44
795	0	>100	1395	28379	+23.82
825	1	+83.33	1425	29517	+14.00
855	1	+55.56	1455	30309	+8.08
885	0	+0.00	1485	30874	+6.03
915	1	>100	1515	31345	+3.66
945	1	>100	1545	31782	+2.17
975	60	>100	1575	31567	+1.31
1005	297	>100	1605	31789	+0.78
1035	855	>100	1635	31963	+1.34
1065	1647	>100	1665	31956	+0.29
1095	2700	>100	1695	32123	+0.20
1125	3921	>100	1725	31850	+1.46
1155	5471	+96.54	1755	32114	+2.39
1185	7042	+90.21	1785	32665	+3.95
1215	9405	+82.23	1815	32876	+4.96
1245	12266	+76.33	1845	33399	
1275	14989	+69.38	1875	34206	

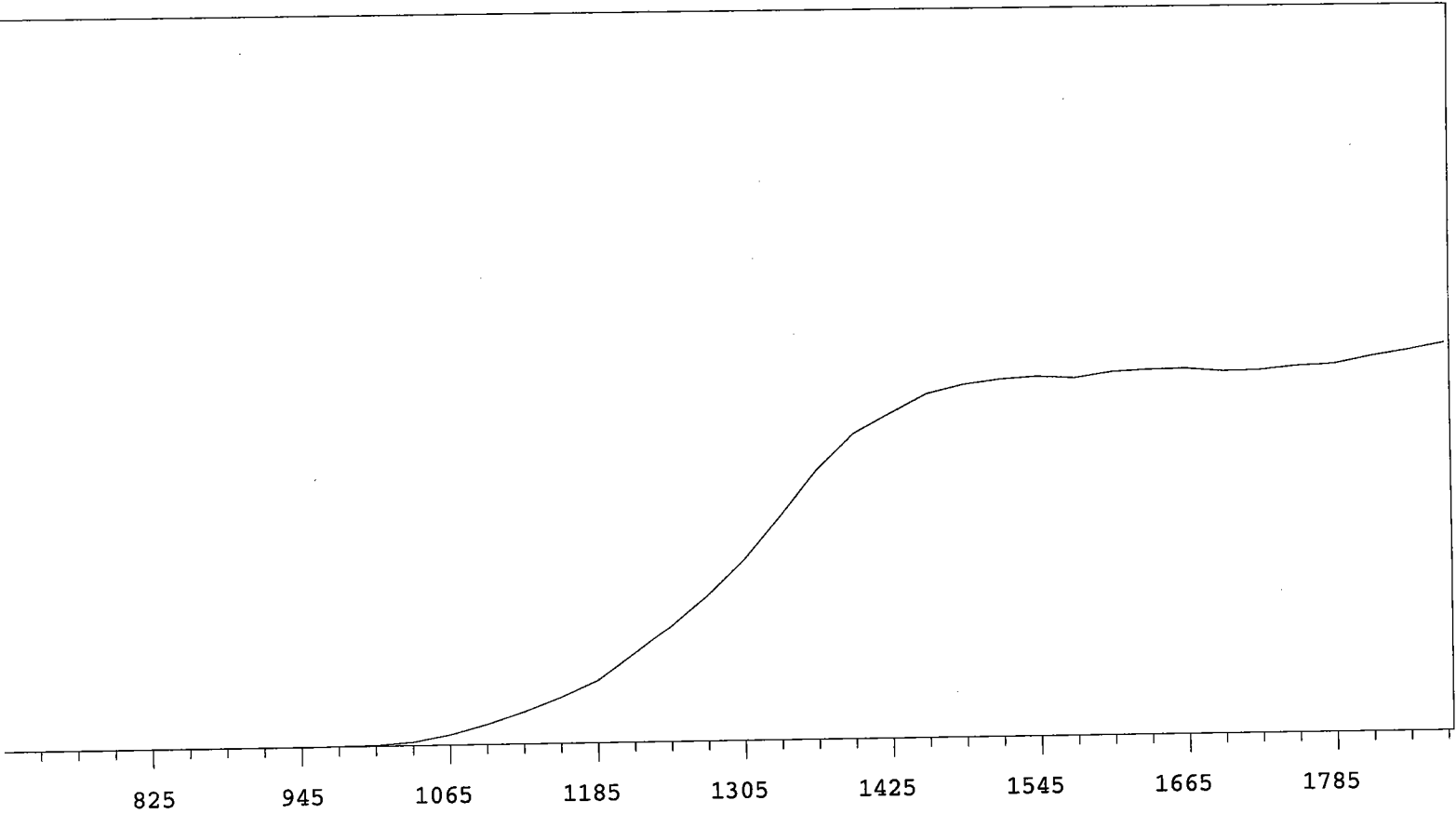


VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	0		1305	13974	+68.00
735	0		1335	17170	+58.62
765	1		1365	20456	+47.04
795	1	+83.33	1395	23332	+33.83
825	1	-83.33	1425	24996	+21.10
855	1	>100	1455	26290	+12.40
885	0	-55.56	1485	26683	+7.74
915	0	>100	1515	27270	+4.43
945	1	>100	1545	27590	+3.48
975	9	>100	1575	27635	+1.71
1005	76	>100	1605	27932	+1.20
1035	308	>100	1635	27807	+0.88
1065	814	>100	1665	28006	+0.62
1095	1600	>100	1695	27964	+0.63
1125	2598	>100	1725	28112	+0.98
1155	3596	>100	1755	28020	+2.84
1185	5065	+96.05	1785	28392	+3.76
1215	6773	+90.23	1815	29028	+5.17
1245	8717	+81.43	1845	29220	
1275	11391	+74.83	1875	29849	

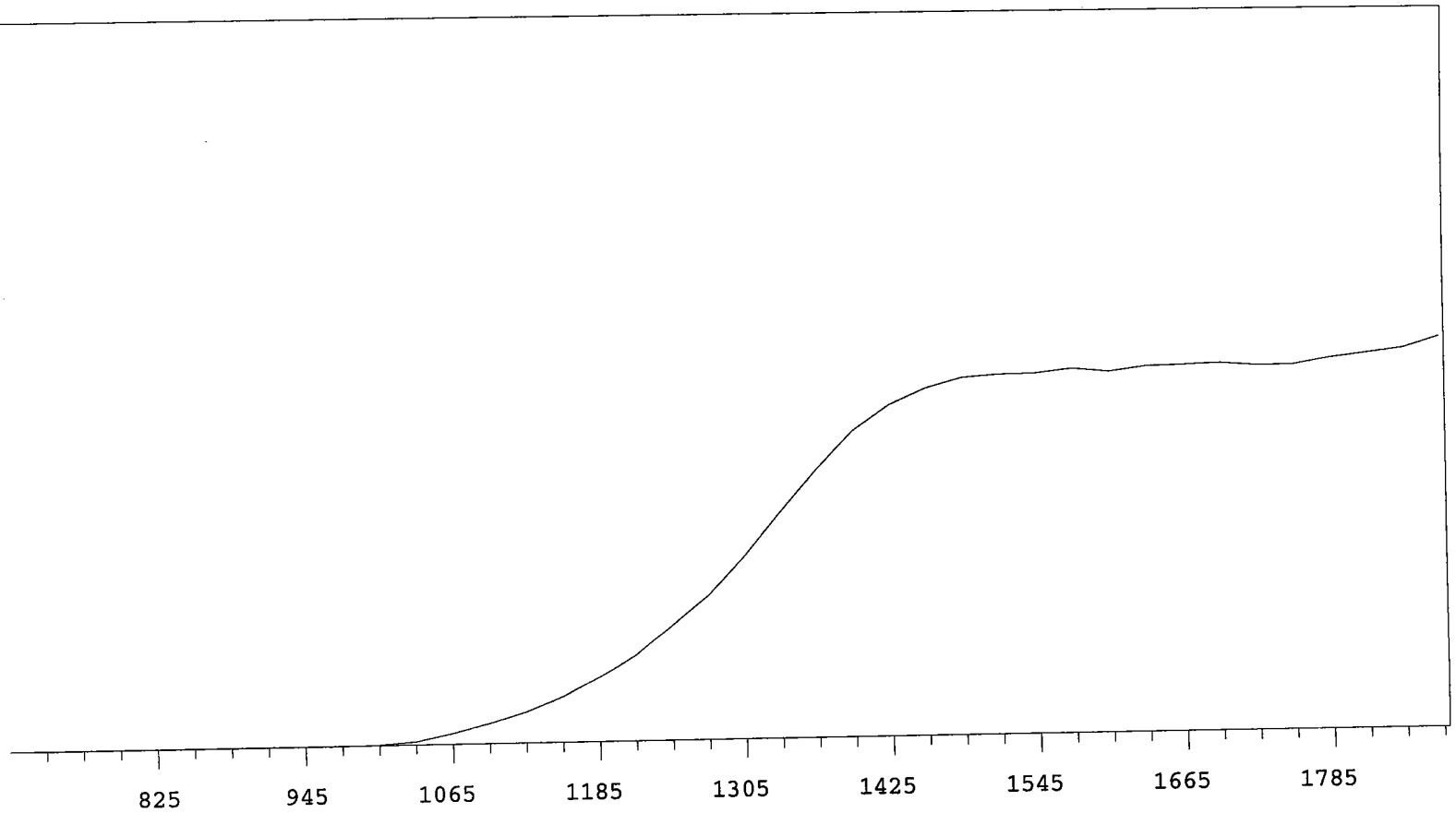
MPC 9600 Plateau  
Alpha Volts: 705

Instrument 5 MPC 9604 Detector B  
Beta Volts: 1575

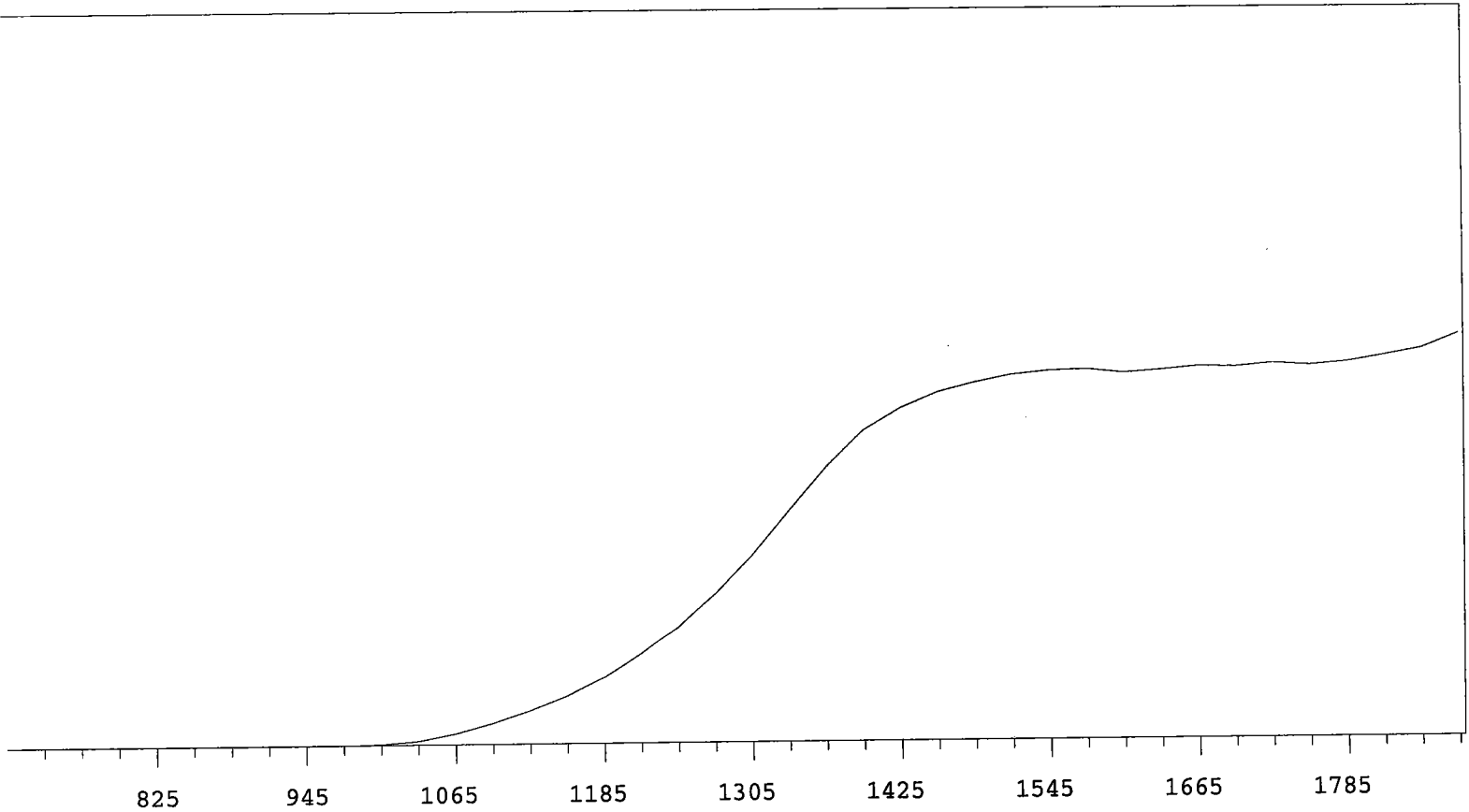
7/1/2009



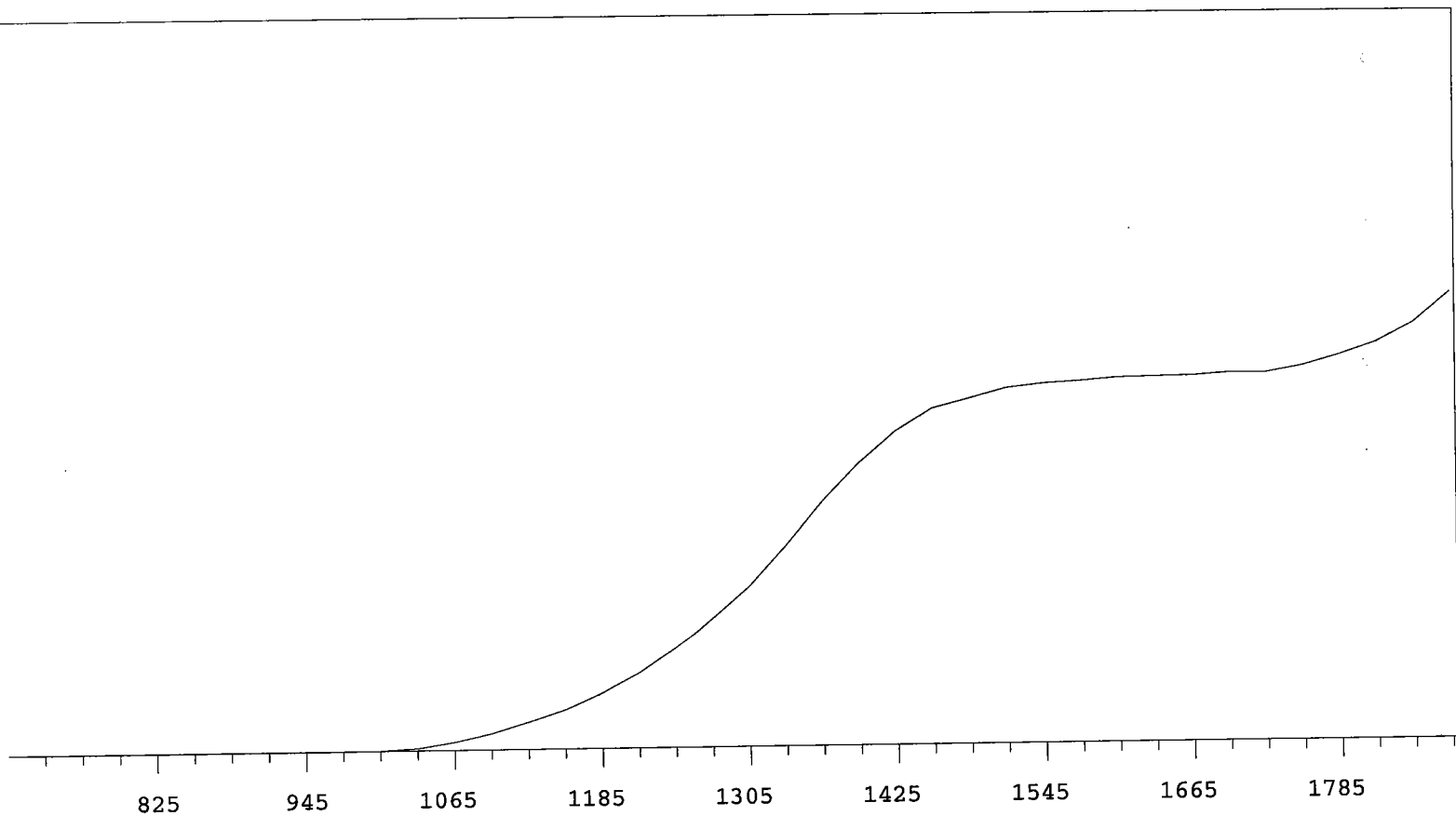
VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	0		1305	17414	+68.46
735	0		1335	21540	+59.98
765	0		1365	25854	+46.75
795	0	>100	1395	29222	+33.38
825	1	>100	1425	31128	+21.52
855	1	+41.67	1455	32995	+13.26
885	2	-33.33	1485	33846	+8.09
915	0	>100	1515	34289	+3.25
945	1	>100	1545	34528	+2.00
975	17	>100	1575	34311	+1.78
1005	87	>100	1605	34866	+1.78
1035	336	>100	1635	35046	+1.14
1065	1010	>100	1665	35087	-0.26
1095	1955	>100	1695	34795	+0.11
1125	3124	>100	1725	34857	+0.93
1155	4486	>100	1755	35220	+2.81
1185	6017	>100	1785	35363	+3.98
1215	8507	+91.20	1815	36028	+4.79
1245	11148	+82.59	1845	36577	
1275	14003	+74.21	1875	37207	



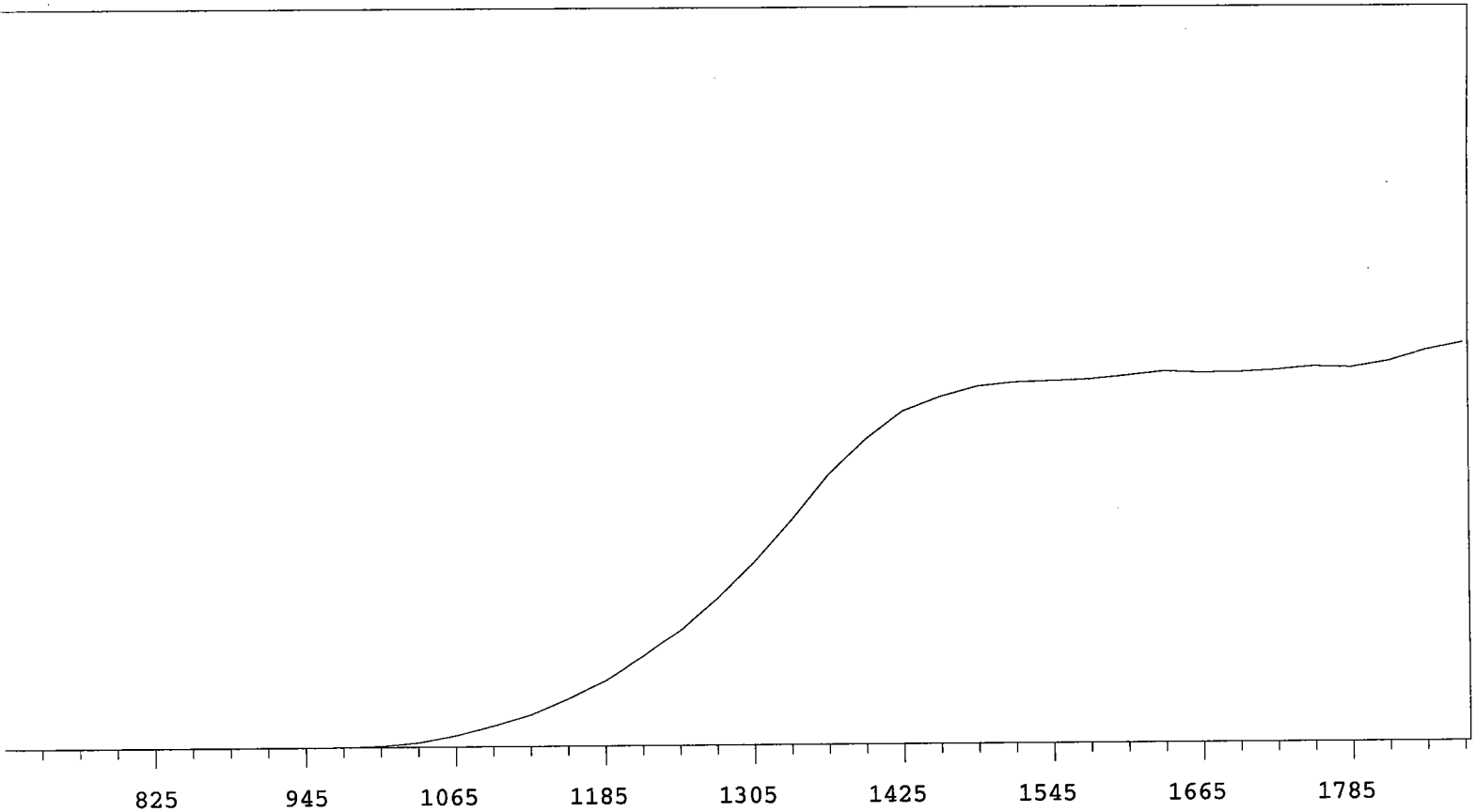
VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	0		1305	17085	+68.24
735	0		1335	21135	+59.99
765	0		1365	25066	+47.39
795	0	>100	1395	28530	+33.93
825	0	>100	1425	30823	+22.30
855	1	>100	1455	32287	+12.93
885	0	>100	1485	33217	+6.71
915	1	>100	1515	33474	+3.57
945	2	>100	1545	33517	+1.17
975	7	>100	1575	33921	+1.13
1005	56	>100	1605	33584	+1.27
1035	305	>100	1635	34014	+1.12
1065	982	>100	1665	34116	+0.98
1095	1874	>100	1695	34225	-0.22
1125	2890	>100	1725	33980	+0.58
1155	4260	>100	1755	33971	+1.96
1185	6001	>100	1785	34541	+3.64
1215	8050	+91.54	1815	34954	+5.38
1245	10895	+82.98	1845	35375	
1275	13556	+76.26	1875	36384	



VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	0		1305	15025	+68.87
735	0		1335	18640	+58.97
765	0		1365	22048	+45.84
795	0	>100	1395	24877	+32.08
825	0	>100	1425	26653	+20.83
855	0	>100	1455	27899	+13.08
885	0	>100	1485	28670	+8.43
915	0	>100	1515	29257	+5.13
945	0	>100	1545	29568	+2.06
975	6	>100	1575	29683	+0.52
1005	81	>100	1605	29362	+0.57
1035	318	>100	1635	29589	+0.80
1065	897	>100	1665	29870	+1.82
1095	1710	>100	1695	29783	+0.90
1125	2714	>100	1725	30077	+0.75
1155	3925	>100	1755	29889	+2.02
1185	5395	+97.31	1785	30152	+3.33
1215	7282	+88.49	1815	30656	+6.54
1245	9426	+81.36	1845	31211	
1275	12007	+75.65	1875	32389	



VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	0		1305	16217	+71.57
735	0		1335	20184	+63.76
765	0		1365	24605	+53.98
795	0	>100	1395	28528	+41.40
825	0	>100	1425	31675	+28.02
855	0	>100	1455	33899	+17.93
885	0	>100	1485	34826	+10.65
915	0	>100	1515	35815	+6.13
945	0	>100	1545	36225	+4.15
975	7	>100	1575	36456	+2.28
1005	31	>100	1605	36747	+1.47
1035	238	>100	1635	36801	+1.26
1065	810	>100	1665	36859	+0.85
1095	1637	>100	1695	37095	+1.85
1125	2743	>100	1725	37072	+4.01
1155	3932	>100	1755	37724	+6.65
1185	5579	>100	1785	38802	+10.33
1215	7602	+94.41	1815	40036	+14.71
1245	10078	+84.86	1845	41975	
1275	13091	+77.67	1875	45123	



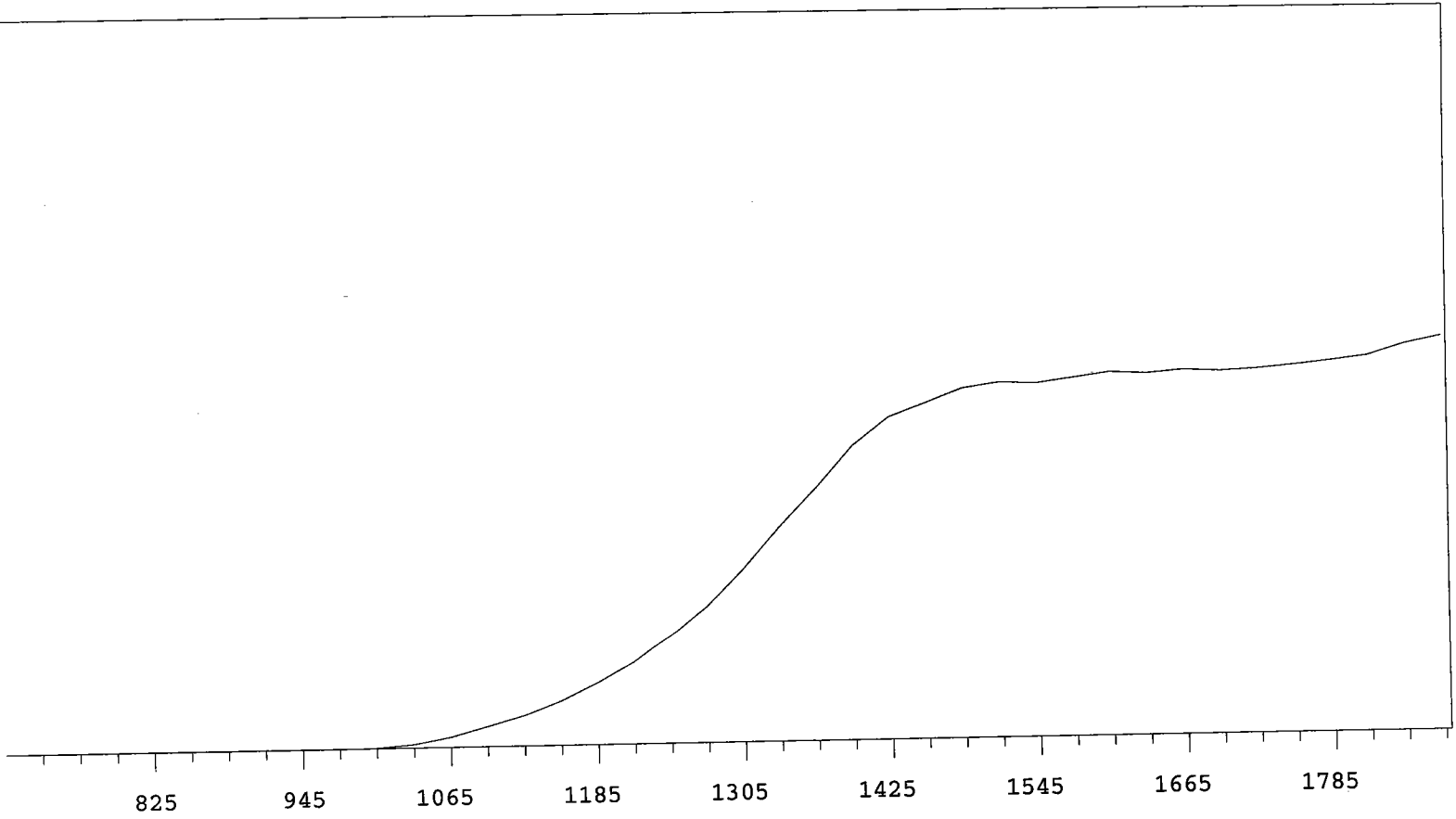
VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	0		1305	20094	+68.67
735	0		1335	24665	+59.40
765	0		1365	29591	+47.86
795	0	>100	1395	33376	+34.51
825	1	+83.33	1425	36440	+22.50
855	1	-83.33	1455	38024	+13.58
885	0	>100	1485	39187	+7.04
915	0	>100	1515	39608	+3.63
945	5	>100	1545	39722	+2.10
975	18	>100	1575	39894	+2.32
1005	125	>100	1605	40298	+2.09
1035	482	>100	1635	40711	+1.41
1065	1255	>100	1665	40574	+0.80
1095	2318	>100	1695	40608	+1.02
1125	3540	>100	1725	40839	+1.28
1155	5288	>100	1755	41201	+1.97
1185	7168	+98.51	1785	41065	+3.74
1215	9760	+88.48	1815	41711	+5.42
1245	12656	+81.52	1845	42917	
1275	16065	+74.58	1875	43699	



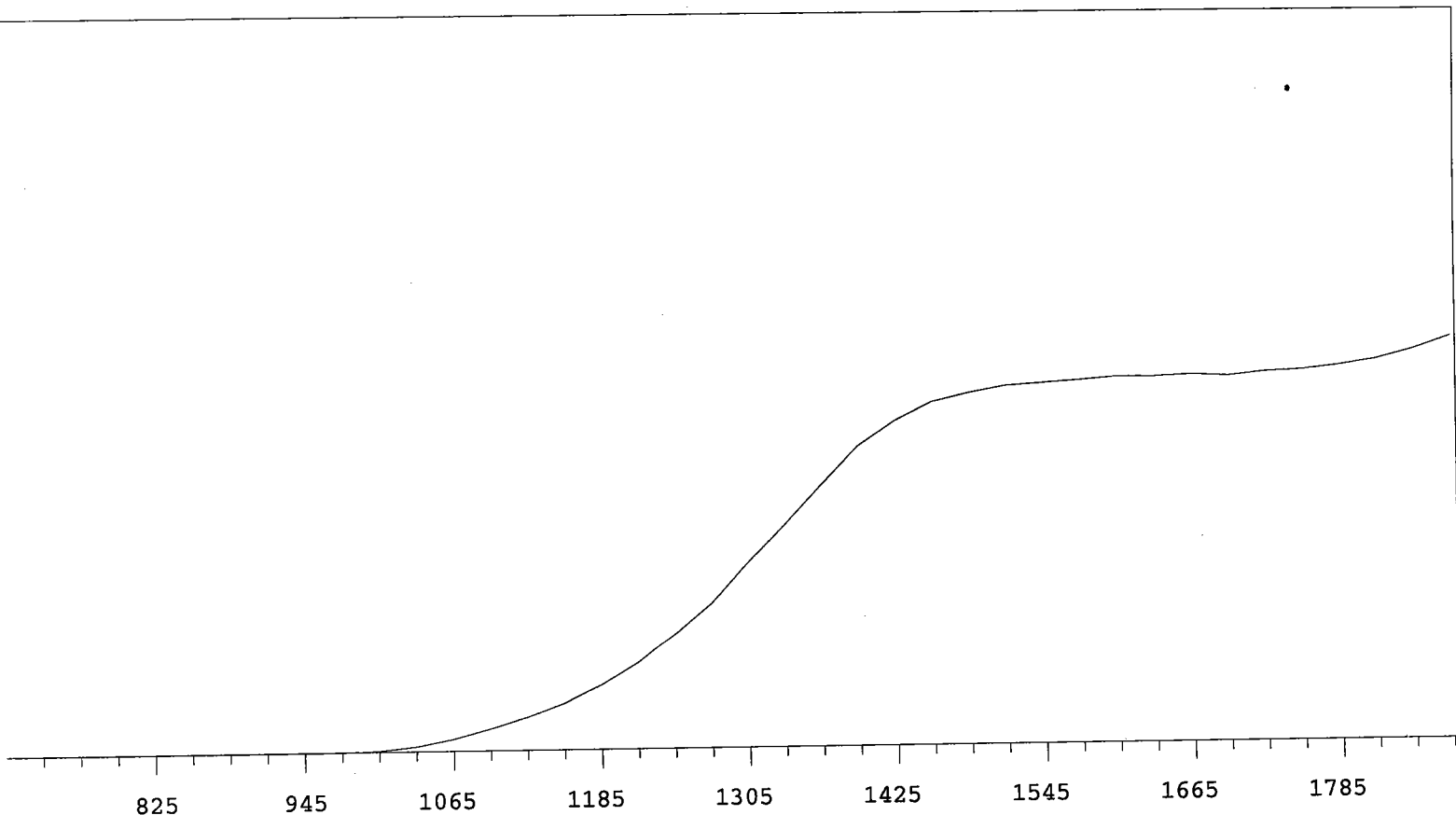
MPC 9600 Plateau  
 Alpha Volts: 705

Instrument 6 MPC 9604 Detector C  
 Beta Volts: 1575

7/1/2009



VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	0		1305	17350	+67.80
735	0		1335	21371	+60.27
765	1	+0.00	1365	25084	+49.32
795	0	>100	1395	29177	+36.15
825	0	+0.00	1425	31927	+24.86
855	0	>100	1455	33217	+14.70
885	1	>100	1485	34545	+7.74
915	1	>100	1515	35097	+4.64
945	2	>100	1545	34927	+2.96
975	8	>100	1575	35439	+2.21
1005	70	>100	1605	35939	+2.41
1035	353	>100	1635	35763	+0.94
1065	990	>100	1665	36053	+0.35
1095	1956	>100	1695	35886	+1.15
1125	3024	>100	1725	36066	+1.77
1155	4400	>100	1755	36379	+3.03
1185	6173	+99.75	1785	36768	+4.80
1215	8230	+89.85	1815	37193	+6.14
1245	10904	+82.36	1845	38320	
1275	13747	+76.18	1875	39061	

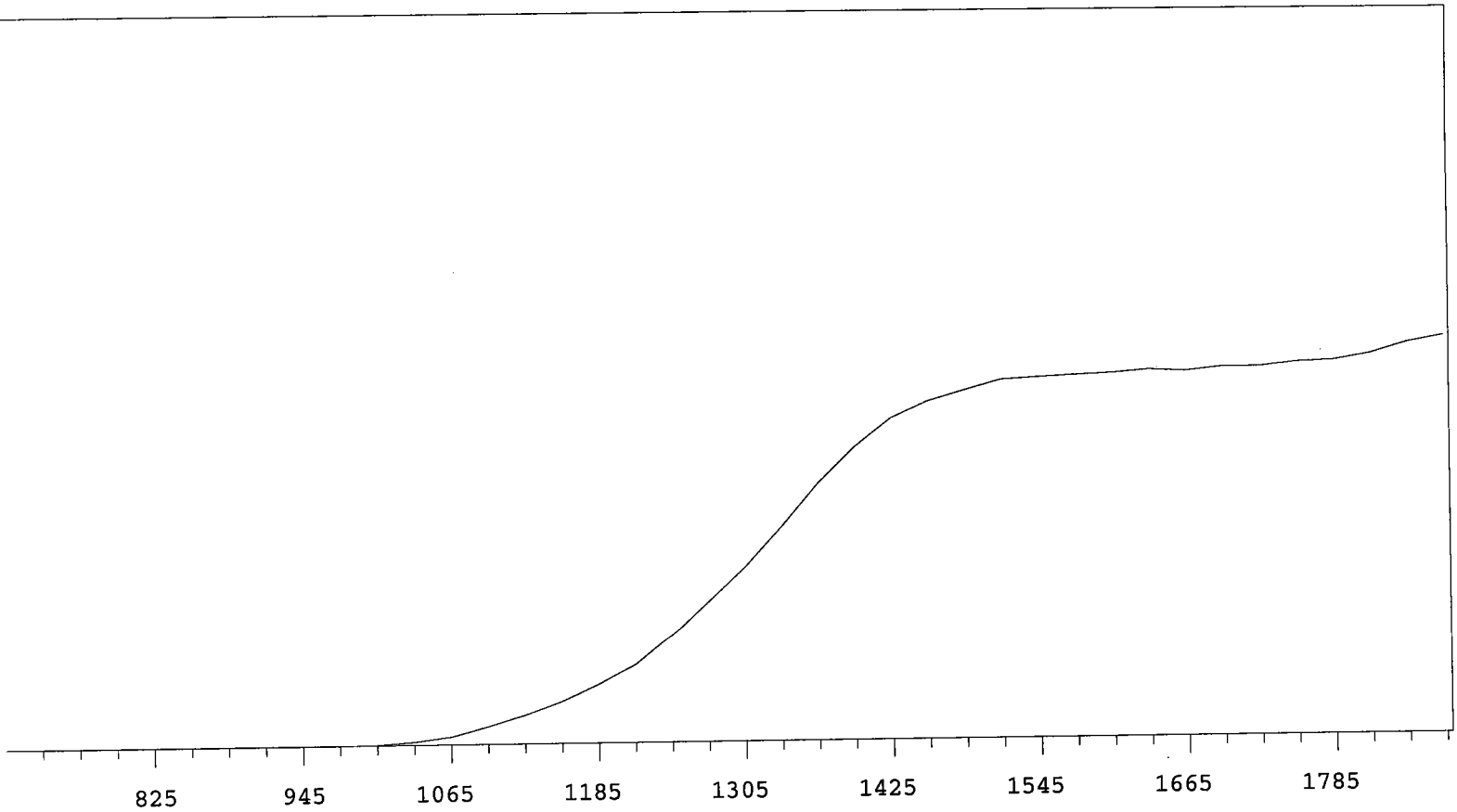


VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	0		1305	17954	+65.82
735	0		1335	21482	+57.64
765	0		1365	25373	+45.78
795	1	+0.00	1395	29042	+34.80
825	0	>100	1425	31373	+23.29
855	0	+0.00	1455	33143	+14.25
885	0	>100	1485	34006	+8.49
915	1	>100	1515	34662	+4.71
945	0	>100	1545	34892	+3.14
975	14	>100	1575	35129	+1.86
1005	109	>100	1605	35411	+1.49
1035	481	>100	1635	35380	+0.62
1065	1177	>100	1665	35554	+0.65
1095	2133	>100	1695	35385	+1.18
1125	3243	>100	1725	35755	+1.89
1155	4554	>100	1755	35907	+3.26
1185	6285	+98.38	1785	36305	+4.62
1215	8468	+89.75	1815	36870	+6.98
1245	11266	+83.13	1845	37807	
1275	14088	+74.43	1875	39047	

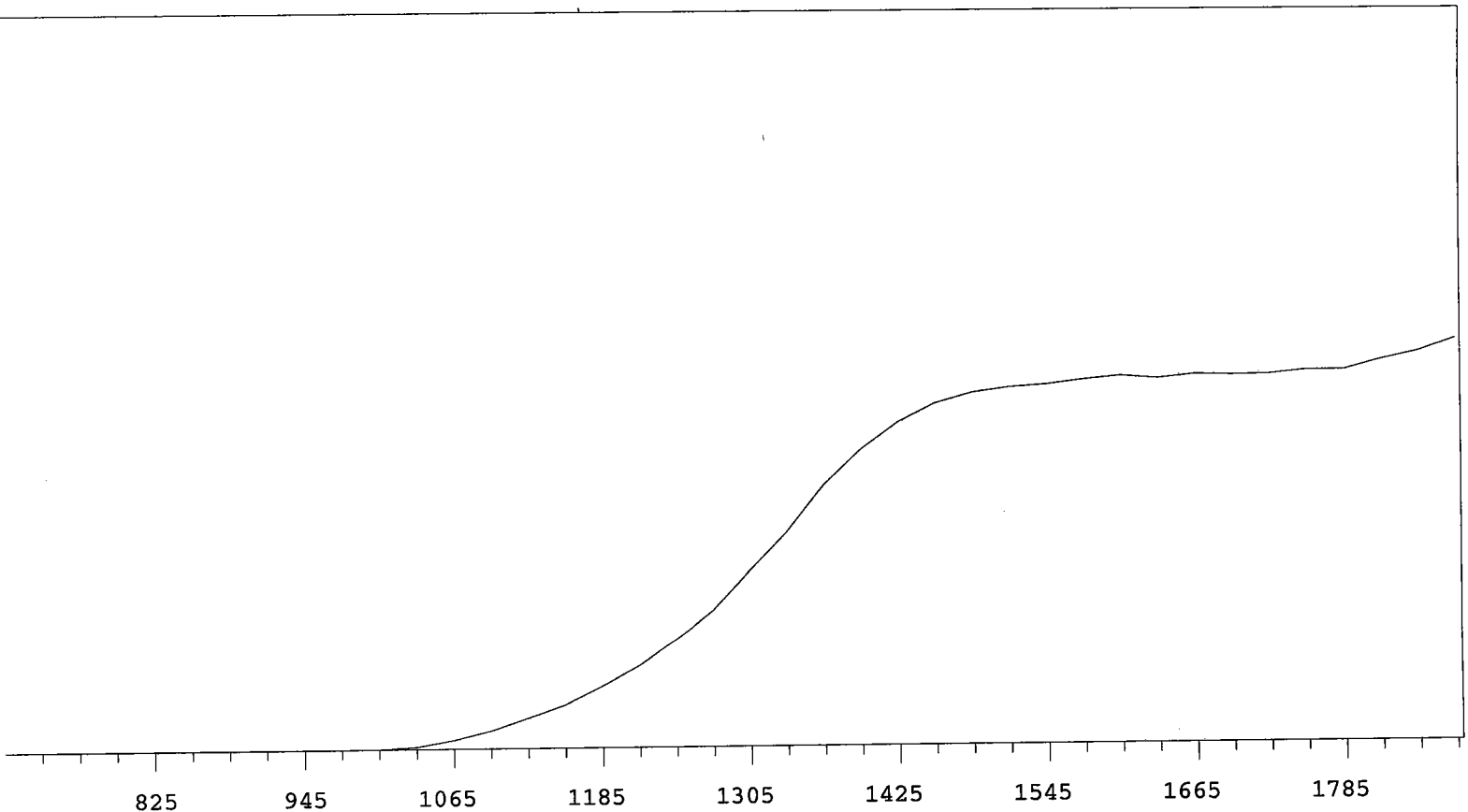
MPC 9600 Plateau  
Alpha Volts: 705

Instrument 7 MPC 9604 Detector A  
Beta Volts: 1575

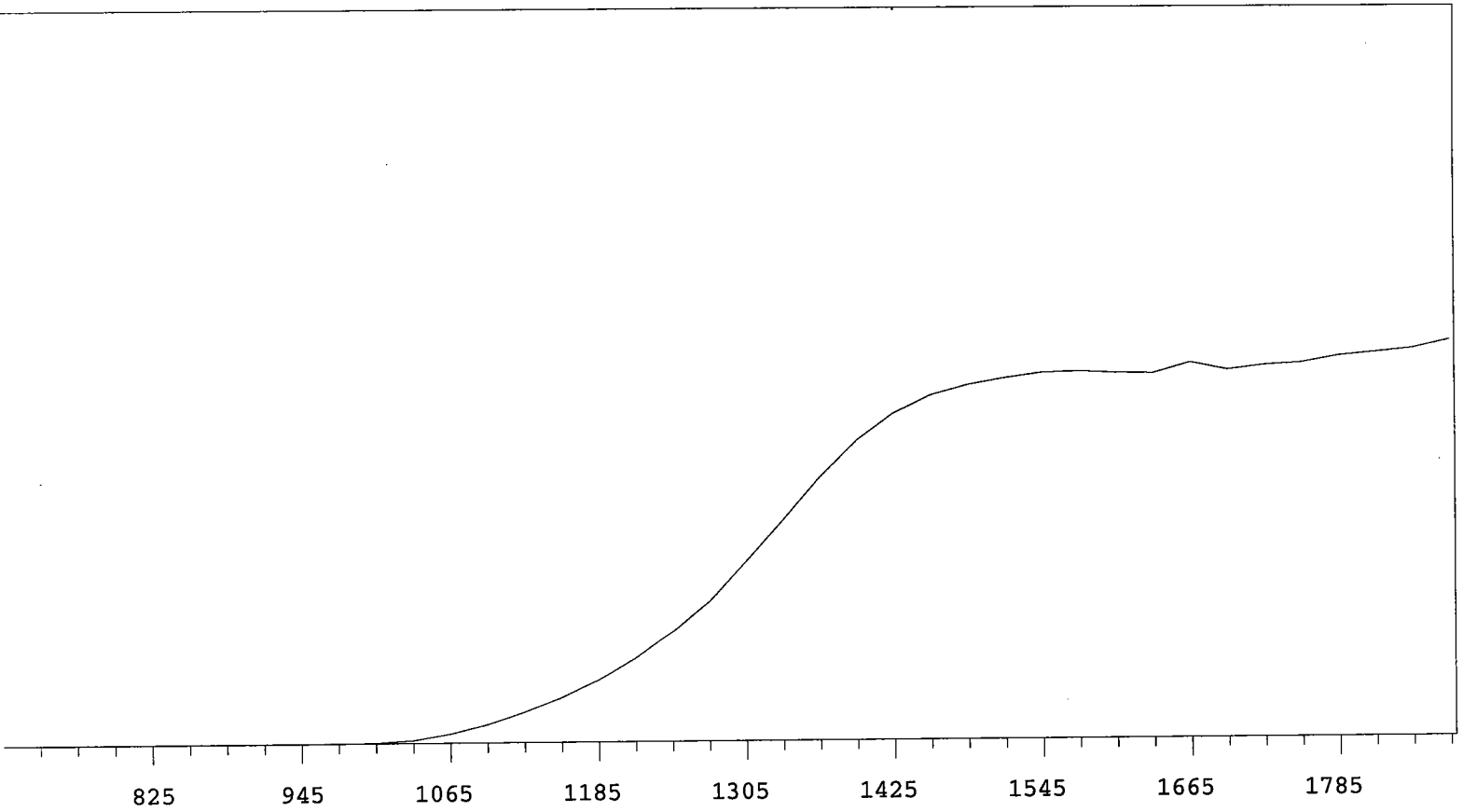
7/1/2009



VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	0		1305	13228	+70.36
735	0		1335	16271	+60.12
765	0		1365	19506	+49.19
795	0	>100	1395	22188	+36.46
825	1	+83.33	1425	24373	+24.43
855	1	-83.33	1455	25649	+15.99
885	0	-55.56	1485	26433	+9.58
915	0	>100	1515	27195	+5.74
945	1	>100	1545	27367	+3.24
975	3	>100	1575	27490	+1.86
1005	42	>100	1605	27608	+1.22
1035	242	>100	1635	27841	+1.33
1065	613	>100	1665	27695	+1.11
1095	1353	>100	1695	27999	+1.42
1125	2213	>100	1725	27992	+2.04
1155	3256	>100	1755	28289	+2.52
1185	4474	>100	1785	28408	+4.56
1215	5932	+94.10	1815	28863	+5.70
1245	8072	+87.32	1845	29664	
1275	10579	+79.61	1875	30148	



VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	0		1305	16978	+70.97
735	0		1335	20569	+61.39
765	0		1365	24989	+48.97
795	0	>100	1395	28389	+36.69
825	0	>100	1425	30977	+24.05
855	0	>100	1455	32727	+14.93
885	0	>100	1485	33697	+8.42
915	1	>100	1515	34195	+4.89
945	1	>100	1545	34437	+3.49
975	3	>100	1575	34850	+2.11
1005	34	>100	1605	35174	+1.62
1035	221	>100	1635	34923	+0.68
1065	825	>100	1665	35250	+0.35
1095	1709	>100	1695	35171	+1.24
1125	2873	>100	1725	35237	+1.02
1155	4078	>100	1755	35584	+2.79
1185	5858	>100	1785	35587	+4.59
1215	7809	+91.82	1815	36485	+6.74
1245	10336	+85.02	1845	37270	
1275	13215	+77.79	1875	38453	

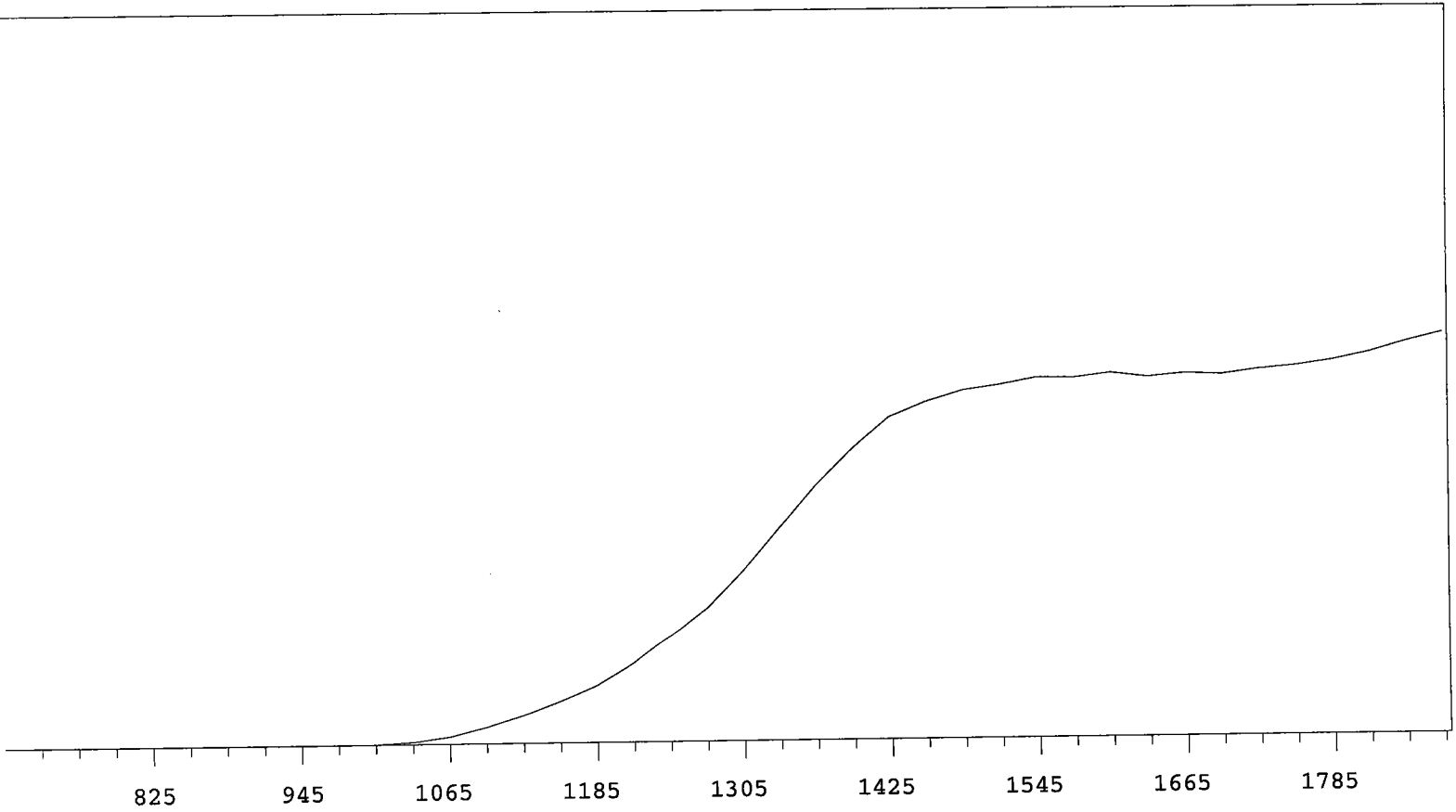


VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	0		1305	16543	+70.03
735	0		1335	20257	+60.71
765	0		1365	24245	+48.17
795	0	>100	1395	27602	+35.50
825	0	>100	1425	30019	+23.48
855	0	>100	1455	31614	+14.53
885	0	>100	1485	32522	+8.91
915	0	>100	1515	33103	+5.28
945	0	>100	1545	33572	+2.60
975	4	>100	1575	33695	+0.70
1005	57	>100	1605	33525	+1.48
1035	277	>100	1635	33477	+0.99
1065	817	>100	1665	34432	+1.49
1095	1666	>100	1695	33745	+1.43
1125	2766	>100	1725	34149	+1.60
1155	4077	>100	1755	34350	+3.69
1185	5667	>100	1785	34955	+3.62
1215	7694	+91.50	1815	35251	+4.44
1245	10209	+84.83	1845	35592	
1275	12950	+77.50	1875	36382	

MPC 9600 Plateau  
Alpha Volts: 705

Instrument 7 MPC 9604 Detector D  
Beta Volts: 1575

7/1/2009

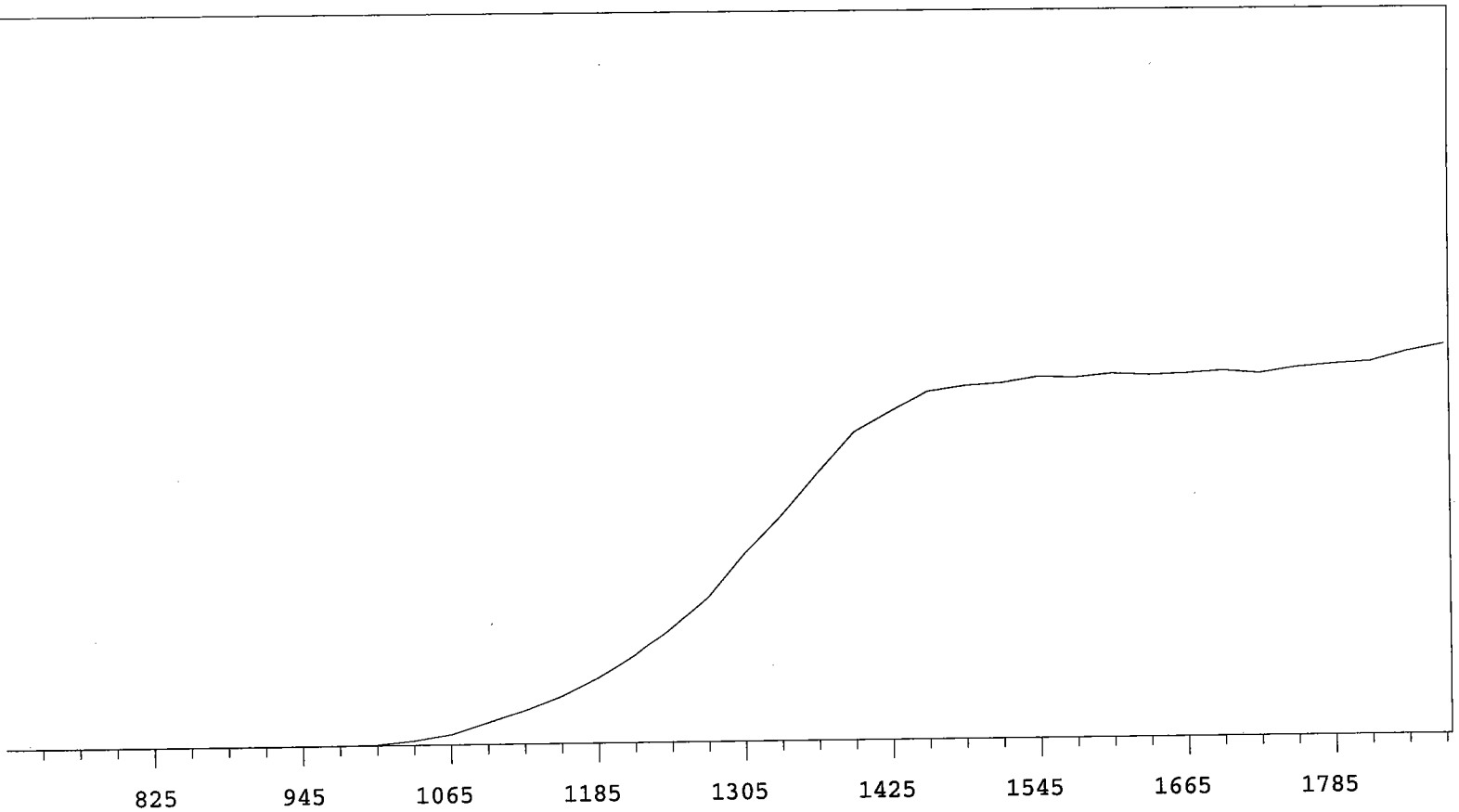


VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	0		1305	14016	+71.42
735	0		1335	17436	+62.21
765	0		1365	20814	+50.32
795	0	>100	1395	23760	+36.91
825	0	>100	1425	26302	+24.91
855	0	>100	1455	27519	+15.17
885	0	>100	1485	28410	+8.91
915	0	>100	1515	28843	+5.41
945	0	>100	1545	29396	+3.58
975	5	>100	1575	29357	+1.54
1005	29	>100	1605	29719	+0.51
1035	204	>100	1635	29358	+0.23
1065	609	>100	1665	29623	+0.57
1095	1354	>100	1695	29509	+2.12
1125	2316	>100	1725	29896	+2.84
1155	3418	>100	1755	30165	+4.42
1185	4654	>100	1785	30570	+5.65
1215	6455	+92.99	1815	31180	+6.95
1245	8669	+86.45	1845	31995	
1275	10931	+79.15	1875	32717	

MPC 9600 Plateau  
Alpha Volts: 705

Instrument 8 MPC 9604 Detector A  
Beta Volts: 1575

7/1/2009

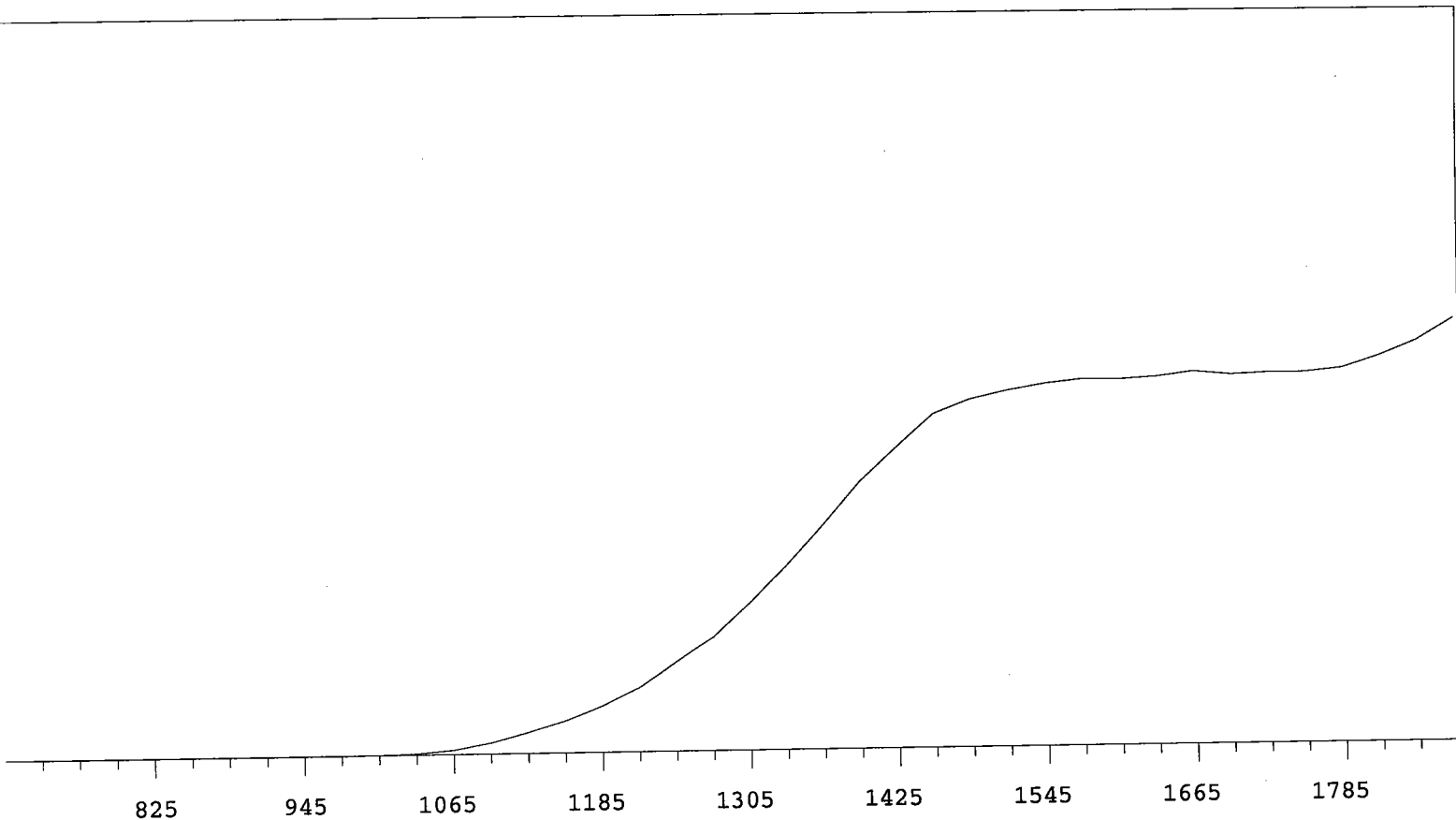


VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	0		1305	19482	+67.45
735	0		1335	23344	+59.35
765	0		1365	27793	+45.86
795	0	>100	1395	31916	+34.29
825	0	>100	1425	33979	+21.61
855	0	>100	1455	35993	+11.71
885	0	>100	1485	36530	+7.04
915	0	>100	1515	36796	+3.11
945	1	>100	1545	37393	+2.44
975	9	>100	1575	37279	+1.41
1005	96	>100	1605	37650	+0.49
1035	468	>100	1635	37458	+0.91
1065	1084	>100	1665	37579	+0.12
1095	2286	>100	1695	37828	+1.10
1125	3479	>100	1725	37535	+1.72
1155	4912	>100	1755	38104	+2.18
1185	6819	+98.23	1785	38416	+4.12
1215	9153	+89.05	1815	38633	+4.92
1245	12105	+83.21	1845	39649	
1275	15122	+75.24	1875	40366	

MPC 9600 Plateau  
Alpha Volts: 705

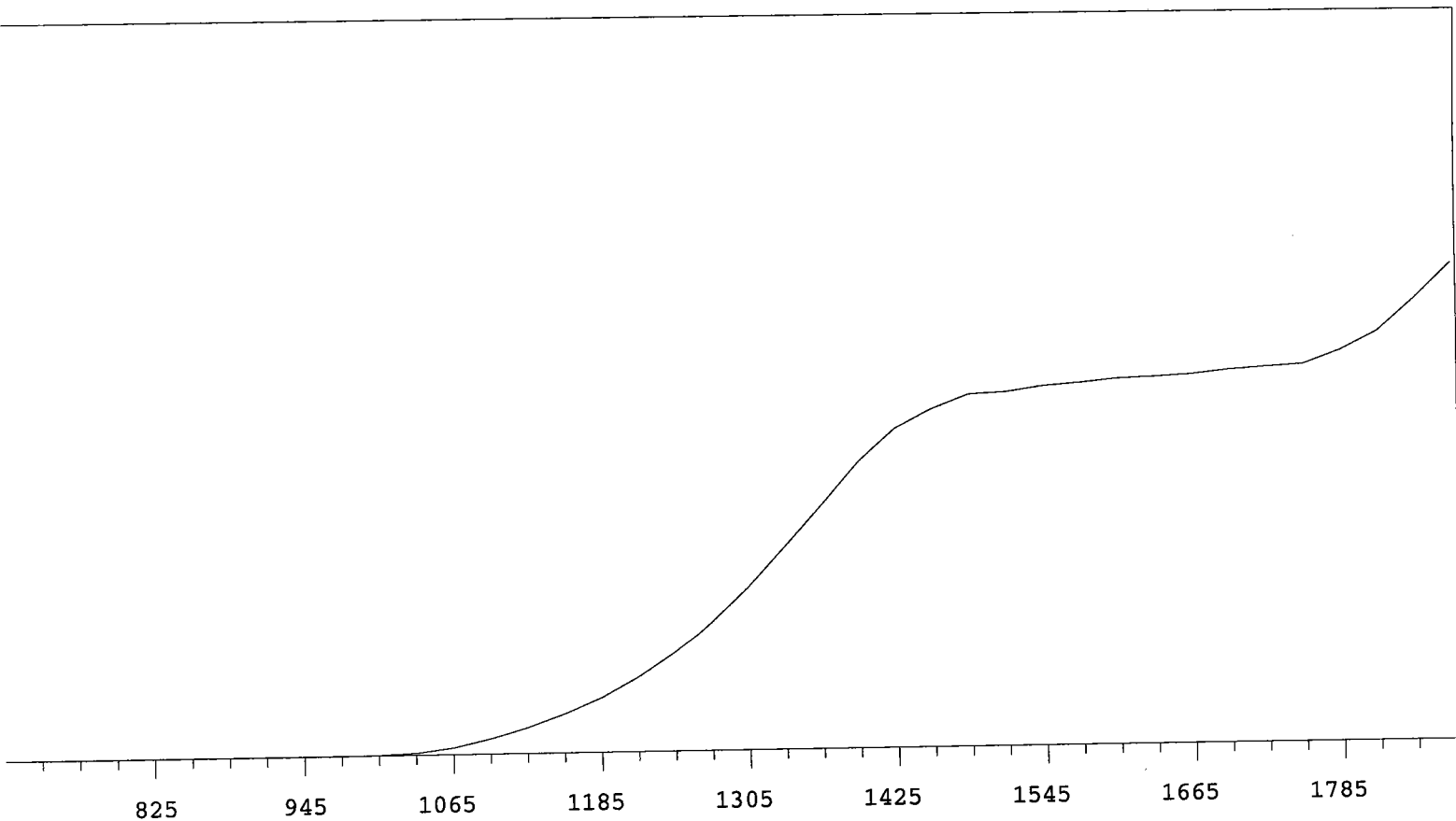
Instrument 8 MPC 9604 Detector B  
Beta Volts: 1575

7/1/2009

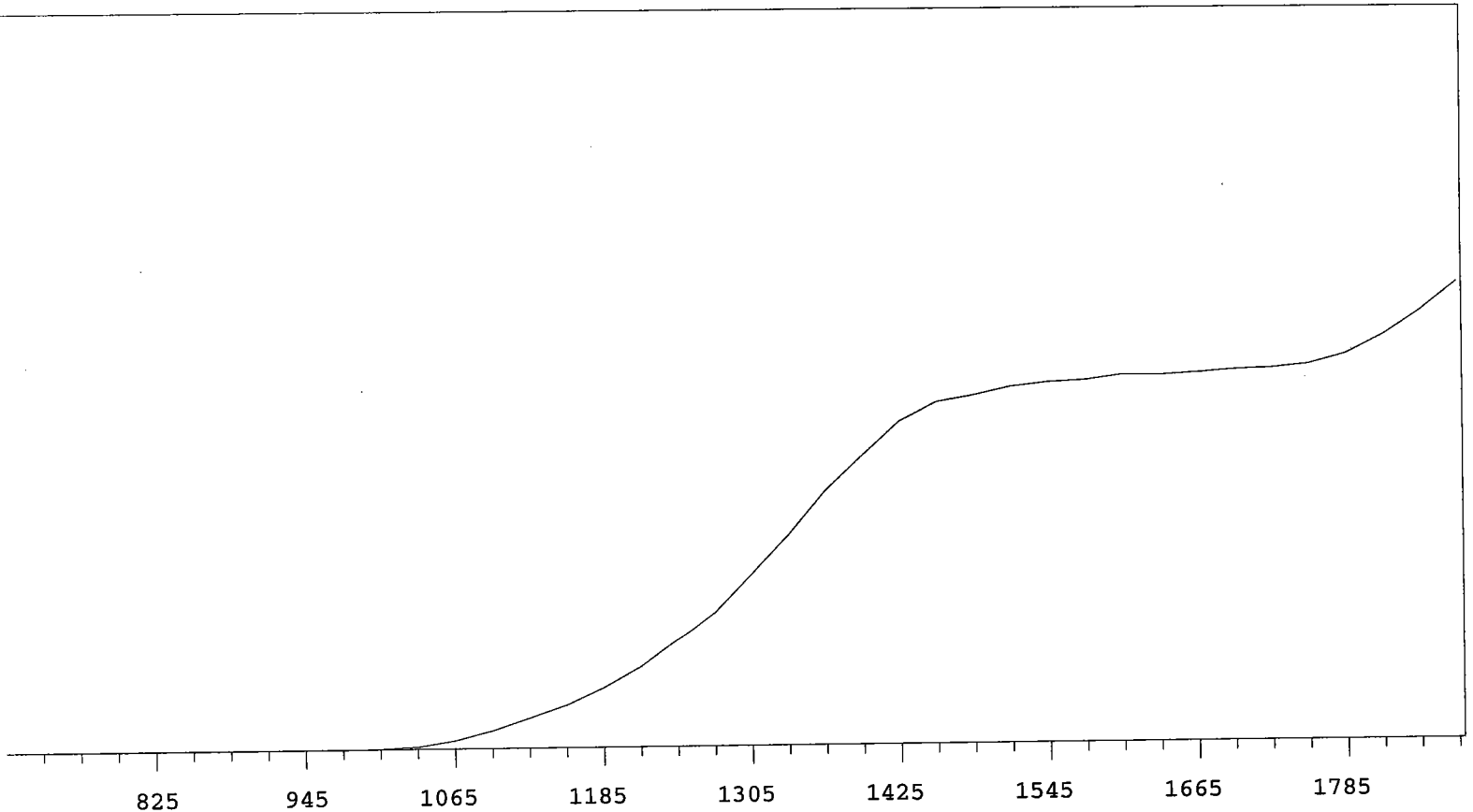


VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	0		1305	16337	+74.91
735	0		1335	20471	+68.07
765	0		1365	25012	+57.86
795	0	>100	1395	29694	+47.48
825	0	>100	1425	33409	+35.17
855	0	>100	1455	37013	+23.27
885	0	>100	1485	38629	+14.35
915	0	>100	1515	39529	+7.69
945	0	>100	1545	40284	+4.34
975	0	>100	1575	40711	+2.52
1005	20	>100	1605	40642	+1.97
1035	122	>100	1635	40879	+1.11
1065	511	>100	1665	41405	+0.98
1095	1263	>100	1695	41011	+0.30
1125	2390	>100	1725	41182	+0.41
1155	3641	>100	1755	41178	+3.28
1185	5246	>100	1785	41573	+6.47
1215	7212	+98.32	1815	42858	+10.82
1245	9897	+89.80	1845	44440	
1275	12742	+82.40	1875	46780	

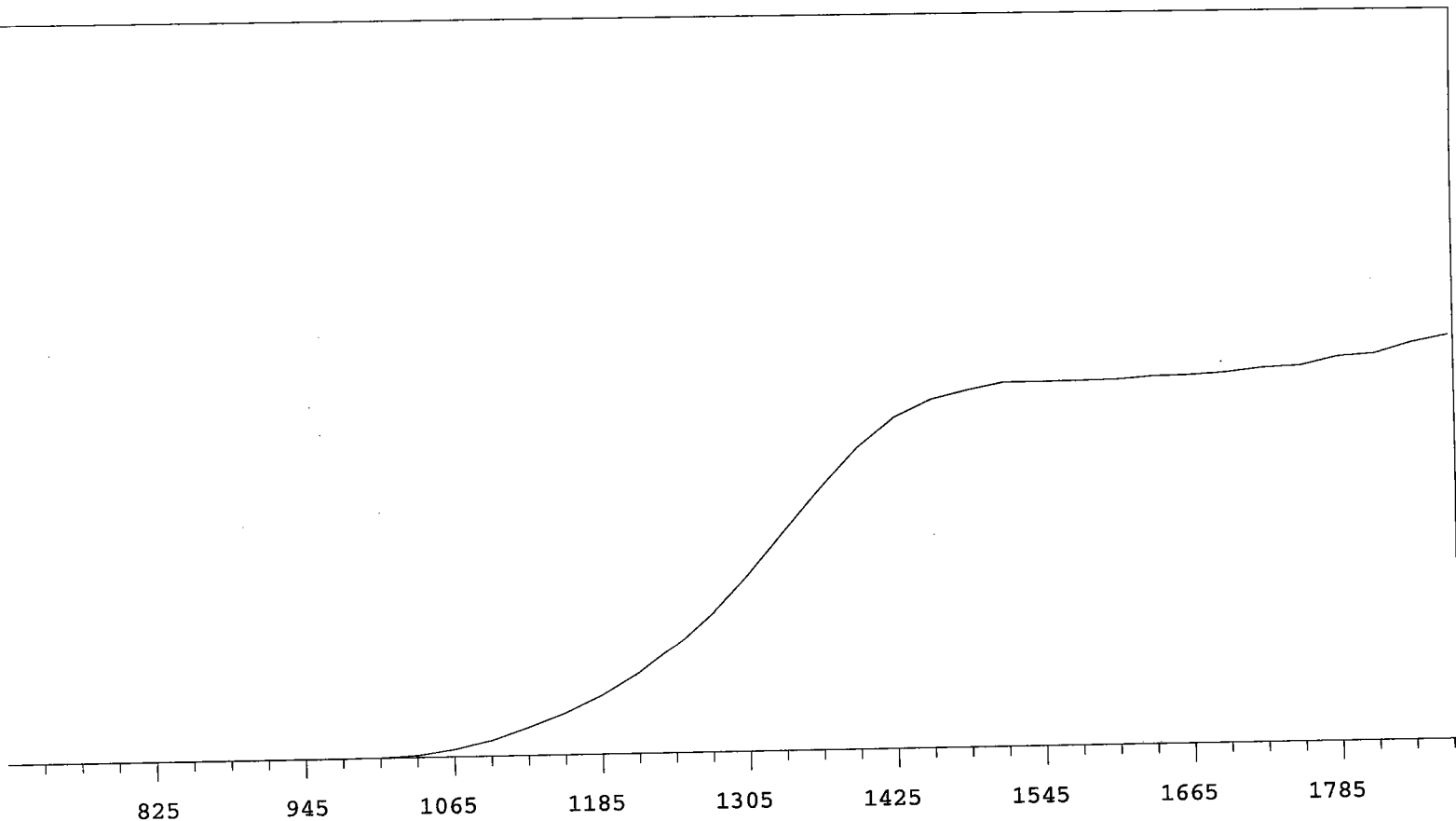




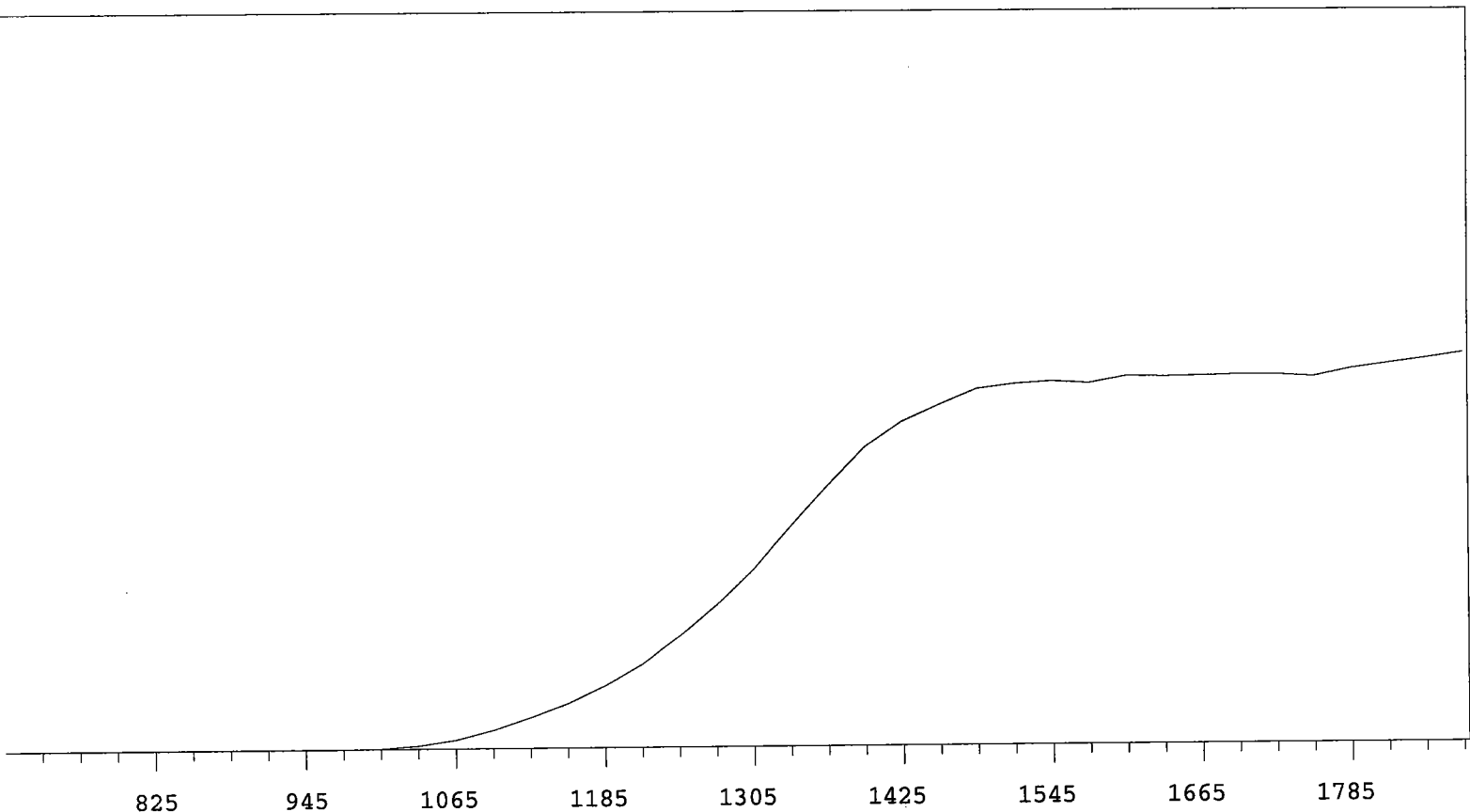
VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	0		1305	16303	+72.82
735	0		1335	20309	+64.32
765	0		1365	24364	+53.82
795	0	>100	1395	28527	+40.95
825	0	>100	1425	31774	+28.74
855	0	>100	1455	33631	+16.87
885	0	>100	1485	35030	+9.25
915	0	>100	1515	35208	+5.21
945	0	>100	1545	35741	+3.27
975	4	>100	1575	36019	+2.95
1005	46	>100	1605	36373	+2.21
1035	202	>100	1635	36484	+2.27
1065	697	>100	1665	36713	+2.28
1095	1532	>100	1695	37093	+2.46
1125	2614	>100	1725	37325	+4.17
1155	3953	>100	1755	37543	+7.52
1185	5474	>100	1785	38833	+13.43
1215	7466	+93.09	1815	40656	+19.49
1245	9842	+86.73	1845	43753	
1275	12814	+80.29	1875	47246	



VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	0		1305	16889	+70.18
735	0		1335	20600	+61.29
765	1	+0.00	1365	24824	+50.40
795	0	>100	1395	28208	+38.85
825	0	>100	1425	31539	+25.79
855	0	>100	1455	33391	+16.06
885	0	>100	1485	33991	+8.60
915	0	>100	1515	34782	+5.01
945	0	>100	1545	35201	+4.10
975	5	>100	1575	35380	+2.50
1005	47	>100	1605	35849	+1.87
1035	243	>100	1635	35784	+1.79
1065	792	>100	1665	36000	+1.43
1095	1744	>100	1695	36269	+2.10
1125	2933	>100	1725	36381	+3.46
1155	4123	>100	1755	36733	+6.86
1185	5780	>100	1785	37669	+11.78
1215	7791	+91.58	1815	39465	+16.64
1245	10478	+84.93	1845	41803	
1275	13118	+77.50	1875	44665	



VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	0		1305	16226	+71.71
735	0		1335	20083	+61.95
765	1	+0.00	1365	23913	+49.99
795	0	>100	1395	27526	+36.97
825	0	>100	1425	30193	+24.54
855	0	>100	1455	31747	+14.71
885	0	>100	1485	32544	+7.71
915	0	>100	1515	33198	+3.66
945	0	>100	1545	33188	+1.51
975	2	>100	1575	33227	+0.73
1005	33	>100	1605	33278	+1.04
1035	203	>100	1635	33518	+1.38
1065	668	>100	1665	33565	+1.95
1095	1403	>100	1695	33774	+1.99
1125	2545	>100	1725	34135	+3.30
1155	3800	>100	1755	34244	+3.67
1185	5363	>100	1785	35022	+4.84
1215	7355	+95.00	1815	35229	+5.93
1245	9807	+87.69	1845	36179	
1275	12700	+80.28	1875	36821	

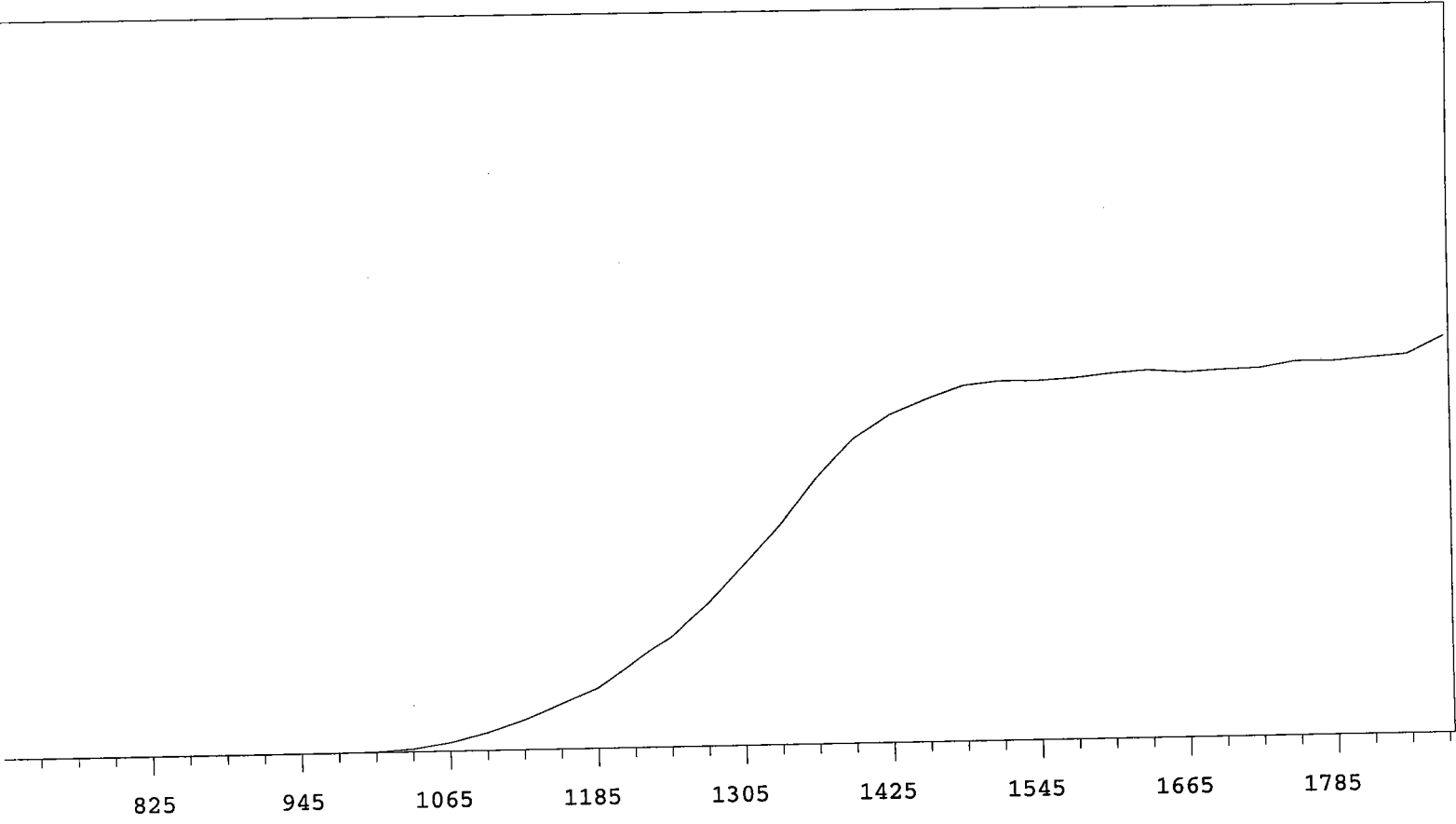


VOLTS    COUNTS    %/100 Volts

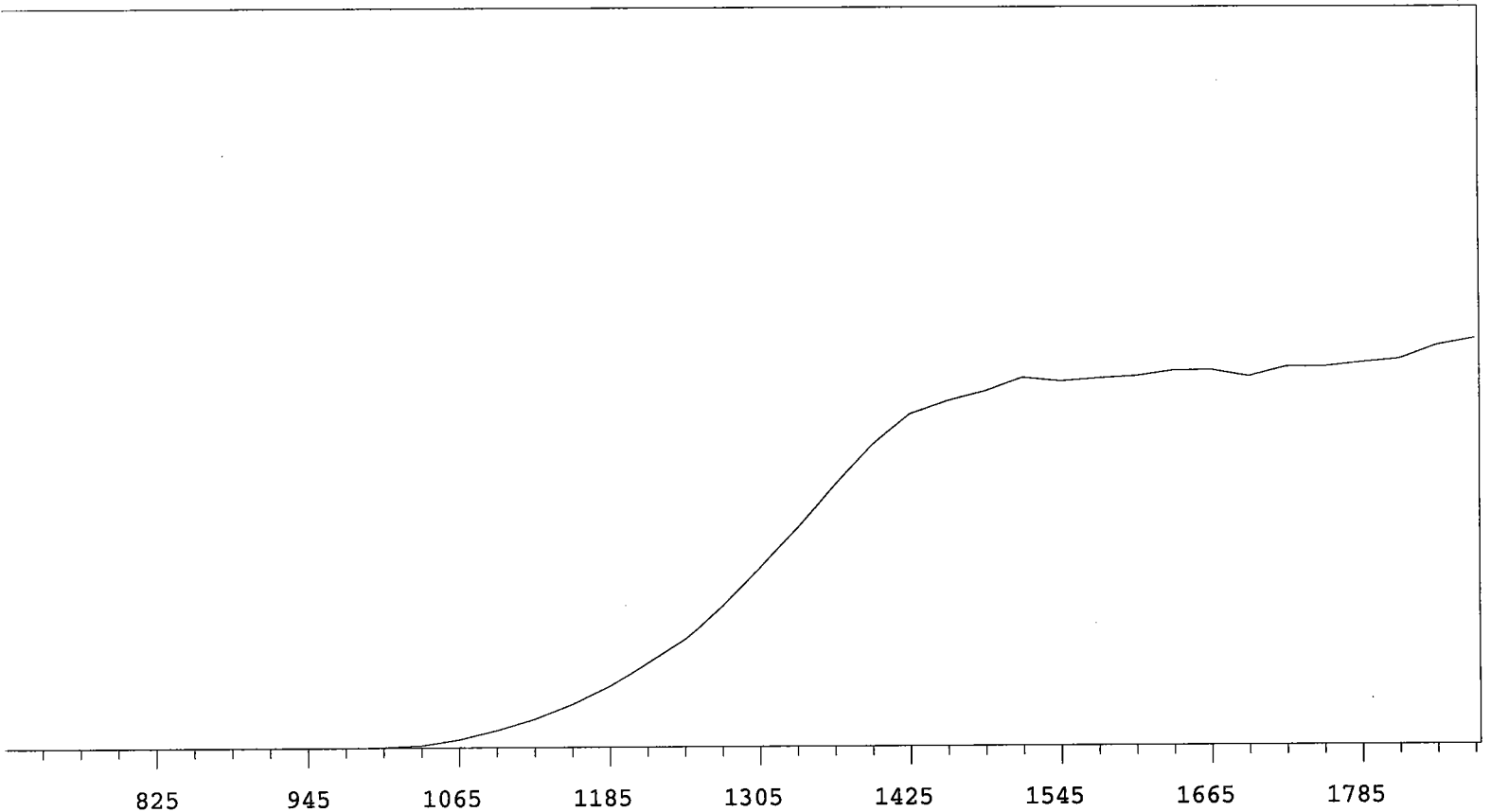
VOLTS    COUNTS    %/100 Volts

705        0  
 735        0  
 765        0  
 795        0 >100  
 825        0 >100  
 855        0 >100  
 885        0 >100  
 915        0 >100  
 945        0 >100  
 975        4 >100  
 1005       45 >100  
 1035       300 >100  
 1065       836 >100  
 1095       1742 >100  
 1125       2896 >100  
 1155       4198 >100  
 1185       5849 >100  
 1215       7887 +92.20  
 1245       10561 +83.55  
 1275       13442 +76.62

1305       16723 +68.78  
 1335       20749 +60.55  
 1365       24686 +48.78  
 1395       28343 +35.24  
 1425       30657 +24.31  
 1455       32208 +15.22  
 1485       33662 +9.32  
 1515       34098 +4.47  
 1545       34326 +2.17  
 1575       34133 +1.60  
 1605       34758 +1.41  
 1635       34706 +1.35  
 1665       34769 +0.30  
 1695       34830 -0.10  
 1725       34850 +0.90  
 1755       34613 +2.41  
 1785       35351 +3.87  
 1815       35849 +4.97  
 1845       36285  
 1875       36814



VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	0		1305	20192	+70.39
735	0		1335	24524	+60.97
765	0		1365	29650	+48.44
795	0	>100	1395	33904	+35.09
825	0	>100	1425	36549	+22.73
855	0	>100	1455	38217	+13.58
885	1	>100	1485	39628	+7.51
915	1	>100	1515	40035	+3.73
945	2	>100	1545	40020	+1.92
975	3	>100	1575	40236	+2.06
1005	64	>100	1605	40680	+1.62
1035	349	>100	1635	40953	+1.03
1065	970	>100	1665	40643	+0.43
1095	1982	>100	1695	40882	+1.41
1125	3328	>100	1725	40979	+2.18
1155	5012	>100	1755	41654	+2.20
1185	6669	>100	1785	41602	+2.27
1215	9448	+92.67	1815	41935	+4.50
1245	12293	+86.58	1845	42259	
1275	15917	+76.99	1875	44183	



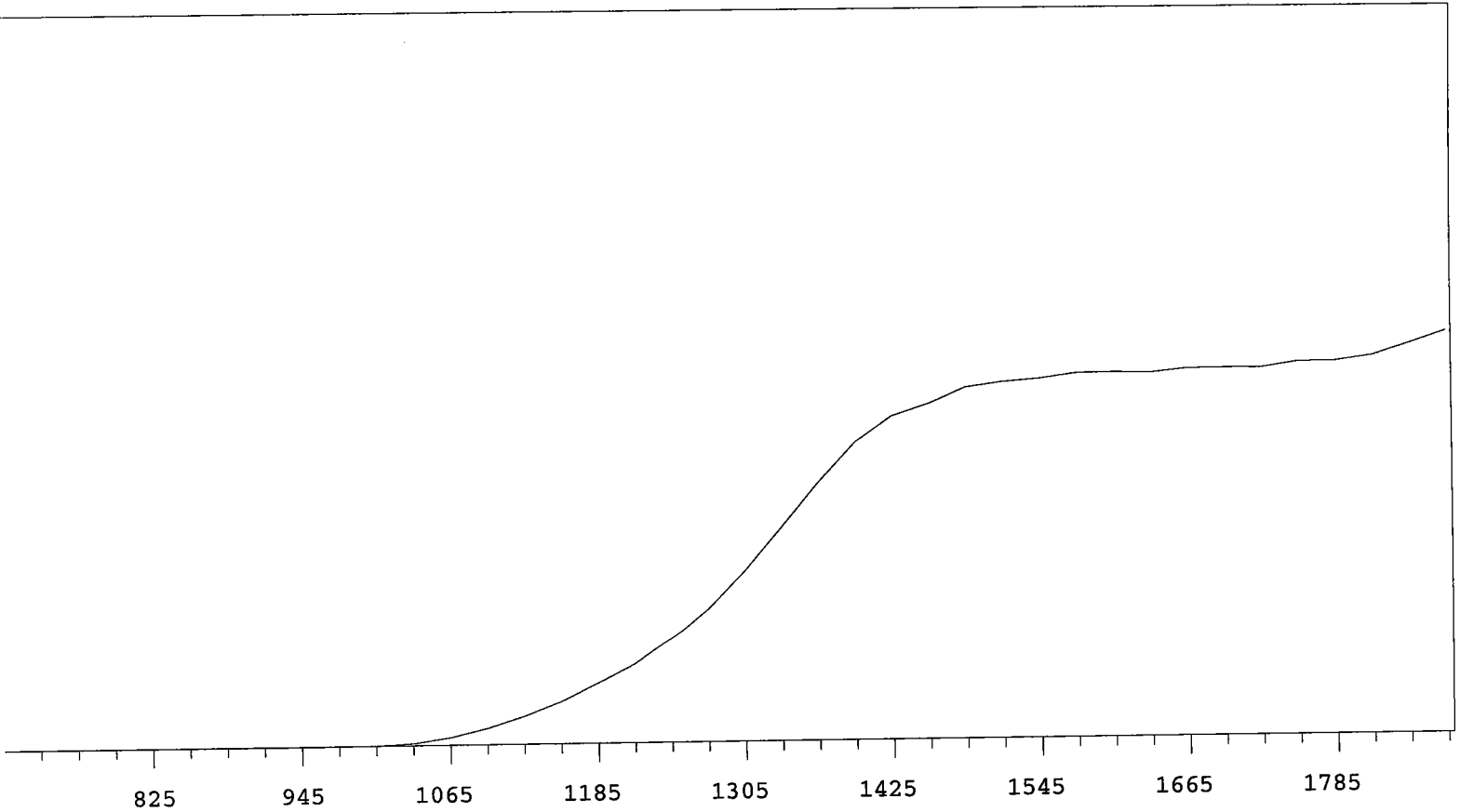
VOLTS	COUNTS	%/100 Volts
705	0	
735	0	
765	0	
795	0	>100
825	0	>100
855	0	>100
885	0	>100
915	1	>100
945	0	>100
975	5	>100
1005	35	>100
1035	186	>100
1065	618	>100
1095	1280	>100
1125	2141	>100
1155	3268	>100
1185	4659	>100
1215	6343	+90.68
1245	8064	+83.46
1275	10497	+77.03

VOLTS	COUNTS	%/100 Volts
1305	13319	+70.94
1335	16319	+61.35
1365	19577	+50.27
1395	22498	+36.85
1425	24782	+23.90
1455	25761	+15.37
1485	26486	+8.38
1515	27503	+5.11
1545	27223	+2.67
1575	27453	+1.71
1605	27604	+2.70
1635	28021	+0.78
1665	28059	+1.05
1695	27548	+0.90
1725	28280	+2.16
1755	28290	+3.51
1785	28600	+4.46
1815	28879	+6.35
1845	29913	
1875	30417	

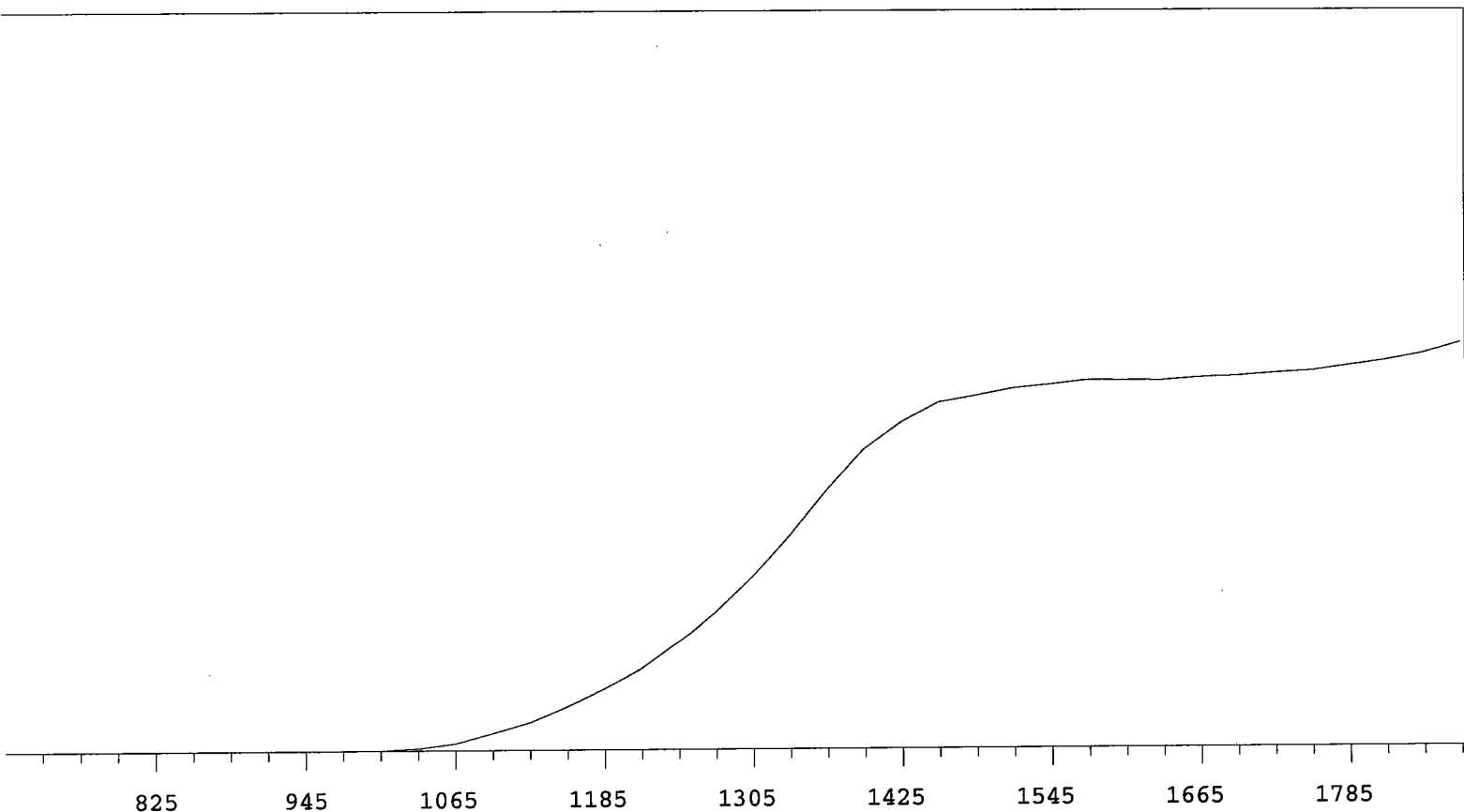
MPC 9600 Plateau  
Alpha Volts: 870

Instrument 10 MPC 9604 Detector A  
Beta Volts: 1552

7/1/2009

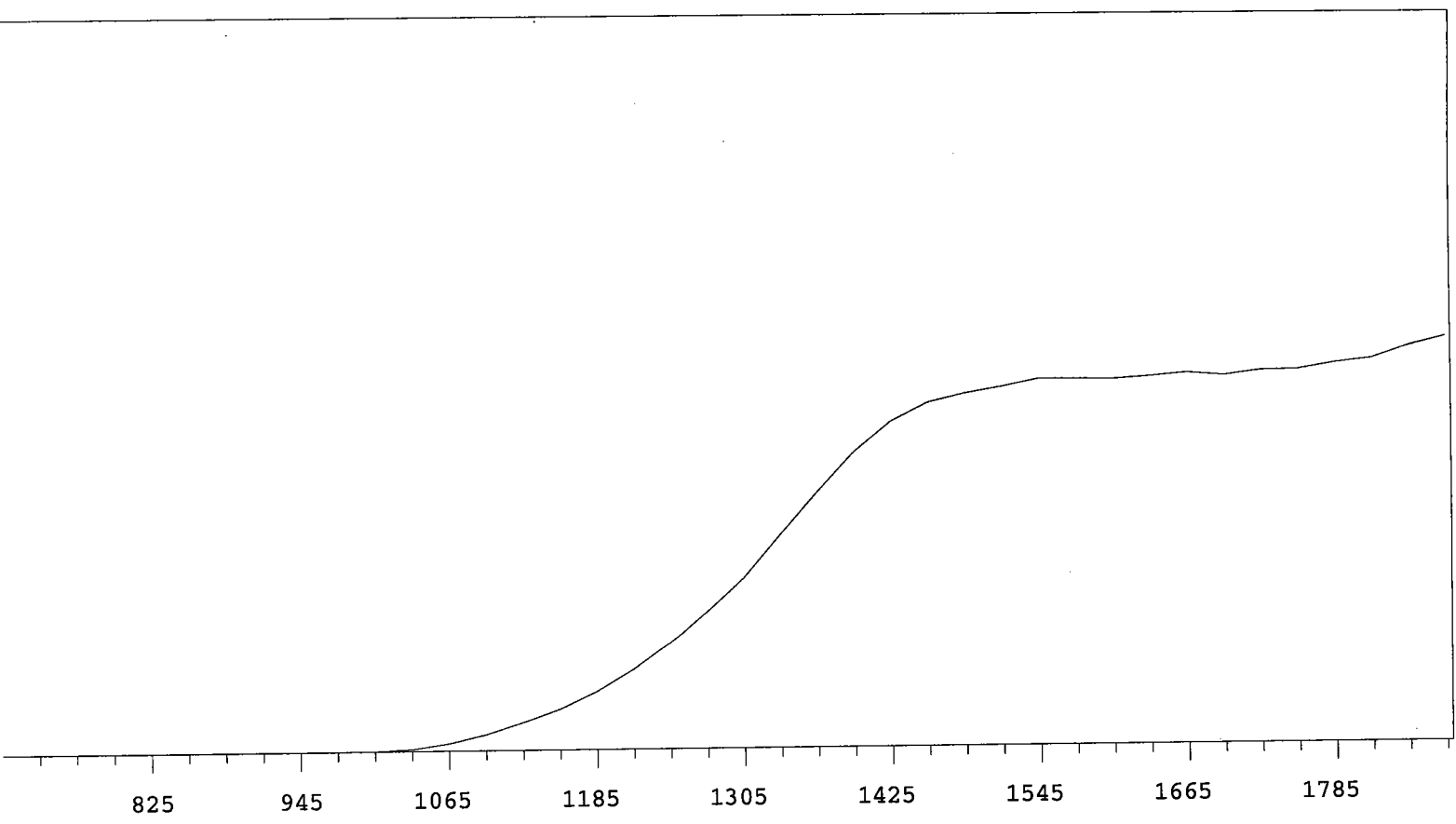


VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	0		1305	16076	+72.76
735	1		1335	19985	+63.85
765	0		1365	24102	+50.95
795	0	>100	1395	27819	+36.01
825	0	>100	1425	30228	+23.86
855	0	>100	1455	31343	+14.40
885	0	>100	1485	32811	+8.77
915	0	>100	1515	33243	+6.10
945	0	>100	1545	33518	+3.25
975	1	>100	1575	34010	+1.98
1005	37	>100	1605	34061	+1.59
1035	198	>100	1635	33973	+0.97
1065	687	>100	1665	34346	+0.93
1095	1491	>100	1695	34366	+1.72
1125	2580	>100	1725	34341	+1.54
1155	3920	>100	1755	34860	+2.47
1185	5588	>100	1785	34897	+4.50
1215	7384	+91.32	1815	35377	+6.60
1245	9794	+84.81	1845	36458	
1275	12572	+79.73	1875	37630	

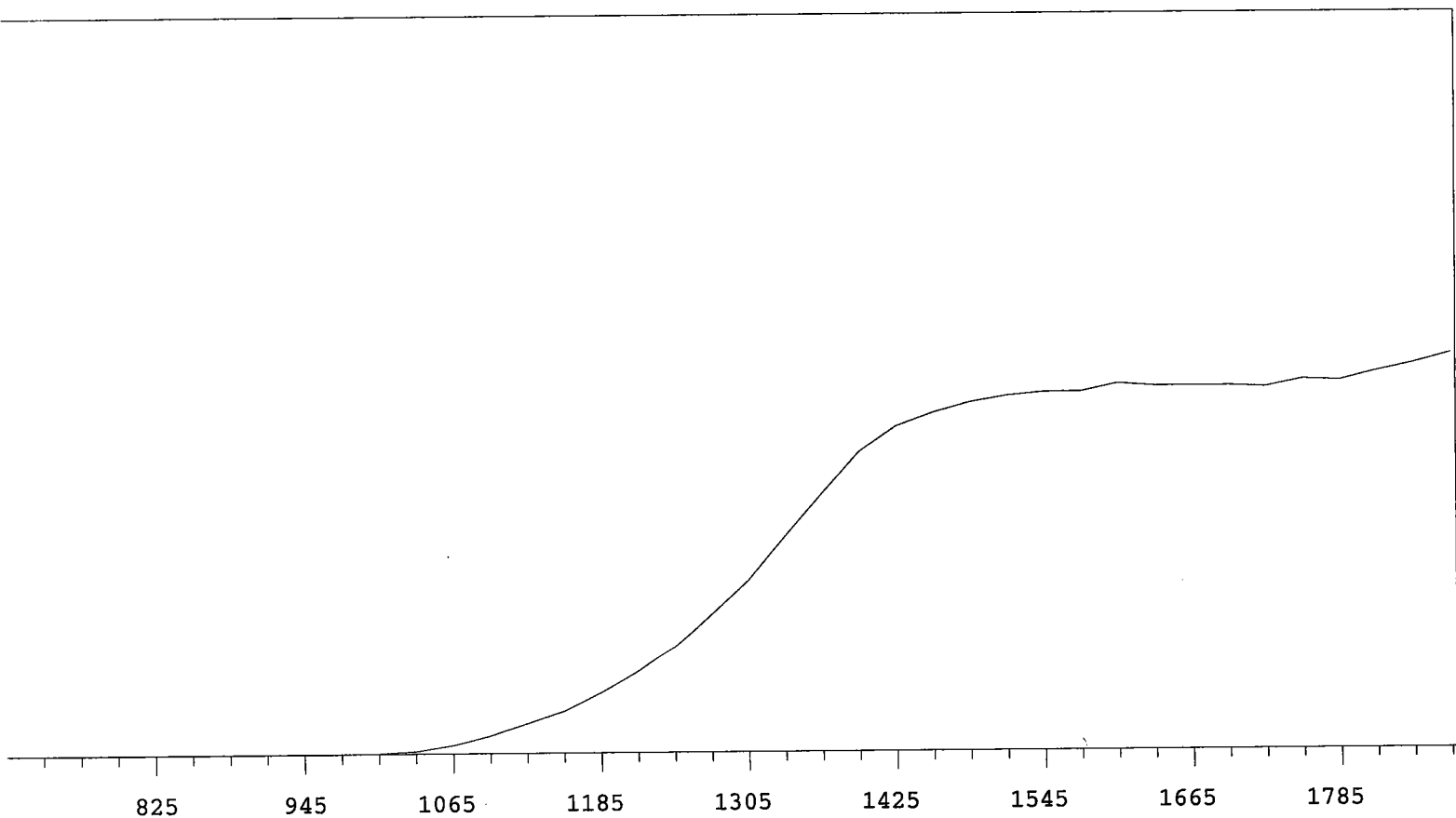


VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	0		1305	14469	+71.08
735	0		1335	17904	+63.07
765	0		1365	21677	+51.20
795	0	>100	1395	25027	+38.06
825	0	>100	1425	27237	+24.55
855	0	>100	1455	28914	+14.61
885	0	>100	1485	29480	+8.48
915	0	>100	1515	30075	+5.06
945	1	>100	1545	30374	+3.42
975	7	>100	1575	30738	+1.68
1005	28	>100	1605	30703	+1.08
1035	190	>100	1635	30679	+0.77
1065	597	>100	1665	30902	+1.46
1095	1474	>100	1695	30992	+1.89
1125	2383	>100	1725	31224	+2.40
1155	3680	>100	1755	31397	+3.27
1185	5131	>100	1785	31826	+4.13
1215	6808	+89.95	1815	32236	+5.59
1245	8990	+83.03	1845	32782	
1275	11493	+77.30	1875	33632	



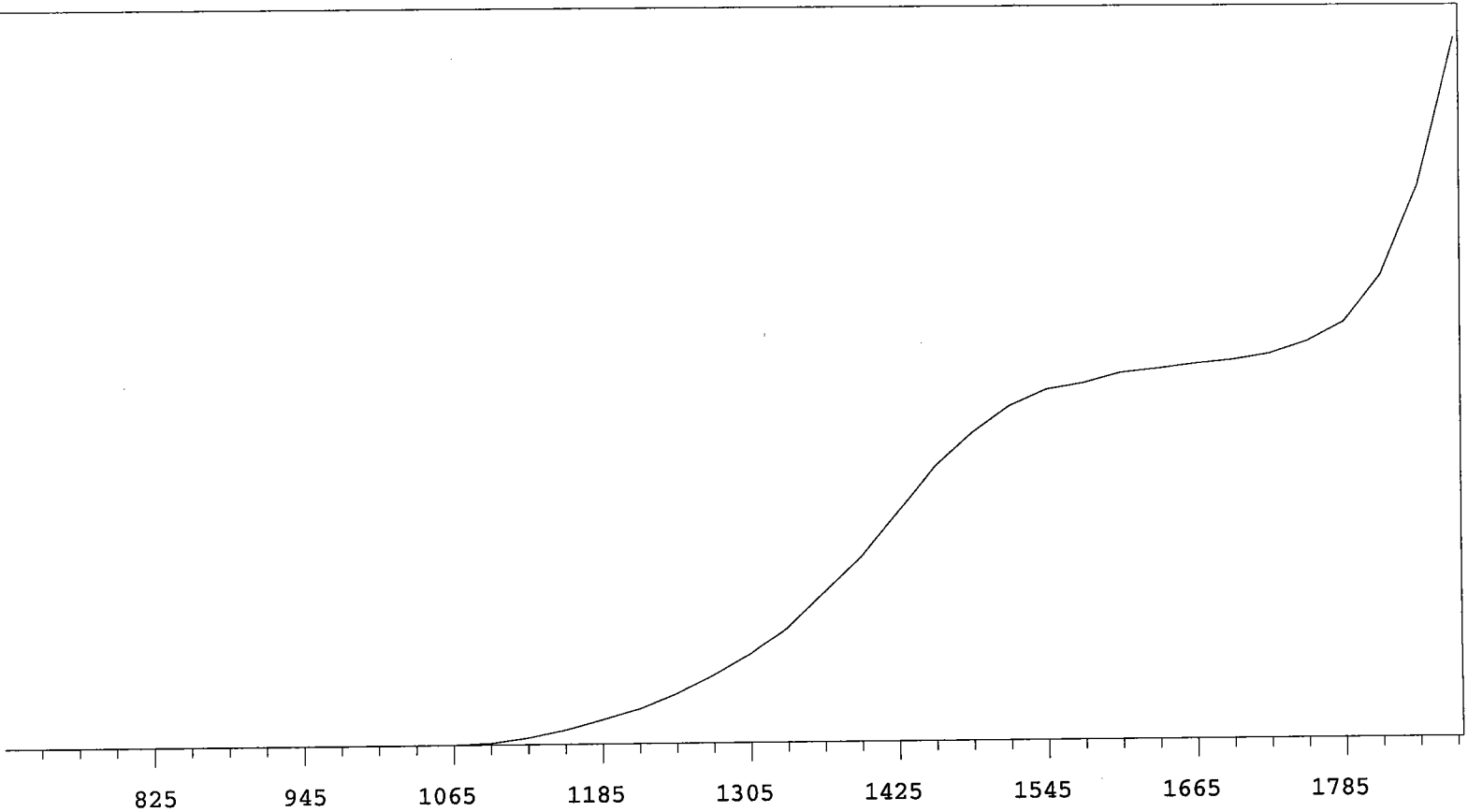


VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	1		1305	18051	+71.16
735	0		1335	22586	+62.34
765	0		1365	26973	+51.47
795	0	>100	1395	31137	+38.24
825	0	>100	1425	34321	+25.70
855	0	>100	1455	36267	+15.37
885	1	>100	1485	37197	+9.21
915	0	>100	1515	37851	+5.38
945	2	>100	1545	38622	+3.00
975	2	>100	1575	38600	+1.55
1005	36	>100	1605	38538	+1.03
1035	220	>100	1635	38786	+0.91
1065	780	>100	1665	39129	+1.38
1095	1712	>100	1695	38832	+1.20
1125	2926	>100	1725	39323	+2.00
1155	4297	>100	1755	39390	+3.35
1185	6097	>100	1785	40031	+4.86
1215	8397	+95.11	1815	40466	+6.64
1245	11155	+85.84	1845	41713	
1275	14430	+78.79	1875	42620	

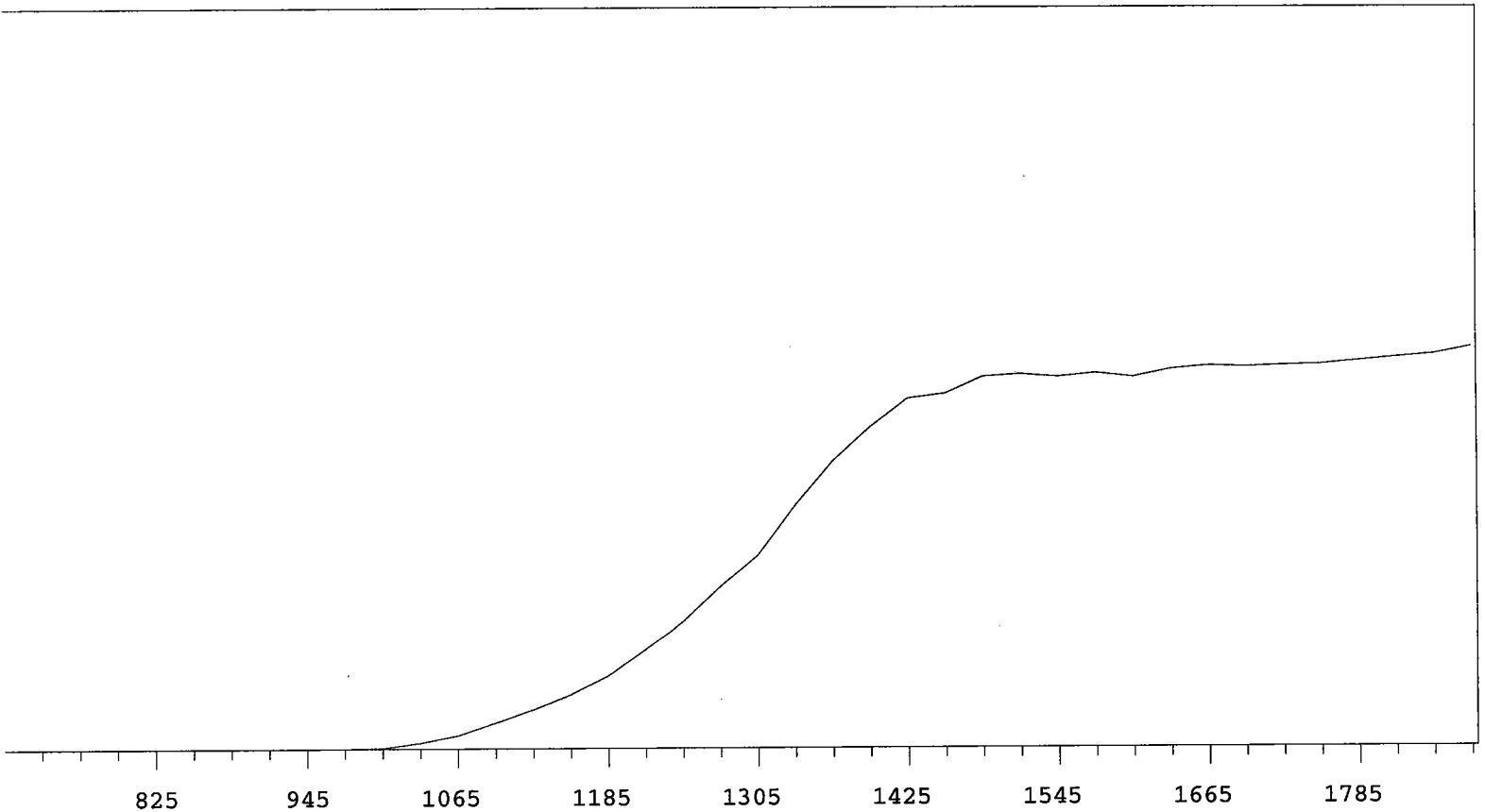


VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	0		1305	15430	+69.87
735	0		1335	19258	+61.49
765	0		1365	23018	+50.06
795	0	>100	1395	26562	+35.34
825	0	>100	1425	28750	+22.67
855	0	>100	1455	29911	+13.20
885	0	>100	1485	30798	+8.01
915	0	>100	1515	31375	+4.83
945	0	>100	1545	31684	+3.74
975	3	>100	1575	31721	+2.38
1005	49	>100	1605	32398	+1.44
1035	244	>100	1635	32154	+0.64
1065	764	>100	1665	32157	-0.77
1095	1584	>100	1695	32152	+0.99
1125	2677	>100	1725	32029	+1.41
1155	3763	>100	1755	32699	+3.00
1185	5395	>100	1785	32566	+4.71
1215	7350	+93.71	1815	33351	+5.92
1245	9655	+83.52	1845	34031	
1275	12504	+76.82	1875	34941	

Alpha Volts: 1515 Beta Volts: 1515

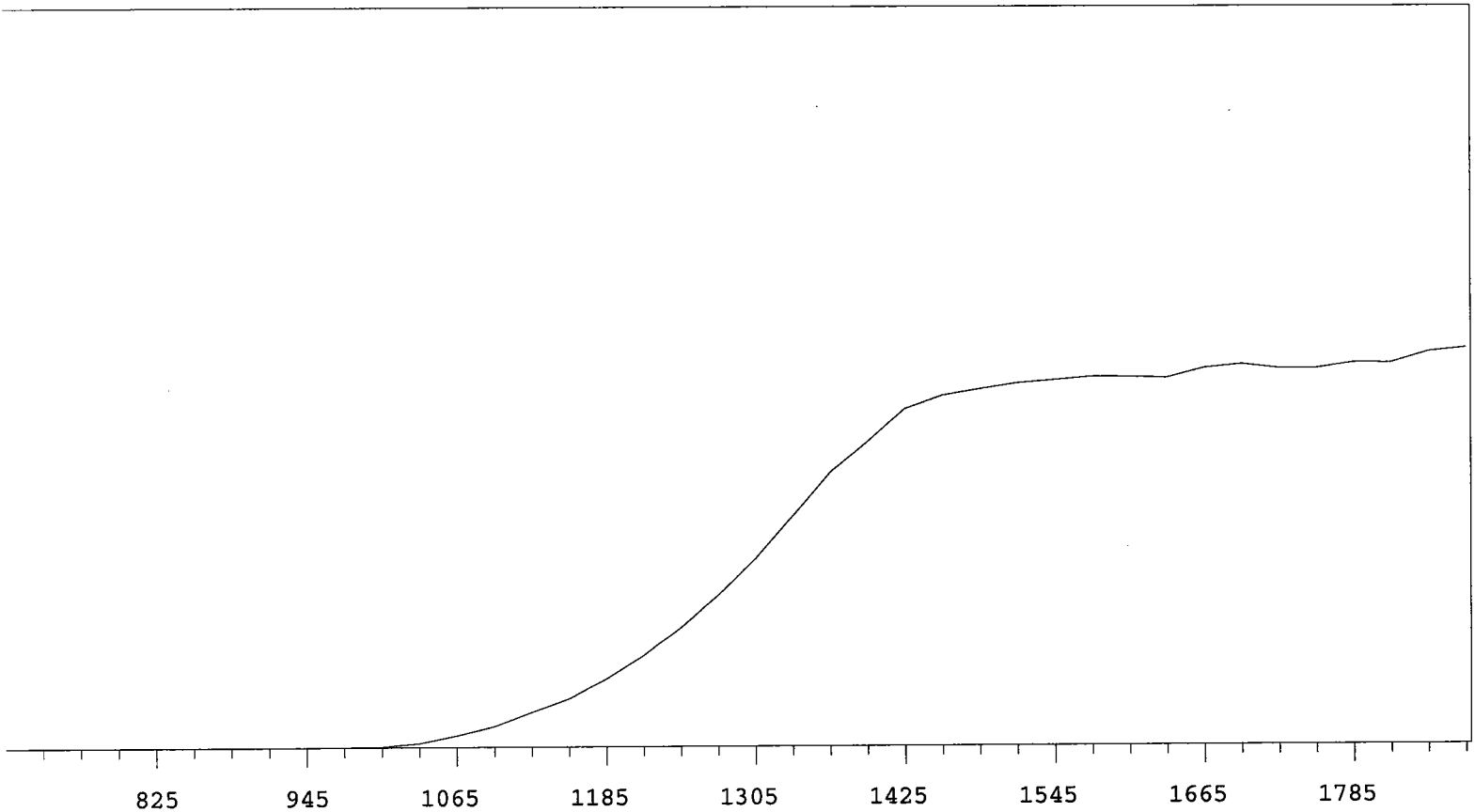


VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	0		1305	3225	+87.64
735	1		1335	4189	+80.15
765	0		1365	5428	+75.12
795	0	>100	1395	6662	+68.60
825	0	>100	1425	8241	+58.14
855	0	>100	1455	9857	+46.65
885	0	>100	1485	11018	+33.24
915	0	>100	1515	11953	+21.01
945	1	+0.00	1545	12538	+13.57
975	0	>100	1575	12760	+8.35
1005	0	>100	1605	13114	+5.84
1035	2	>100	1635	13258	+4.78
1065	9	>100	1665	13430	+3.99
1095	61	>100	1695	13551	+5.46
1125	248	>100	1725	13771	+8.65
1155	528	>100	1755	14204	+16.44
1185	882	>100	1785	14916	+30.03
1215	1270	>100	1815	16579	+48.74
1245	1786	>100	1845	19717	
1275	2478	+93.67	1875	25029	

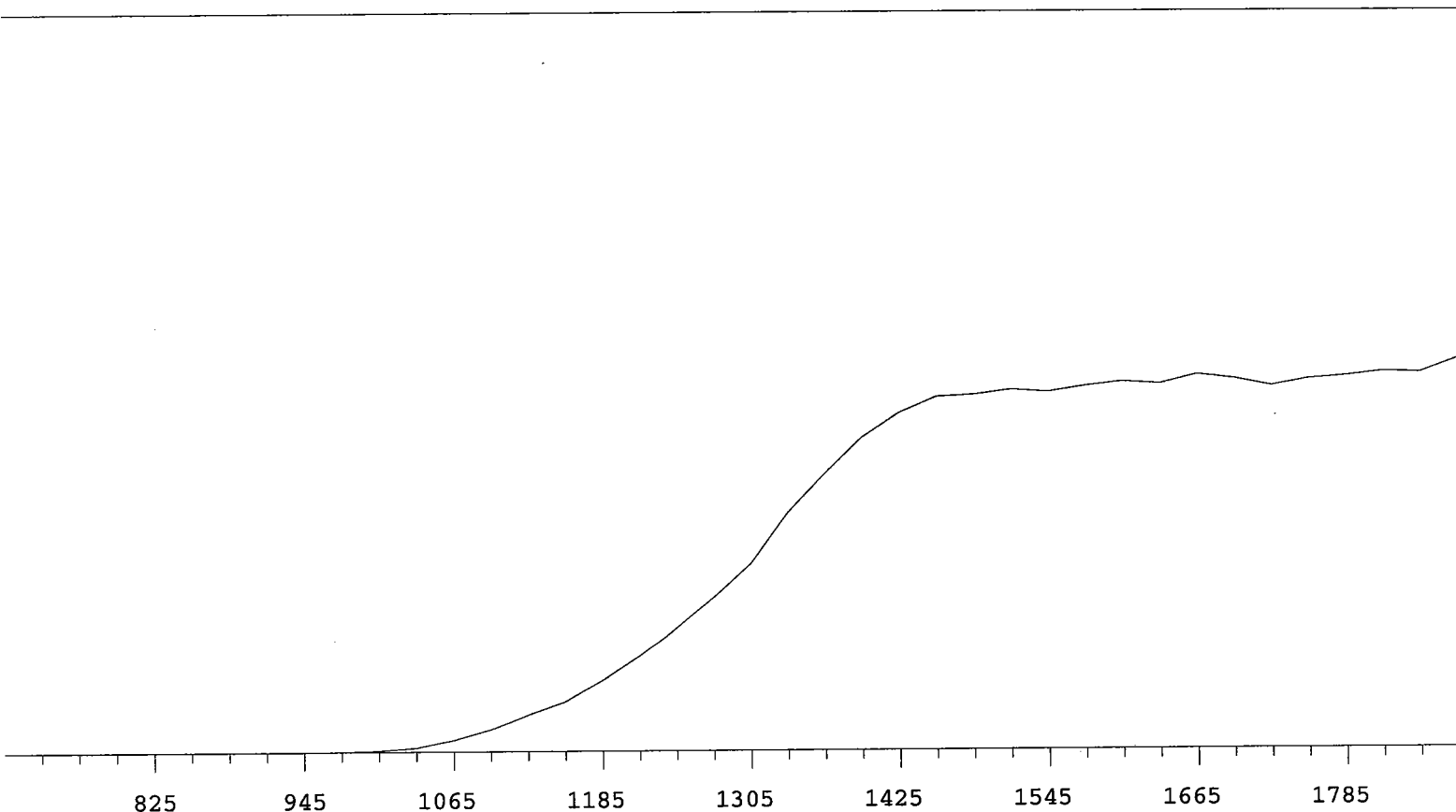


VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	0		1305	8947	+65.63
735	0		1335	11238	+56.58
765	0		1365	13246	+46.66
795	0	>100	1395	14838	+30.69
825	0	>100	1425	16166	+20.11
855	0	>100	1455	16396	+11.95
885	0	>100	1485	17161	+5.61
915	1	>100	1515	17274	+3.59
945	0	>100	1545	17144	-0.00
975	11	>100	1575	17323	+0.80
1005	47	>100	1605	17136	+2.21
1035	280	>100	1635	17484	+1.94
1065	610	>100	1665	17638	+2.16
1095	1192	>100	1695	17580	+0.85
1125	1789	>100	1725	17655	+1.05
1155	2466	>100	1755	17700	+1.98
1185	3337	+94.91	1785	17857	+2.38
1215	4526	+88.85	1815	18006	+3.36
1245	5885	+78.40	1845	18140	
1275	7518	+72.09	1875	18468	

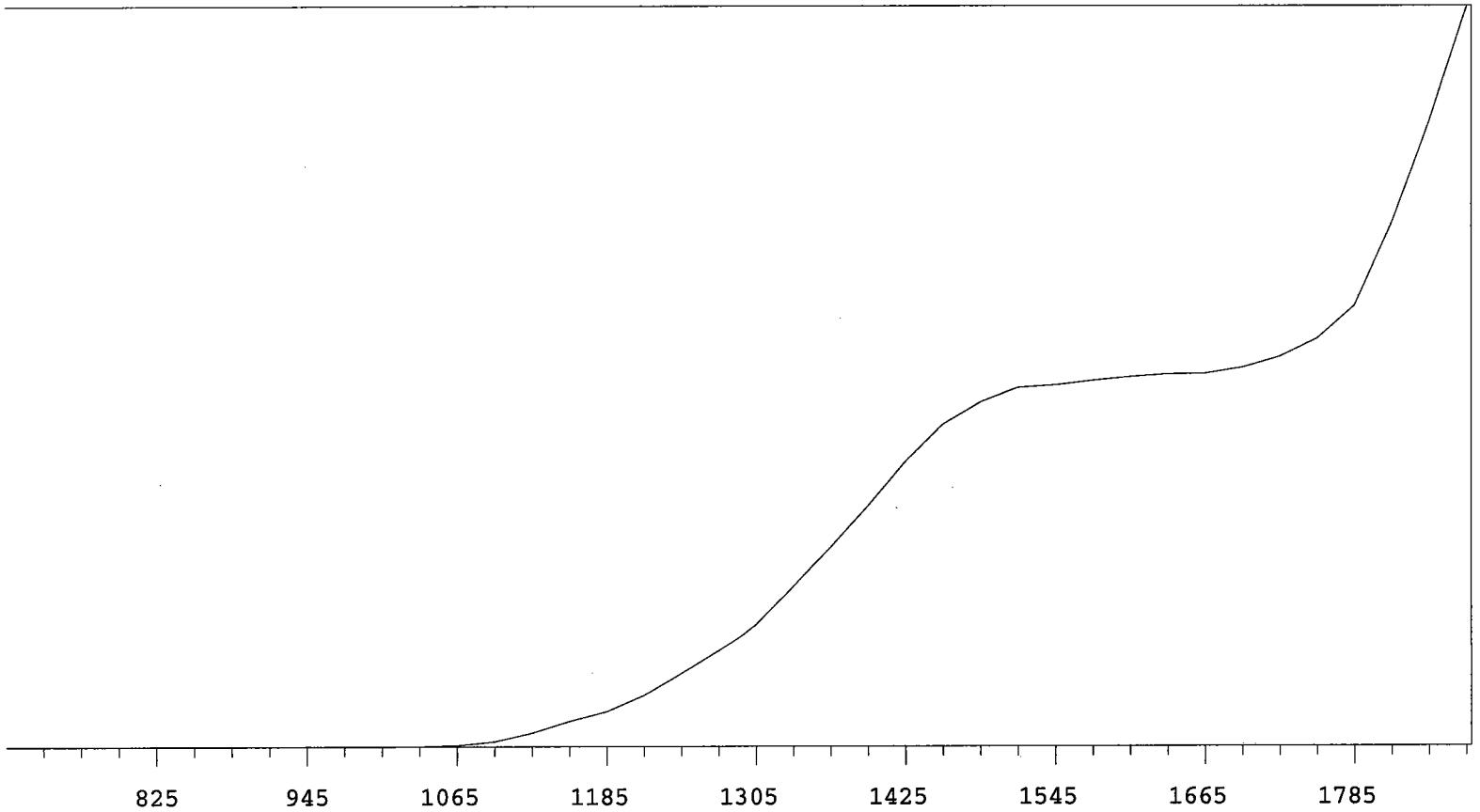
Alpha Volts: 1515 Beta Volts: 1515



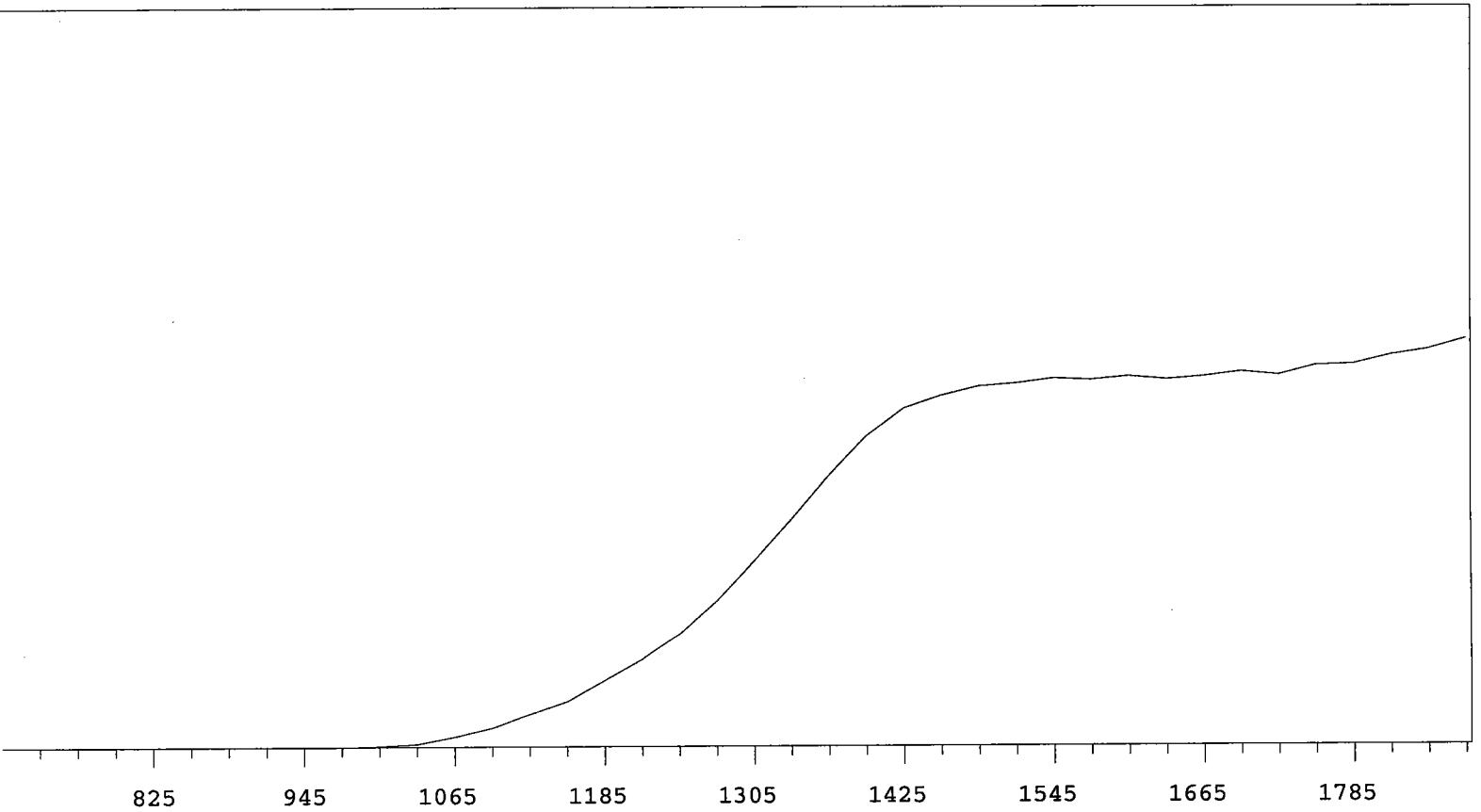
VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	1		1305	8636	+66.44
735	0		1335	10593	+56.56
765	0	+0.00	1365	12582	+46.23
795	0	>100	1395	13957	+33.45
825	1	+0.00	1425	15443	+21.49
855	0	>100	1455	16048	+13.14
885	0	+0.00	1485	16331	+6.45
915	0	>100	1515	16603	+4.19
945	1	>100	1545	16736	+2.73
975	7	>100	1575	16884	+1.11
1005	46	>100	1605	16875	+1.91
1035	191	>100	1635	16813	+2.86
1065	540	>100	1665	17257	+2.60
1095	957	>100	1695	17425	+1.58
1125	1597	>100	1725	17238	+0.49
1155	2217	>100	1755	17230	+0.63
1185	3154	+98.74	1785	17482	+3.27
1215	4239	+89.75	1815	17468	+4.46
1245	5550	+79.98	1845	17977	
1275	6980	+73.12	1875	18163	



VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	0		1305	7679	+65.97
735	0		1335	9737	+57.57
765	0		1365	11301	+45.87
795	0	>100	1395	12767	+31.71
825	0	>100	1425	13767	+19.90
855	1	+83.33	1455	14399	+10.72
885	1	+55.56	1485	14467	+4.38
915	0	>100	1515	14671	+2.12
945	1	>100	1545	14576	+2.61
975	9	>100	1575	14808	+1.80
1005	60	>100	1605	14974	+3.15
1035	173	>100	1635	14872	+1.76
1065	480	>100	1665	15248	-0.41
1095	911	>100	1695	15067	-0.27
1125	1508	>100	1725	14784	-0.43
1155	2024	>100	1755	15044	+2.01
1185	2872	+97.38	1785	15163	+2.82
1215	3858	+89.30	1815	15333	+3.61
1245	5070	+78.02	1845	15278	
1275	6322	+73.30	1875	15817	

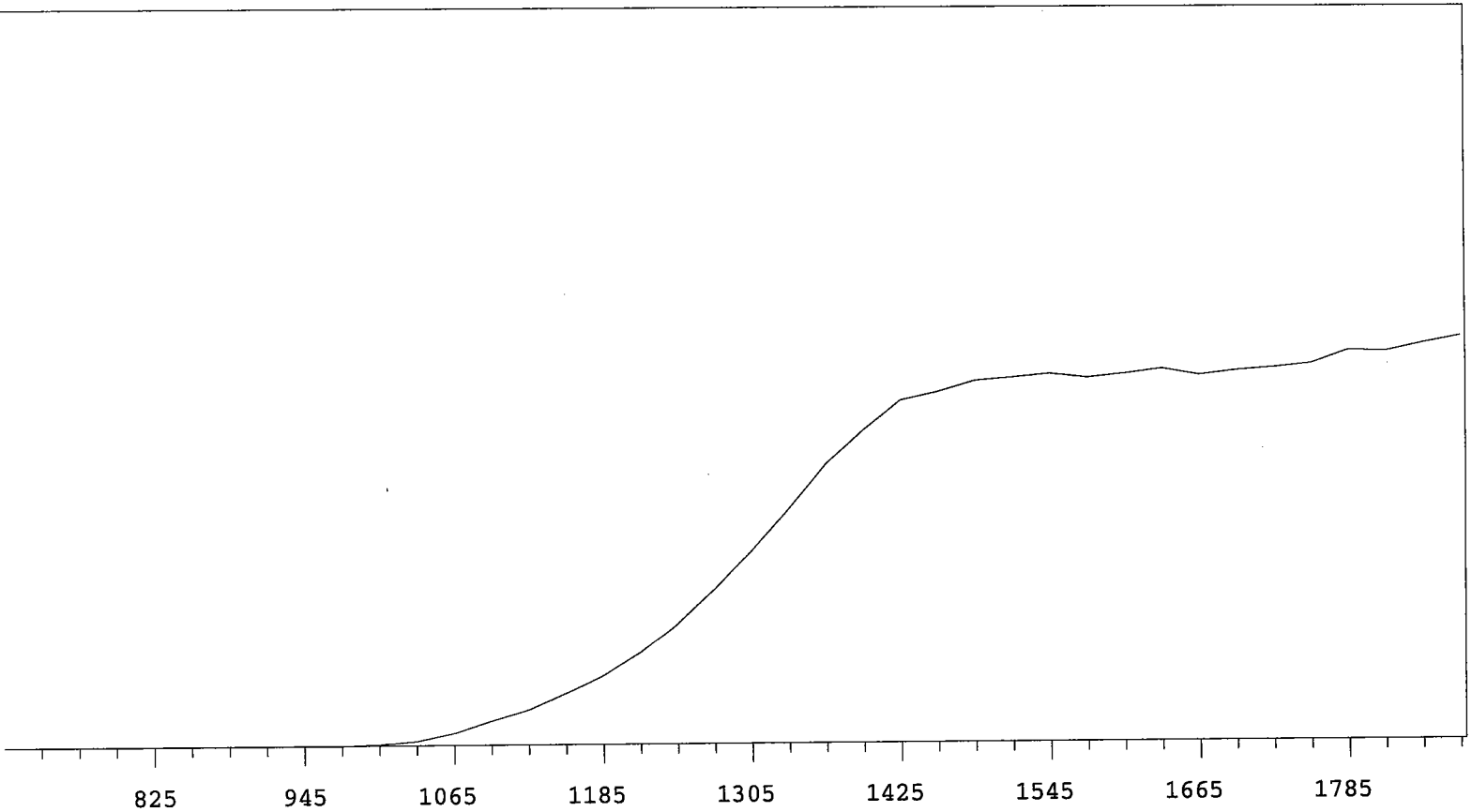


VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	0		1305	6302	+80.03
735	1		1335	8191	+73.78
765	0		1365	10140	+66.18
795	0	>100	1395	12247	+55.83
825	0	>100	1425	14468	+43.92
855	0	>100	1455	16303	+31.28
885	0	>100	1485	17411	+18.64
915	0	>100	1515	18150	+9.87
945	0	>100	1545	18275	+5.30
975	1	>100	1575	18496	+3.16
1005	3	>100	1605	18685	+2.66
1035	17	>100	1635	18820	+2.63
1065	84	>100	1665	18855	+4.16
1095	267	>100	1695	19152	+7.70
1125	709	>100	1725	19706	+13.90
1155	1299	>100	1755	20640	+26.51
1185	1813	>100	1785	22308	+40.92
1215	2638	>100	1815	26460	+51.46
1245	3777	+96.47	1845	31616	
1275	4915	+87.98	1875	37348	

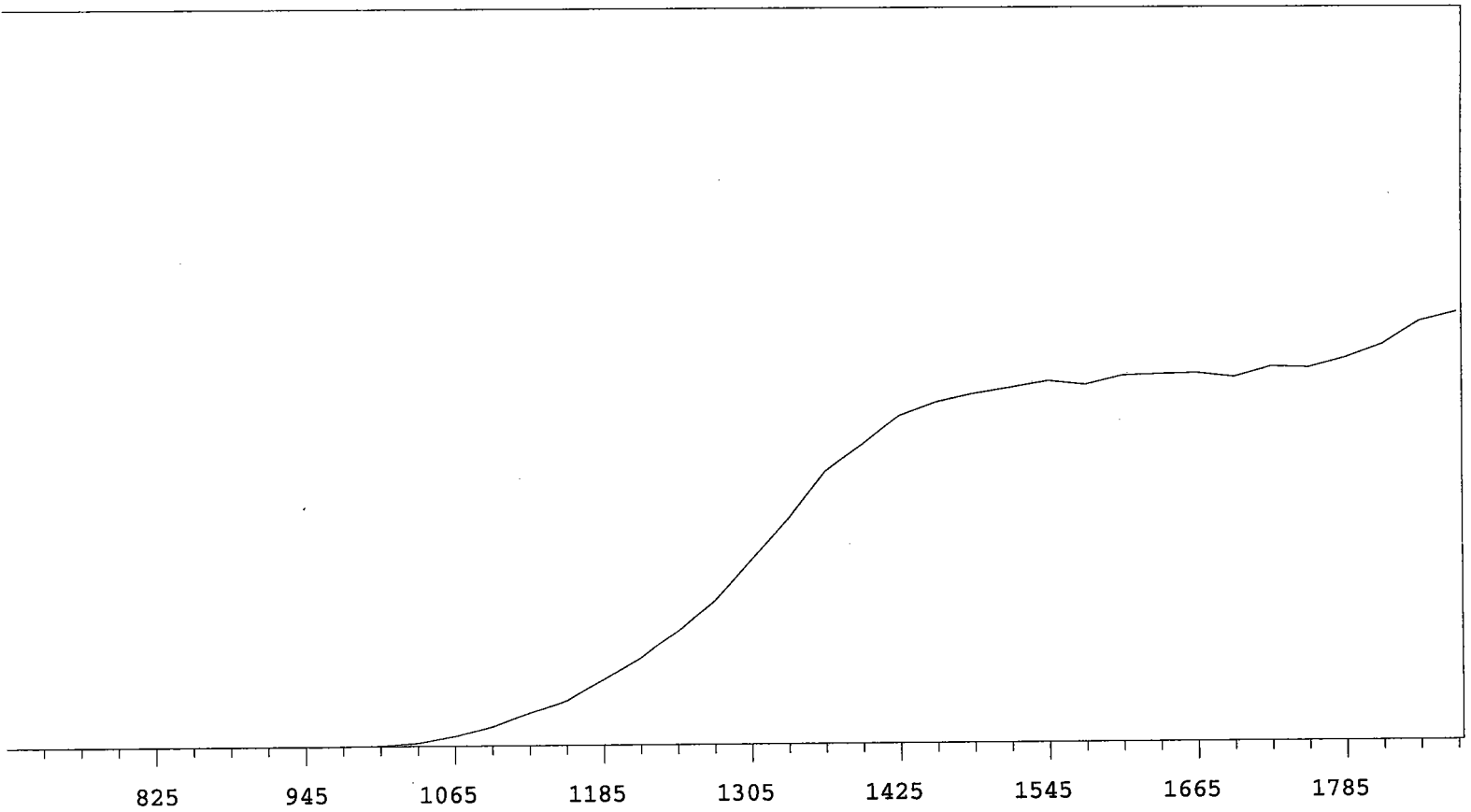


VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	0		1305	10207	+70.42
735	0		1335	12473	+60.75
765	0		1365	14900	+48.87
795	0	>100	1395	17101	+35.36
825	0	>100	1425	18643	+22.53
855	1	+83.33	1455	19350	+12.34
885	1	-83.33	1485	19848	+6.68
915	0	-55.56	1515	20014	+3.51
945	0	>100	1545	20278	+2.03
975	1	>100	1575	20186	+0.80
1005	43	>100	1605	20375	+0.32
1035	165	>100	1635	20209	+1.36
1065	557	>100	1665	20364	+0.83
1095	1055	>100	1695	20607	+2.43
1125	1775	>100	1725	20429	+2.51
1155	2470	>100	1755	20924	+3.64
1185	3617	+98.46	1785	20984	+5.11
1215	4757	+90.95	1815	21470	+5.63
1245	6186	+83.59	1845	21773	
1275	8021	+77.85	1875	22346	

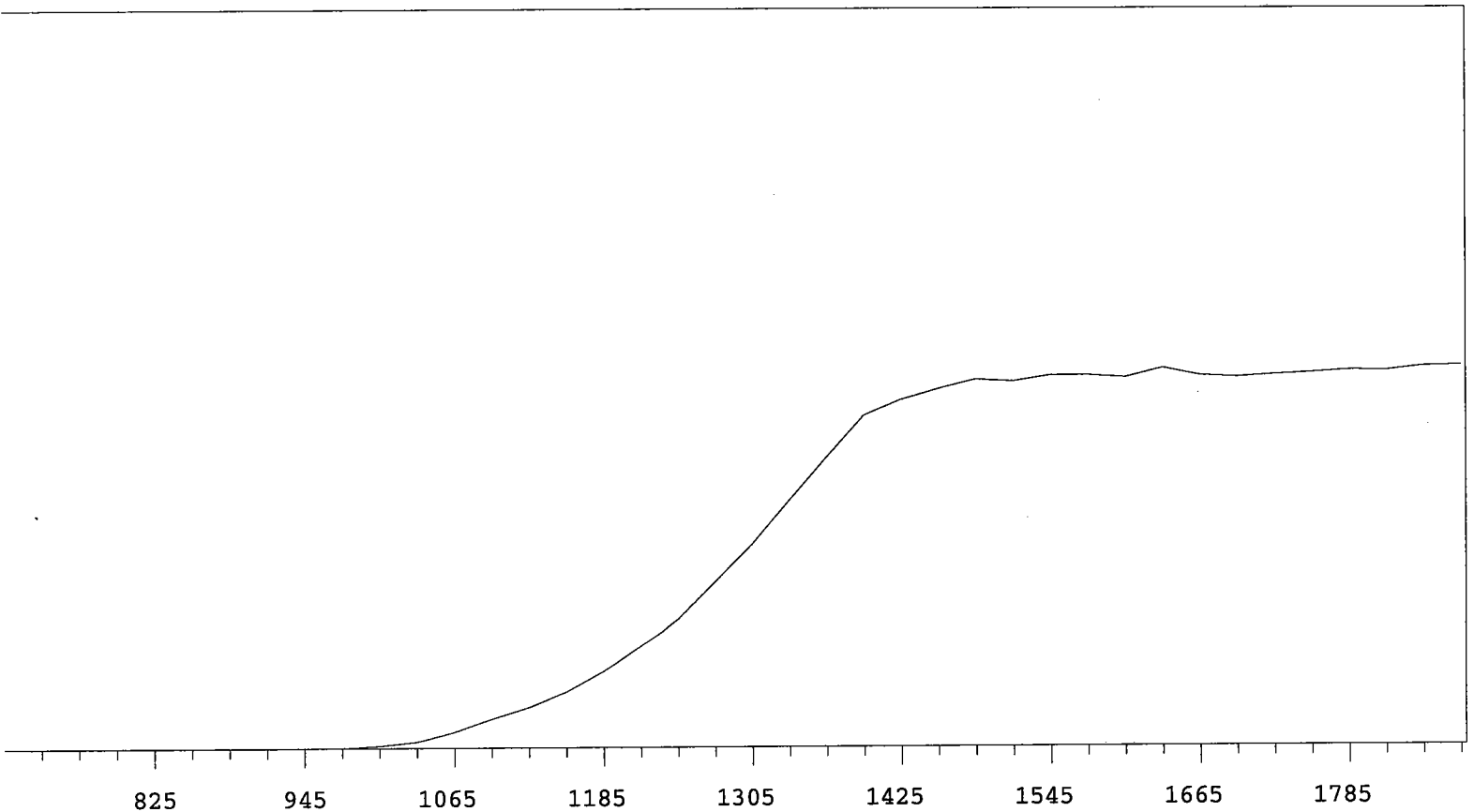




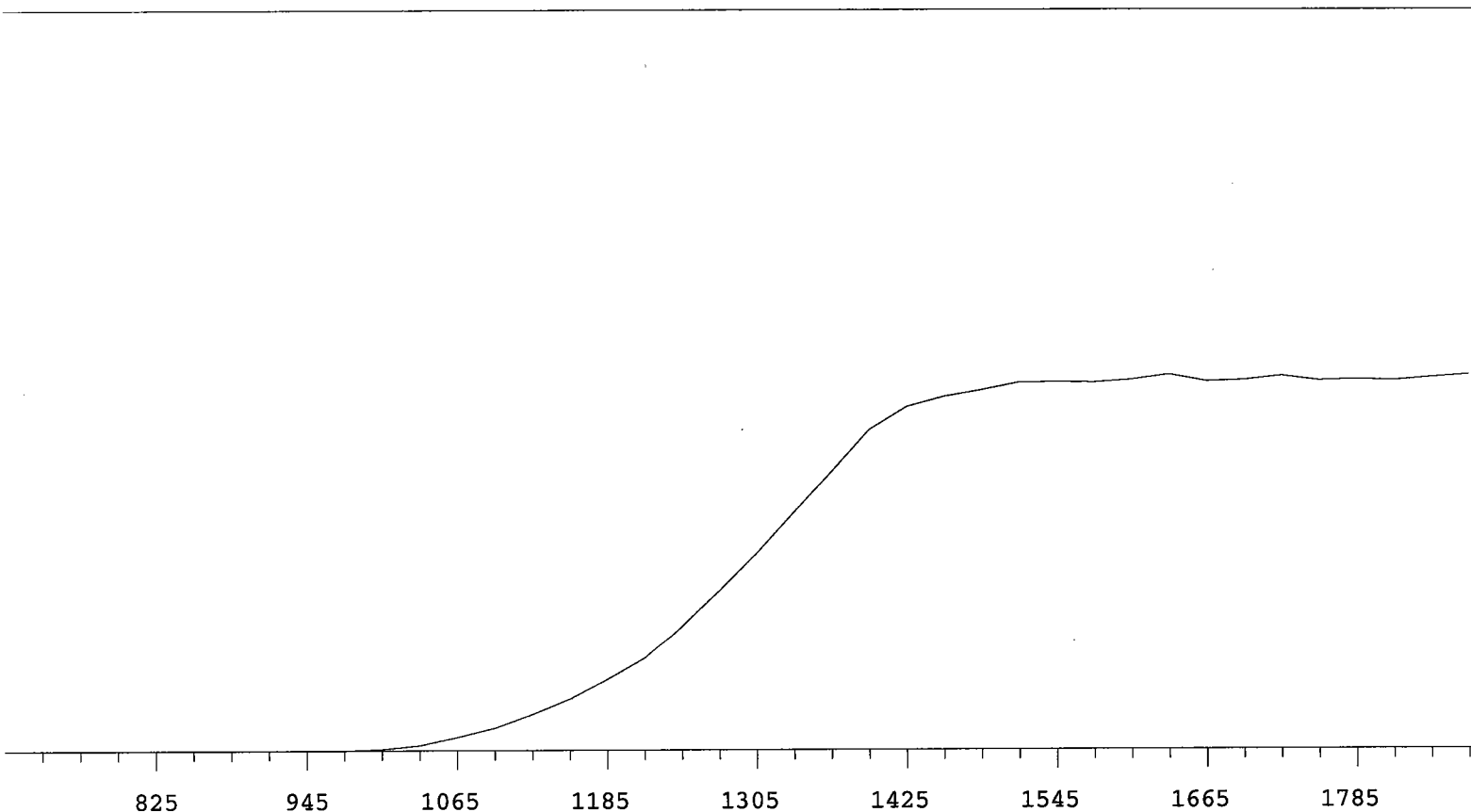
VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	1		1305	9543	+67.01
735	0		1335	11617	+56.47
765	0		1365	13791	+45.47
795	0	>100	1395	15387	+31.66
825	0	>100	1425	16819	+20.02
855	0	>100	1455	17210	+11.63
885	1	+0.00	1485	17742	+6.05
915	0	>100	1515	17892	+3.04
945	0	>100	1545	18070	+1.09
975	7	>100	1575	17856	+1.43
1005	52	>100	1605	18054	+0.42
1035	214	>100	1635	18287	+1.06
1065	590	>100	1665	17969	+0.78
1095	1201	>100	1695	18187	+1.48
1125	1759	>100	1725	18317	+4.89
1155	2569	>100	1755	18518	+4.76
1185	3440	+95.13	1785	19156	+5.18
1215	4583	+87.74	1815	19100	+5.18
1245	5985	+81.67	1845	19496	
1275	7682	+74.54	1875	19842	



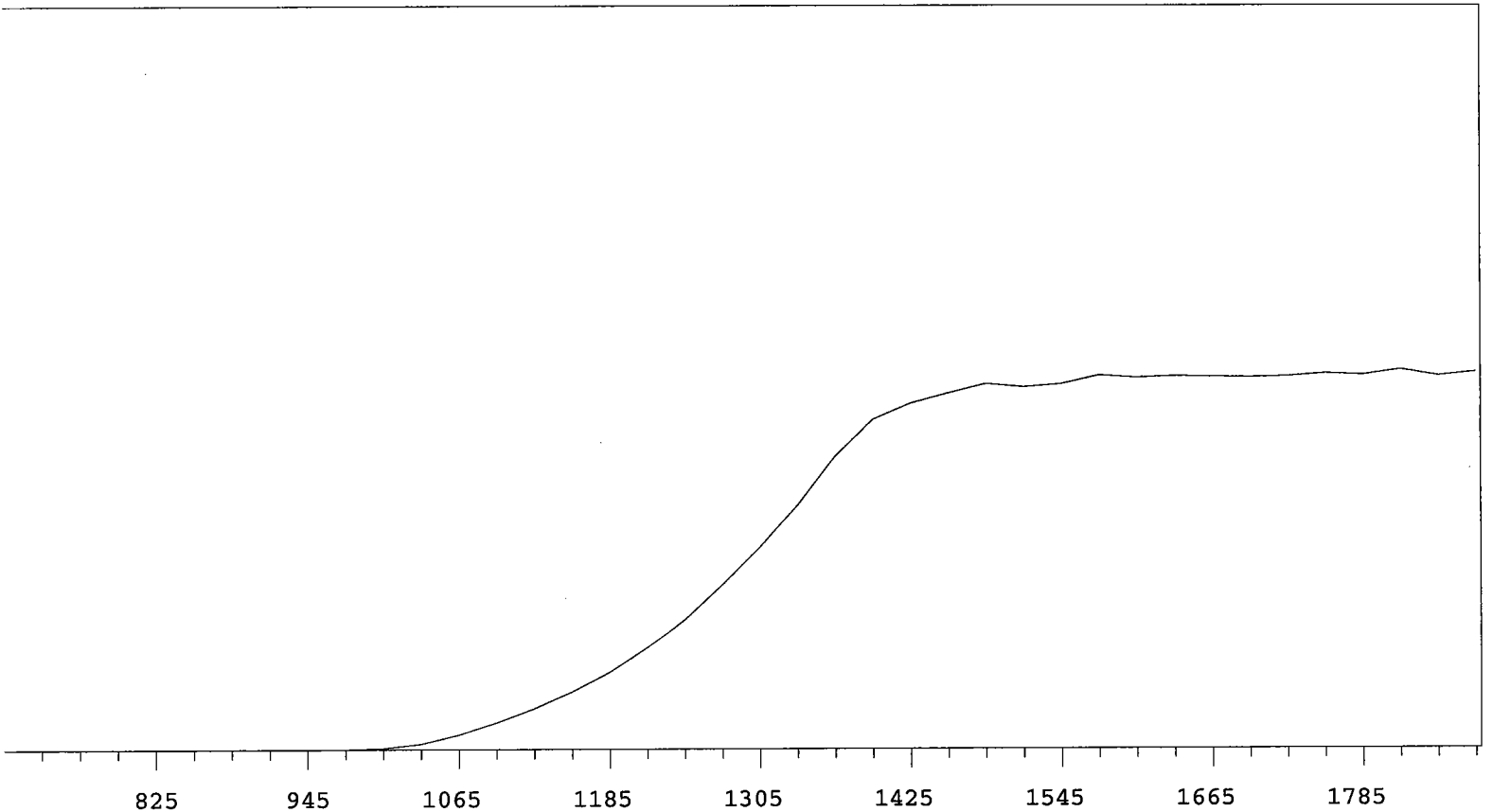
VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	0		1305	9144	+69.92
735	0		1335	11120	+58.43
765	0		1365	13399	+45.40
795	0	>100	1395	14711	+32.57
825	0	>100	1425	16134	+20.69
855	0	>100	1455	16805	+13.46
885	0	>100	1485	17209	+7.90
915	0	>100	1515	17500	+4.31
945	0	>100	1545	17812	+3.48
975	4	>100	1575	17629	+2.80
1005	26	>100	1605	18066	+2.23
1035	169	>100	1635	18122	+1.44
1065	483	>100	1665	18166	+1.20
1095	955	>100	1695	17967	+1.60
1125	1639	>100	1725	18469	+3.41
1155	2233	>100	1755	18409	+6.35
1185	3262	+98.61	1785	18884	+9.47
1215	4306	+89.77	1815	19535	+11.98
1245	5662	+82.36	1845	20630	
1275	7113	+76.36	1875	21076	



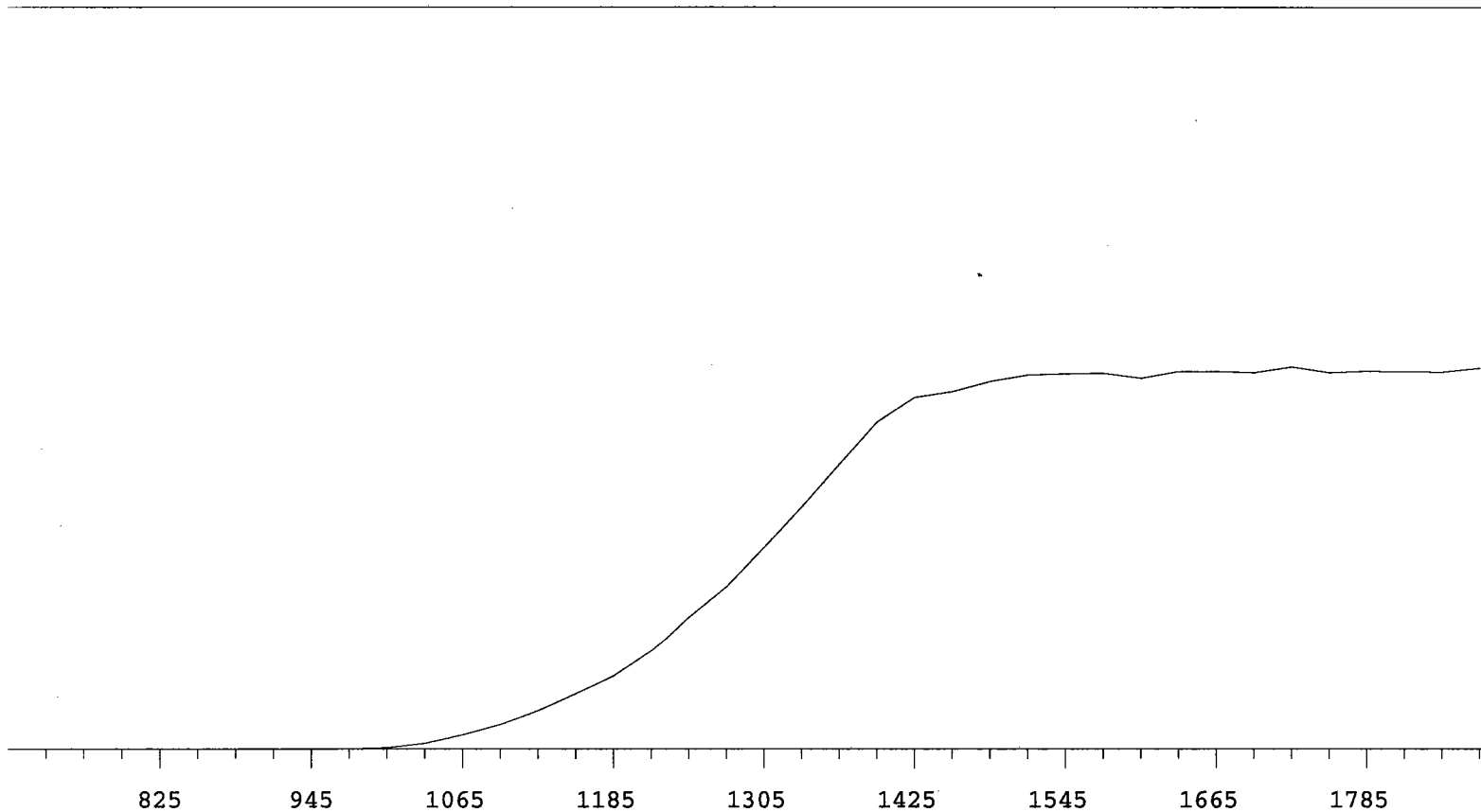
VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	0		1305	9209	+64.55
735	1		1335	11200	+55.94
765	0	+55.56	1365	13123	+43.27
795	2	>100	1395	14957	+29.04
825	0	+0.00	1425	15658	+17.41
855	0	>100	1455	16123	+8.01
885	1	>100	1485	16530	+4.92
915	0	>100	1515	16437	+2.71
945	1	>100	1545	16704	+0.83
975	14	>100	1575	16707	+2.14
1005	104	>100	1605	16602	+0.55
1035	281	>100	1635	17024	-0.28
1065	720	>100	1665	16684	-0.42
1095	1302	>100	1695	16597	-0.85
1125	1834	>100	1725	16711	+1.27
1155	2544	>100	1755	16796	+1.51
1185	3485	+92.28	1785	16903	+1.57
1215	4624	+85.50	1815	16880	+1.46
1245	5878	+77.82	1845	17066	
1275	7515	+71.49	1875	17085	



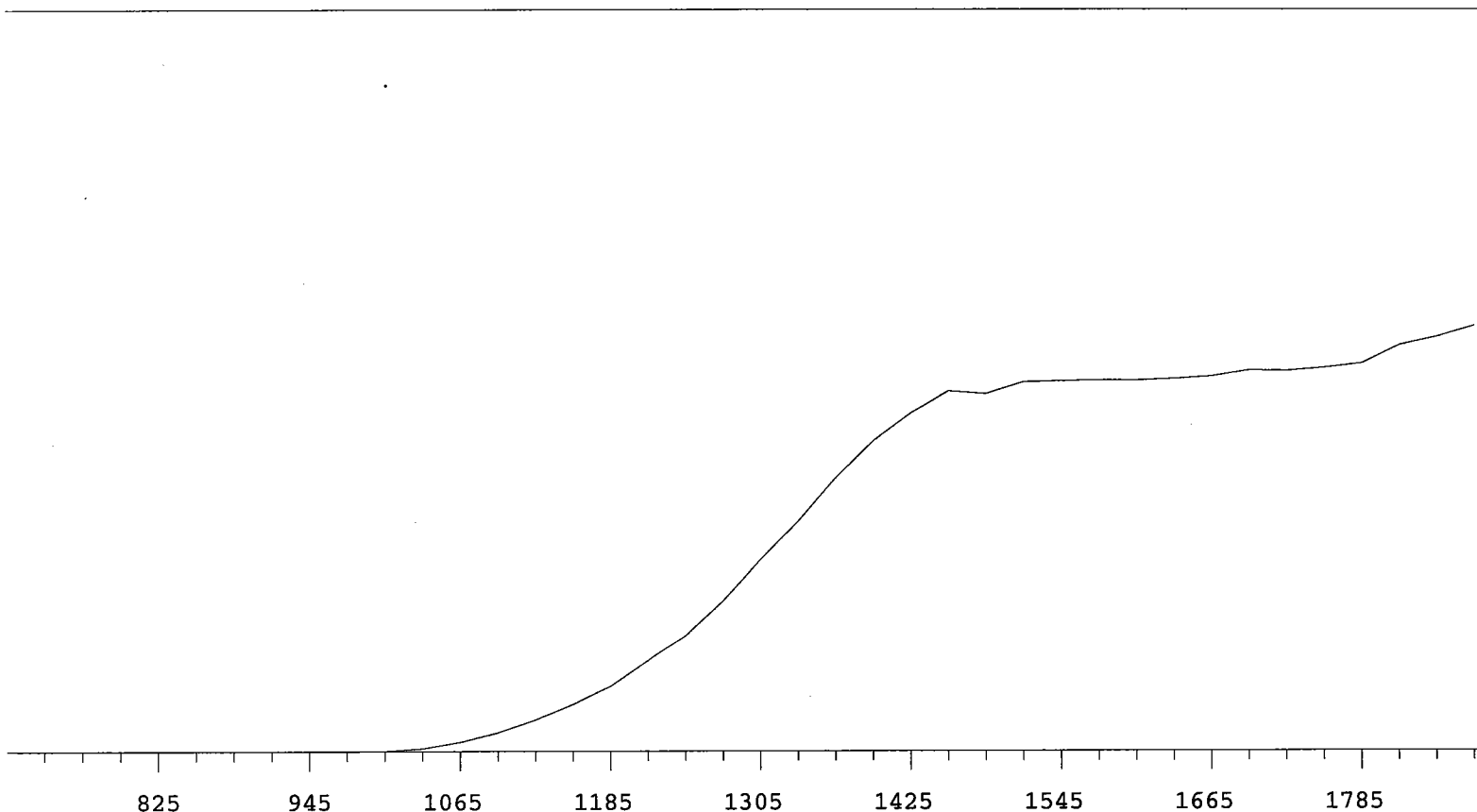
VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	0		1305	9666	+64.39
735	0		1335	11722	+55.91
765	0		1365	13680	+44.91
795	0	>100	1395	15677	+31.56
825	0	>100	1425	16786	+19.46
855	0	>100	1455	17283	+10.57
885	0	>100	1485	17608	+5.95
915	1	>100	1515	17972	+3.32
945	0	>100	1545	18006	+1.84
975	4	>100	1575	17970	+1.58
1005	70	>100	1605	18104	+0.74
1035	257	>100	1635	18351	+0.24
1065	648	>100	1665	18016	+0.16
1095	1116	>100	1695	18080	-0.63
1125	1784	>100	1725	18283	+0.29
1155	2560	>100	1755	18047	-0.47
1185	3531	+96.11	1785	18110	-0.32
1215	4568	+89.22	1815	18040	+1.17
1245	6137	+81.65	1845	18200	
1275	7855	+74.42	1875	18320	



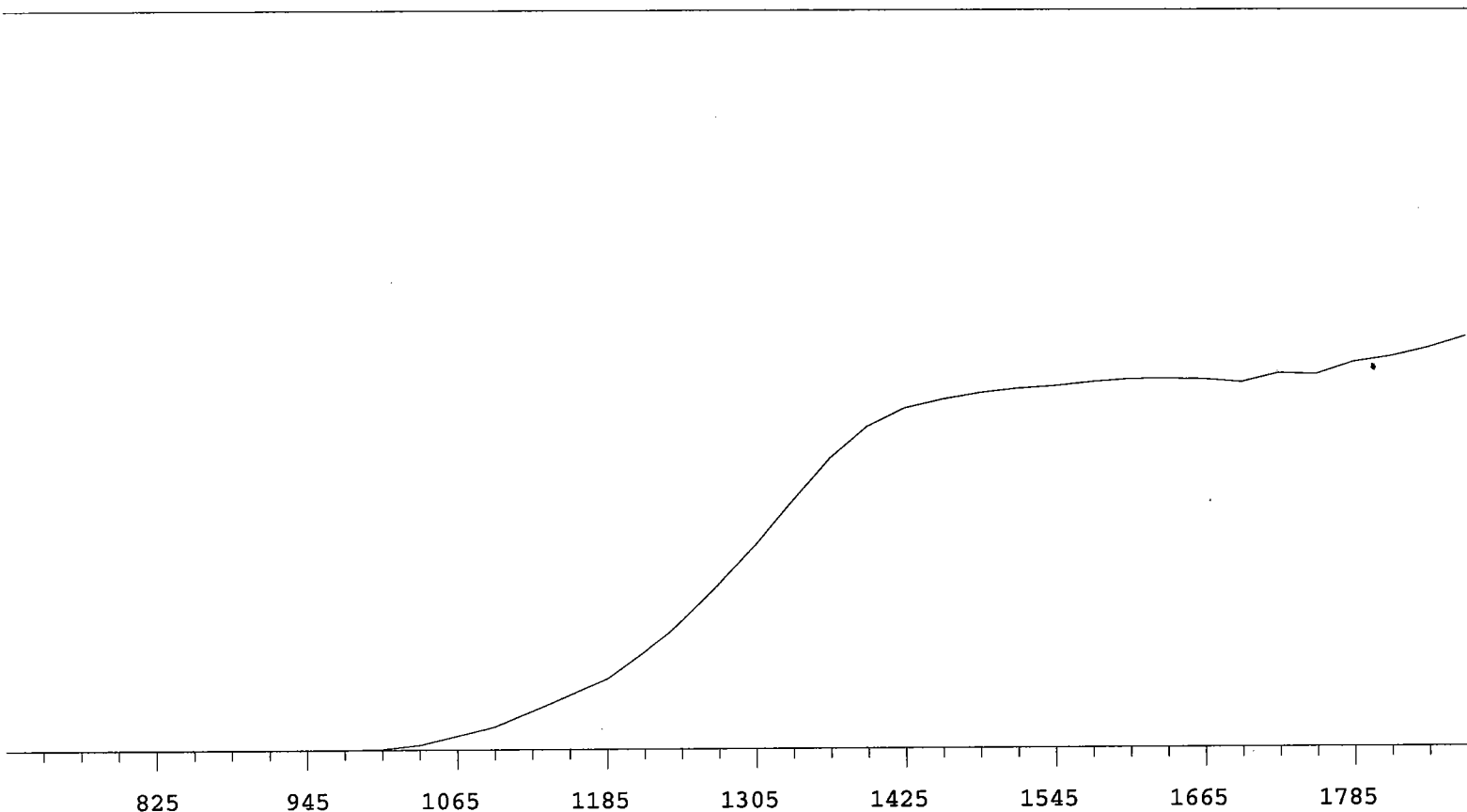
VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	0		1305	11573	+64.95
735	0		1335	13929	+56.47
765	0		1365	16726	+43.82
795	0	>100	1395	18834	+29.38
825	0	>100	1425	19743	+16.84
855	0	>100	1455	20314	+7.95
885	0	>100	1485	20860	+4.16
915	0	>100	1515	20670	+3.23
945	0	>100	1545	20844	+2.09
975	9	>100	1575	21330	+2.48
1005	93	>100	1605	21188	+1.16
1035	325	>100	1635	21280	-0.32
1065	834	>100	1665	21237	+0.08
1095	1525	>100	1695	21202	+0.42
1125	2318	>100	1725	21254	+0.60
1155	3233	>100	1755	21406	+1.41
1185	4357	+92.07	1785	21326	+0.42
1215	5755	+85.64	1815	21619	+0.16
1245	7438	+78.35	1845	21282	
1275	9463	+70.89	1875	21478	



VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	1		1305	7524	+61.93
735	0		1335	9002	+55.36
765	0		1365	10542	+44.70
795	0	>100	1395	12064	+31.21
825	0	>100	1425	12981	+19.20
855	0	>100	1455	13192	+10.41
885	0	>100	1485	13570	+5.93
915	0	>100	1515	13820	+4.08
945	0	>100	1545	13866	+0.75
975	9	>100	1575	13880	+0.21
1005	58	>100	1605	13695	+0.59
1035	228	>100	1635	13950	+0.77
1065	544	>100	1665	13954	+1.92
1095	936	>100	1695	13911	+0.19
1125	1468	>100	1725	14116	+0.02
1155	2110	>100	1755	13908	-0.24
1185	2770	+94.71	1785	13960	-0.81
1215	3670	+85.91	1815	13939	+0.71
1245	4937	+79.46	1845	13931	
1275	6066	+70.79	1875	14071	

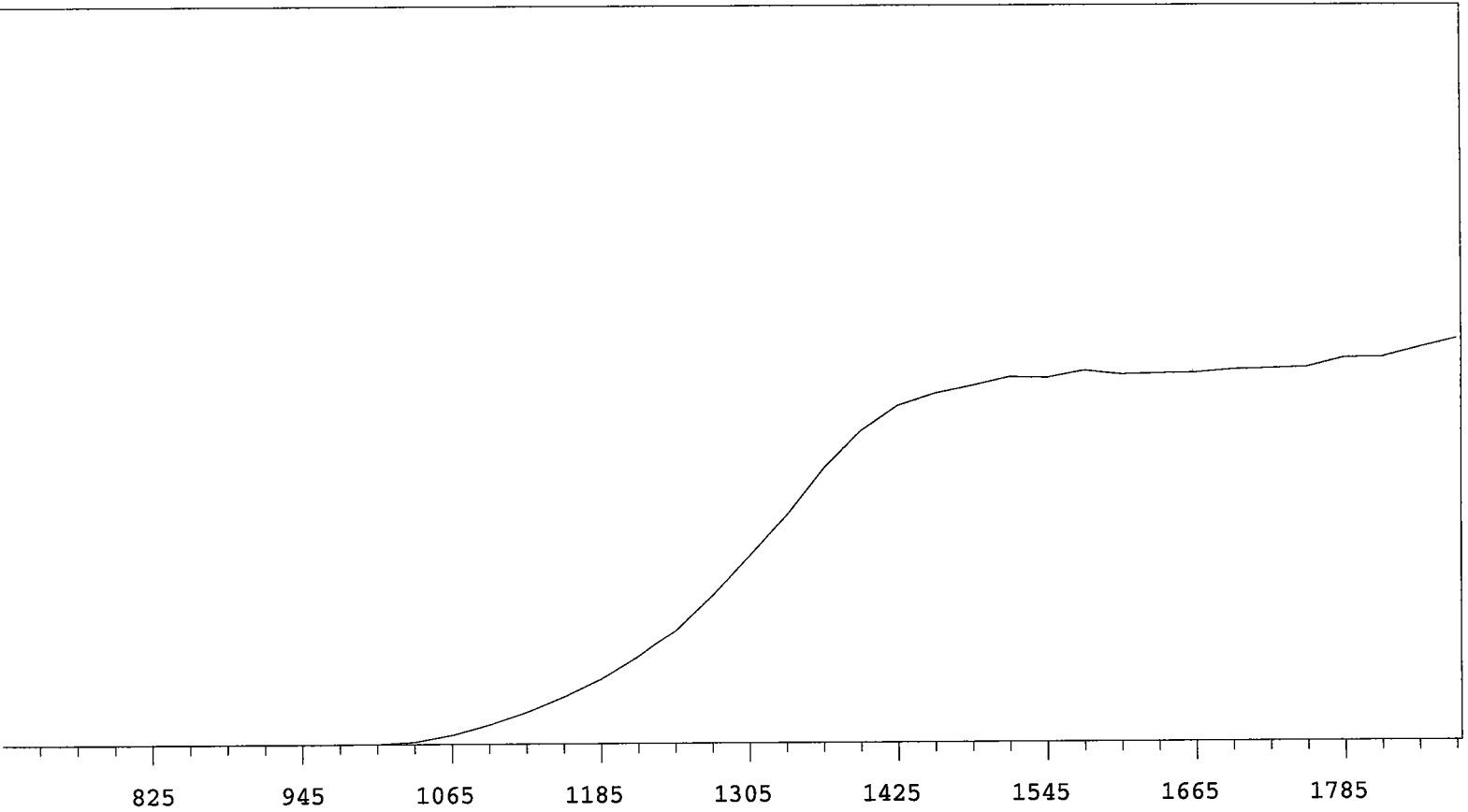


VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	0		1305	8778	+67.49
735	0		1335	10502	+57.68
765	0		1365	12516	+46.36
795	0	>100	1395	14215	+35.88
825	0	>100	1425	15472	+22.01
855	0	>100	1455	16469	+12.99
885	1	+0.00	1485	16342	+6.70
915	0	>100	1515	16874	+3.07
945	0	>100	1545	16918	+2.53
975	0	>100	1575	16950	+0.58
1005	18	>100	1605	16943	+0.95
1035	137	>100	1635	17008	+2.13
1065	430	>100	1665	17130	+2.45
1095	865	>100	1695	17403	+2.43
1125	1444	>100	1725	17377	+2.43
1155	2151	>100	1755	17515	+4.88
1185	2981	>100	1785	17710	+7.54
1215	4168	+92.14	1815	18533	+9.04
1245	5377	+84.73	1845	18905	
1275	6924	+74.92	1875	19415	

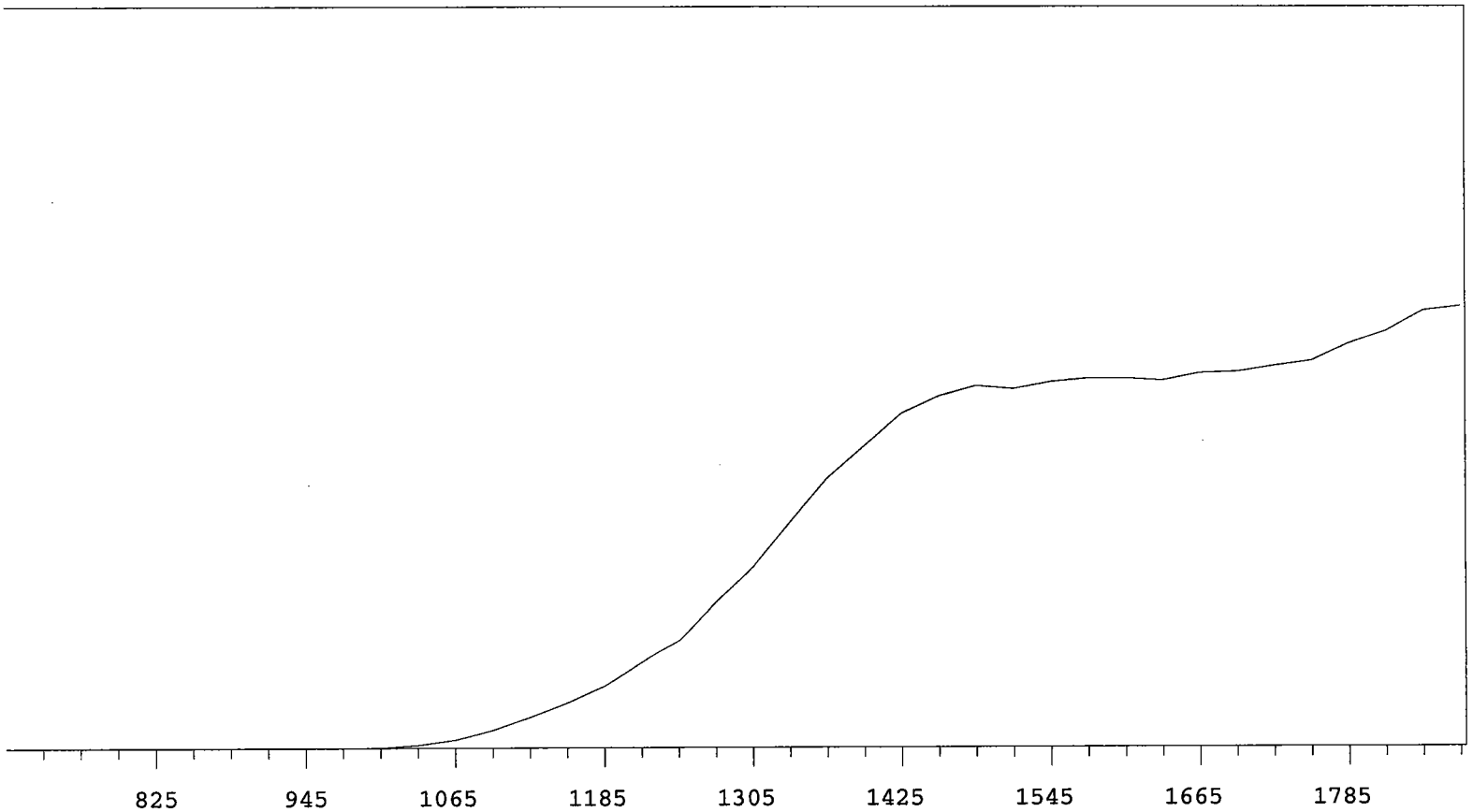


VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	0		1305	8797	+65.44
735	0		1335	10726	+54.47
765	0		1365	12570	+41.11
795	0	>100	1395	13917	+26.79
825	0	>100	1425	14687	+15.44
855	1	+0.00	1455	15048	+8.47
885	0	>100	1485	15318	+5.00
915	0	>100	1515	15494	+3.76
945	0	>100	1545	15606	+3.04
975	3	>100	1575	15776	+2.35
1005	40	>100	1605	15889	+1.44
1035	210	>100	1635	15907	-0.16
1065	590	>100	1665	15881	+0.64
1095	983	>100	1695	15741	+1.21
1125	1645	>100	1725	16124	+3.63
1155	2342	>100	1755	16076	+5.41
1185	3045	+96.43	1785	16588	+5.79
1215	4201	+90.42	1815	16830	+7.53
1245	5579	+83.64	1845	17185	
1275	7121	+74.44	1875	17682	





VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	0		1305	10118	+69.76
735	0		1335	12269	+59.65
765	0		1365	14810	+47.35
795	0	>100	1395	16773	+33.46
825	0	>100	1425	18104	+20.13
855	0	>100	1455	18720	+11.98
885	1	+0.00	1485	19122	+6.50
915	0	>100	1515	19580	+4.77
945	0	>100	1545	19527	+2.48
975	2	>100	1575	19902	+0.81
1005	21	>100	1605	19690	+0.53
1035	132	>100	1635	19739	+0.23
1065	491	>100	1665	19765	+1.29
1095	1036	>100	1695	19932	+1.40
1125	1698	>100	1725	19976	+2.72
1155	2517	>100	1755	20051	+2.92
1185	3468	>100	1785	20523	+4.26
1215	4721	+91.83	1815	20542	+5.57
1245	6175	+85.13	1845	21035	
1275	8025	+76.82	1875	21528	



VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	0		1305	8095	+71.16
735	0		1335	10052	+58.38
765	0		1365	11990	+47.92
795	0	>100	1395	13400	+35.01
825	0	>100	1425	14808	+23.58
855	0	>100	1455	15554	+13.45
885	0	>100	1485	15987	+6.39
915	0	>100	1515	15861	+3.45
945	0	>100	1545	16156	+2.18
975	1	>100	1575	16297	+1.72
1005	14	>100	1605	16297	+1.33
1035	130	>100	1635	16208	+1.62
1065	363	>100	1665	16526	+2.92
1095	785	>100	1695	16581	+3.94
1125	1357	>100	1725	16832	+5.91
1155	1996	>100	1755	17039	+8.68
1185	2735	+99.45	1785	17800	+11.53
1215	3785	+94.20	1815	18351	+11.46
1245	4857	+86.43	1845	19265	
1275	6571	+78.80	1875	19468	

# CERTIFICATE OF CALIBRATION

## Standard Radionuclide Source

66002-278

Ra-228 5 mL Liquid in Flame Sealed Vial

This standard radionuclide source was prepared gravimetrically from a calibrated master solution. The master solution was calibrated using a germanium gamma spectrometer system.

Radionuclide purity and calibration were checked using a germanium gamma spectrometer system. The nuclear decay rate and assay date for this source are given below.

ANALYTICS maintains traceability to the National Institute of Standards and Technology through Measurements Assurance Programs as described in USNRC Reg. Guide 4.15, Revision 1.

ISOTOPE:	Ra-228
ACTIVITY (dps):	2.367 E4
HALF-LIFE:	5.75 years
CALIBRATION DATE:	April 23, 2003 12:00 EST
TOTAL UNCERTAINTY*:	2.4%

\*95% Confidence Level

Impurities:  $\gamma$ -impurities (other than decay products) <0.1%,  
Ra-226 <0.1%

5.31628 grams 4M HCl solution with 100  $\mu$ g/g Ba carrier.

P O NUMBER 3219 RD, Item 1

SOURCE PREPARED BY:

M. Taskaeva  
M. Taskaeva, Radiochemist

Q A APPROVED:

JM. Muty 4-23-03



# Standard Traceability Log Rad

Source Material Info		A Solution Material Info	
Parent Code:	0553-A	Isotope:	Radium-228 SPIKE
Prepared By:	Lonnie Morris	Prepared By:	Lonnie Morris
Carrier Conc:	0.5M HCl	Prep Date:	04/25/2003
Reference Date:	04/23/2003	Verification Date:	04/27/2005
Ampoule Mass (g):	5.0235 g	Expiration Date:	04/27/2006
Uncertainty:	+/-	Primary Code:	0553-B
LogBook No:	RC-S-035-068	Dilution(mL):	1000 mL
		Mass of Parent(g):	30.535 g
		Density(g/mL):	
		Balance ID:	

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

$(\text{Mass of parent(g)}) * (\text{Parent Activity (dpm/mL)}) * (\text{conversion dpm to dpm}) / (\text{Dilution Vol}) = \text{Parent Activity (dpm/mL)}$
$(\text{Mass of parent(g)}) * (\text{Parent Activity (dpm/mL)}) * (\text{conversion dpm to dpm}) / \text{Density (g/mL)} / (\text{Dilution Vol}) = \text{Parent Activity (dpm/g)}$
$(30.535 \text{ g}) * (13419.8626 \text{ dpm/mL}) * (1 \text{ dpm/dpm}) / (1000 \text{ mL}) = 409.7755 \text{ dpm/mL}$
$(30.535 \text{ g}) * (13419.8626 \text{ dpm/mL}) * (1 \text{ dpm/dpm}) / (\text{g/mL}) / (1000 \text{ mL}) = \text{dpm/g}$

### Secondary Standards

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

GEL Laboratories LLC  
Version 1.0 9/18/2000

# CERTIFICATE OF CALIBRATION

## Standard Radionuclide Source

64673-278

Ra-228 5 mL Liquid in Flame Sealed Vial

This standard radionuclide source was prepared gravimetrically from a calibrated master solution. The master solution was calibrated using a germanium gamma spectrometer system.

Radionuclide purity and calibration were checked using a germanium gamma spectrometer system. The nuclear decay rate and assay date for this source are given below.

ANALYTICS maintains traceability to the National Institute of Standards and Technology through Measurements Assurance Programs as described in USNRC Reg. Guide 4.15, Revision 1.

ISOTOPE:	Ra-228
ACTIVITY (dps):	1.939 E4
HALF-LIFE:	5.75 years
CALIBRATION DATE:	October 1, 2002 12:00 EST
TOTAL UNCERTAINTY*:	3.6%
SYSTEMATIC:	3.4%
RANDOM:	1.1%

\*99% Confidence Level

Impurities:  $\gamma$ -impurities <0.1%

5.02617 grams 0.1M HCl solution with 110  $\mu\text{g/g}$  Ba carrier.

P O NUMBER 3208RD, Item 2

SOURCE PREPARED BY: M. Taskaeva  
M. Taskaeva, Radiochemist

Q A APPROVED:

M. M. Ty 10202



# Standard Traceability Log Rad

Source Material Info		A Solution Material Info	
Parent Code:	0503	Isotope:	Radium-228
Prepared By:	Angela Johnson	Prepared By:	Angela Johnson
Carrier Conc:	0.1 M HCL	Prep Date:	02/20/2003
Reference Date:	10/01/2002	Verification Date:	04/09/2004
Ampoule Mass (g):	5.02617 g	Expiration Date:	04/09/2005
Uncertainty:	+/- 3.6 %	Primary Code:	0503-A
LogBook No:	RC S 035 018	Dilution(mL):	100 mL
		Mass of Parent(g):	4.4737 g
		Density(g/mL):	0.9992
		Balance ID:	

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

$(\text{Mass of parent(g)}) * (\text{Parent Activity (dps)}) * (\text{conversion dpm to dps}) / (\text{Ampoule Mass(g)} * (\text{Dilution Vol})) = \text{Parent Activity (dpm/mL)}$
$(\text{Mass of parent(g)}) * (\text{Parent Activity (dps)}) * (\text{conversion dpm to dps}) / \text{Density} / (\text{Ampoule Mass (g)} * (\text{Dilution Vol})) = \text{Parent Activity (dpm/g)}$
$(4.4737 \text{ g}) * (19390 \text{ dps}) * (60 \text{ dpm/dps}) / (5.02617 \text{ g} * 100 \text{ mL}) = 10355.2060 \text{ dpm/mL}$
$(4.4737 \text{ g}) * (19390 \text{ dps}) * (60 \text{ dpm/dps}) / (0.9992 \text{ g/mL}) / (5.02617 \text{ g} * 100 \text{ mL}) = 10363.0820 \text{ dpm/g}$

### Secondary Standards

Prep Date	Preparer	Mass Primary	Dilution (mL)	Code	Conc dpm/mL	Verification Date	Expiration Date
04/02/2003	Lonnie Morris	39.71	1000	0503-B	411.518 dpm/mL	09/13/2008	09/13/2009

GEL Laboratories LLC  
Version 1.0 9/18/2000

## Verification for Ra-228 Standard 0503-B

D. Roy 9/13/2008	Isotope	Detector CPM	BKG CPM	NET CPM	Detector Eff Mass. Used (mL)	Standard Source DPM/mL
	0503-B	1962.0000	45.6000	1916.4000	9.263763	206.8705773
	0503-B	1983.2000	45.6000	1937.6000	9.263763	209.1590642
	0503-B	1927.0000	45.6000	1881.4000	9.263763	203.092415

Mean Value (Counting) = 206.3740189 dpm/mL      **102.890426**      **Pass**  
 Stdev = 3.063655617 dpm/mL      0.01484516      **Rule 3 (Pass/Fail)**

Certificate Value = 200.596 dpm/mL  
 Lower Limit = 200.2467076 dpm/mL  
 Upper Limit = 212.5013301 dpm/mL  
 Rule 1 Pass/Fail **Pass**  
 Two sigma = 6.127311233  
 10 % of Mean = 20.63740189  
 Rule 2 (Pass/Fail) **Pass**

### Verification Rules

- Rule 1 = The certificate value (NOT including any uncertainty) shall lie within the 95% confidence interval determined from the mean and two sigma standard deviation of the three measurements
- Rule 2 = The two sigma value used for the 95% confidence interval shall not exceed 10% of the mean value of the three verification measurements.
- Rule 3 = The determined mean value shall be within 10% of the certificate value.

The analyst prepared three standard verification sources for Ra-228 source 0503-B by transferring portions of the standard into glass liquid scintillation vials. Ten mL of Ready Gel liquid scintillation cocktail was added to each vial and the vials were shaken to mix. A Blank vial was prepared in a similar fashion using 1 mL of DI water and 10 mL of Ready Gel cocktail. The standard verification vials and Background source were dark adapted for two hours and counted on LSC Gold for Ra-228 source standard verification. The Ra-228 efficiency calibration which was used for verification calculations was performed on 9/13/08 using source 0683-A (Ra-228). Calibration data is recorded in this logbook under Ra-228 0683-A. Each verification source calculation was performed as follows:

$$\text{Source dpm/g} = (A - B)/(C)(D)$$

where:

- A = Ver. source cpm,
- B = BKG cpm,
- C = System efficiency, (cpm/dpm), and
- D = mass used for standard verification.

Reference RAD SOP M-001

*David D. Perry* 9/16/08  
*Angela Johnson* 9/17/08

5/19/16  
28

16 SEP 2008 16:24

**ID: TOTAL ACTIVITY**

USER:11 COMMENT:GOLD

PRESET TIME : 5.00  
 DATA CALC : CPM H# :YES SAMPLE REPEATS: 1 PRINTER : STD  
 COUNT BLANK : NO IC# : NO REPLICATES : 1 RS232 :EDIT  
 TWO PHASE : NO AQC : NO CYCLE REPEATS : 1 DISK : OFF  
 SCINTILLATOR: LIQUID LUMEX:YES LOW SAMPLE REJ: 0  
 LOW LEVEL : NO HALF LIFE CORRECTION DATE: none

CHAN: 0.0 - 990.0 %ERROR: 2.00 FACTOR: 1.000000 BKG. SUB: 0  
 CHAN: 0.0 - 1000.0 %ERROR: 2.00 FACTOR: 1.000000 BKG. SUB: 0

SAM NO	POS	TIME MIN	H#	WIND1		WIND2		LUMEX %	ELAPSED TIME
				CPM	%ERROR	CPM	%ERROR		
1	11-1	5.00	98.2	50.40	12.60	54.00	12.17	0.41	5.55
2	11-2	1.30	99.3	7802.31	1.99	7803.08	1.99	0.00	7.81
3	11-3	1.30	100.4	7782.31	1.99	7786.15	1.99	0.00	10.14
4	11-4	1.35	99.2	7581.48	1.98	7585.19	1.98	0.01	12.51
5	11-5	5.00	97.9	45.60	13.25	47.20	13.02	0.43	18.61
6	11-6	5.00	110.7	1962.00	2.02	1964.80	2.02	0.01	24.65
7	11-7	5.00	110.8	1983.20	2.01	1984.80	2.01	0.01	30.75
8	11-8	5.00	110.7	1927.00	2.04	1927.80	2.04	0.02	36.85



8/16/08  
228

Sample Count Start Time:

16 Sep 2008 16:46:59

Data Capture Date:

9/16/2008 16:52:01

User Filename:

S11091611-5A.WK1

U11091611-1A.WK1

Spectrum Type

Log Counts

User Number:

11

User Id:

TOTAL ACTIVITY

User Comment:

GOLD

Isotope Name:

14C

Scintillator:

LIQUID

Sample, Rack-Pos, Time:

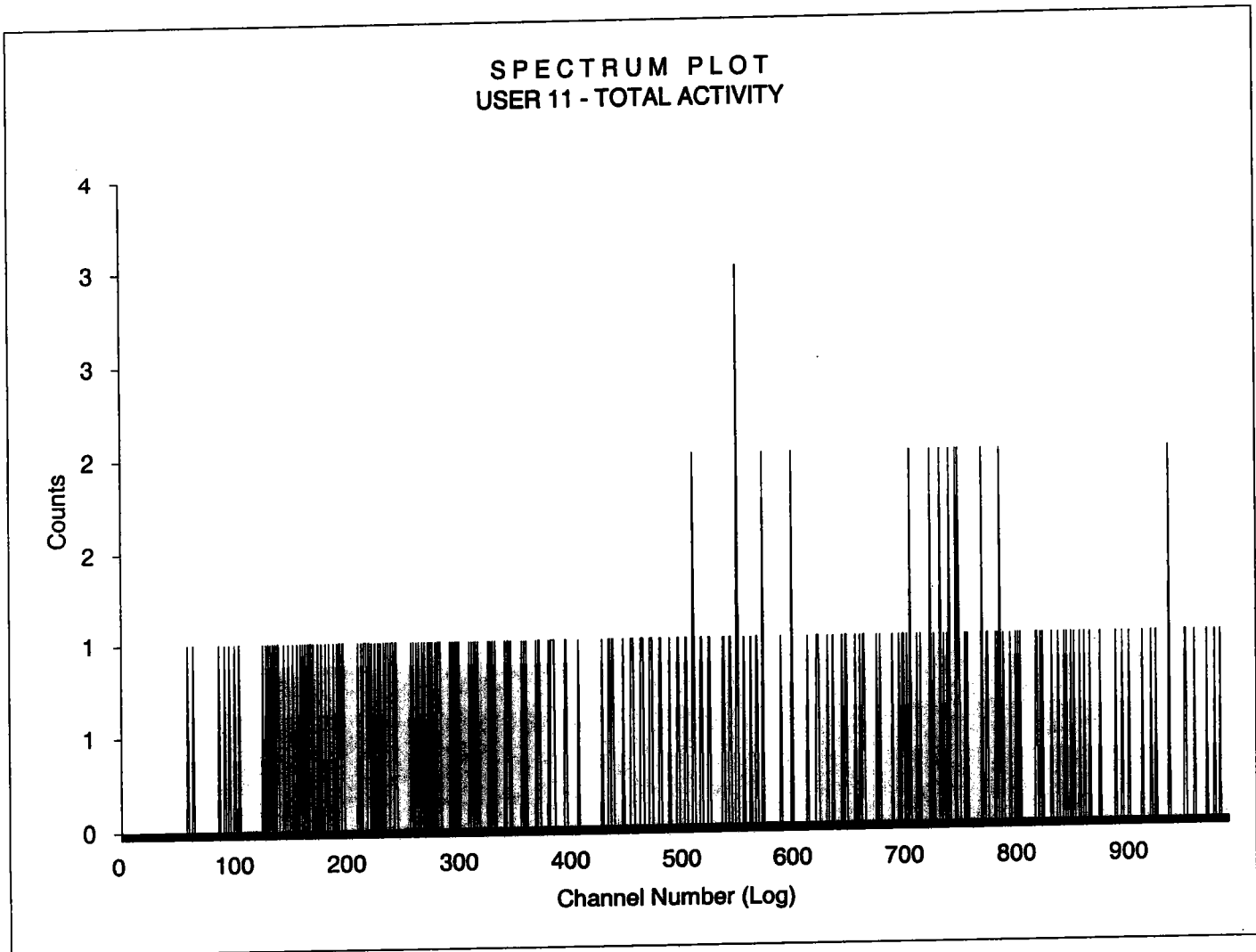
5 11-5 5.00

H#, Total Counts:

97.9 69

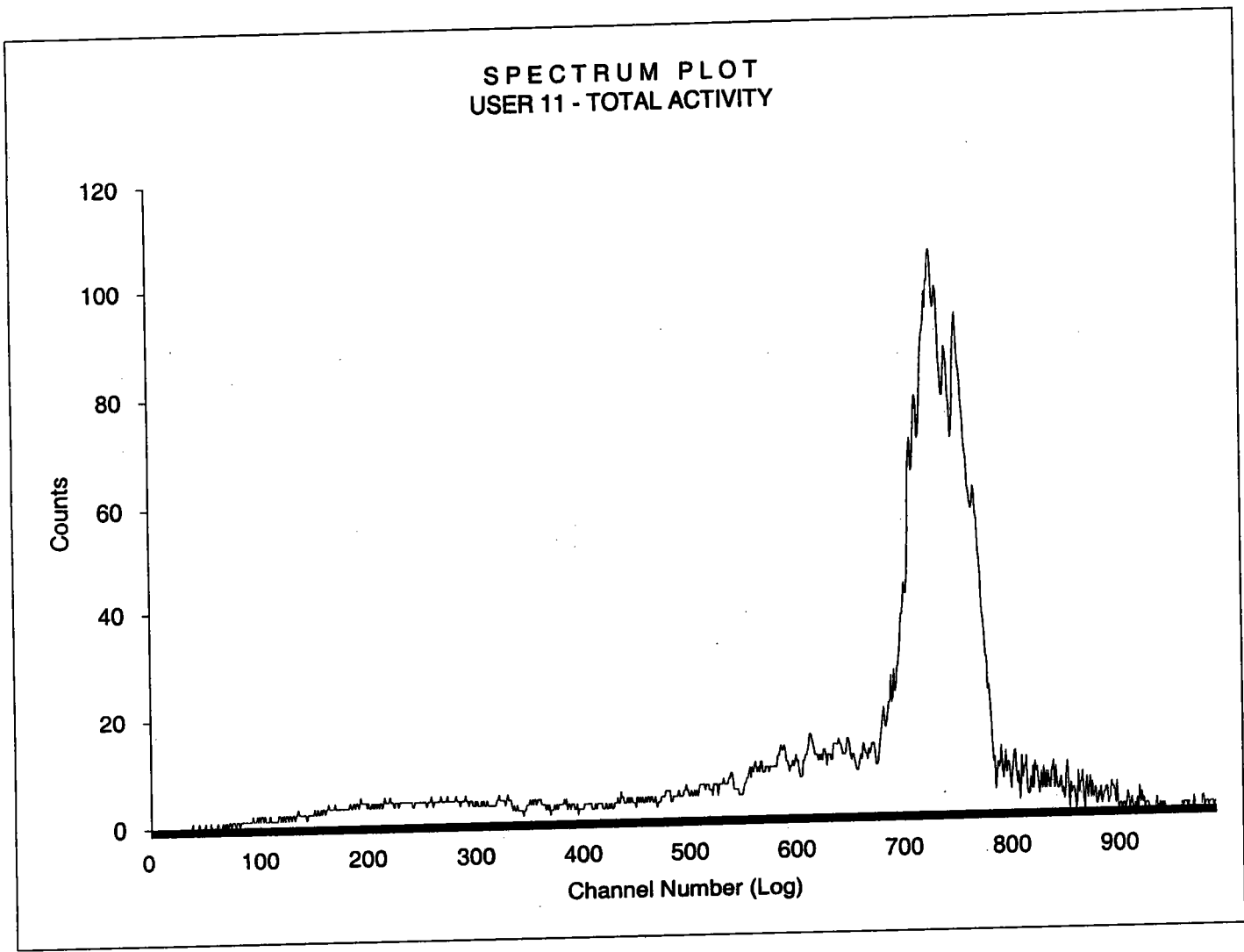
Start, End, X-Axis:

0 990 Channel Number



50/9/16  
25

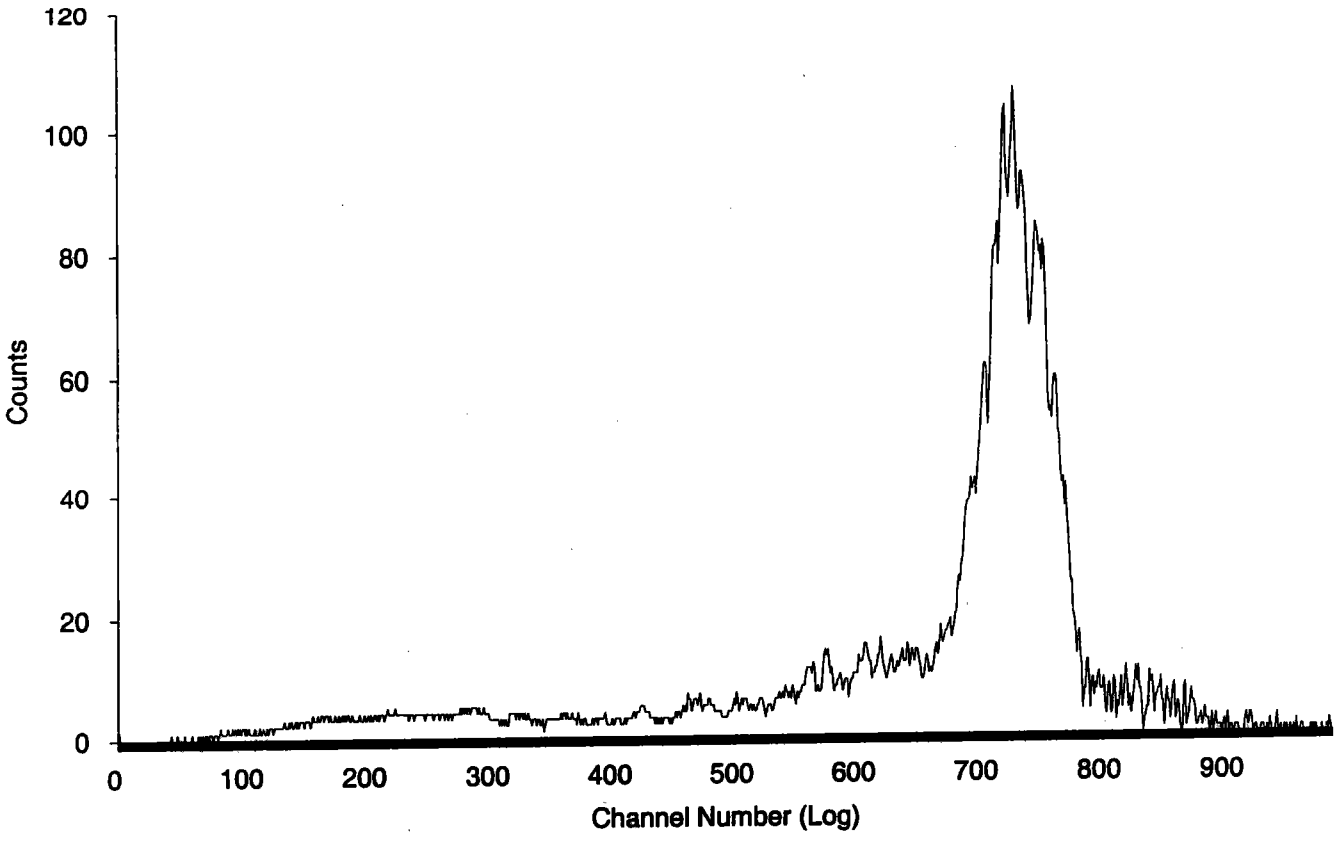
Sample Count Start Time: 16 Sep 2008 16:53:01  
Data Capture Date: 9/16/2008 16:58:06  
User Filename: S11091611-6A.WK1  
U11091611-1A.WK1  
Spectrum Type: Log Counts  
User Number: 11  
User Id: TOTAL ACTIVITY  
User Comment: GOLD  
Isotope Name: 14C  
Scintillator: LIQUID  
Sample, Rack-Pos, Time: 6 11-6 5.00  
H#, Total Counts: 110.7 7666  
Start, End, X-Axis: 0 990 Channel Number



8/16/08  
SJS

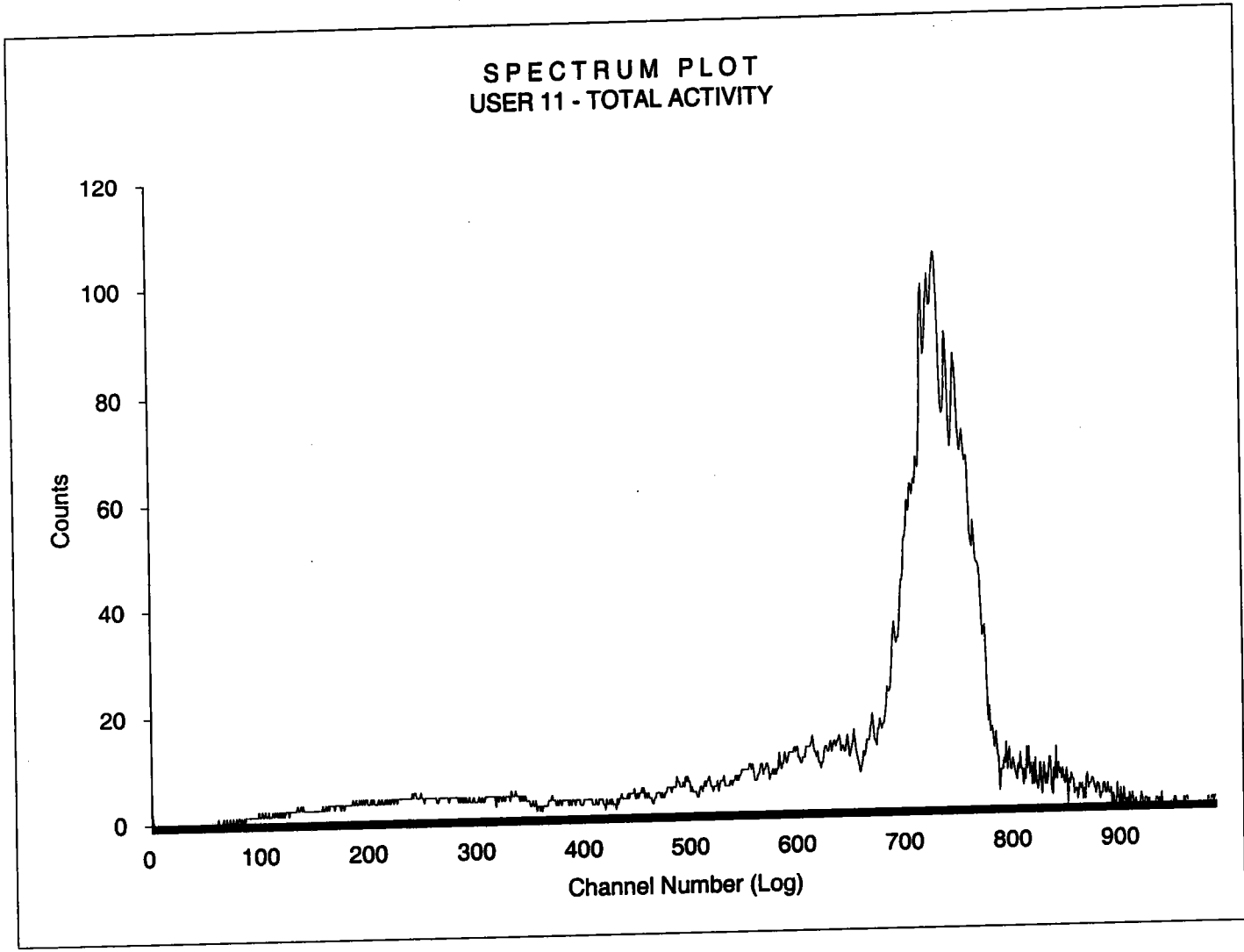
Sample Count Start Time: 16 Sep 2008 16:59:07  
Data Capture Date: 9/16/2008 17:04:12  
User Filename: S11091611-7A.WK1  
U11091611-1A.WK1  
Spectrum Type: Log Counts  
User Number: 11  
User Id: TOTAL ACTIVITY  
User Comment: GOLD  
Isotope Name: 14C  
Scintillator: LIQUID  
Sample, Rack-Pos, Time: 7 11-7 5.00  
H#, Total Counts: 110.8 7726  
Start, End, X-Axis: 0 990 Channel Number

SPECTRUM PLOT  
USER 11 - TOTAL ACTIVITY



9/16/08  
11-8

Sample Count Start Time: 16 Sep 2008 17:05:13  
Data Capture Date: 9/16/2008 17:10:18  
User Filename: S11091611-8A.WK1  
U11091611-1A.WK1  
Spectrum Type: Log Counts  
User Number: 11  
User Id: TOTAL ACTIVITY  
User Comment: GOLD  
Isotope Name: 14C  
Scintillator: LIQUID  
Sample, Rack-Pos, Time: 8 11-8 5.00  
H#, Total Counts: 110.7 7557  
Start, End, X-Axis: 0 990 Channel Number





ASSAY 30-Jun-09 19:32:06

Protocol id 8 228\_REC  
Time limit 180  
Count limit 50000  
Isotope Ba-133  
Protocol date 9-Apr-07 10:03:07  
Run id. 54

POS	RACK	BATCH	TIME	COUNTS	CPM	ERROR	% RECOVERY	COUNT	TIME
1	97	1	180	779	229.3	4.13			19:32:13
2	97	2	180	785	231.2	4.11	100.83		19:35:24
3	97	3	180	835	248.1	3.95	108.20		19:38:35
4	97	4	180	877	261.9	3.83	114.22		19:41:47
5	97	5	180	921	276.5	3.71	120.58		19:44:58
6	72	6	180	819	242.7	4	105.84		19:48:17
7	72	7	180	798	235.5	4.07	102.70		19:51:28
8	72	8	180	867	258.7	3.85	112.82		19:54:40
9	72	9	180	861	256.6	3.87	111.91		19:57:51

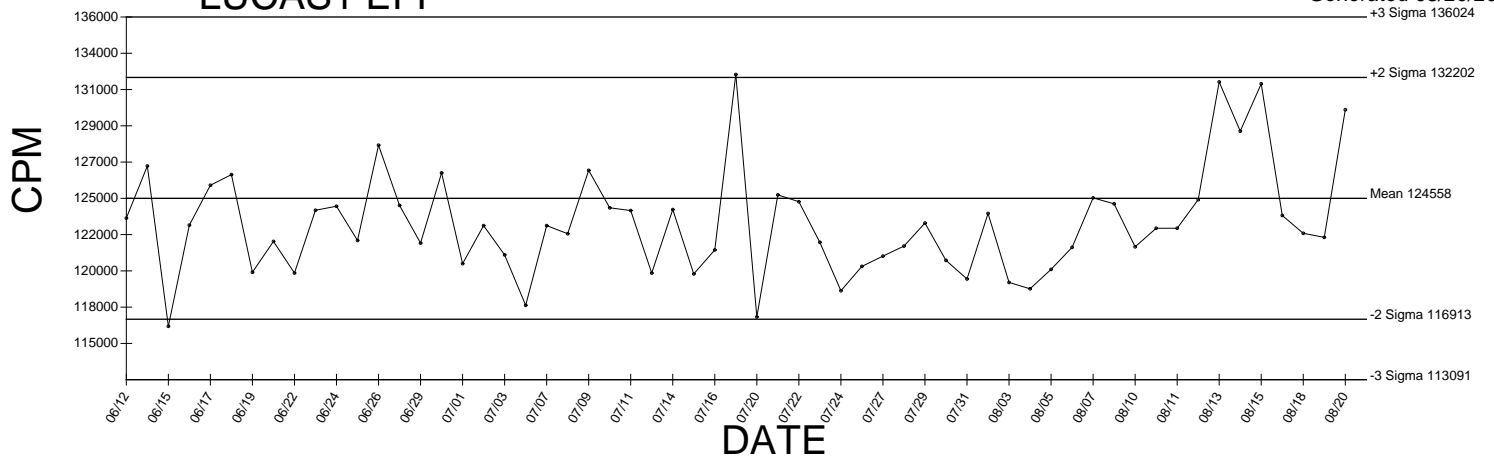
END OF ASSAY

*[Handwritten signature]*  
7/2/09

# BACKGROUND AND EFFICIENCY DATA

# LUCAS1 EFF

Generated 08/20/2009

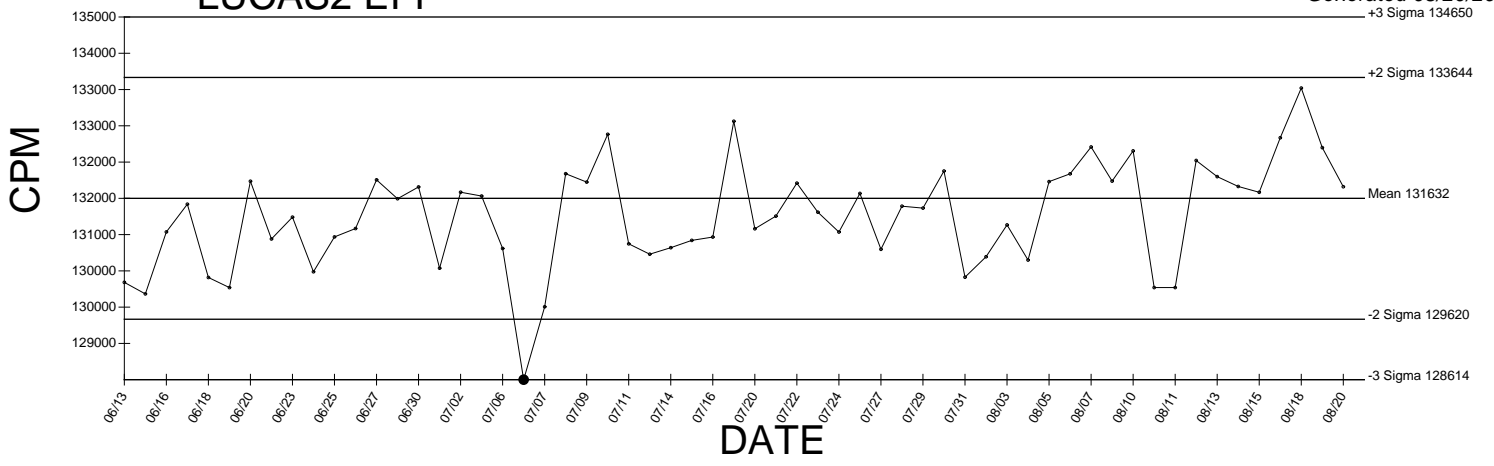


● Denotes Outlier



# LUCAS2 EFF

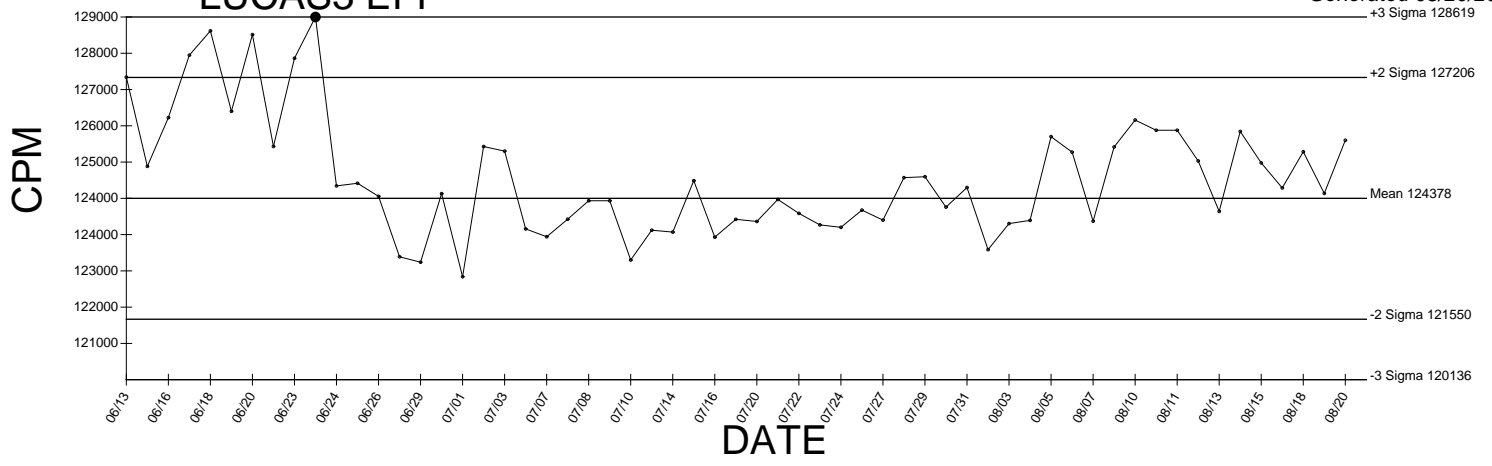
Generated 08/20/2009



● Denotes Outlier

# LUCAS3 EFF

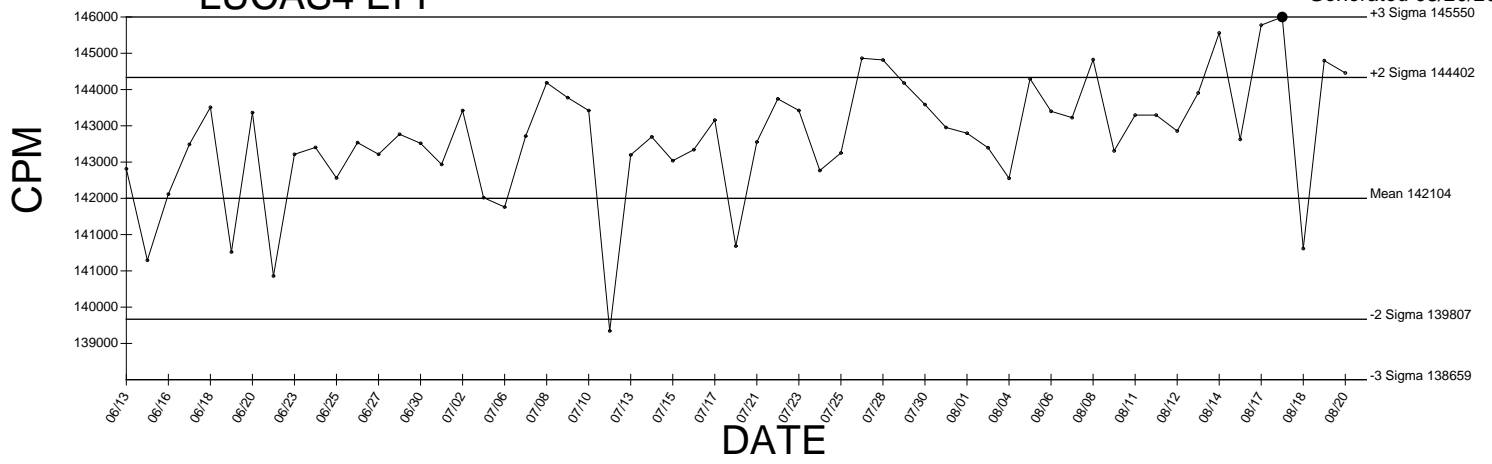
Generated 08/20/2009



● Denotes Outlier

# LUCAS4 EFF

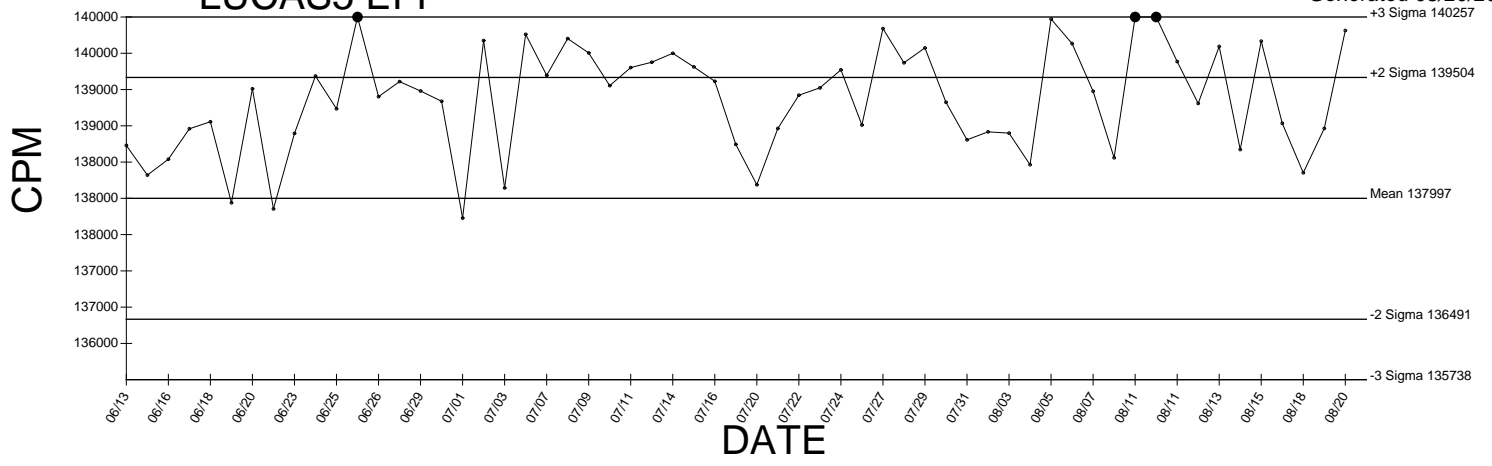
Generated 08/20/2009



● Denotes Outlier

# LUCAS5 EFF

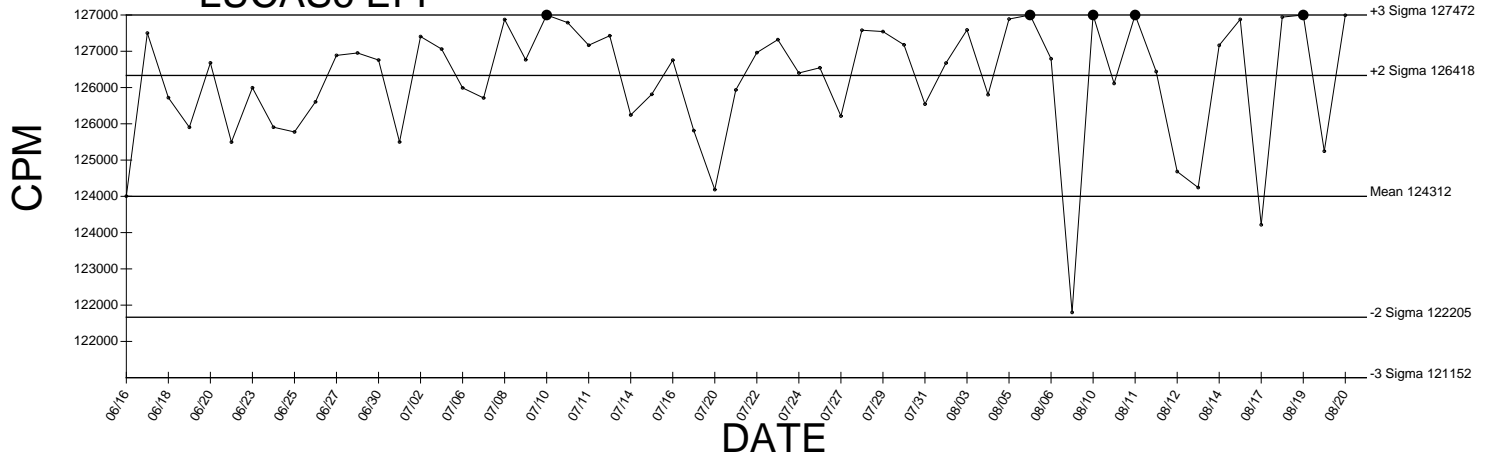
Generated 08/20/2009



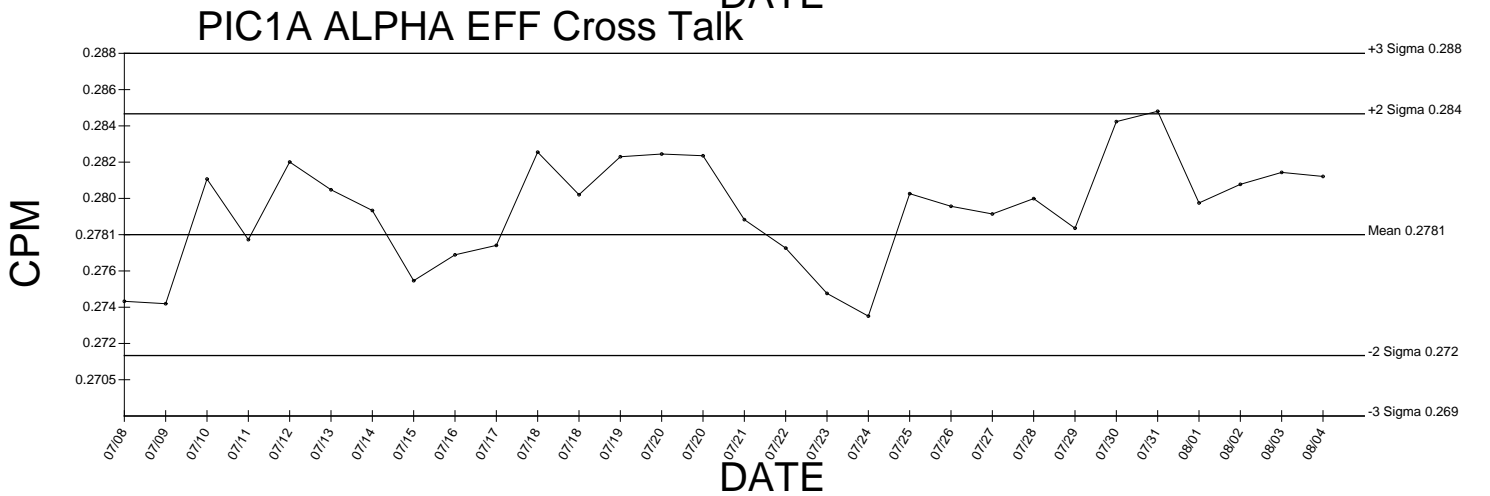
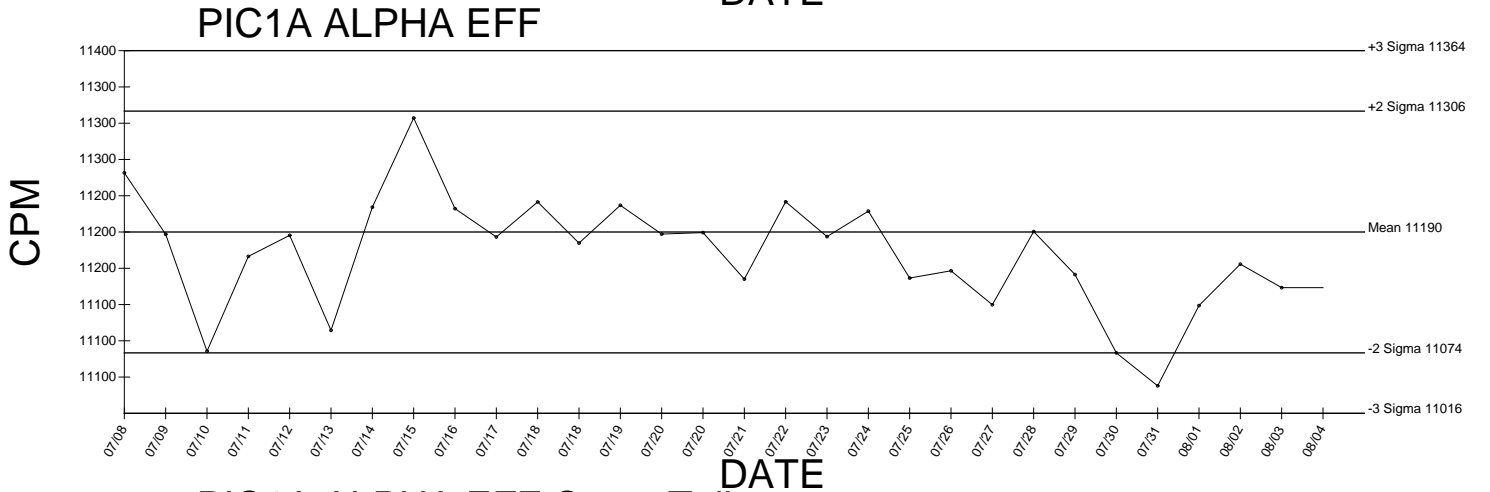
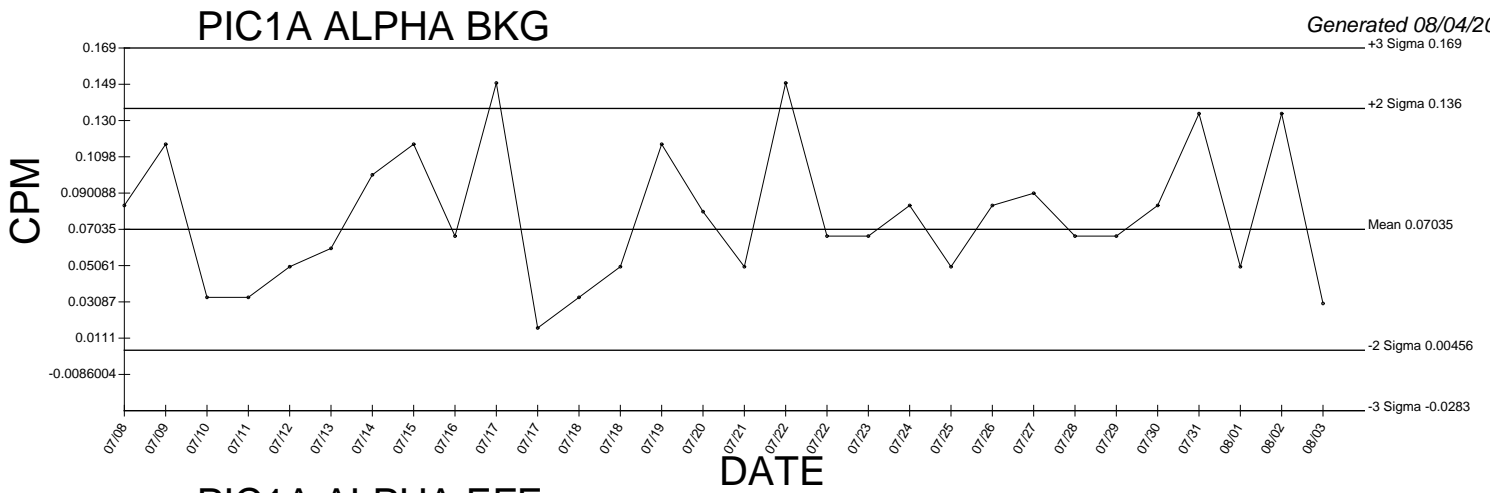
● Denotes Outlier

# LUCAS6 EFF

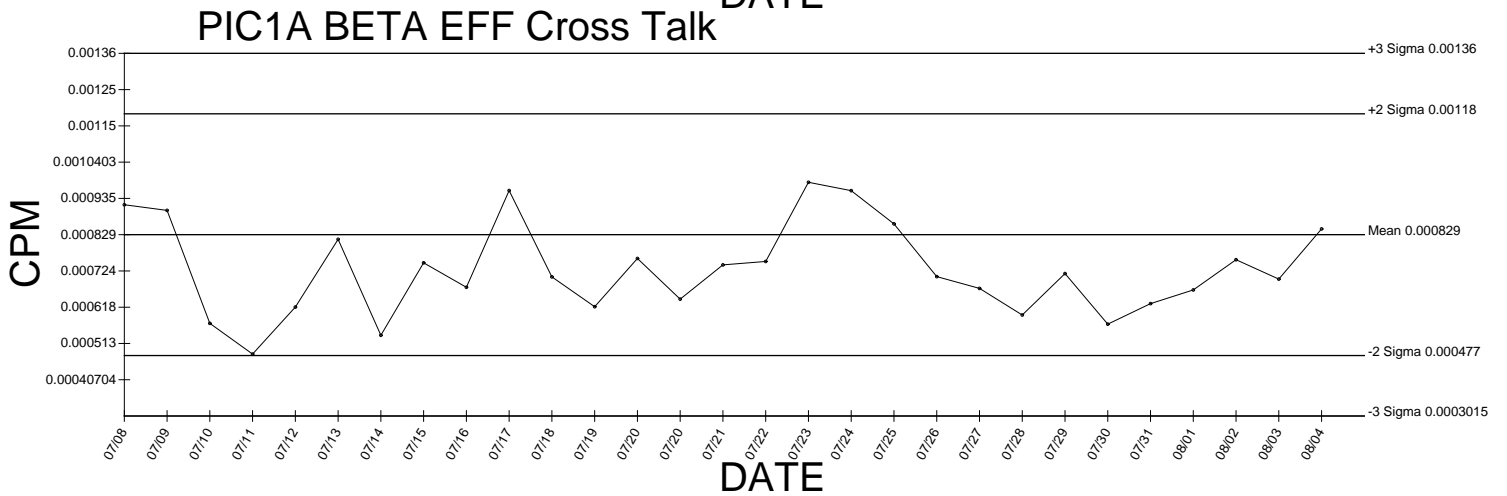
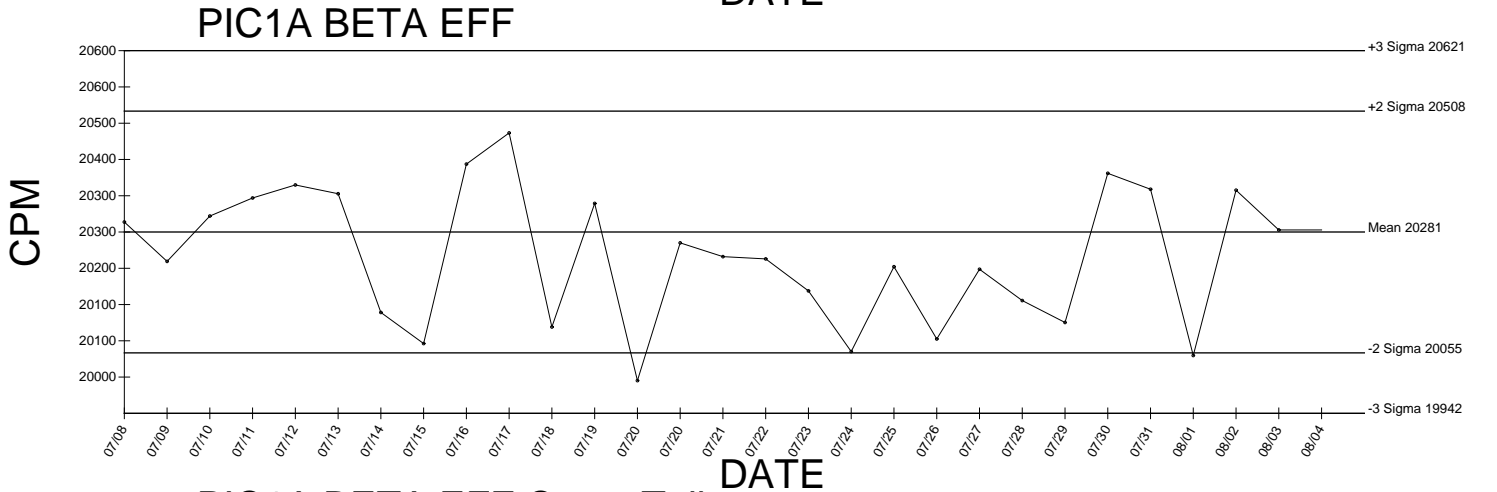
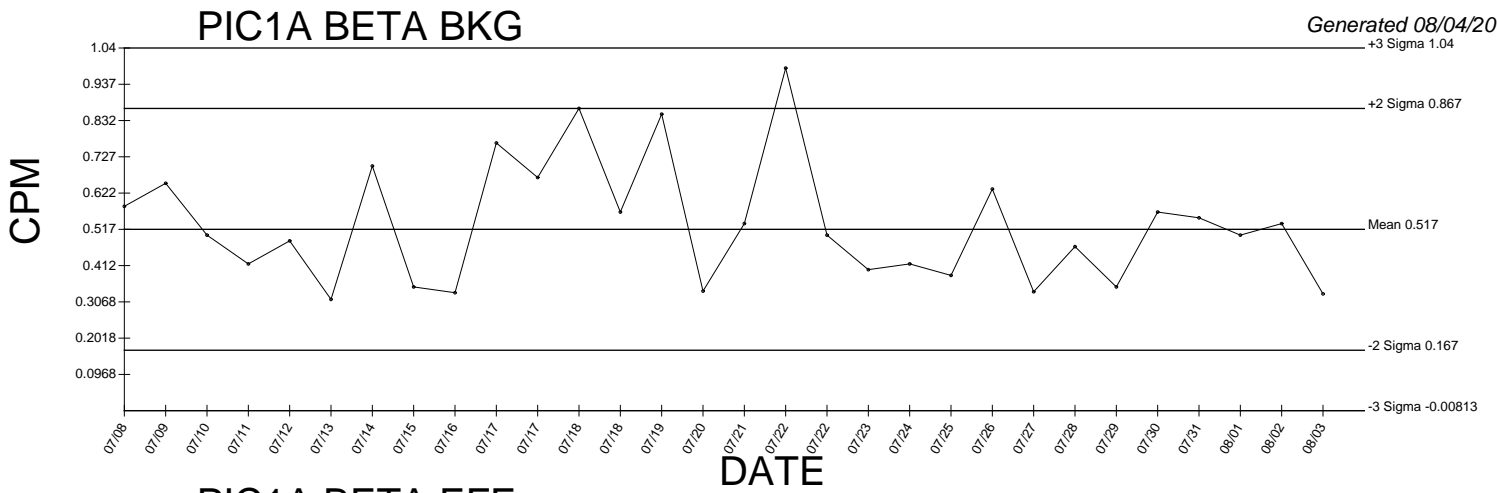
Generated 08/20/2009



● Denotes Outlier

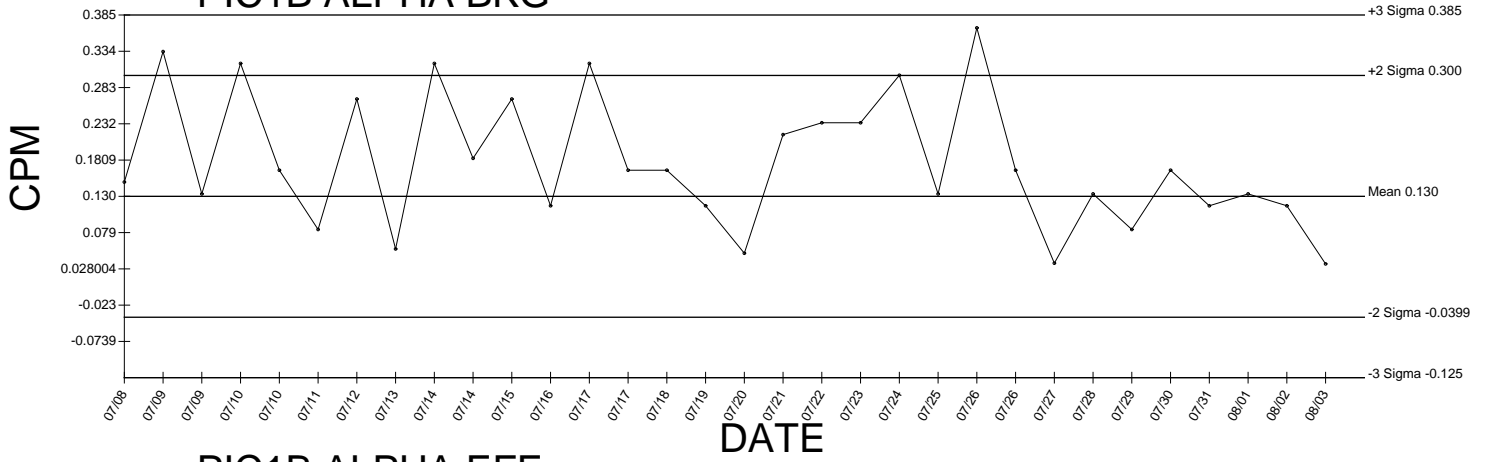


● Denotes Outlier

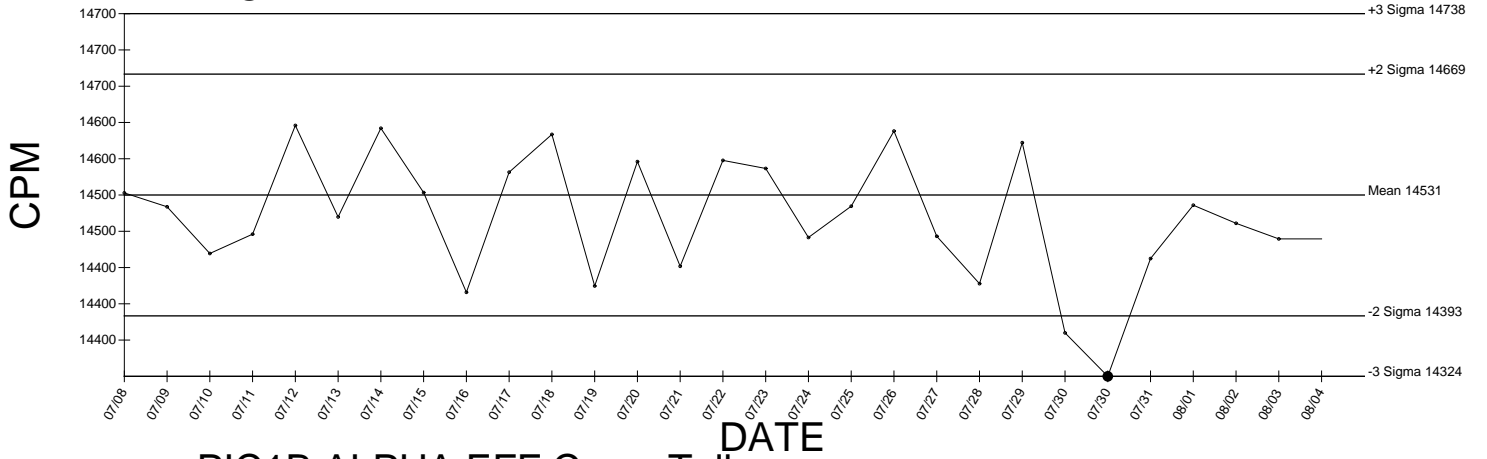


● Denotes Outlier

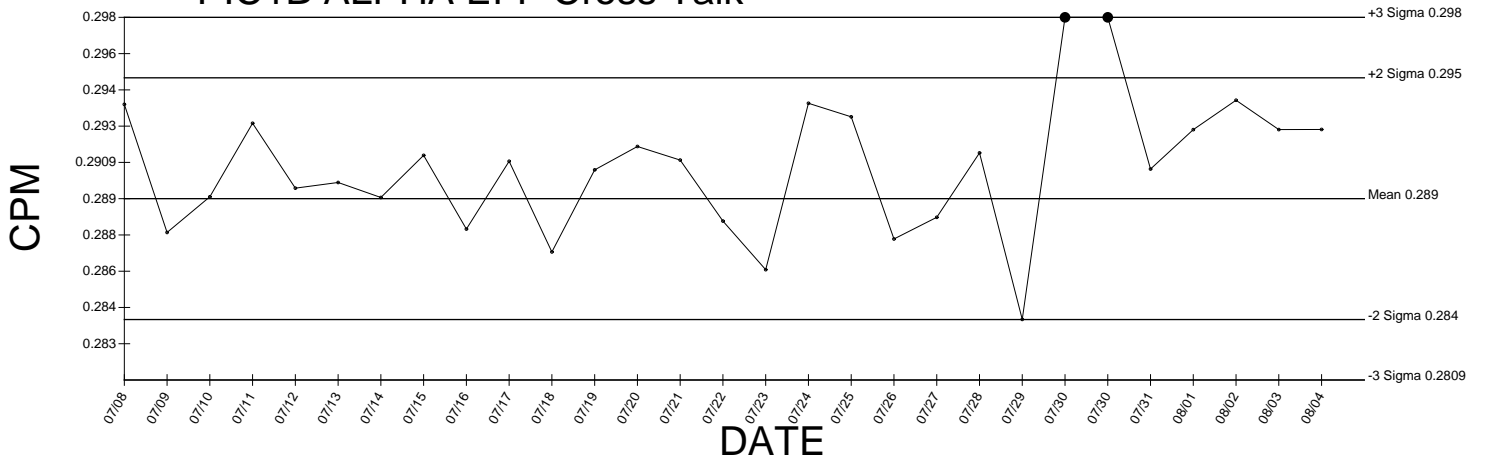
### PIC1B ALPHA BKG



### PIC1B ALPHA EFF

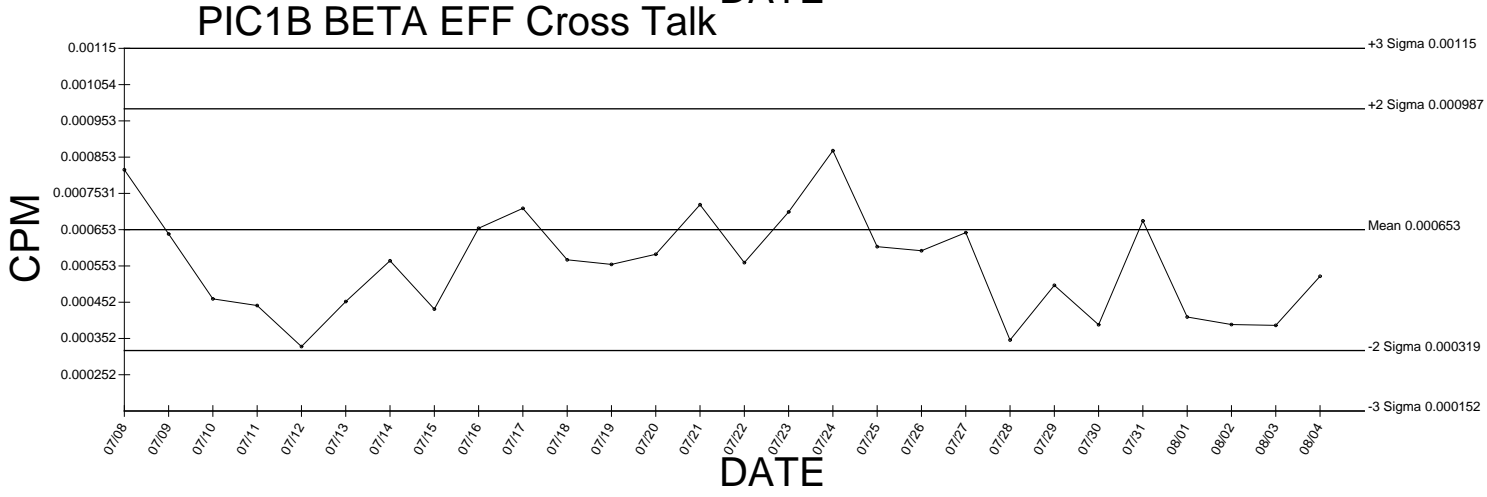
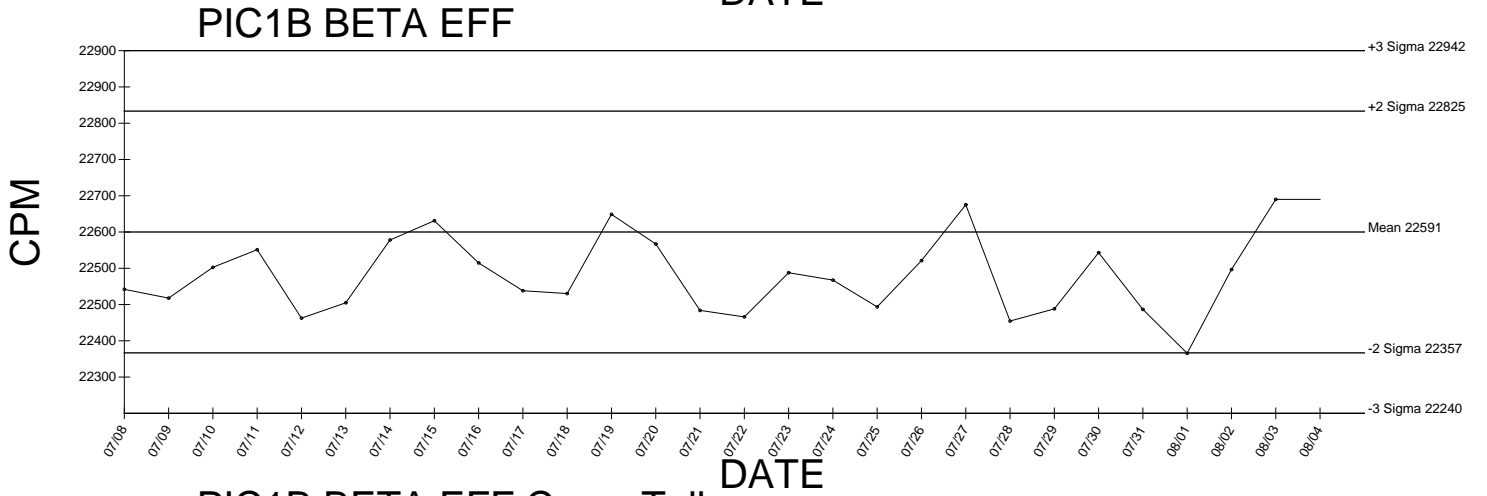
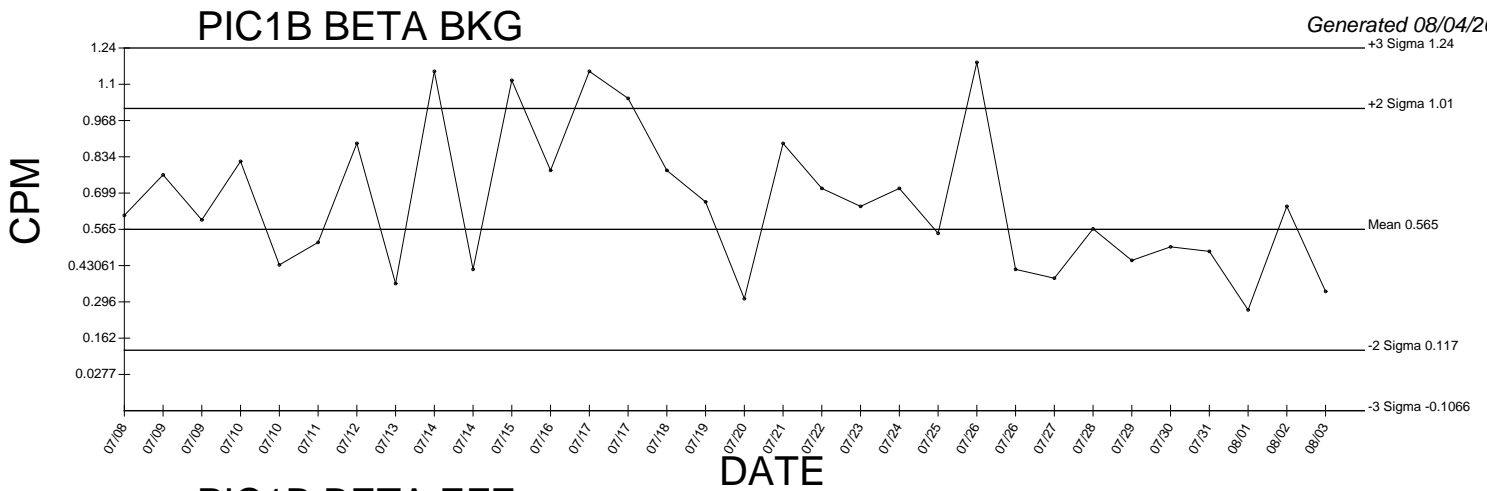


### PIC1B ALPHA EFF Cross Talk

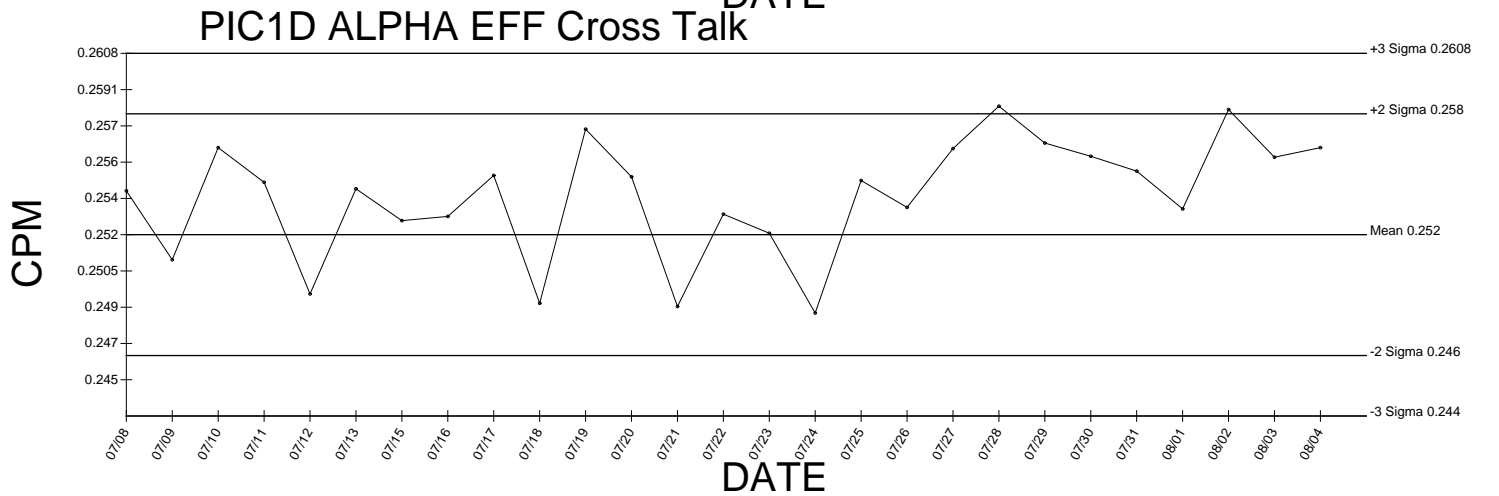
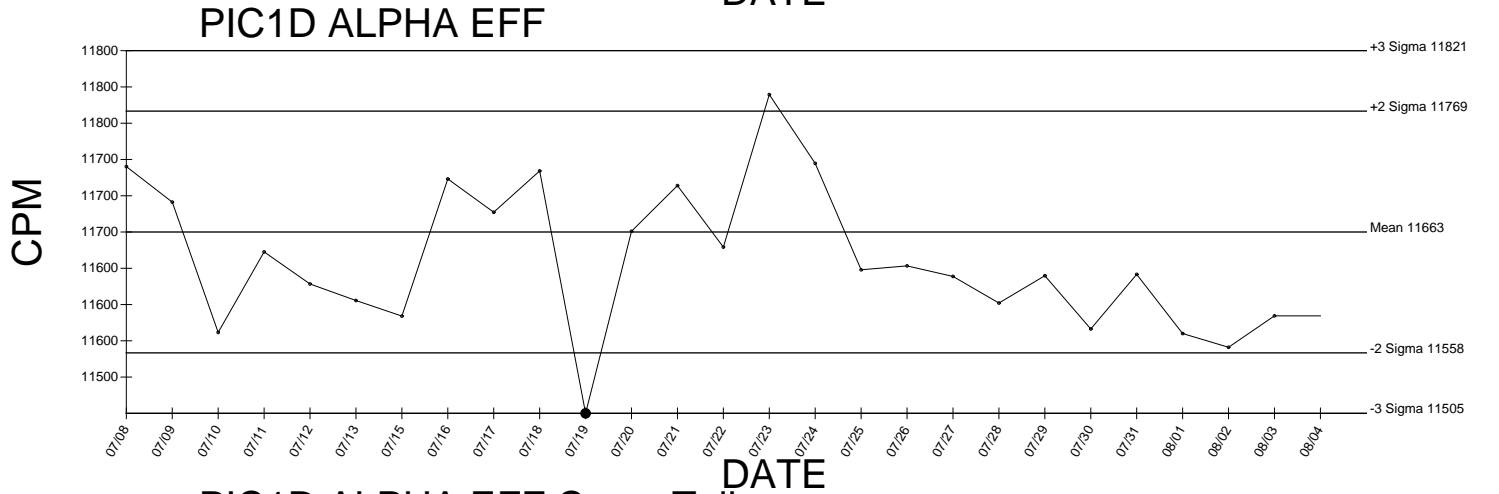
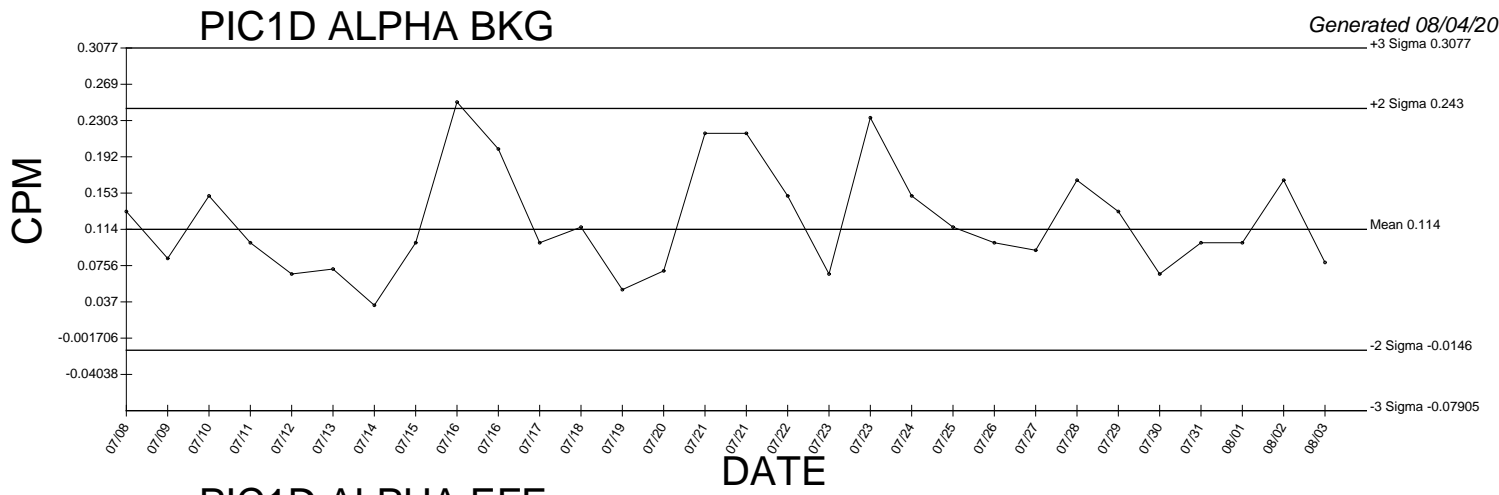


● Denotes Outlier

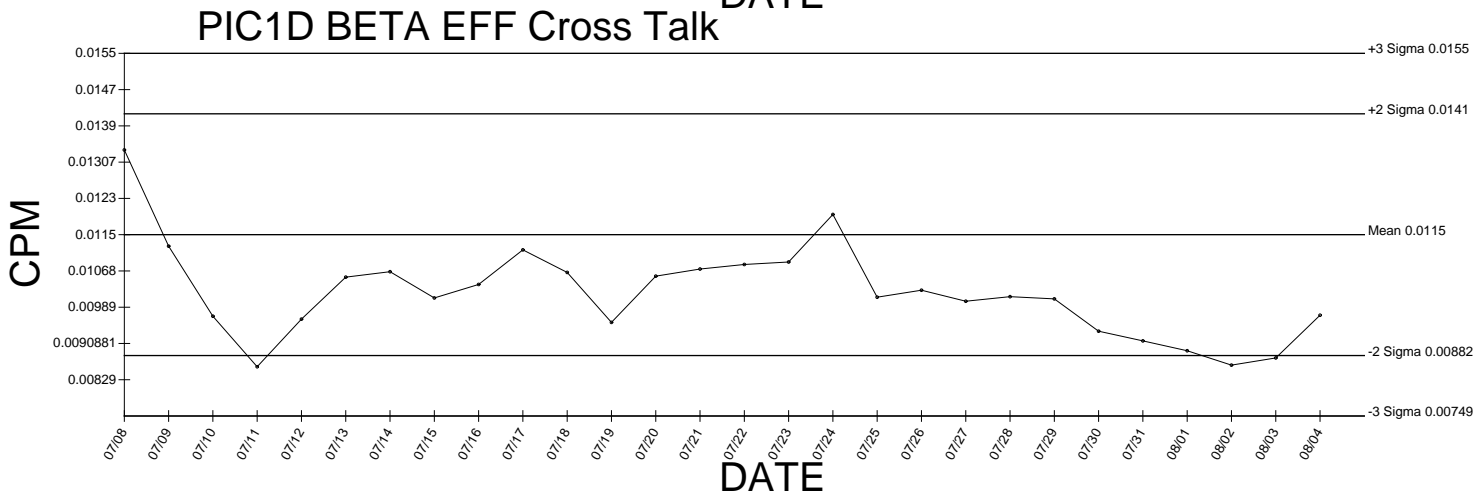
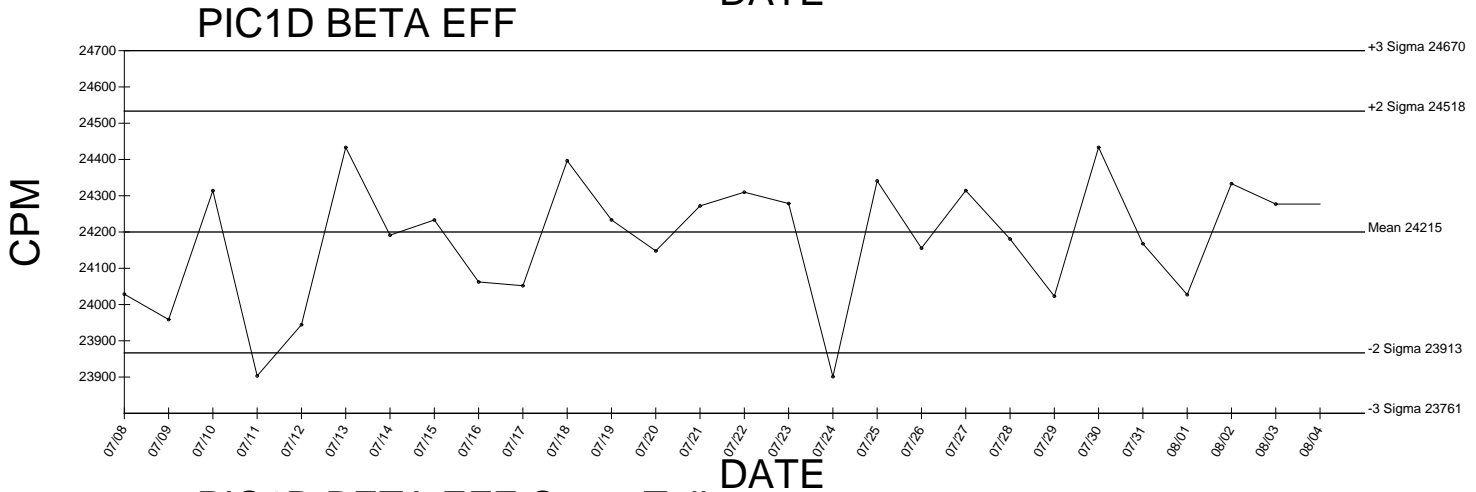
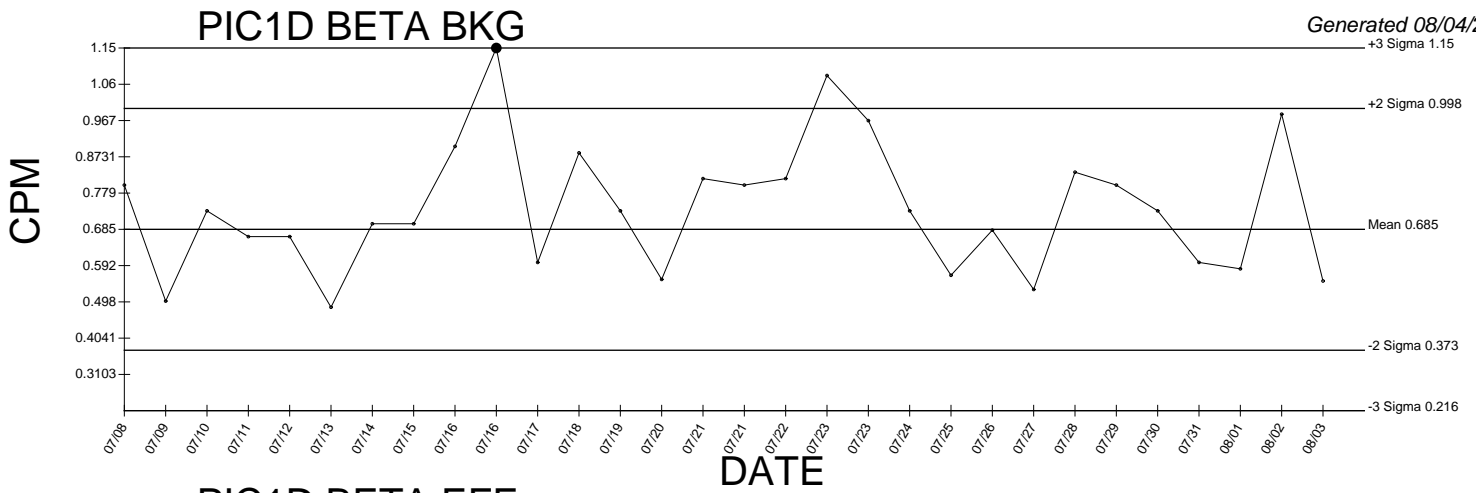




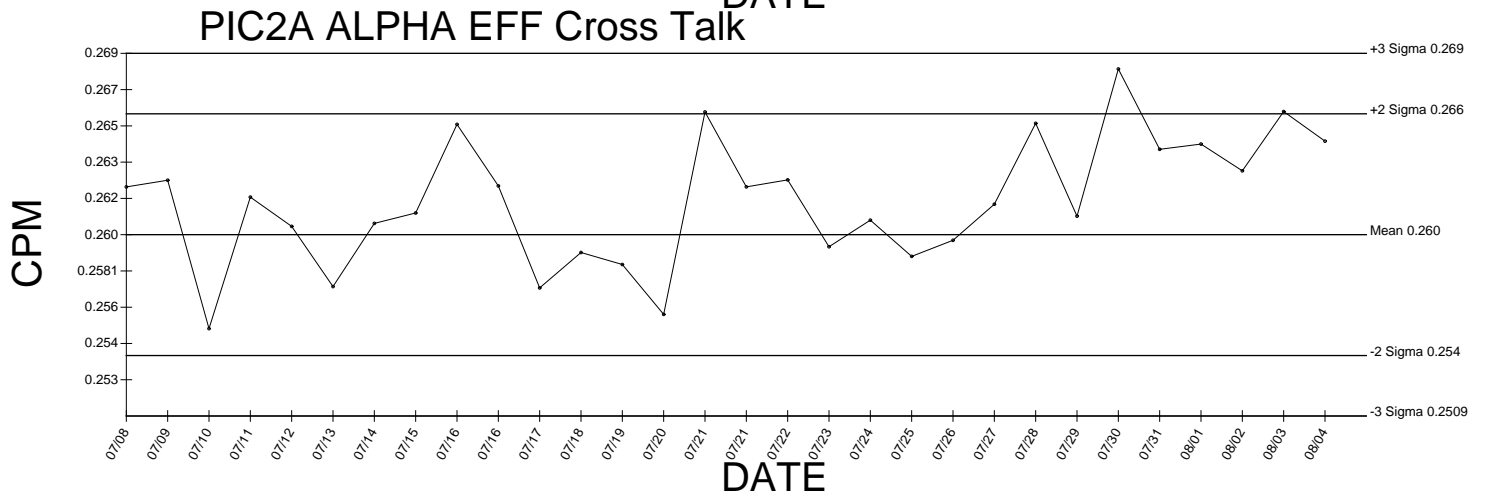
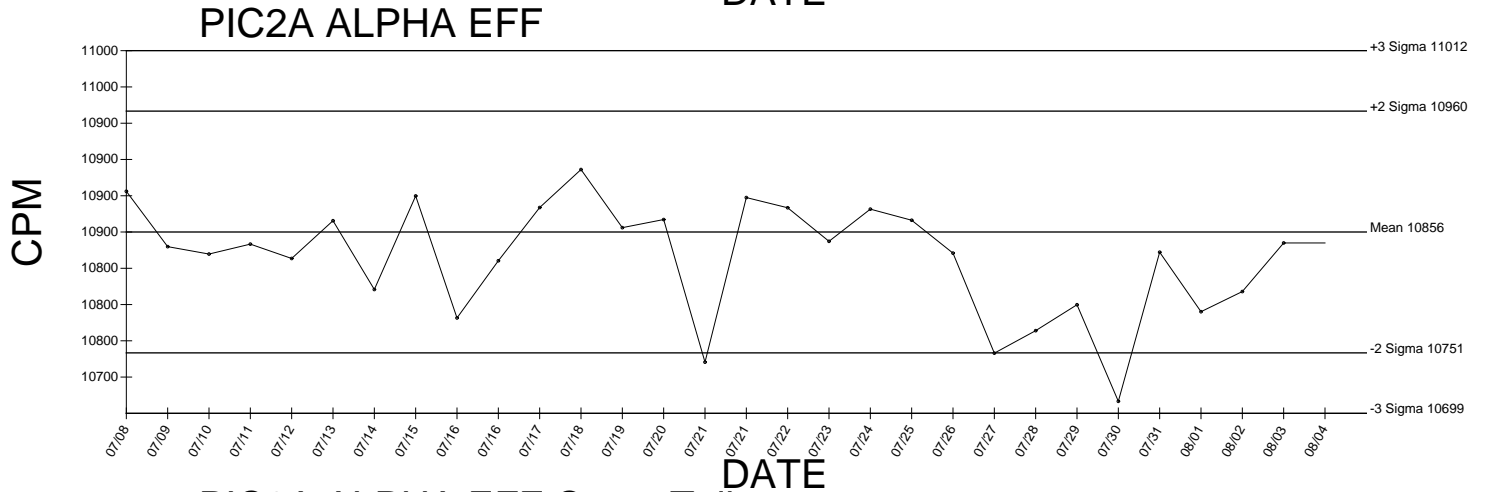
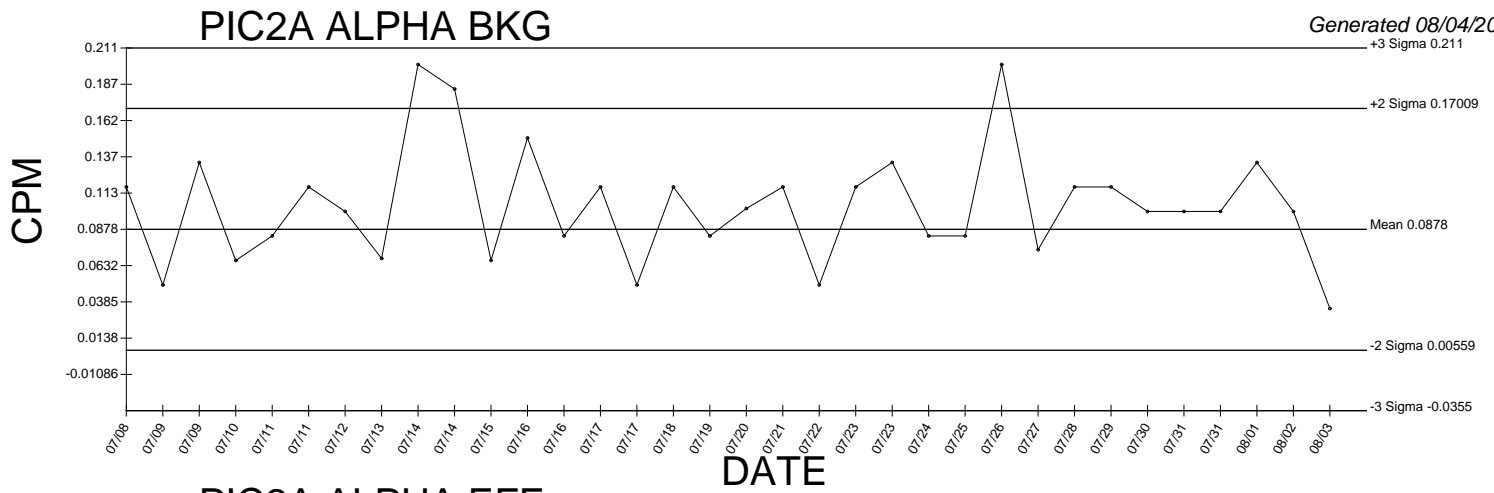
● Denotes Outlier



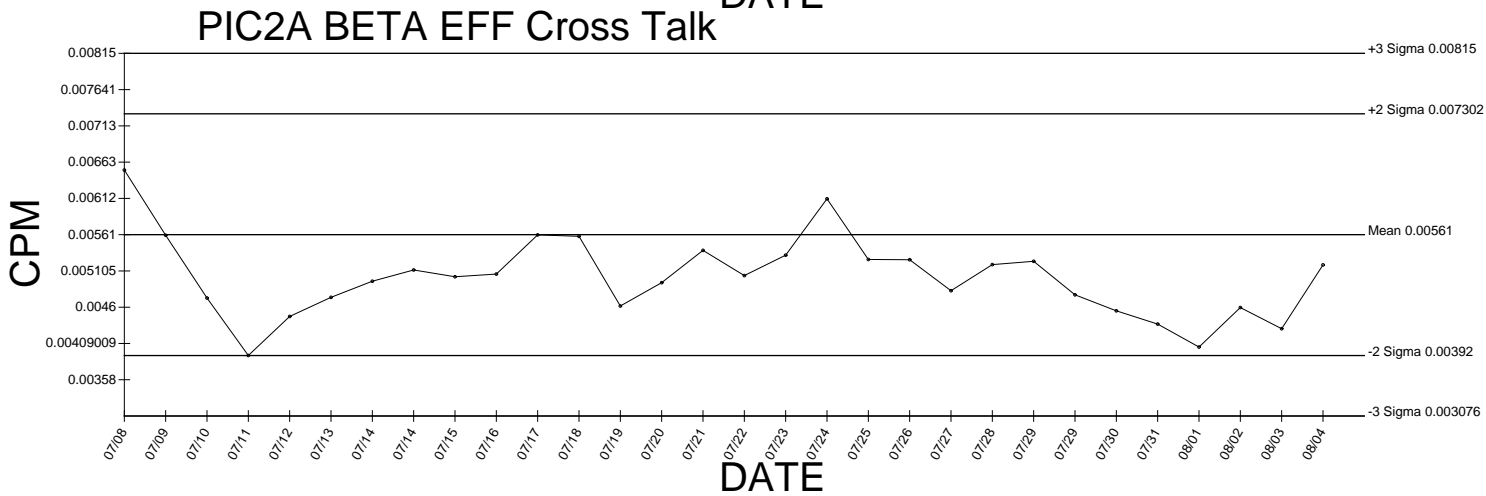
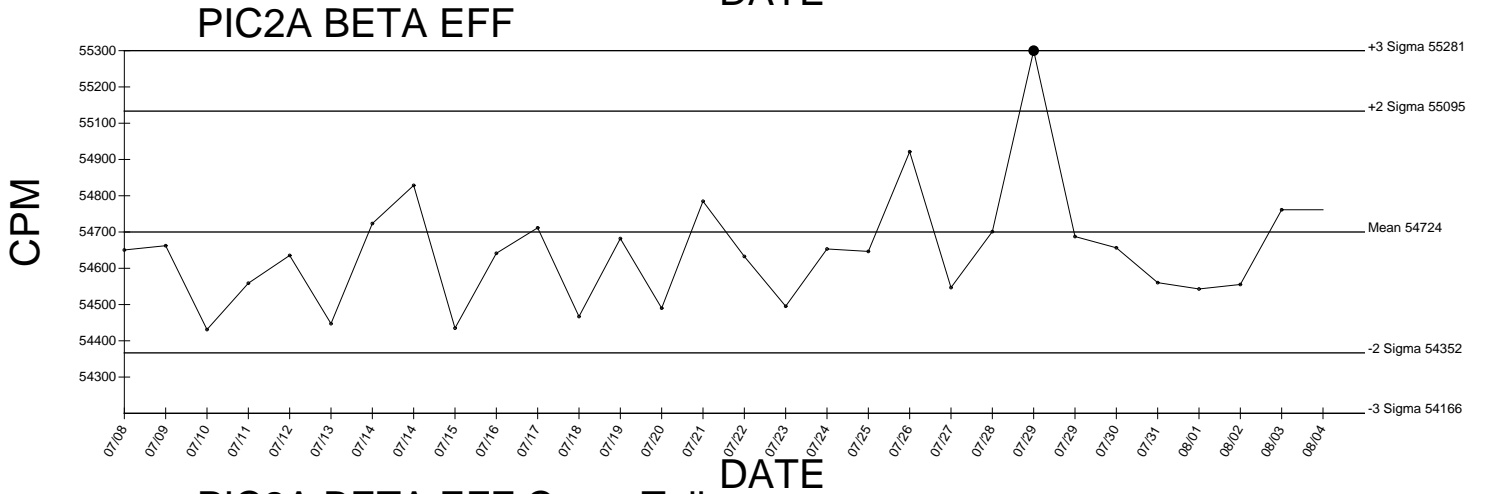
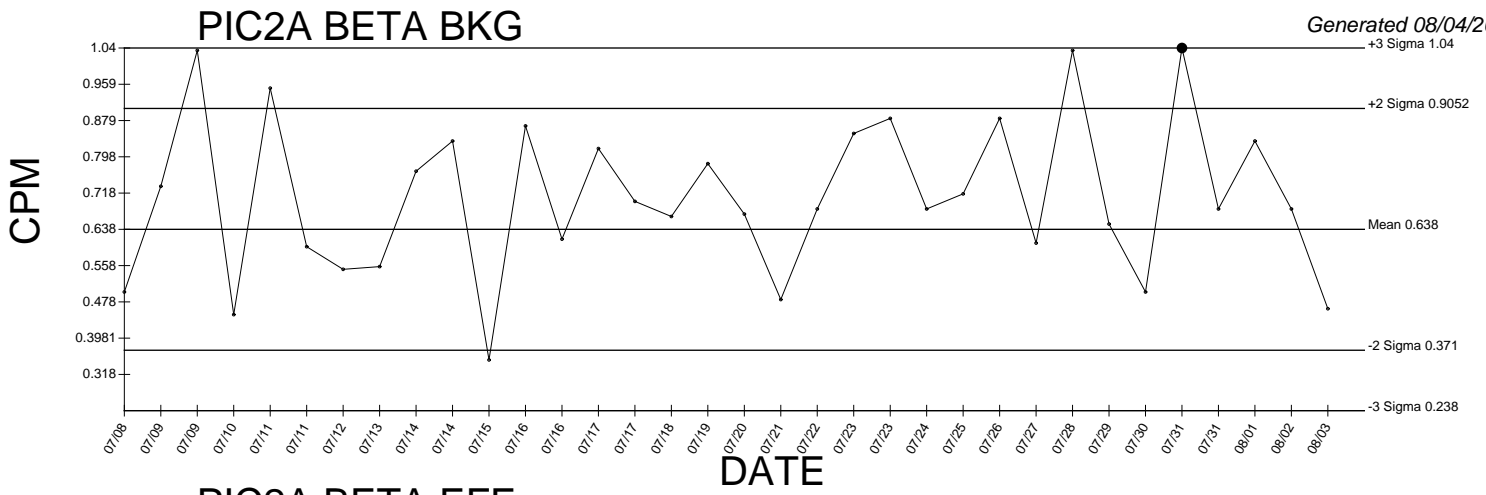
● Denotes Outlier



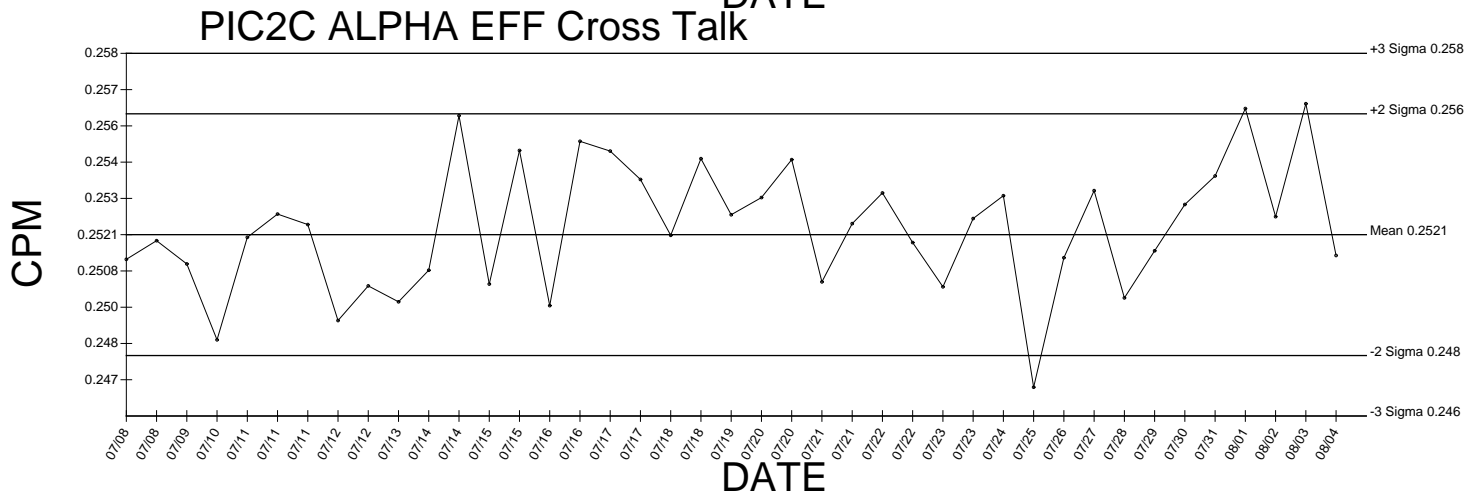
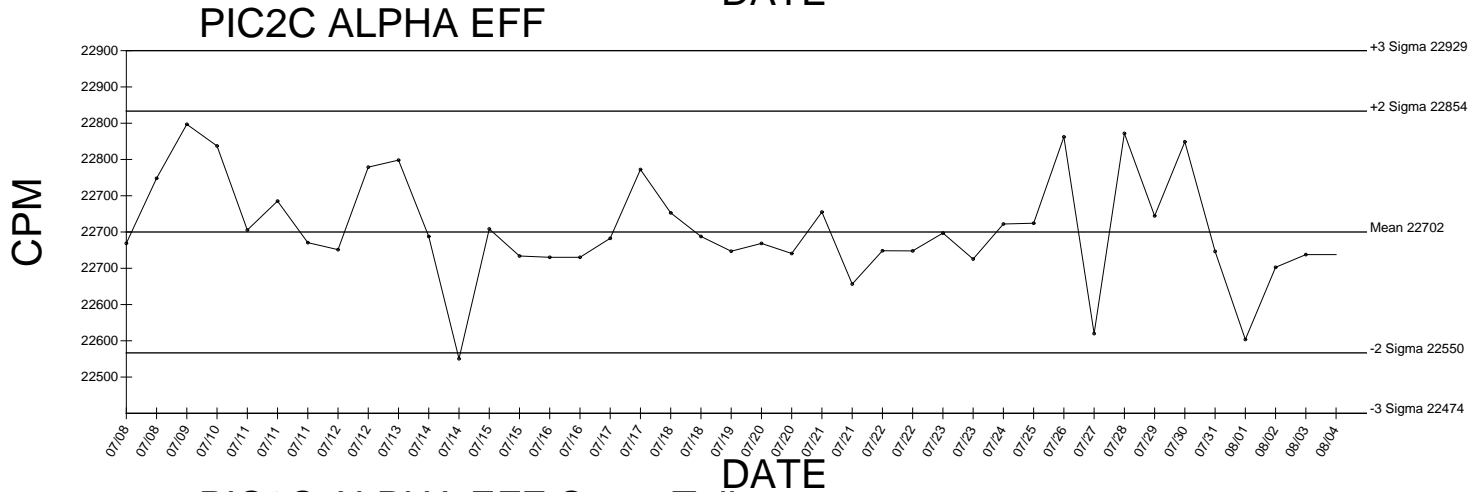
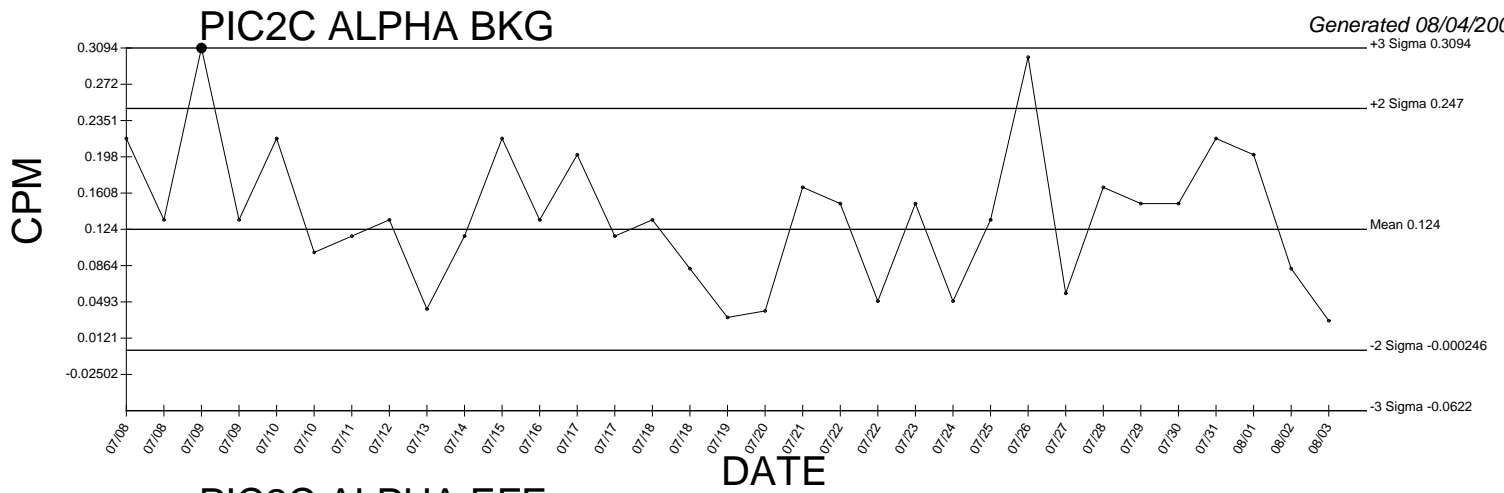
● Denotes Outlier



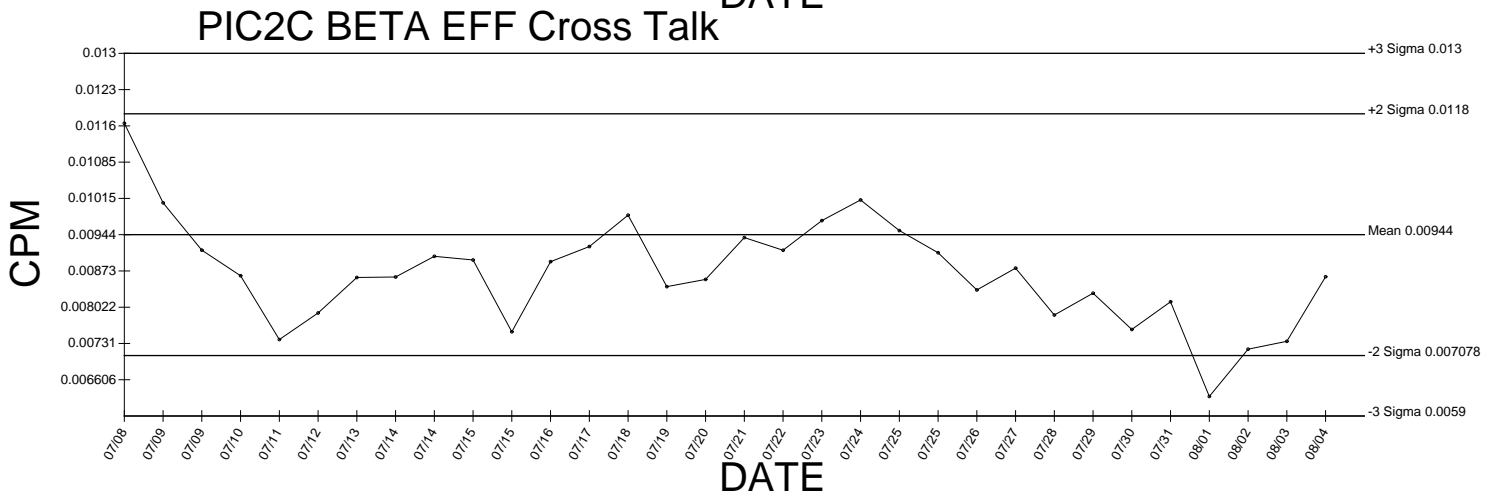
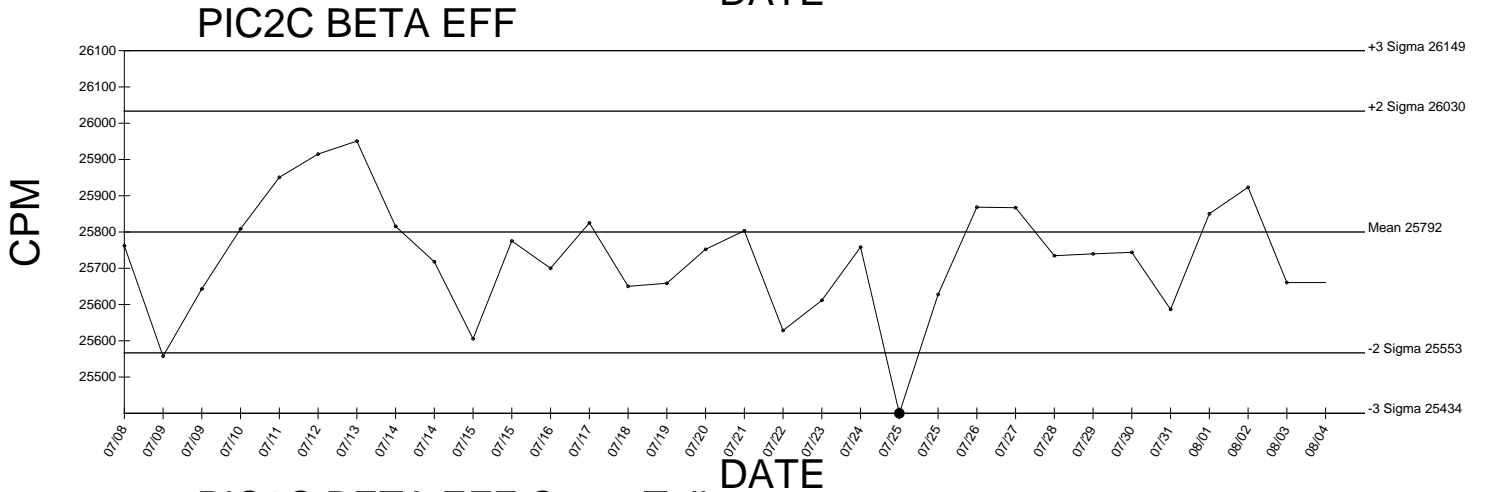
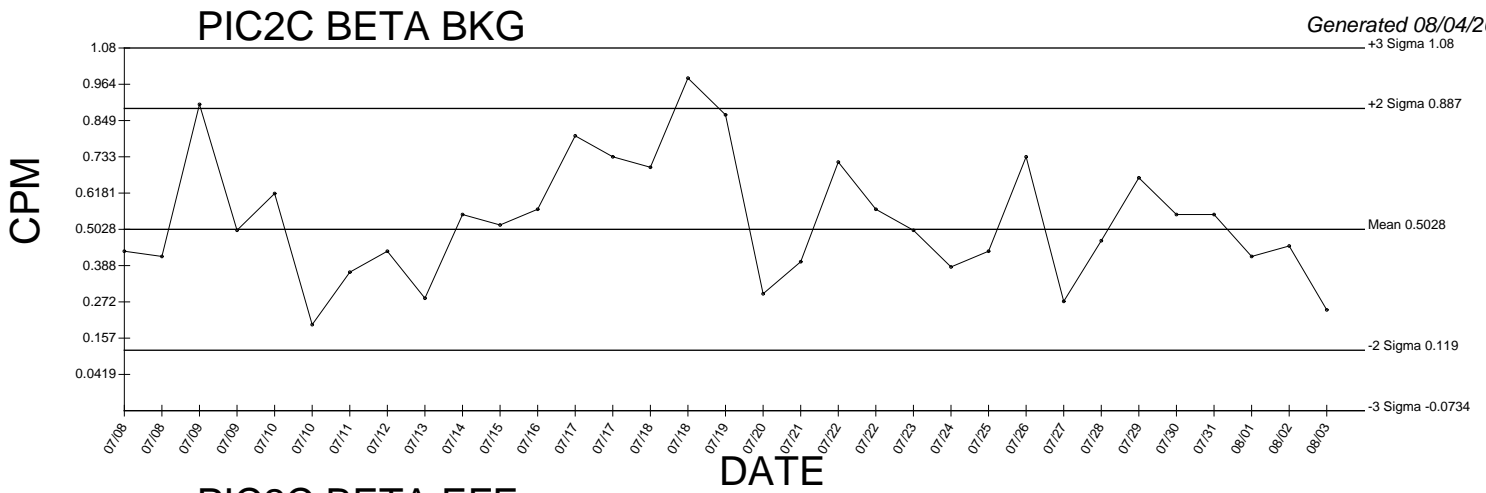
● Denotes Outlier



● Denotes Outlier

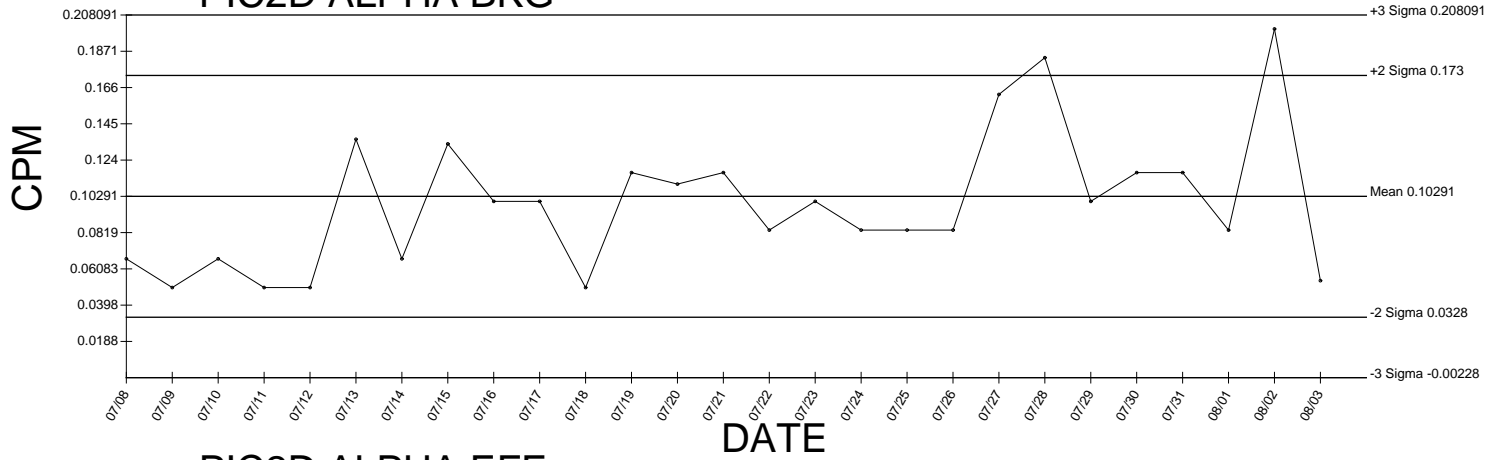


● Denotes Outlier

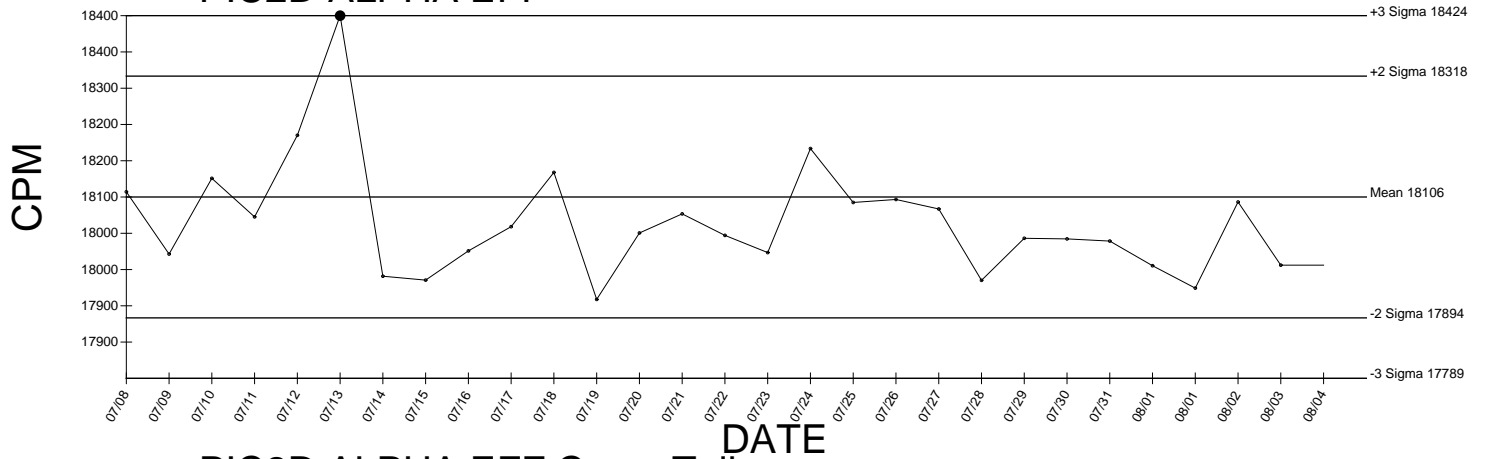


● Denotes Outlier

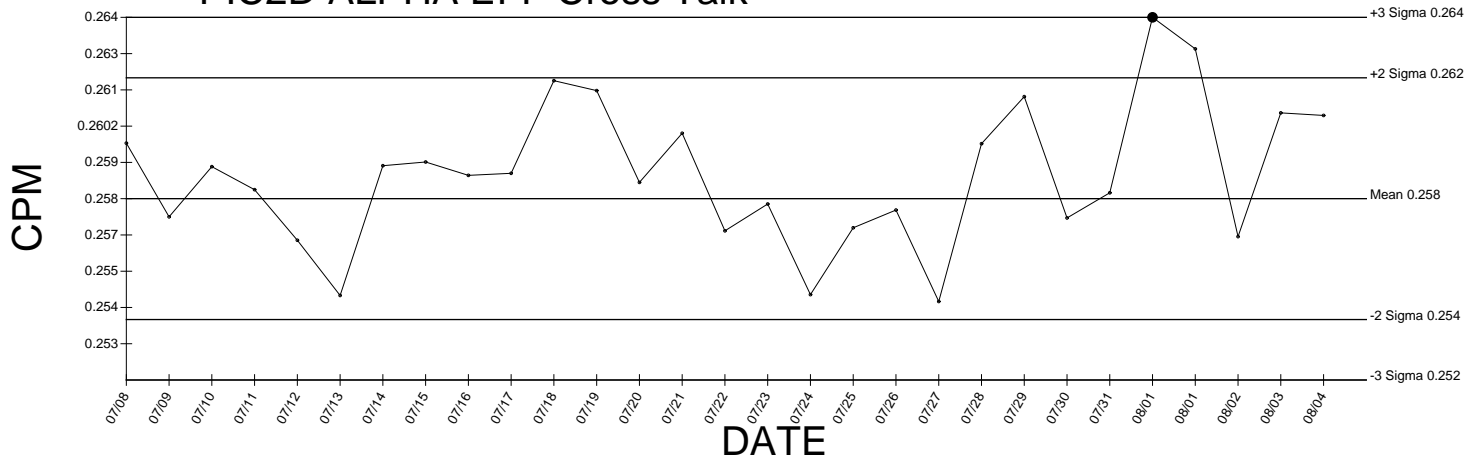
### PIC2D ALPHA BKG



### PIC2D ALPHA EFF



### PIC2D ALPHA EFF Cross Talk

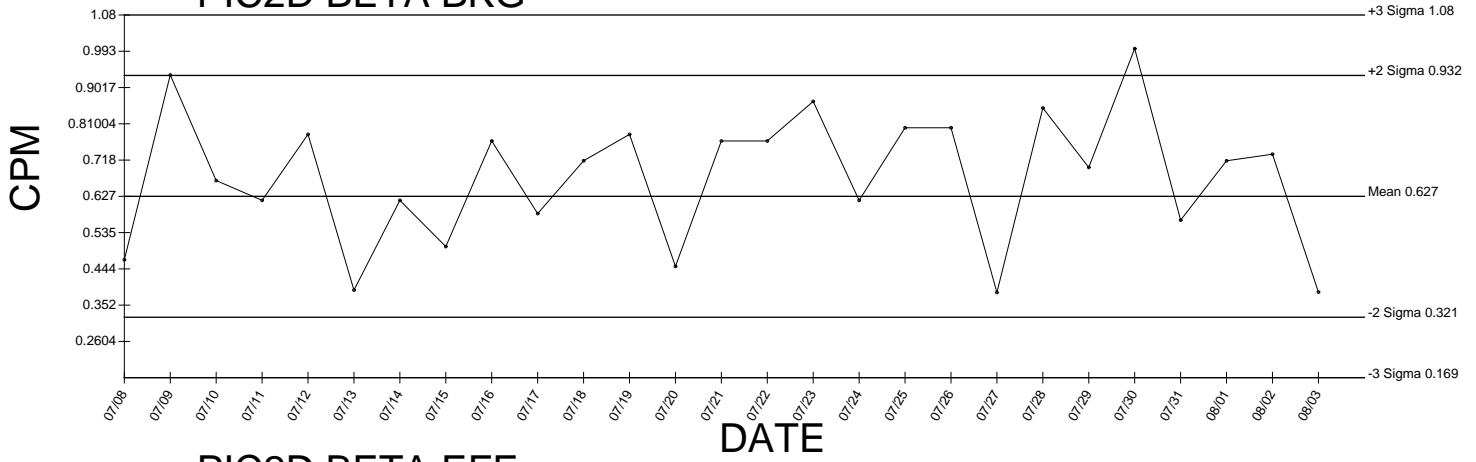


● Denotes Outlier

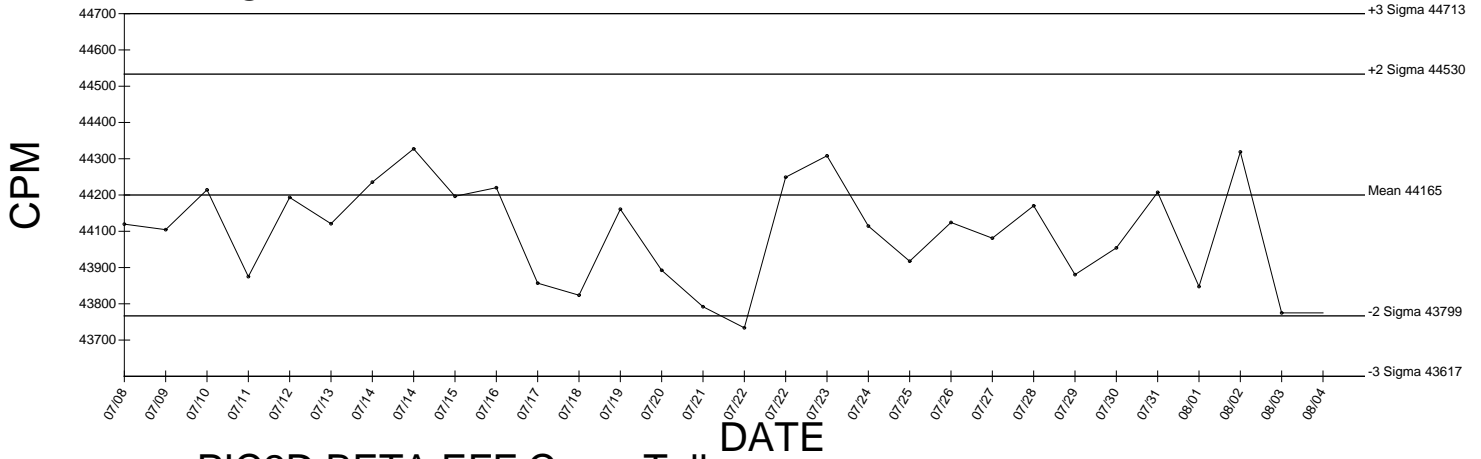


# PIC2D BETA BKG

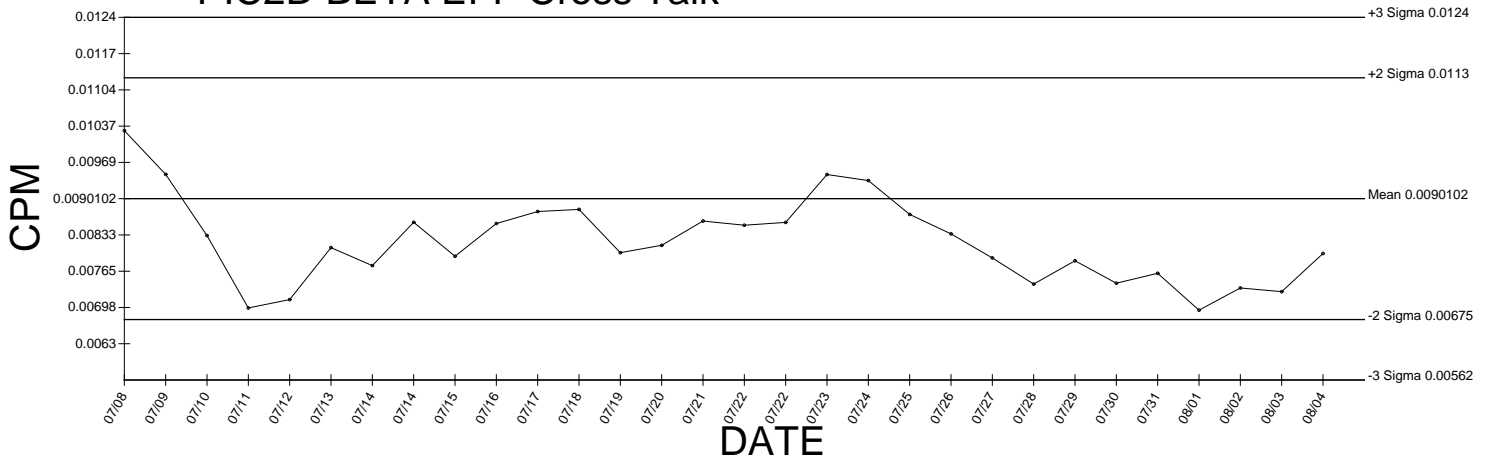
Generated 08/04/2009  
+3 Sigma 1.08



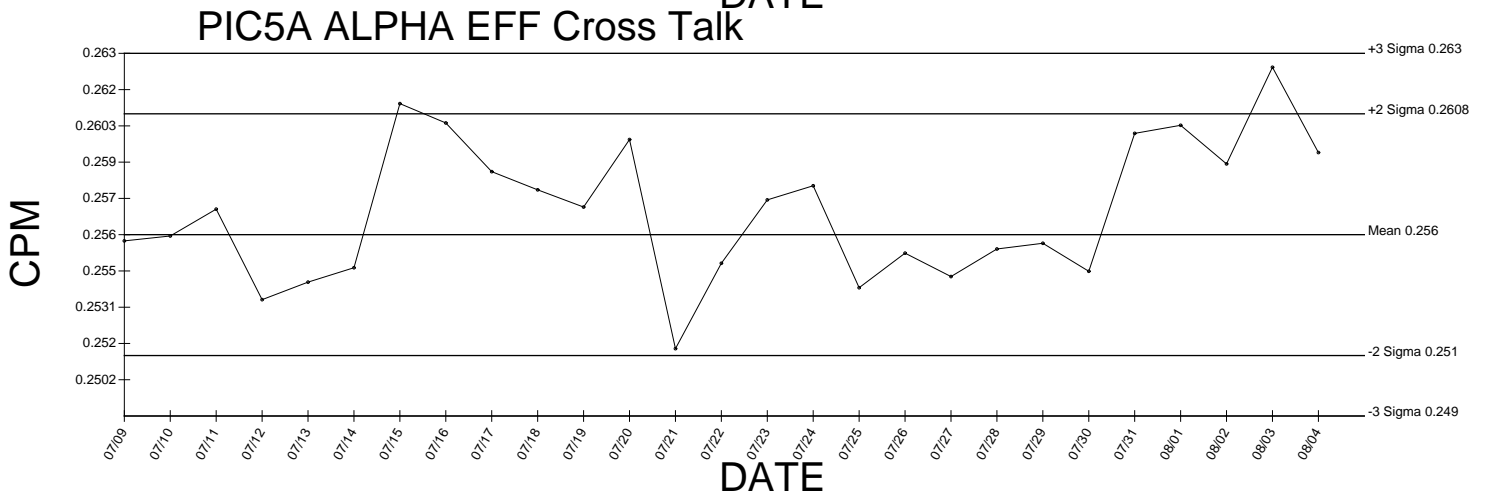
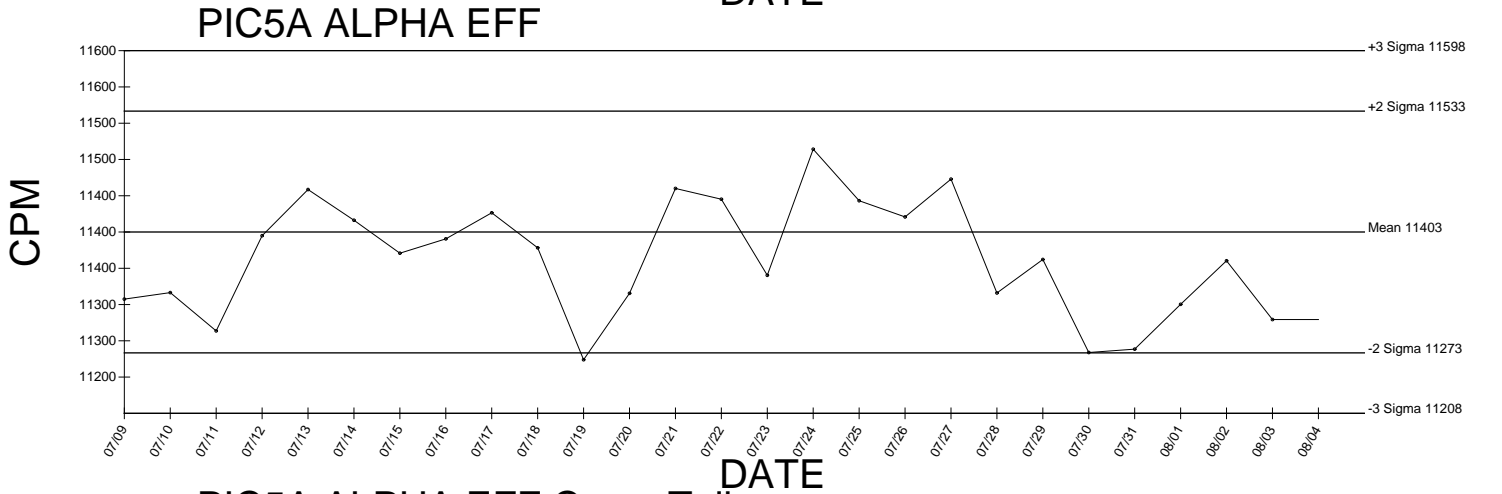
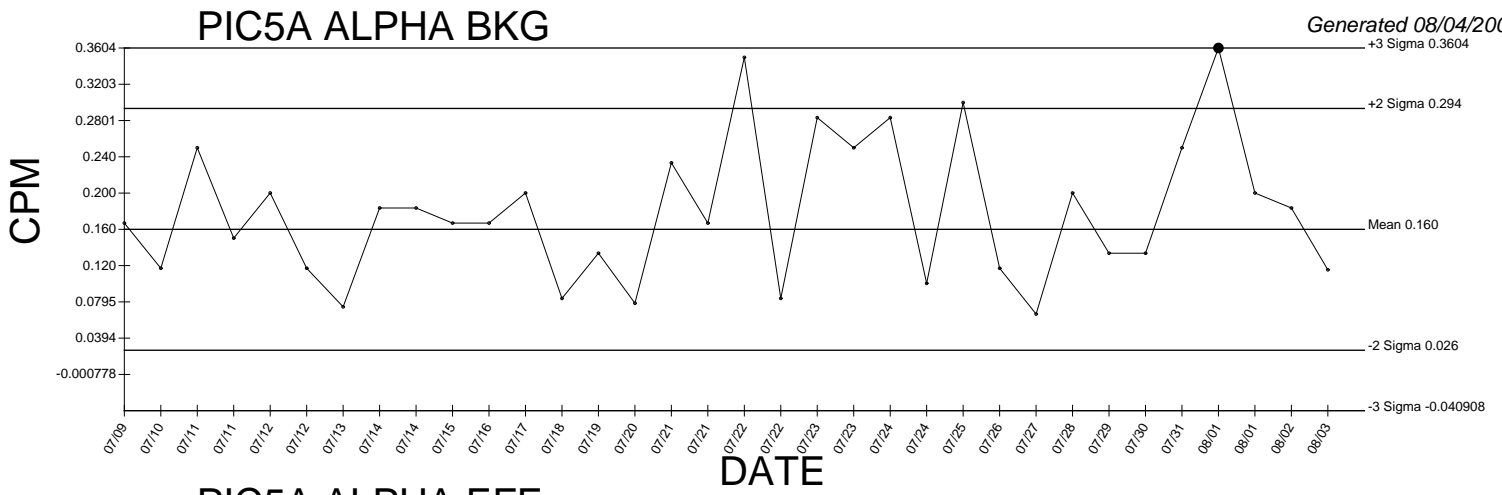
# PIC2D BETA EFF



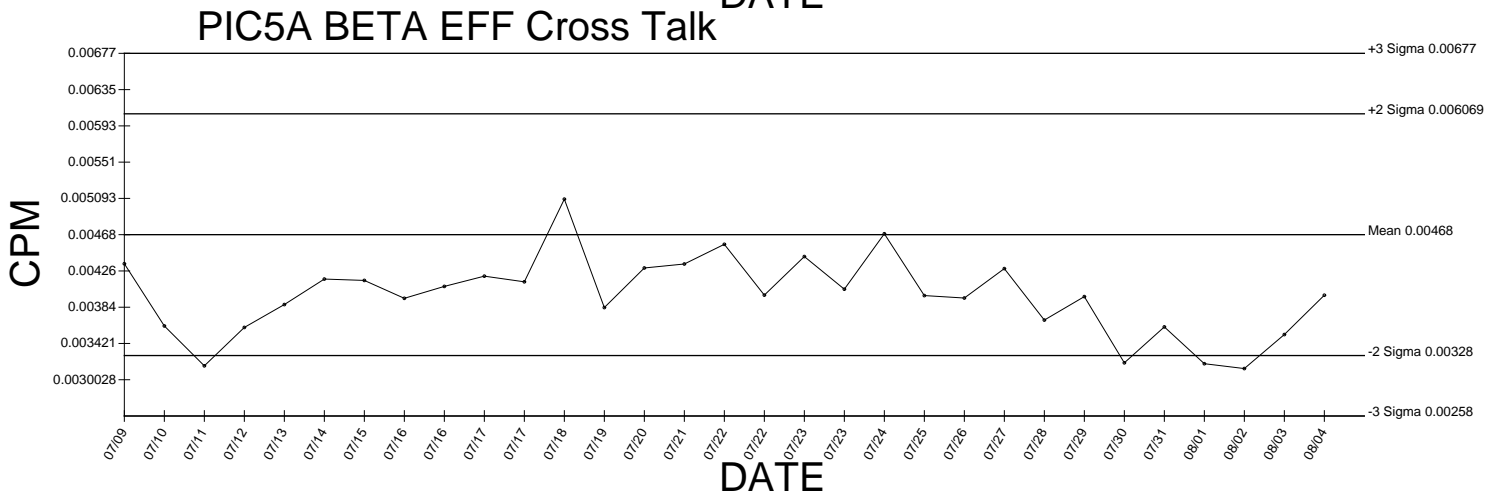
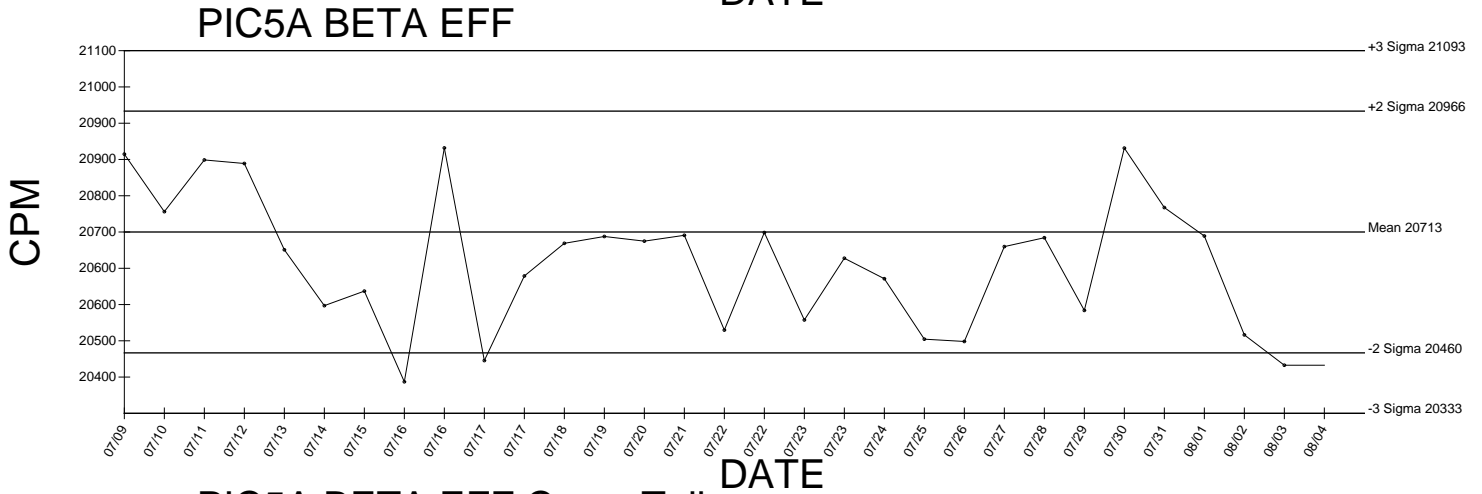
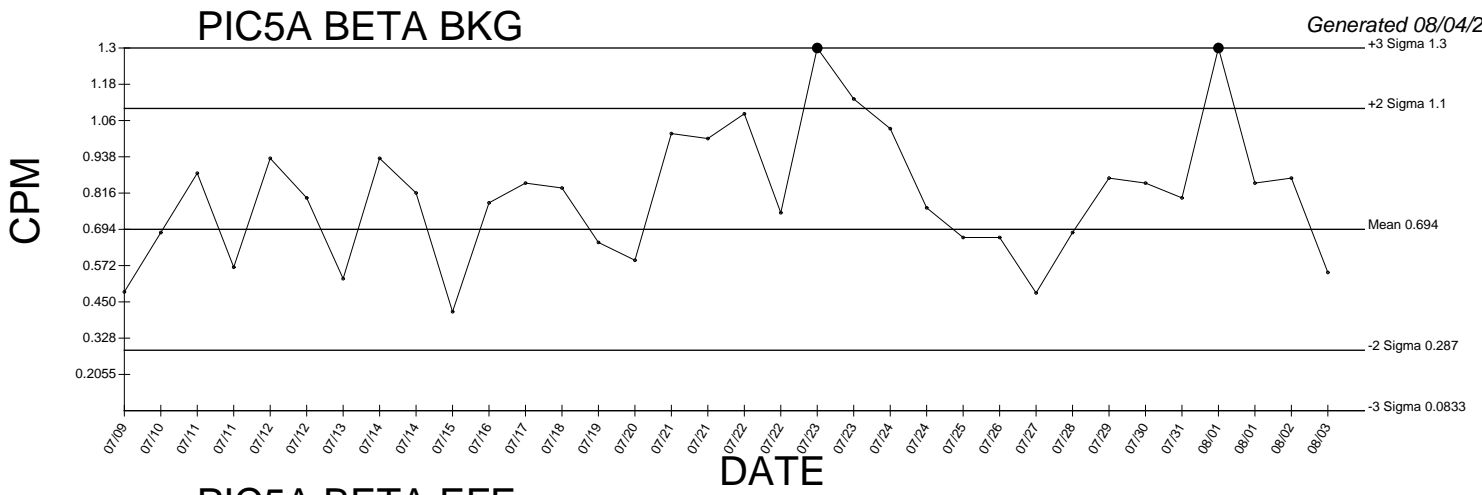
# PIC2D BETA EFF Cross Talk



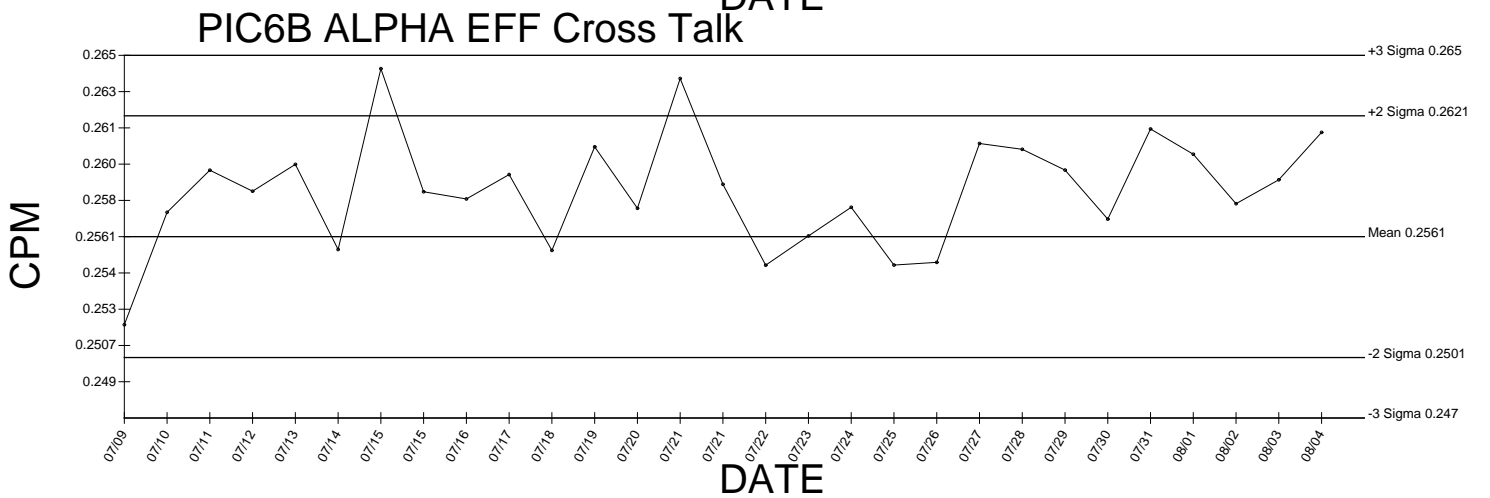
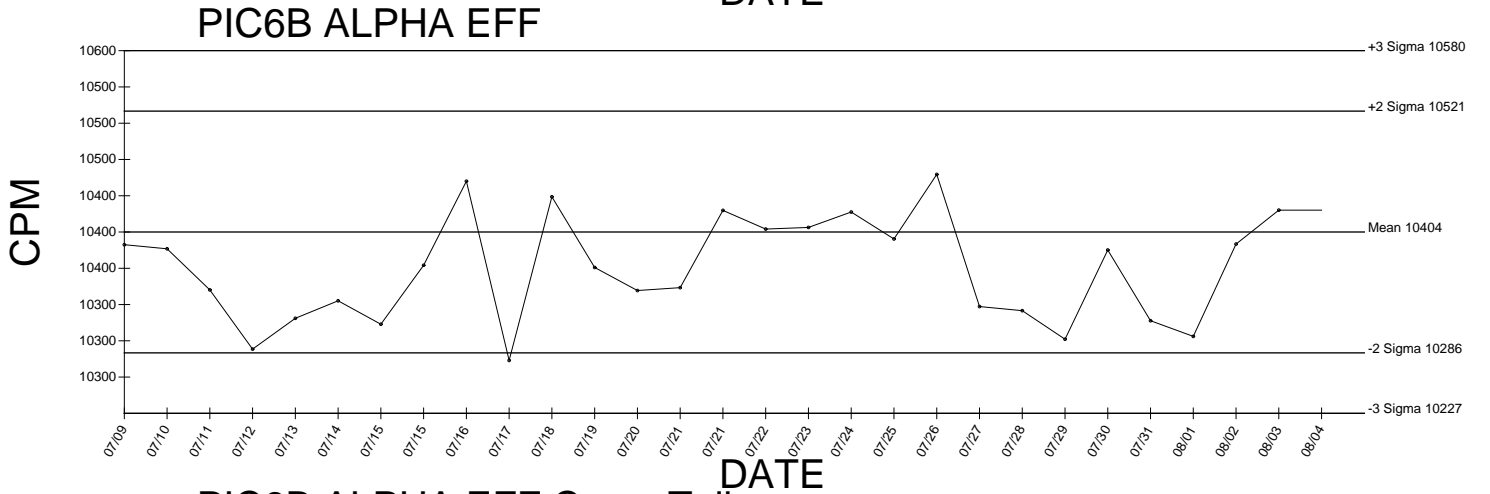
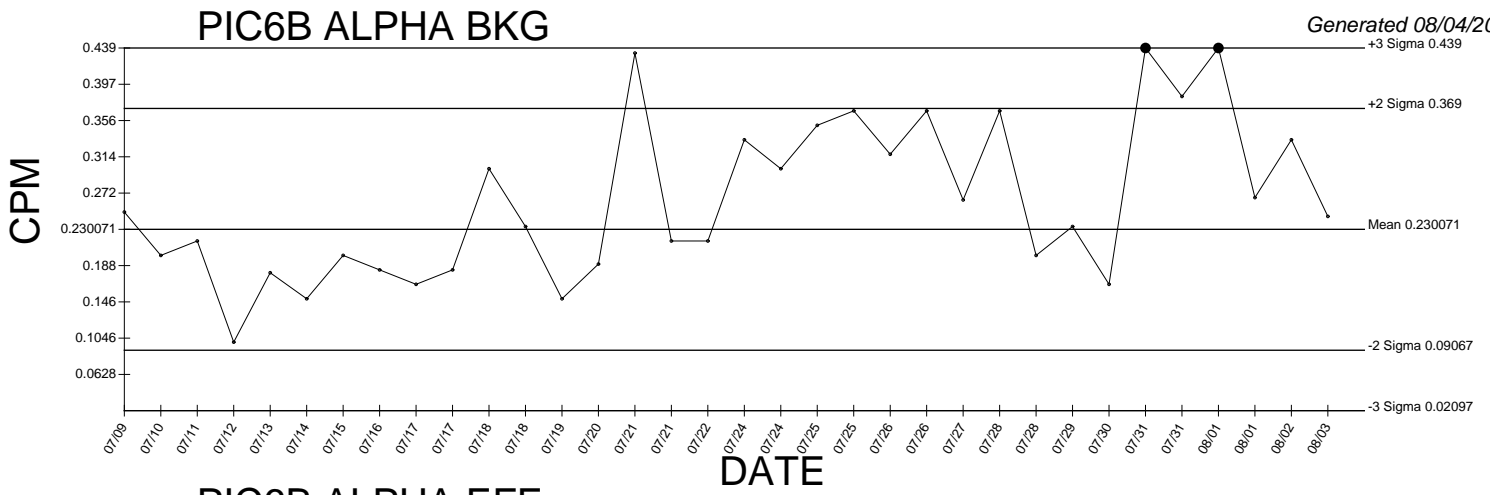
● Denotes Outlier



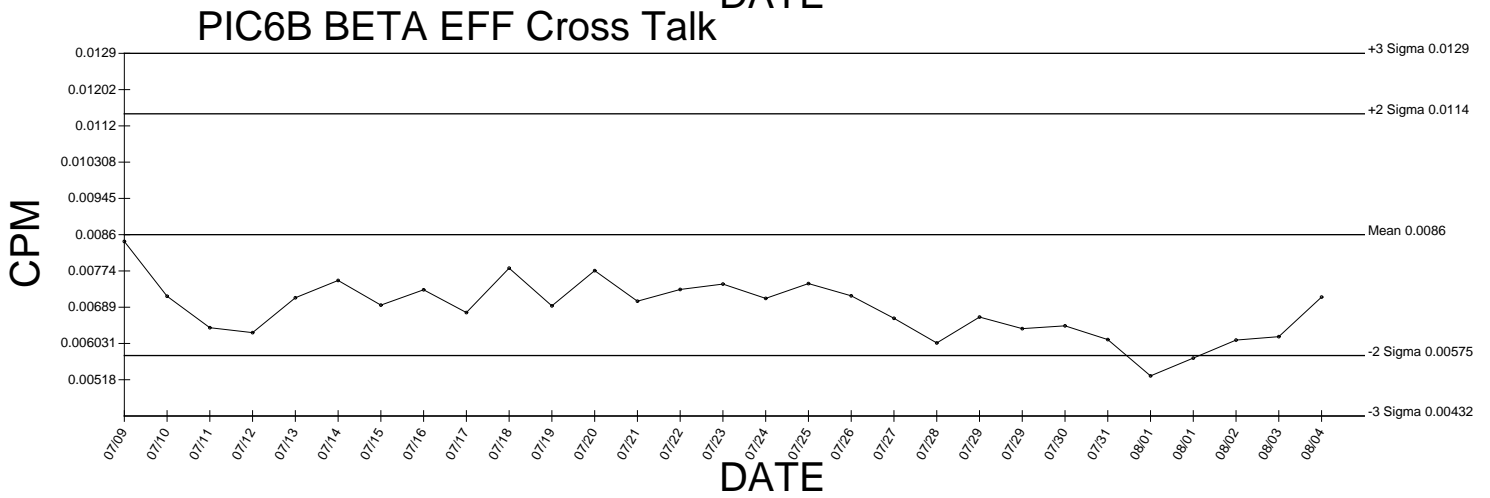
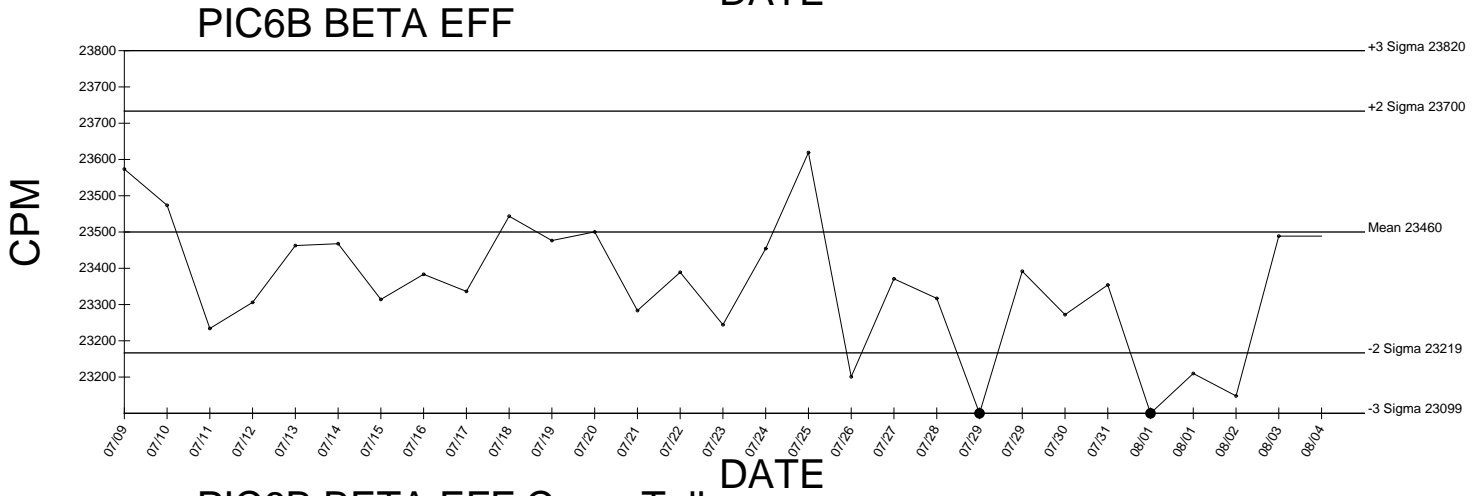
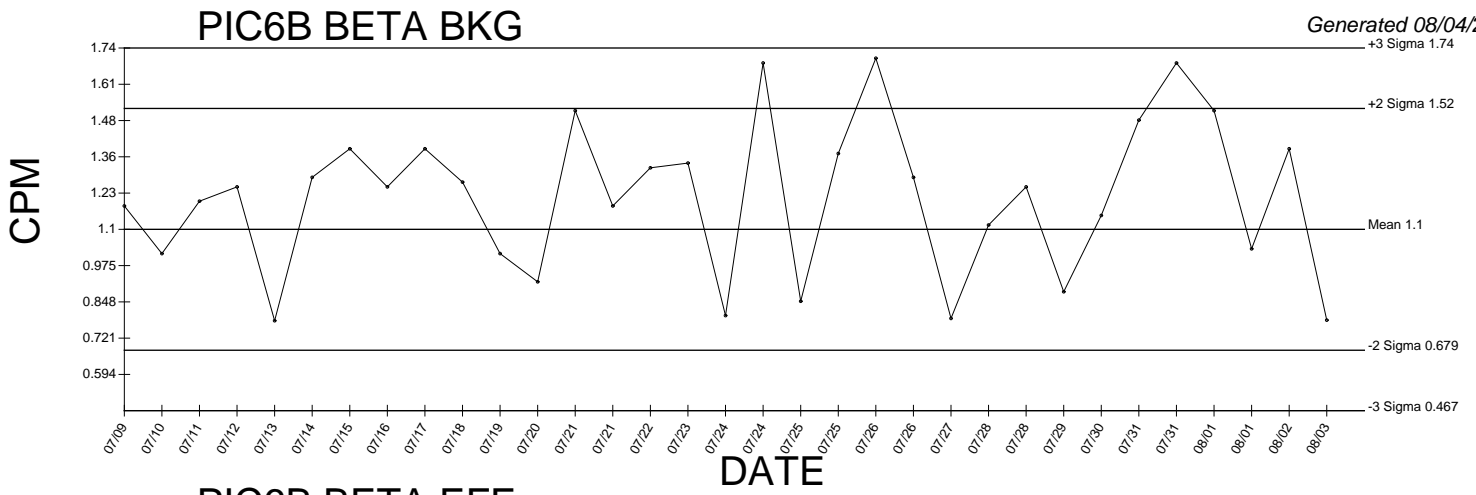
● Denotes Outlier



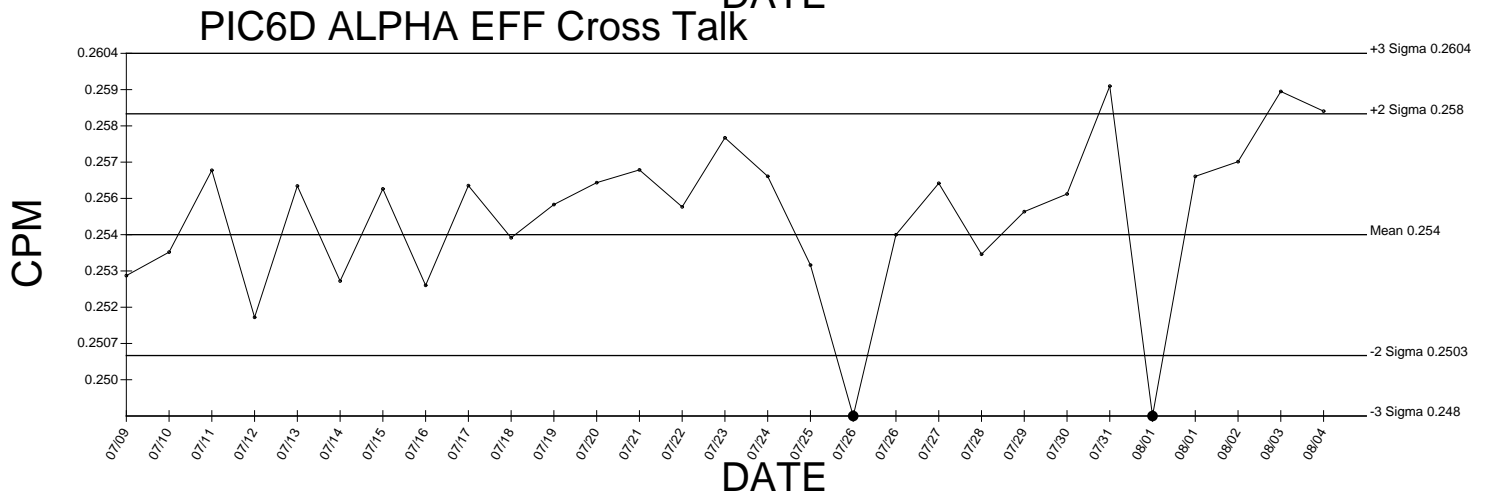
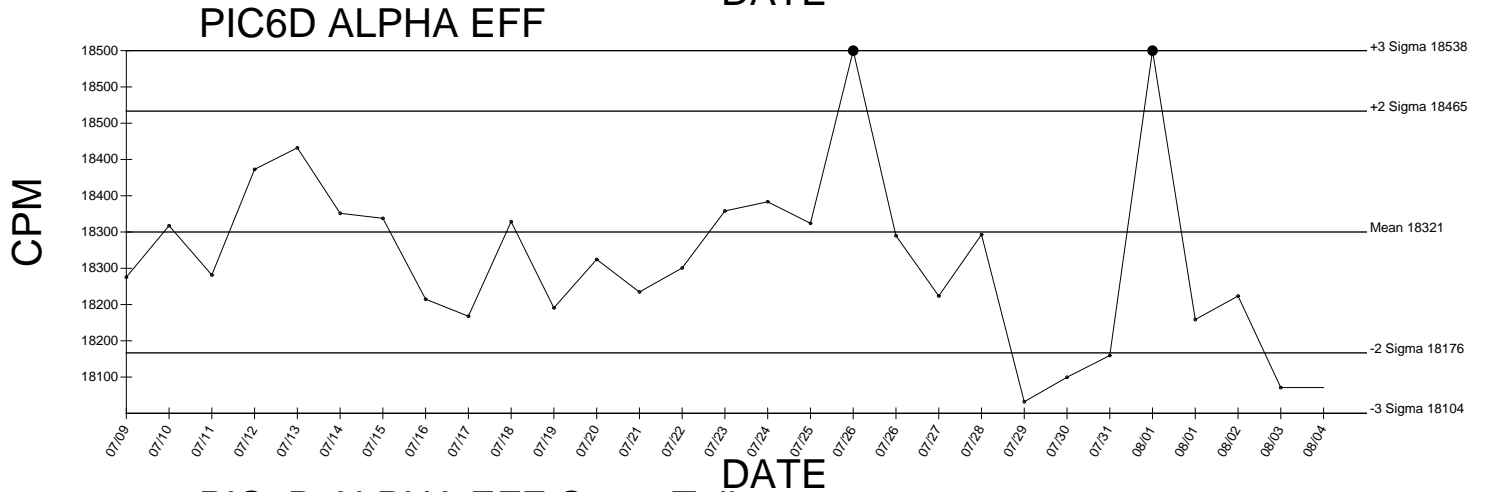
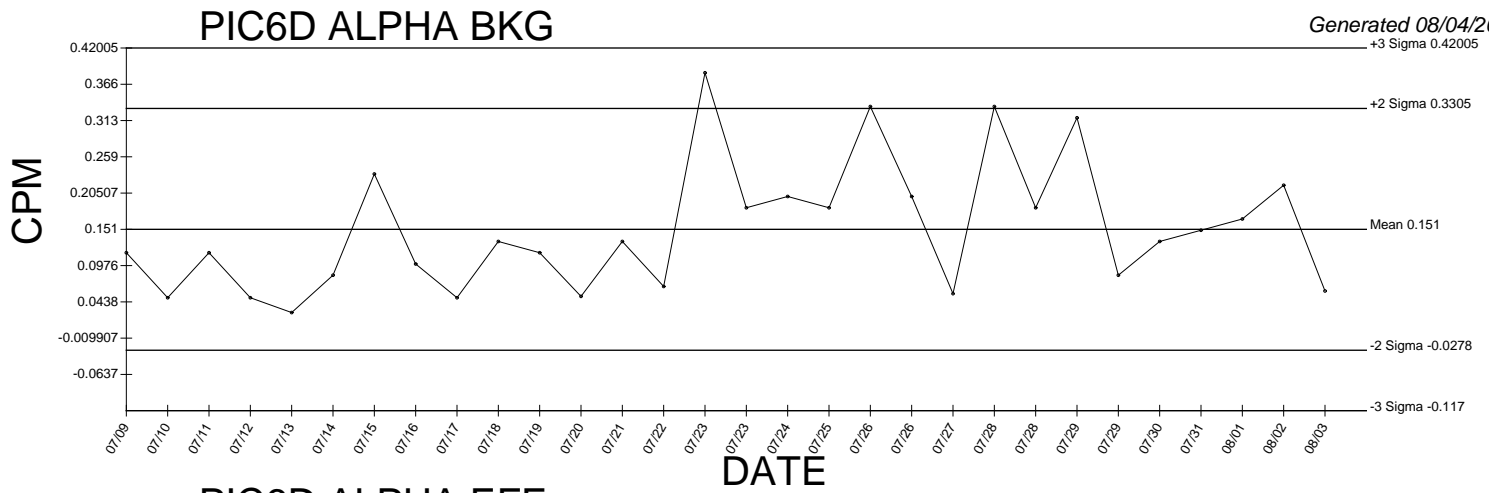
● Denotes Outlier



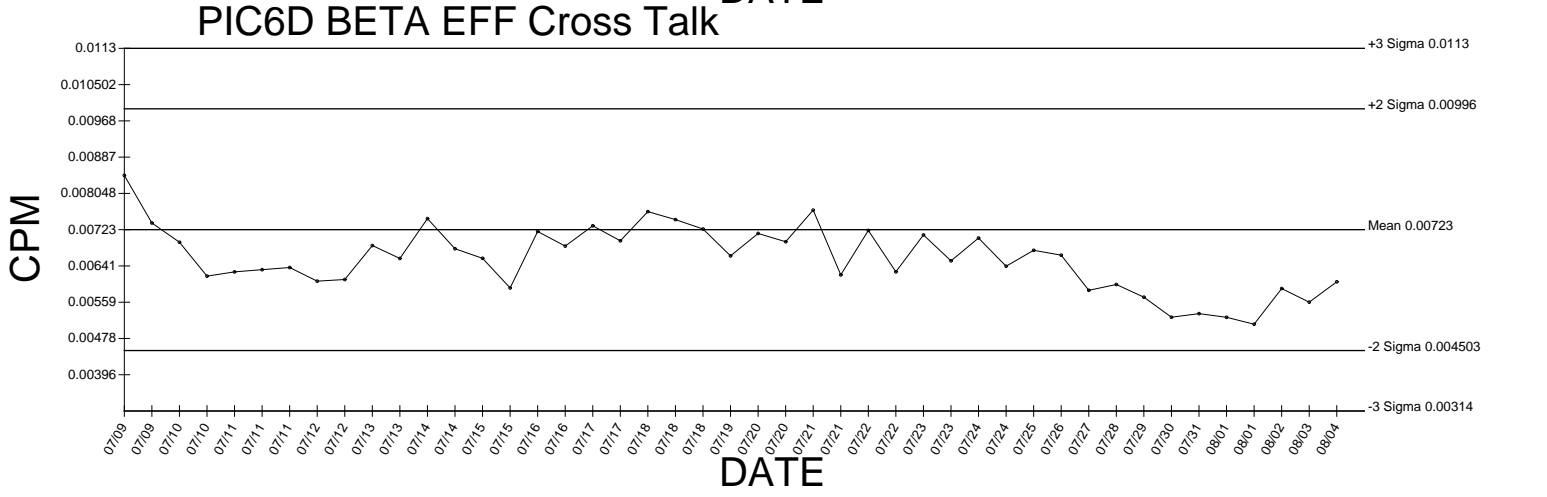
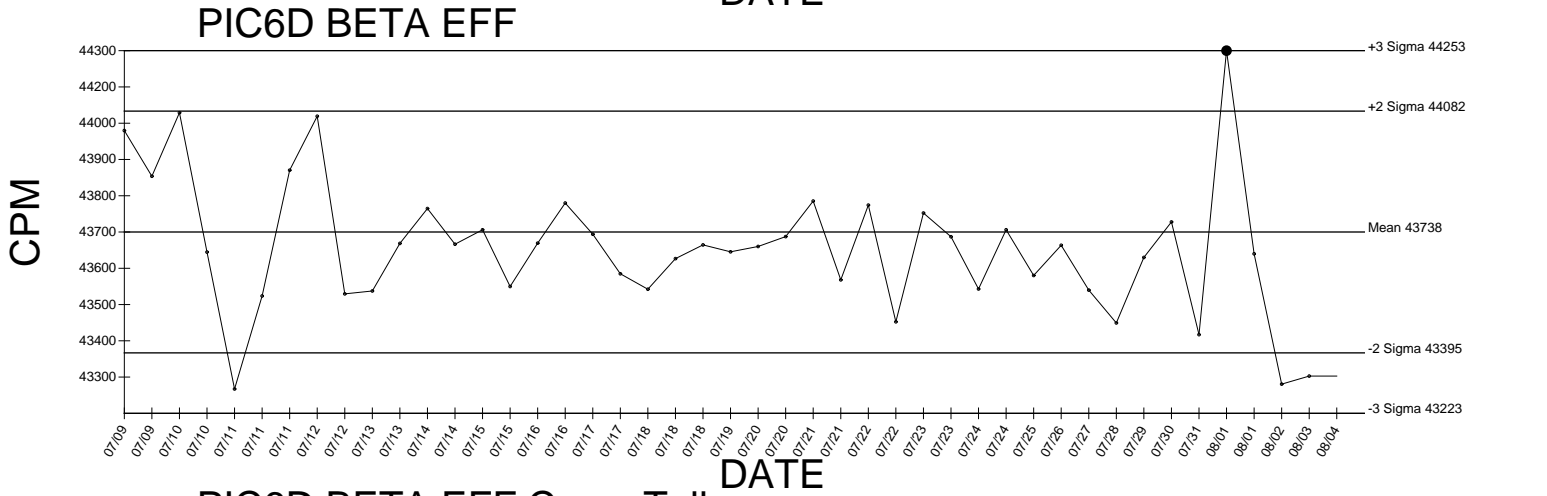
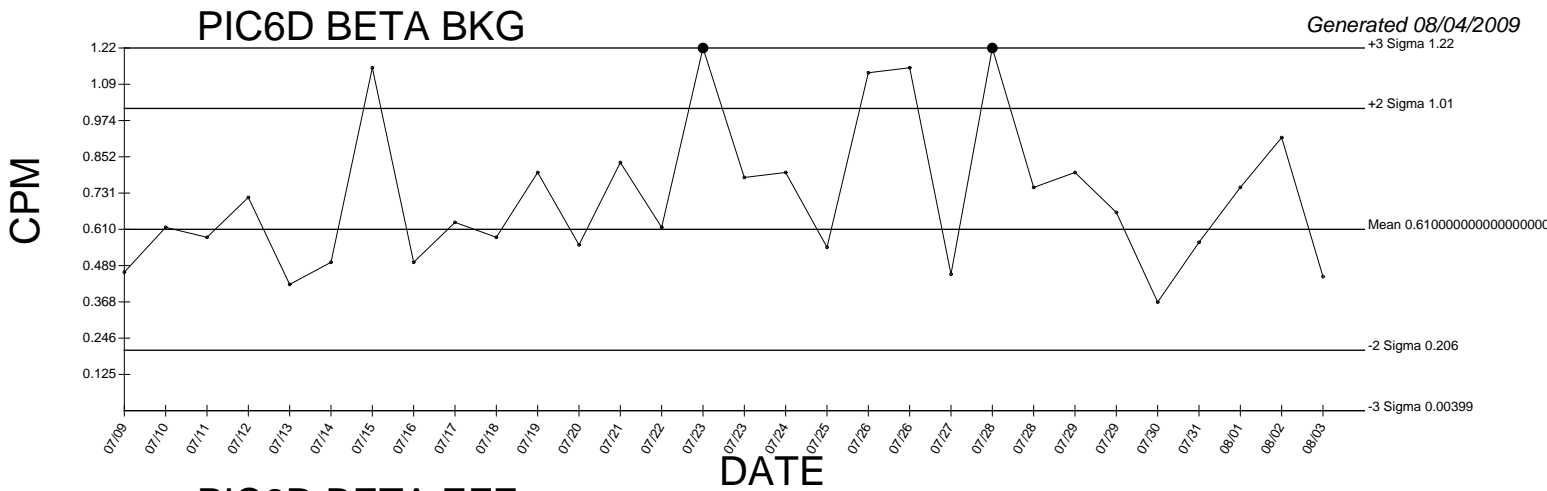
● Denotes Outlier



● Denotes Outlier



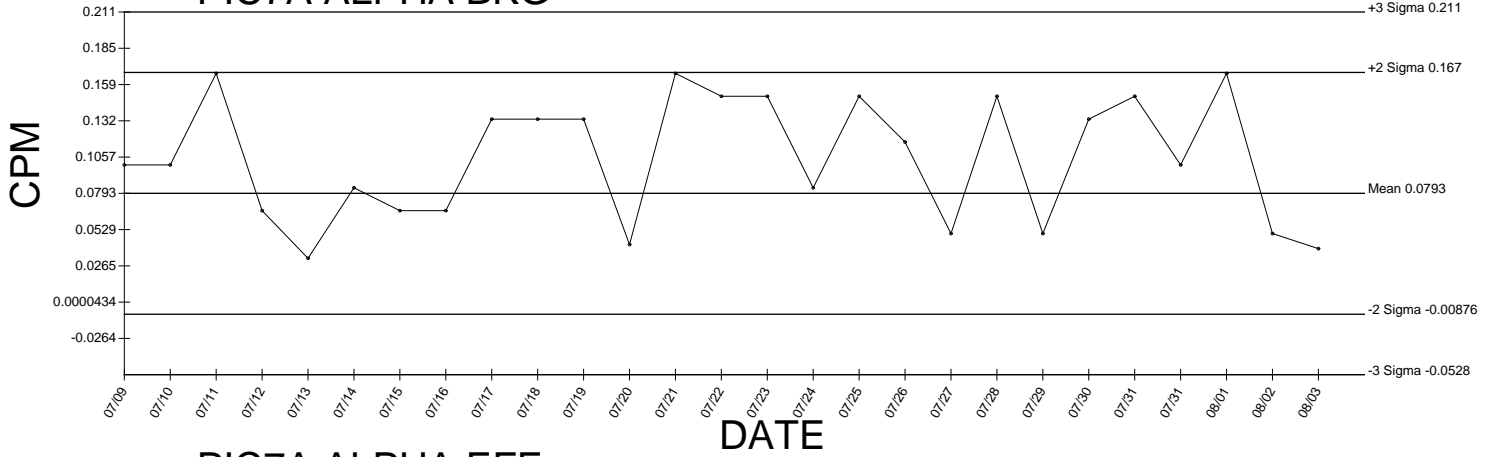
● Denotes Outlier



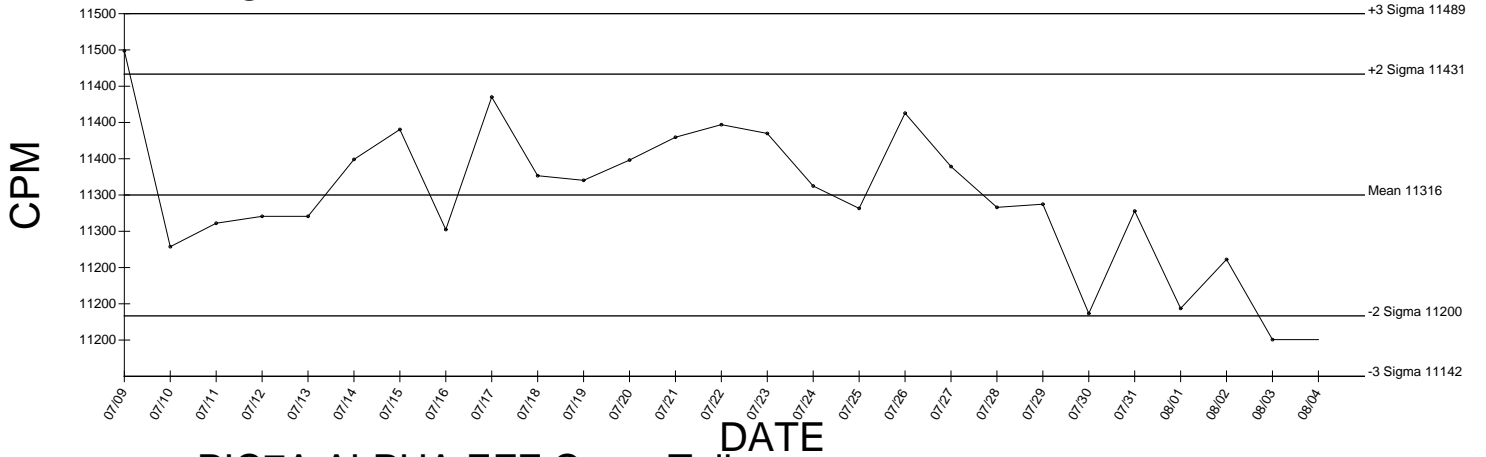
● Denotes Outlier

# PIC7A ALPHA BKG

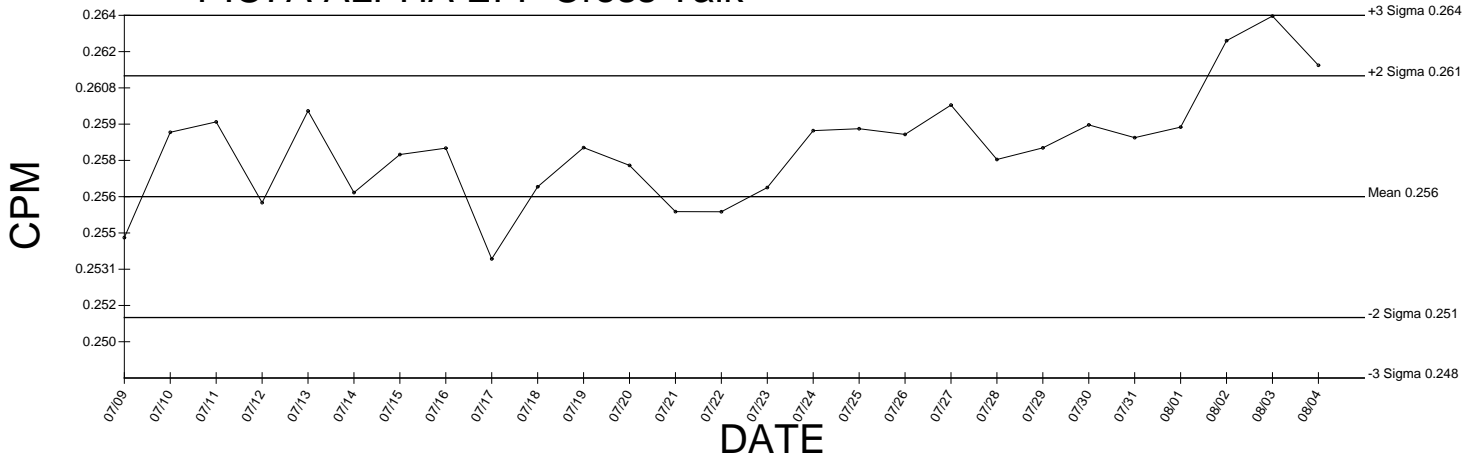
Generated 08/04/2009



# PIC7A ALPHA EFF



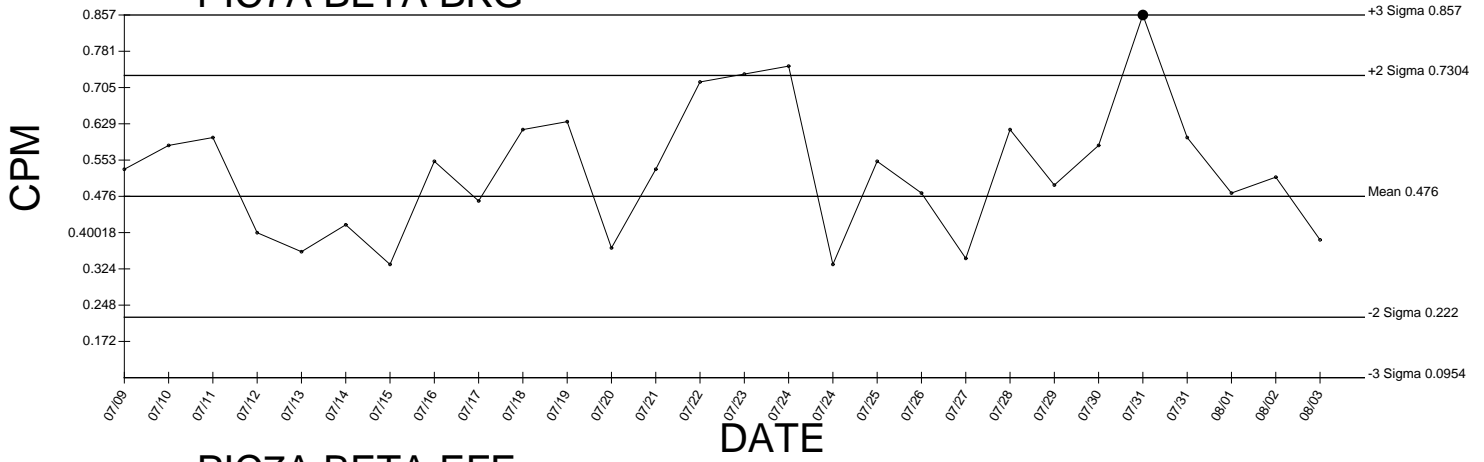
# PIC7A ALPHA EFF Cross Talk



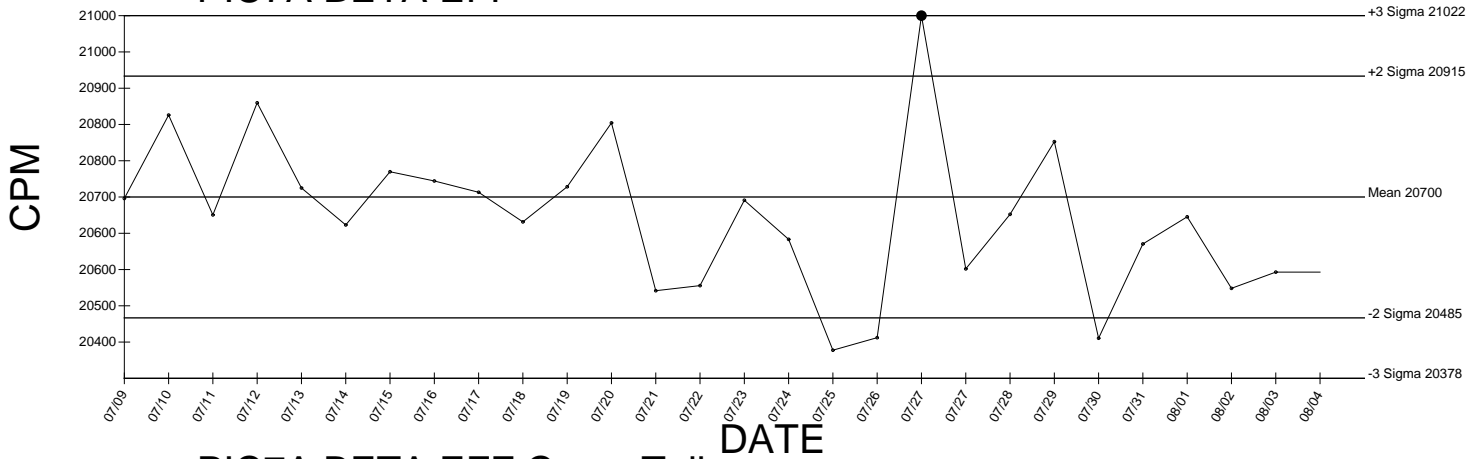
● Denotes Outlier



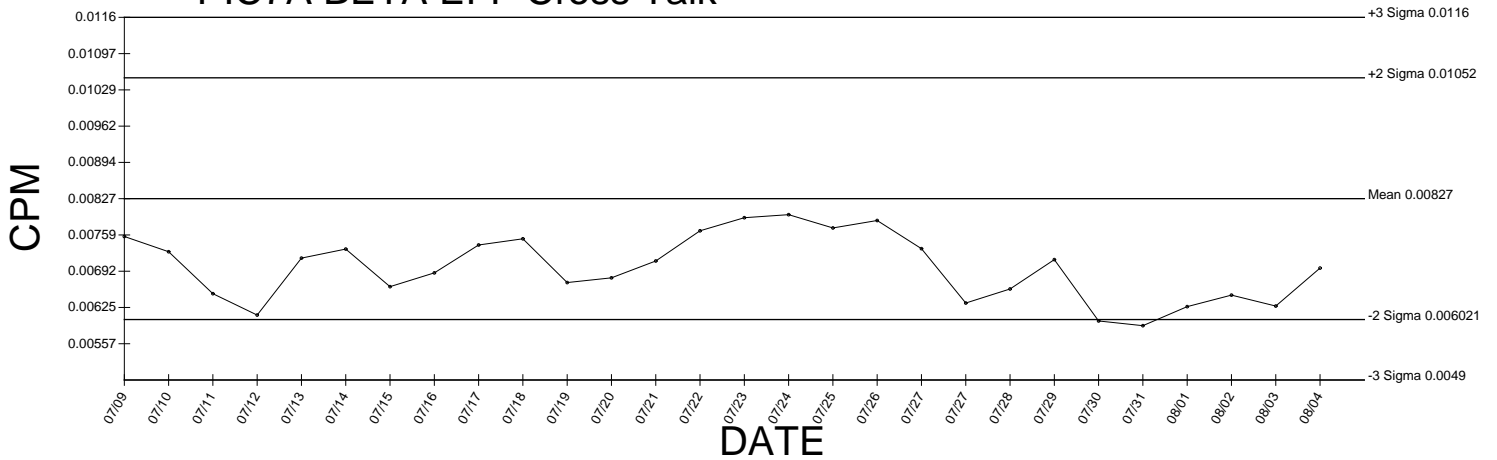
### PIC7A BETA BKG



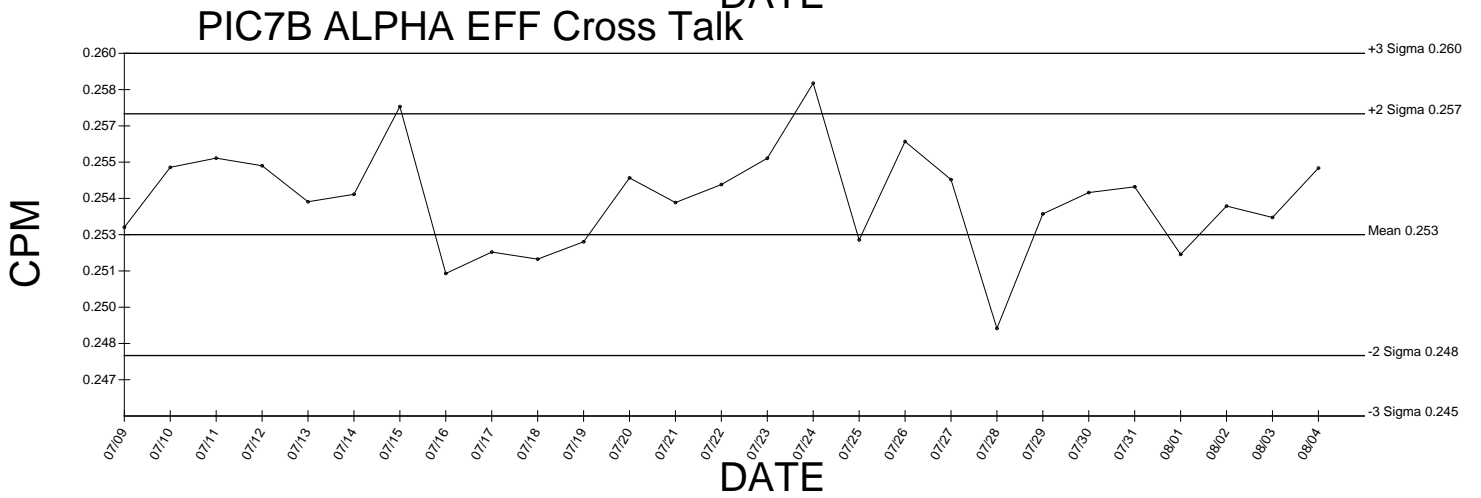
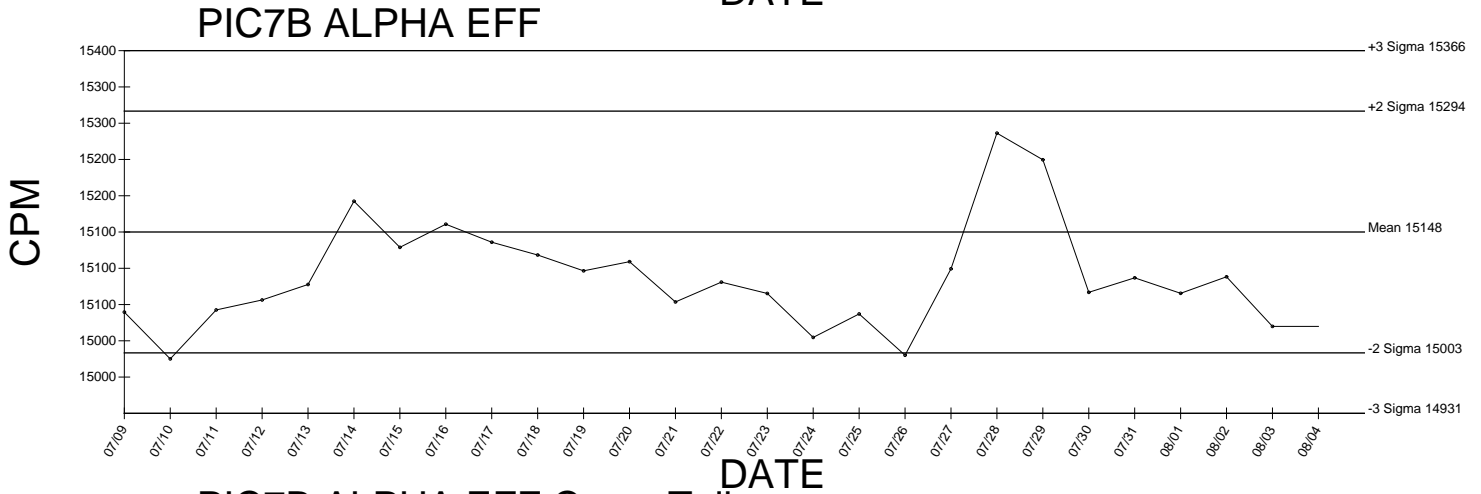
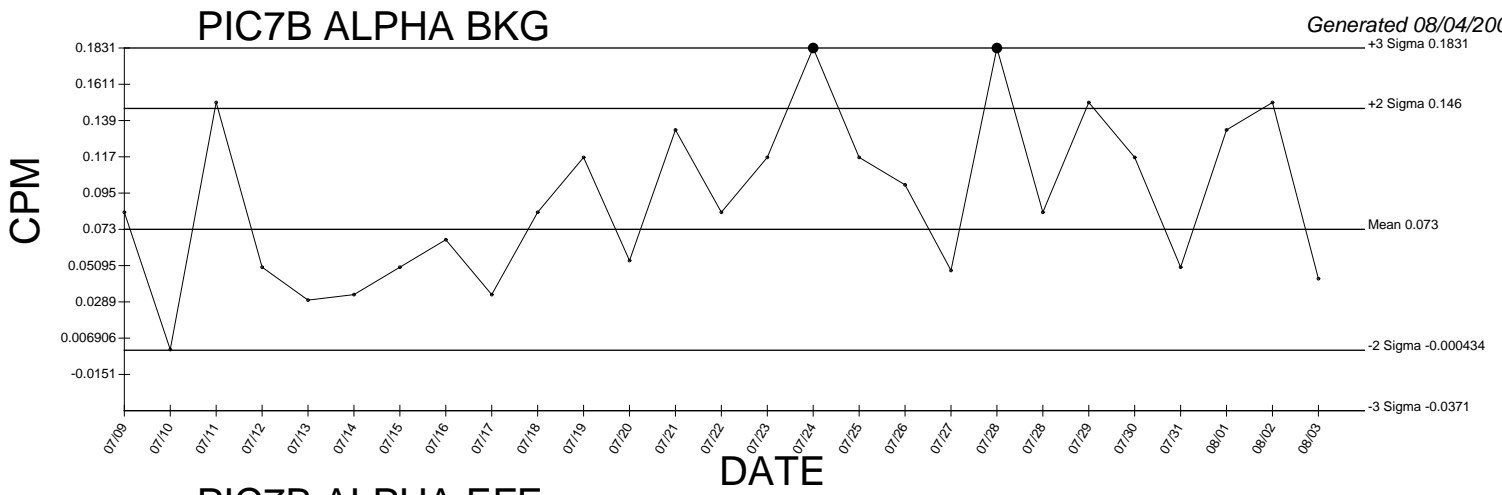
### PIC7A BETA EFF



### PIC7A BETA EFF Cross Talk



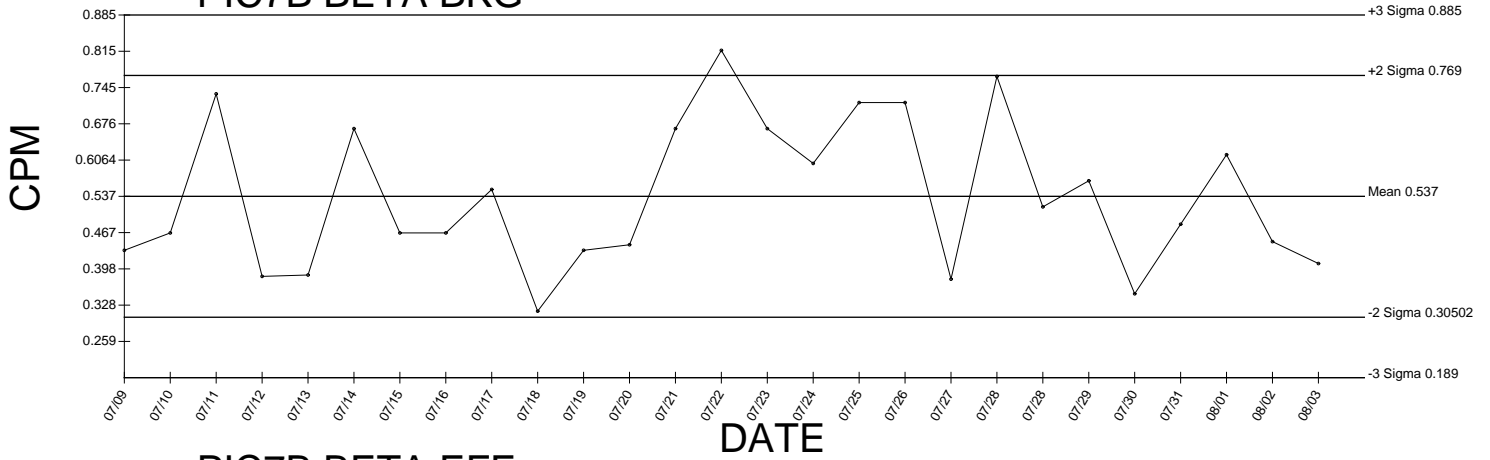
● Denotes Outlier



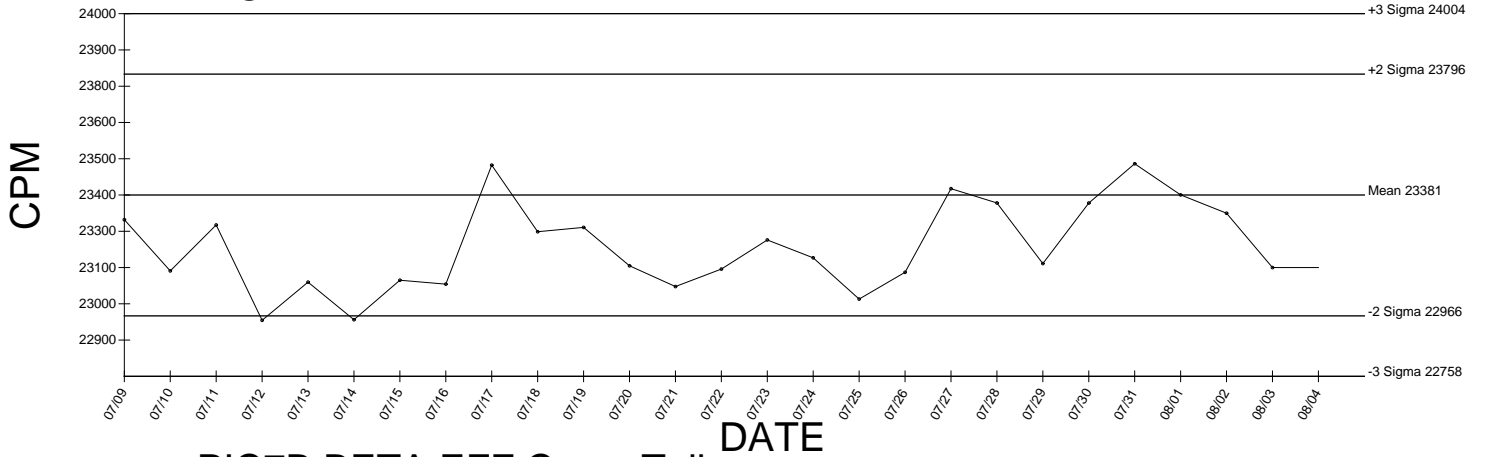
● Denotes Outlier

# PIC7B BETA BKG

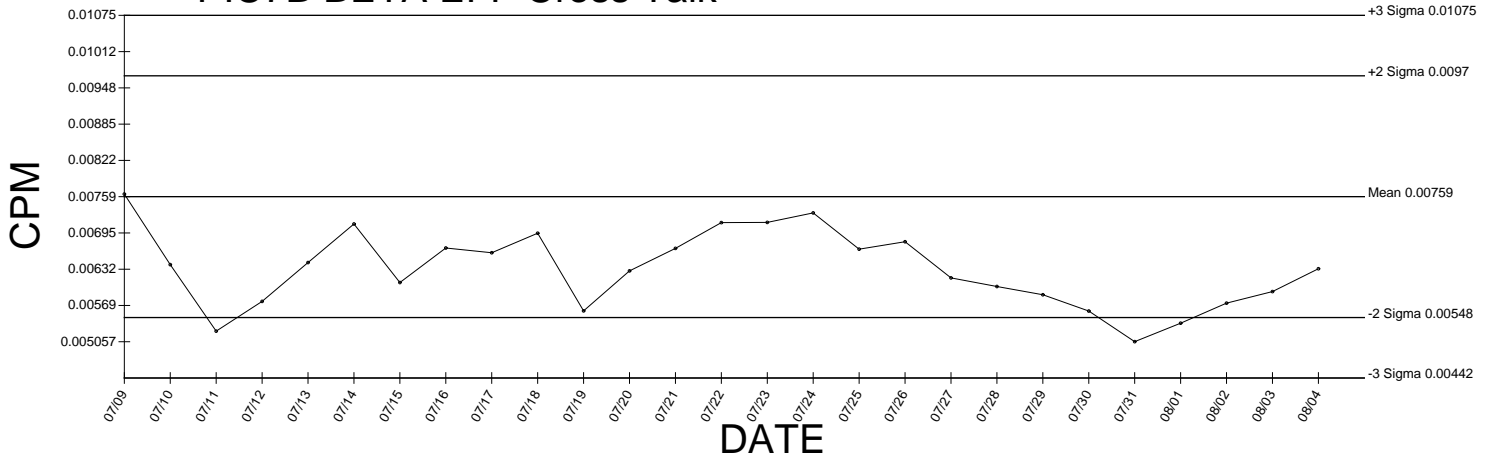
Generated 08/04/2009



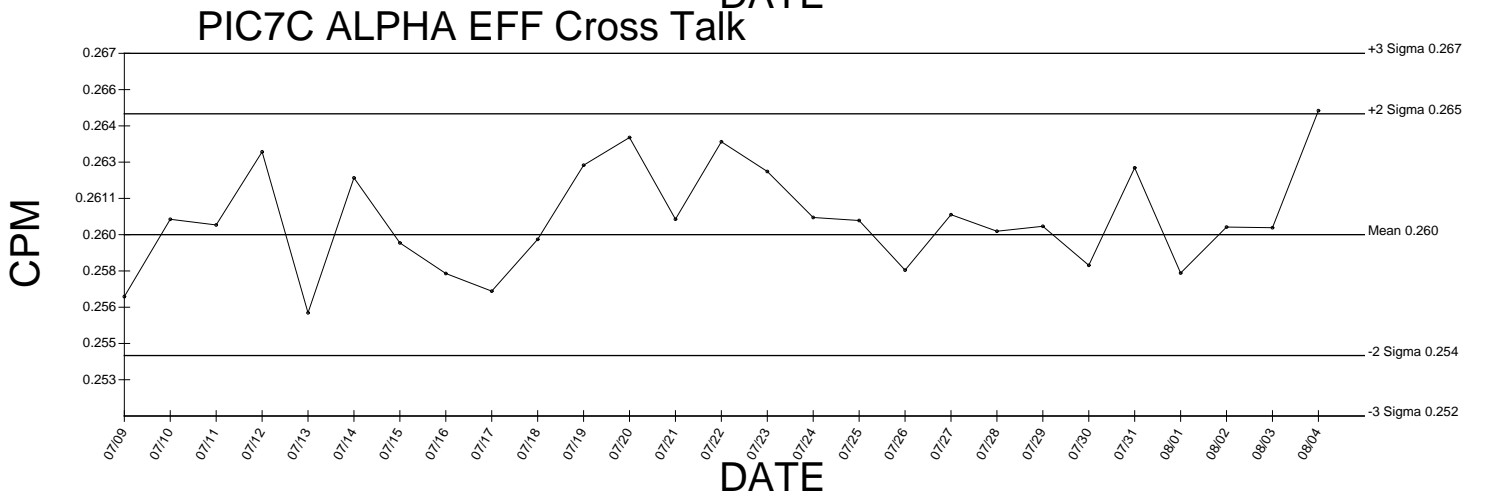
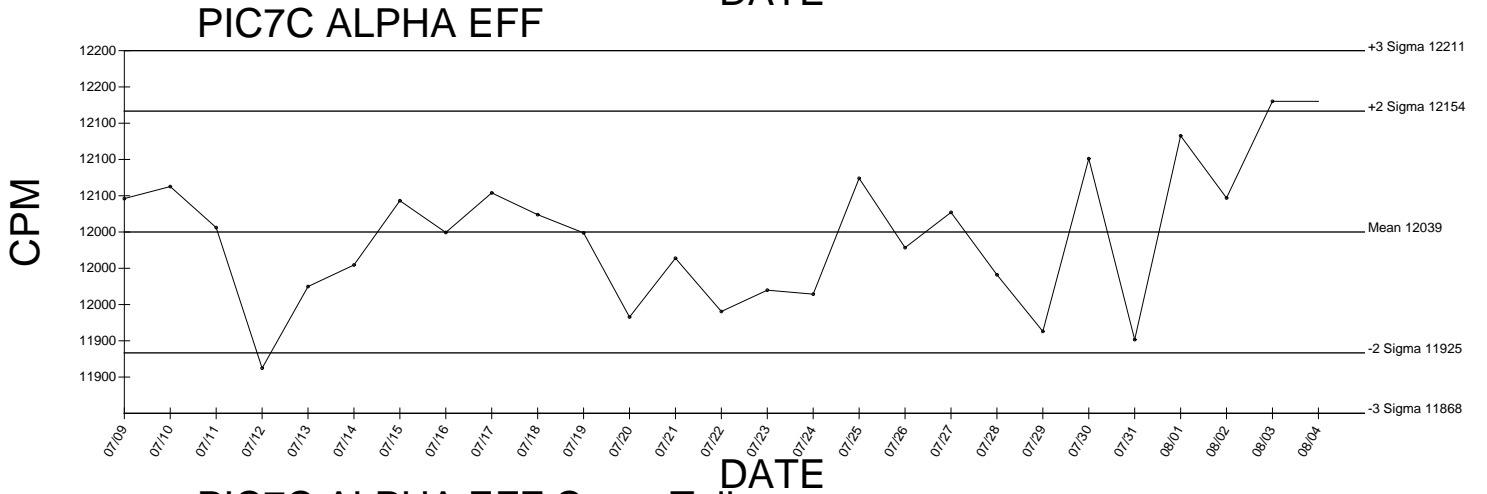
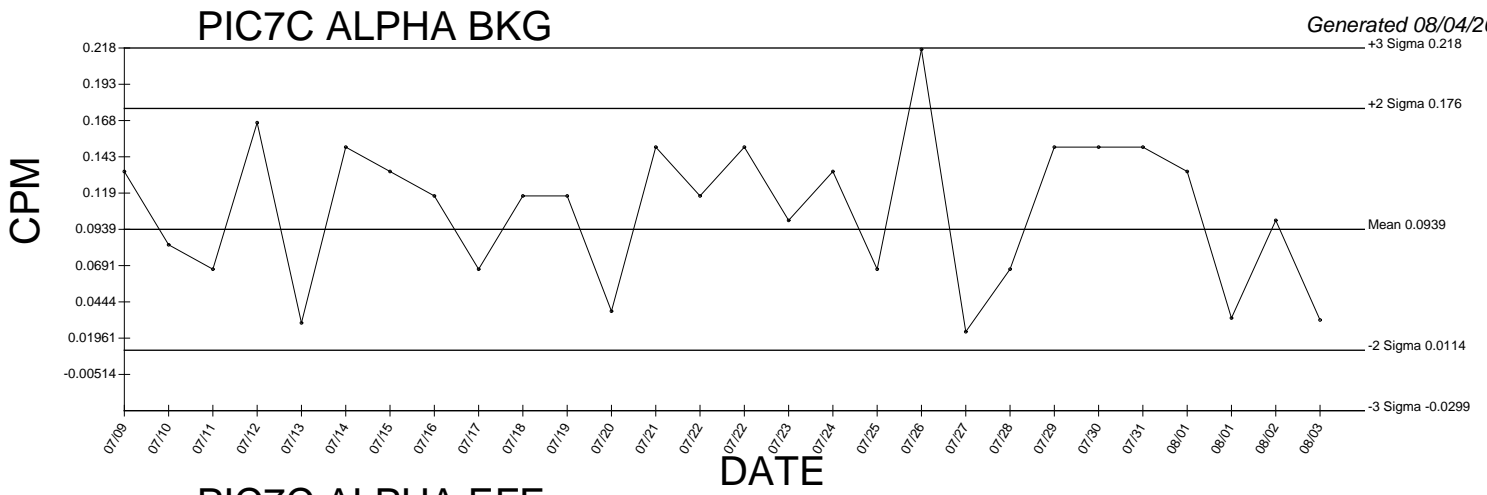
# PIC7B BETA EFF



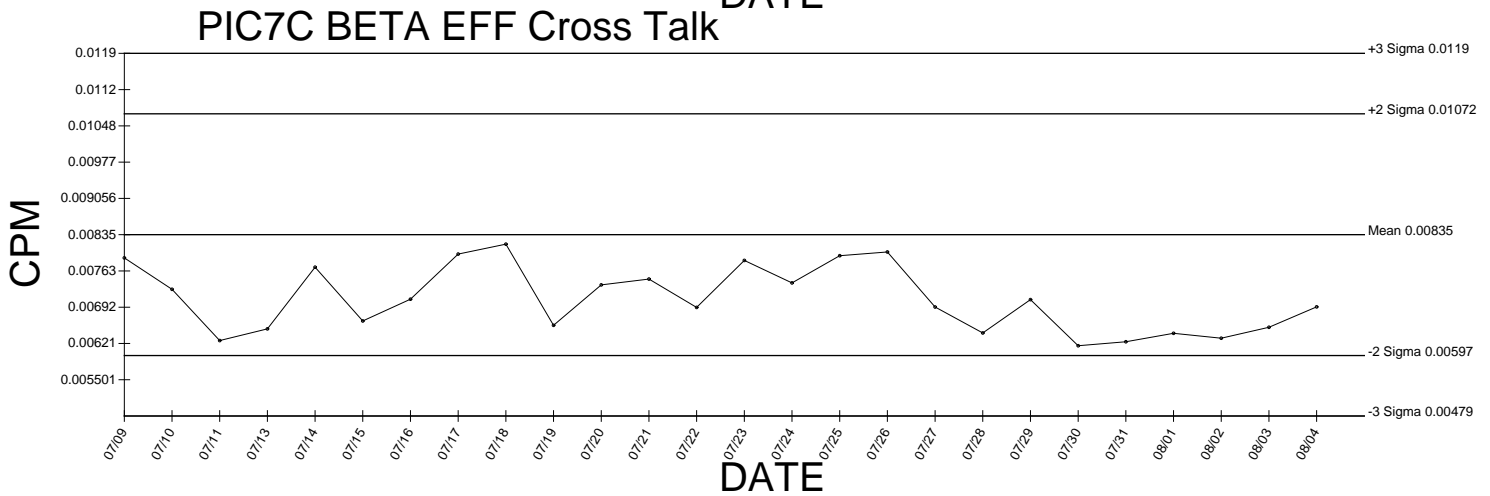
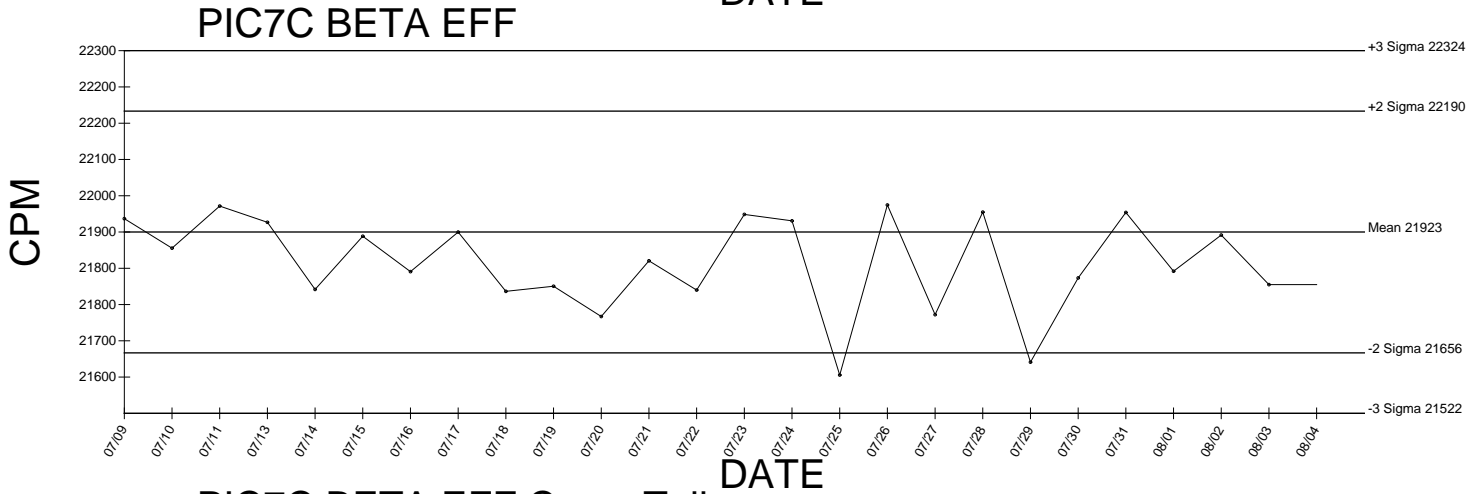
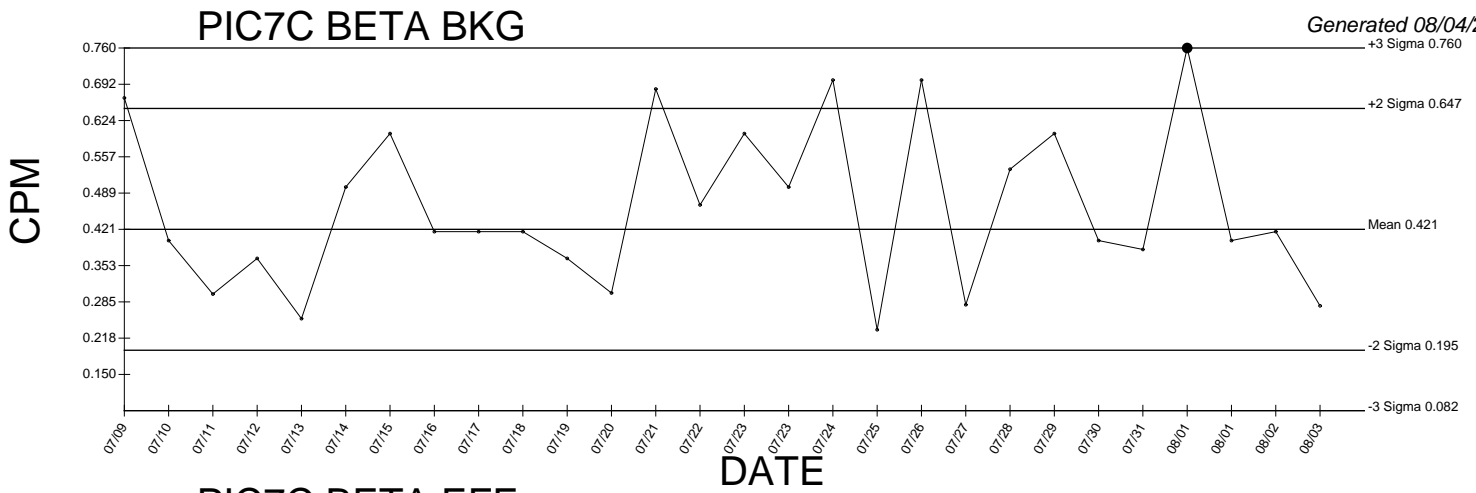
# PIC7B BETA EFF Cross Talk



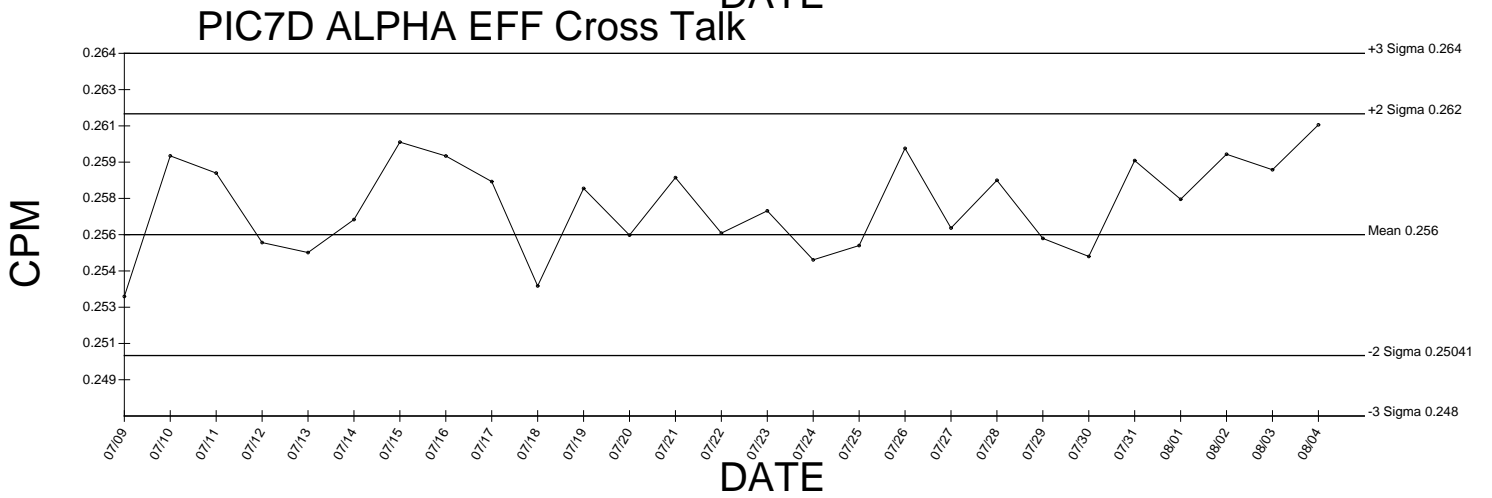
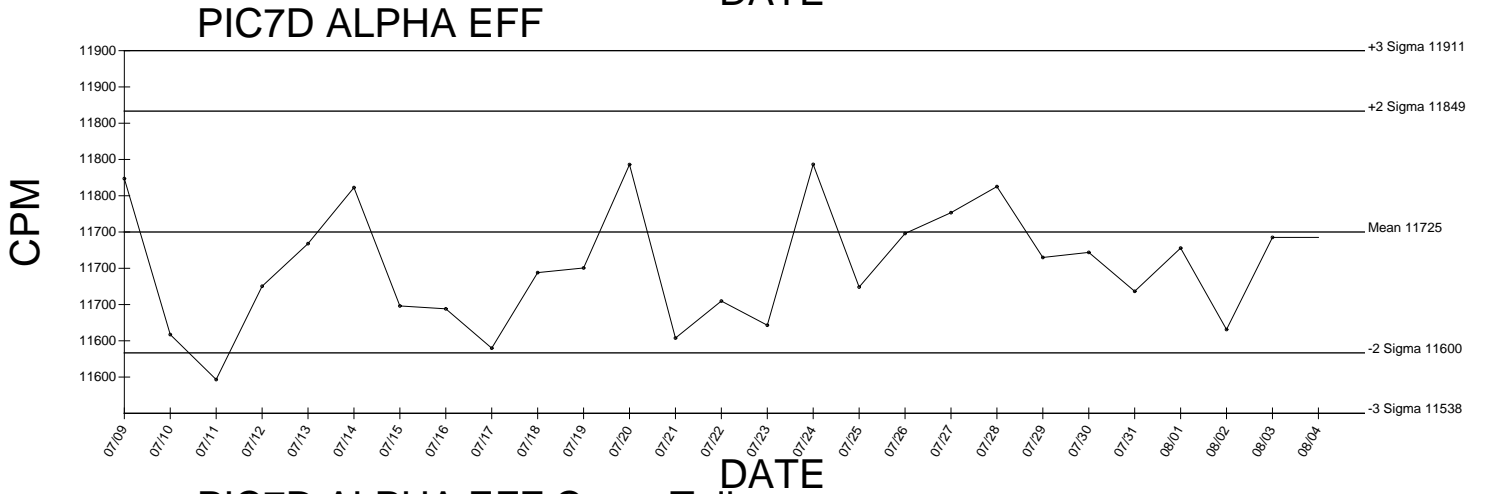
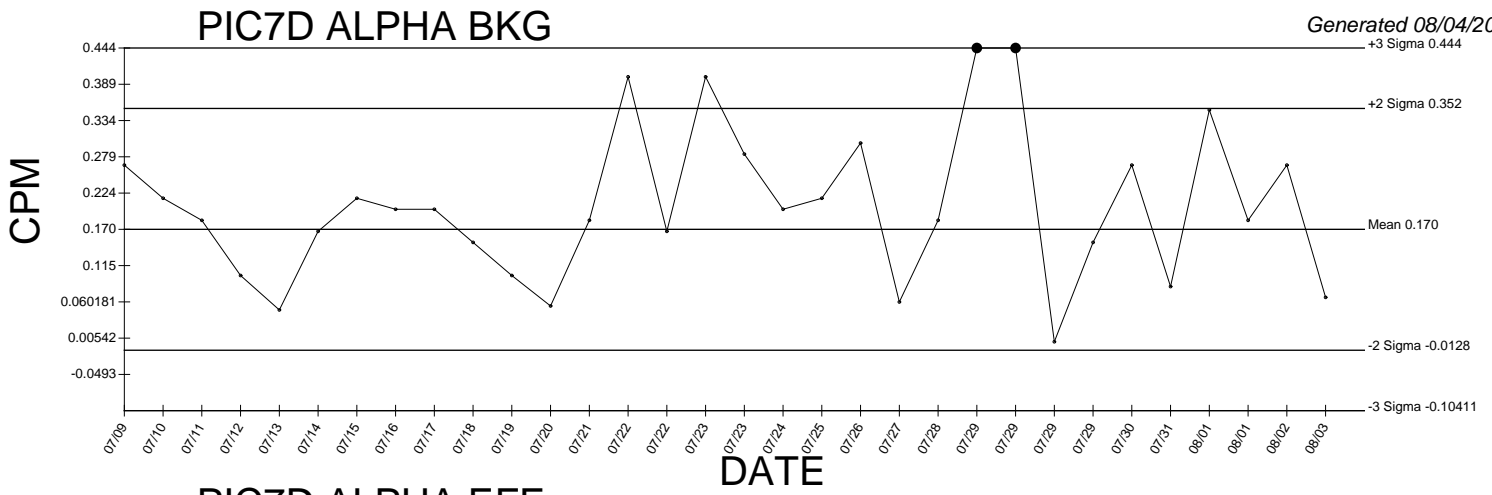
● Denotes Outlier



● Denotes Outlier

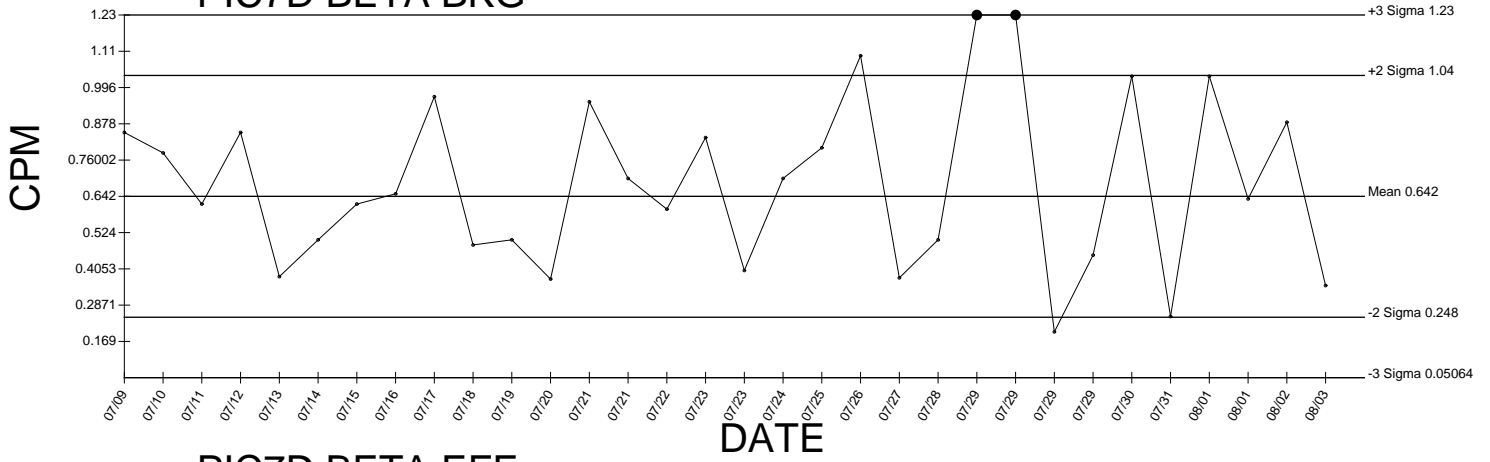


● Denotes Outlier

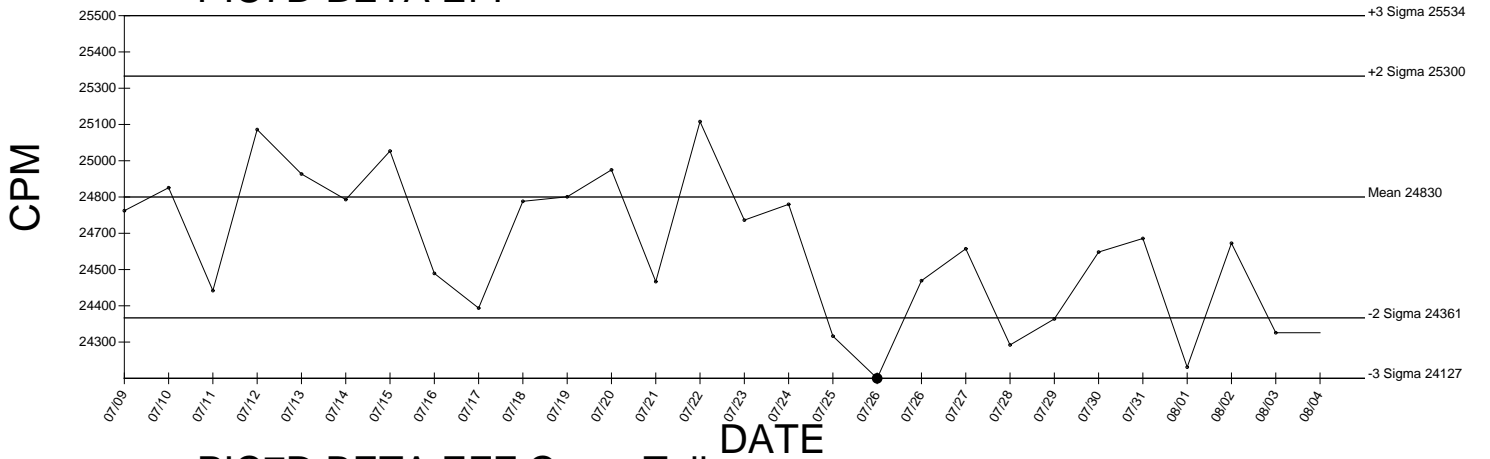


● Denotes Outlier

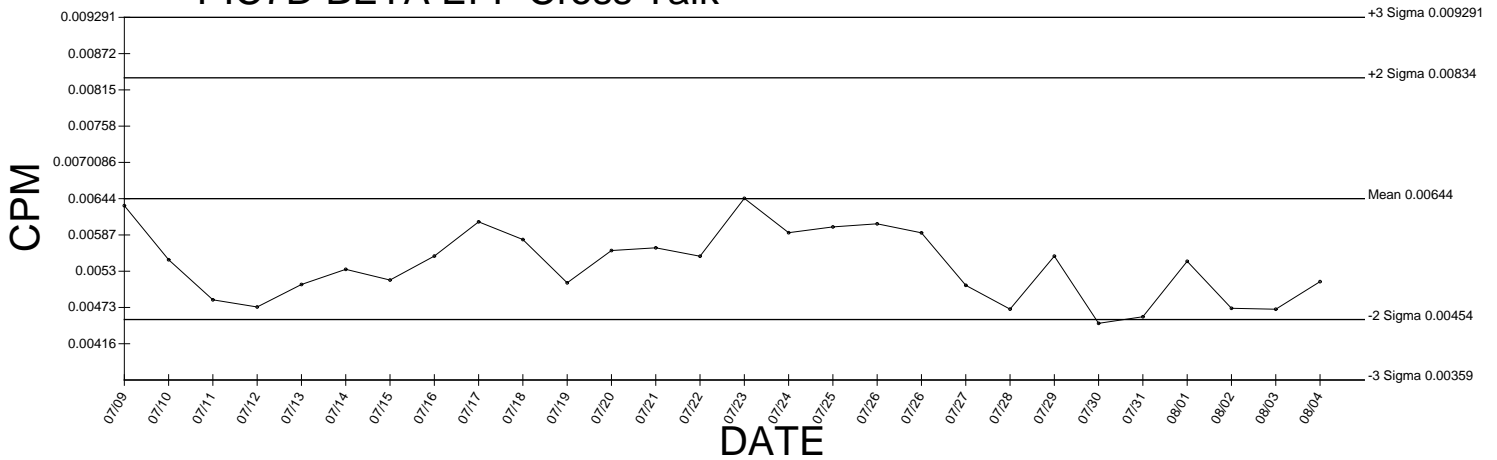
### PIC7D BETA BKG



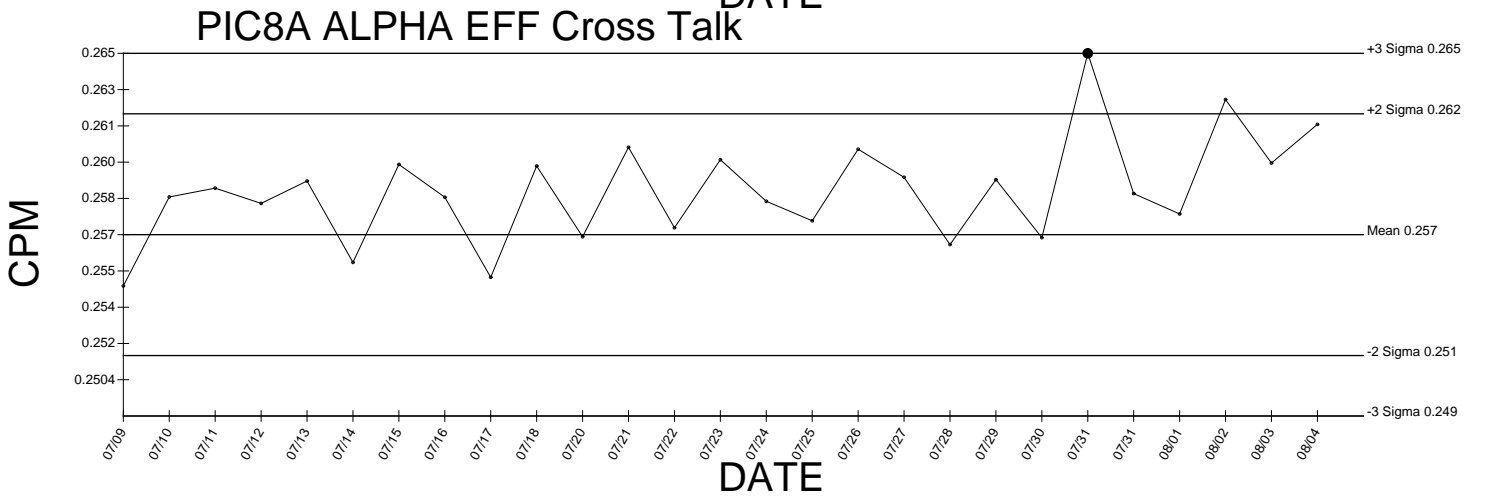
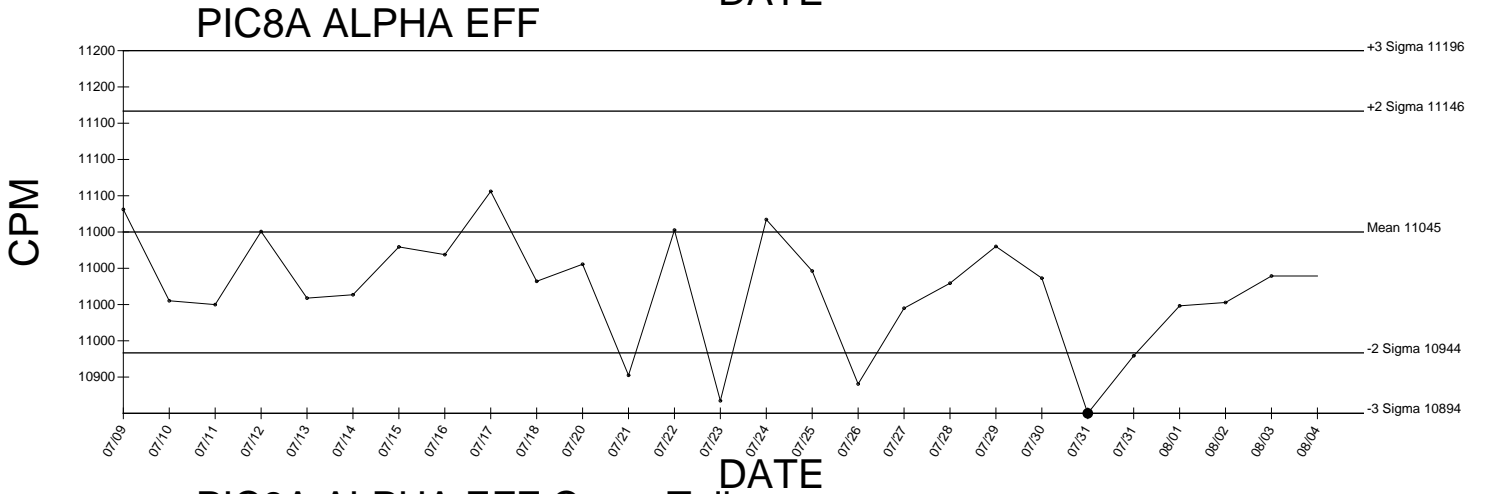
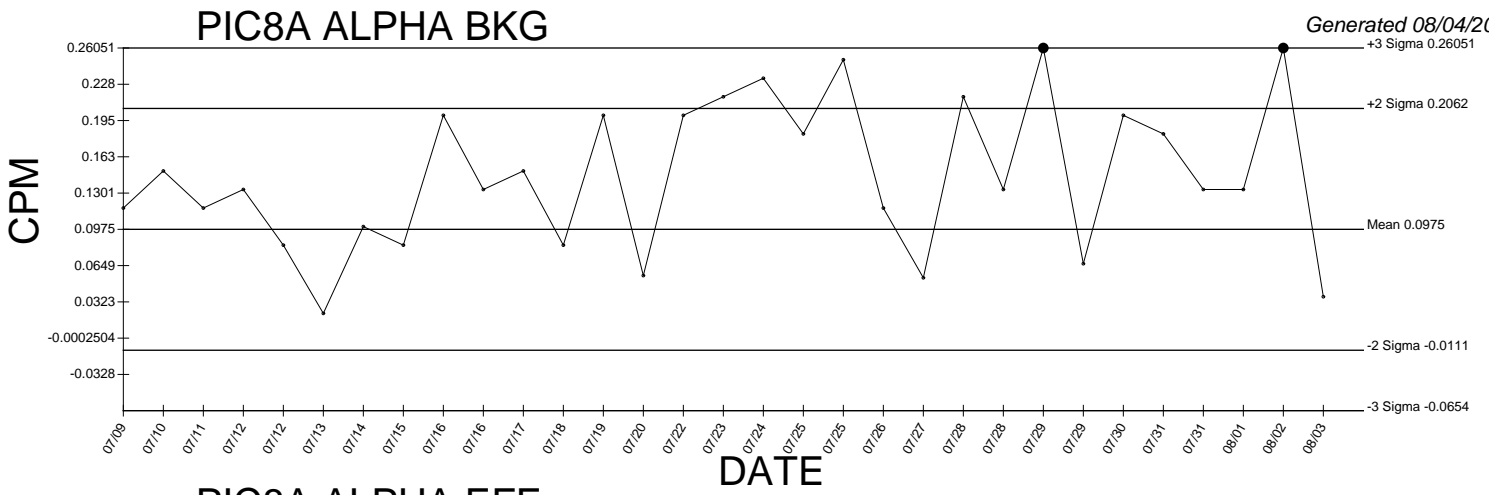
### PIC7D BETA EFF



### PIC7D BETA EFF Cross Talk

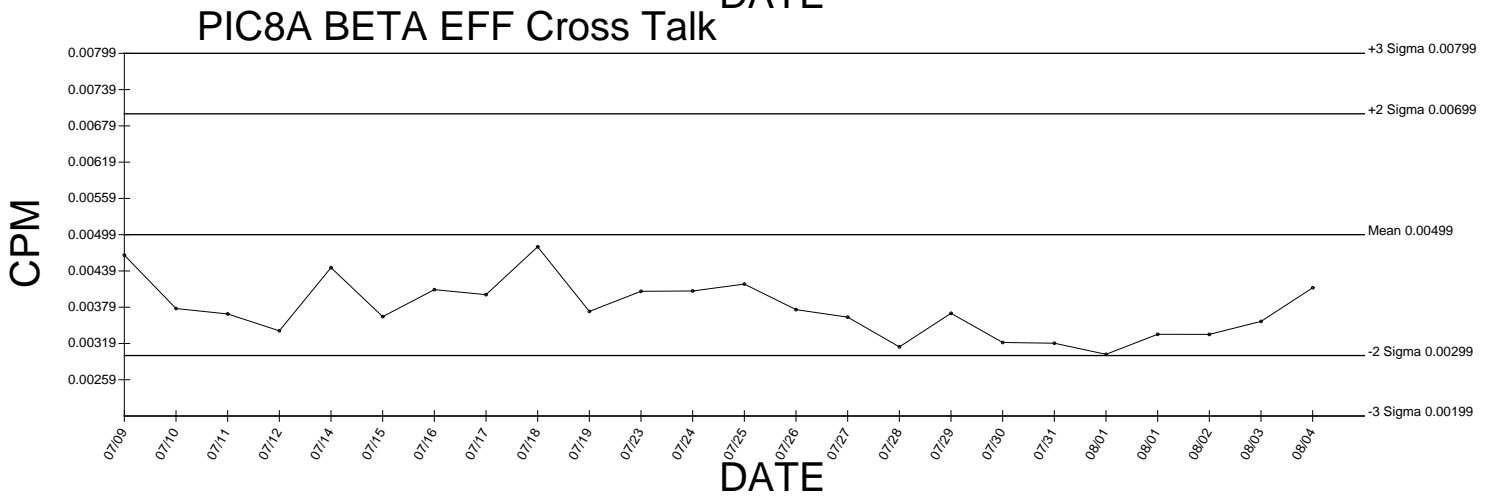
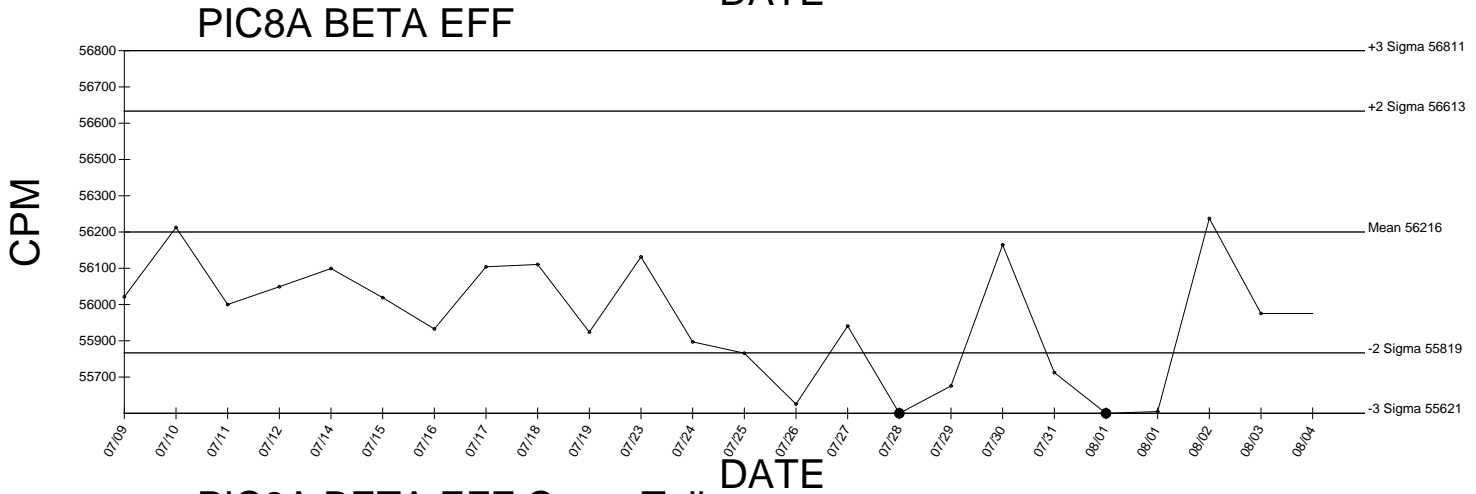
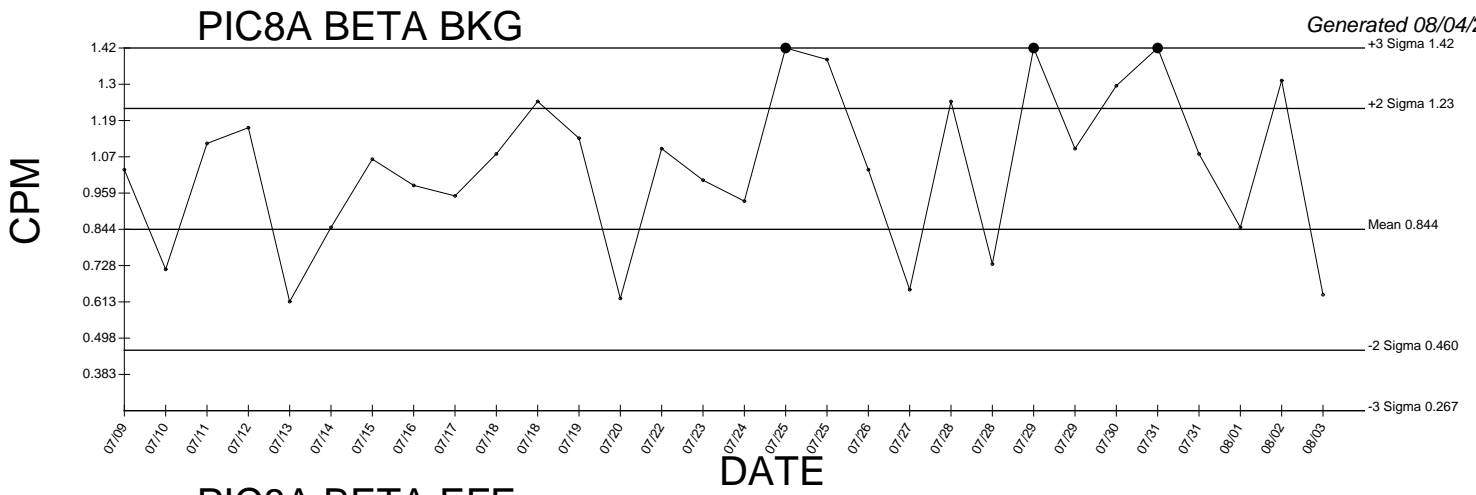


● Denotes Outlier

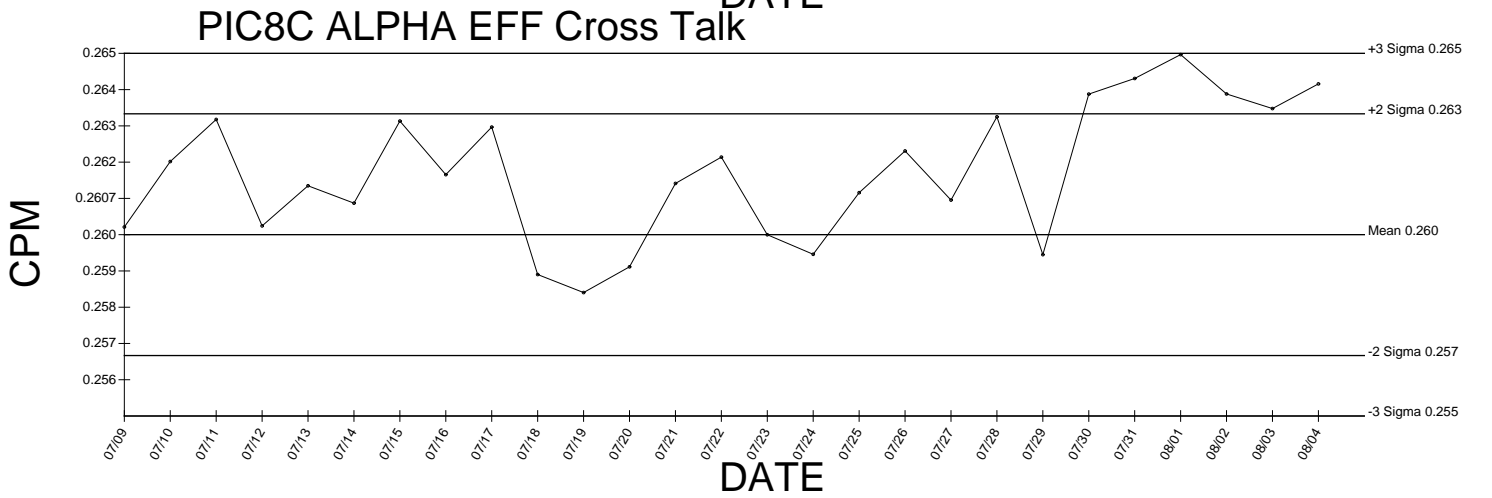
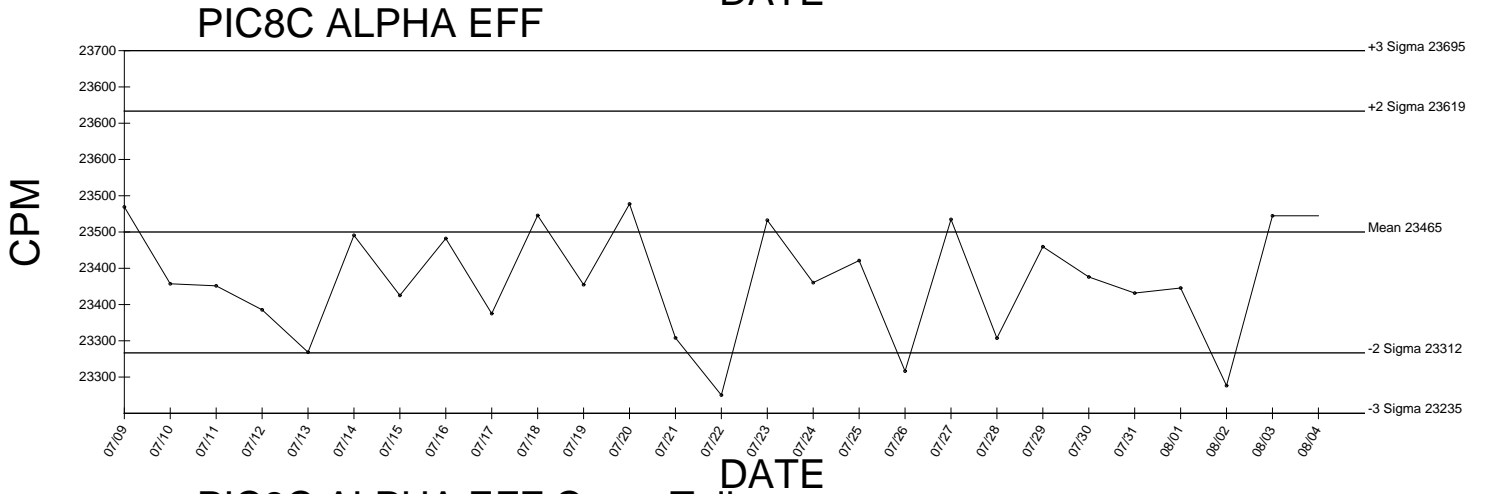
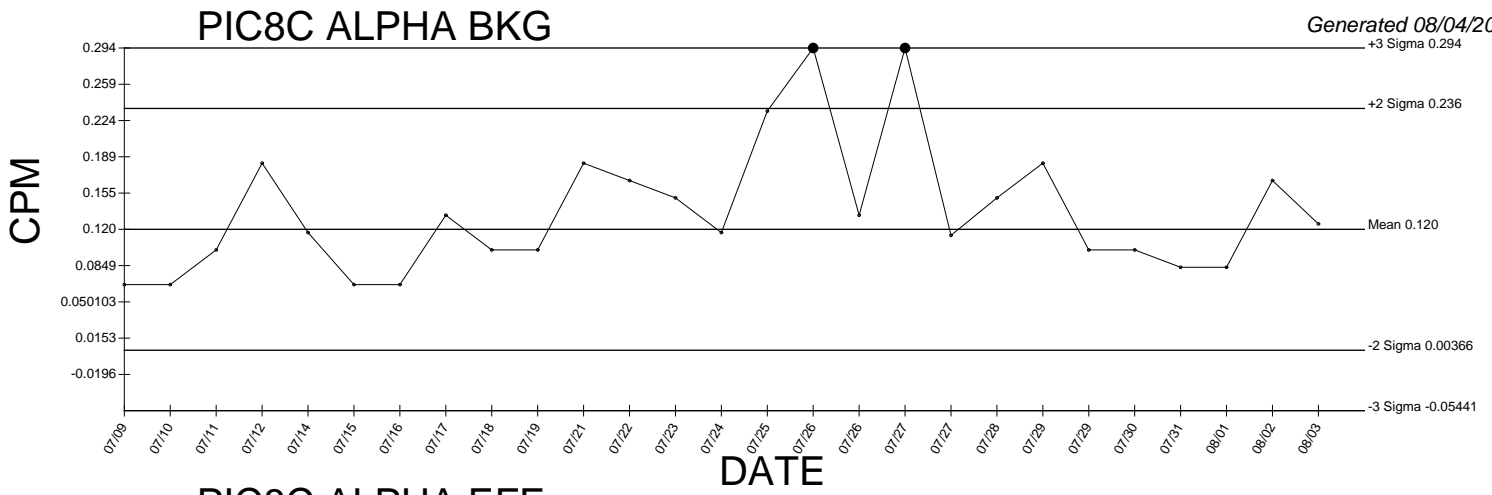


● Denotes Outlier

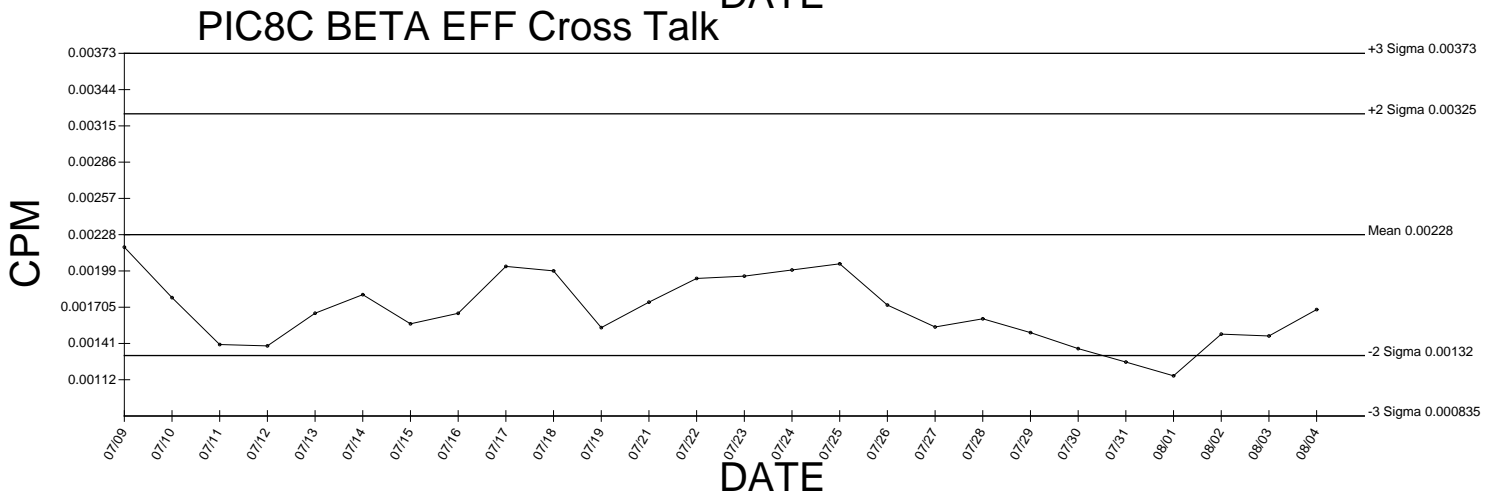
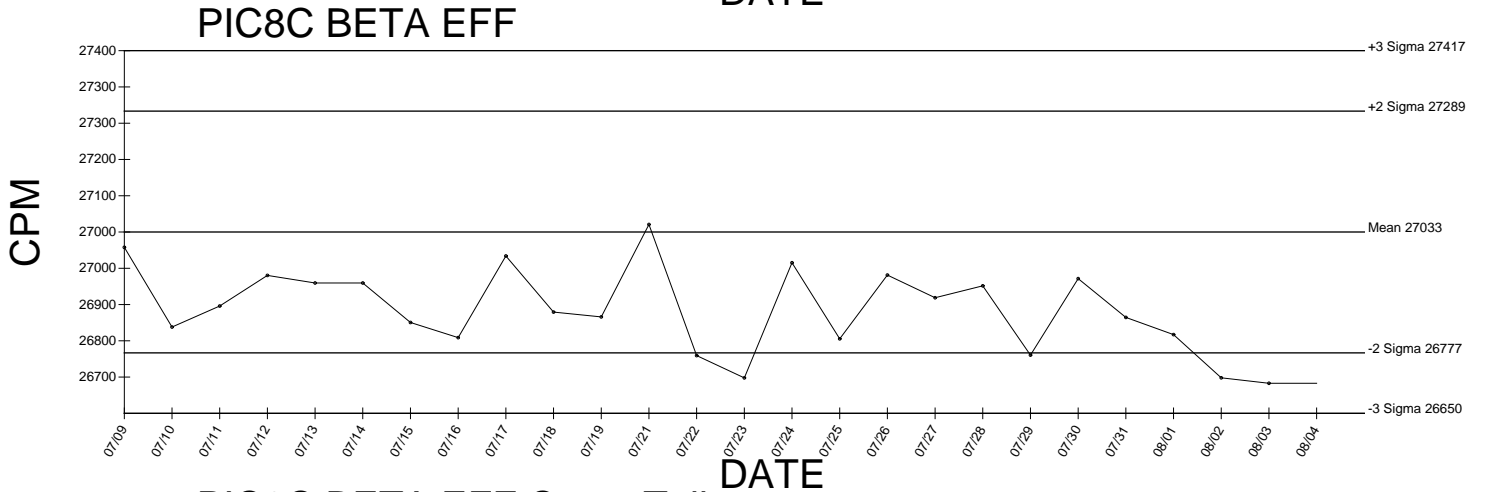
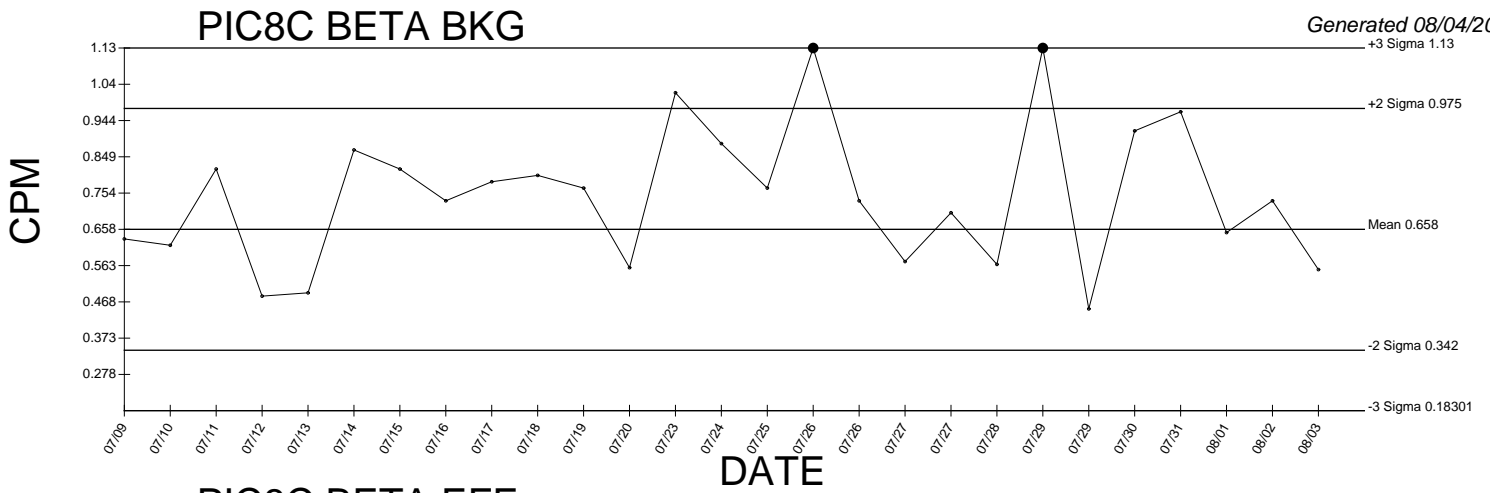




● Denotes Outlier



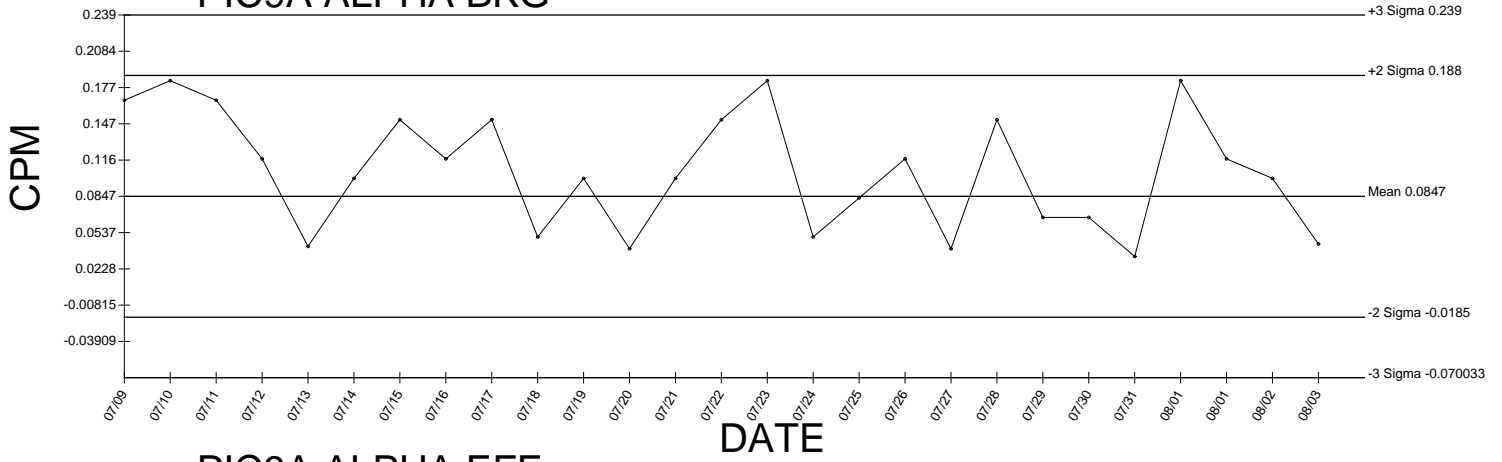
● Denotes Outlier



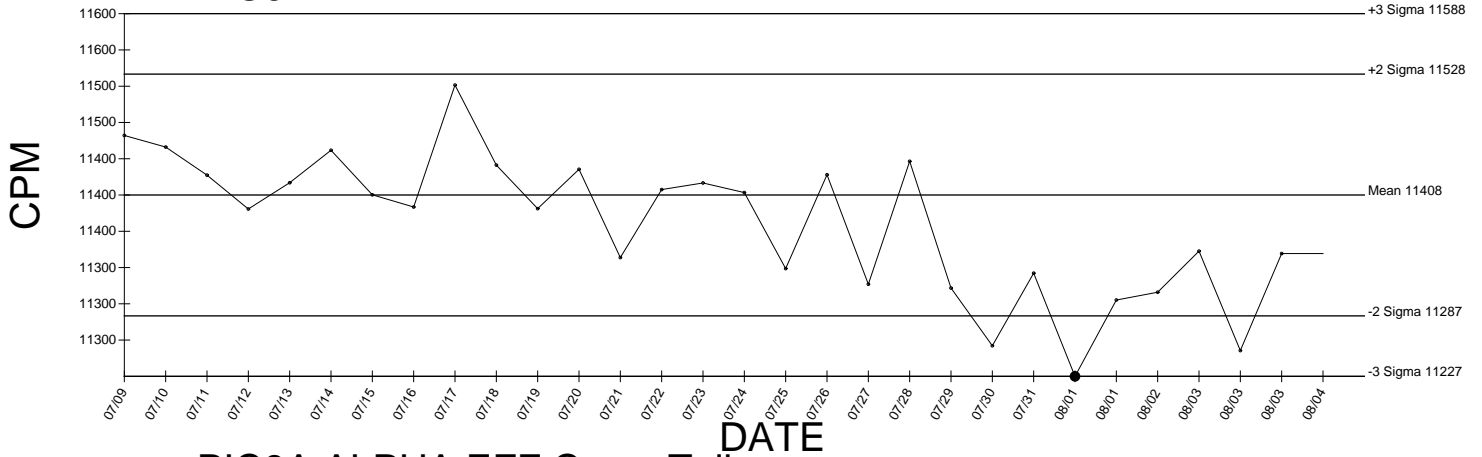
● Denotes Outlier

# PIC9A ALPHA BKG

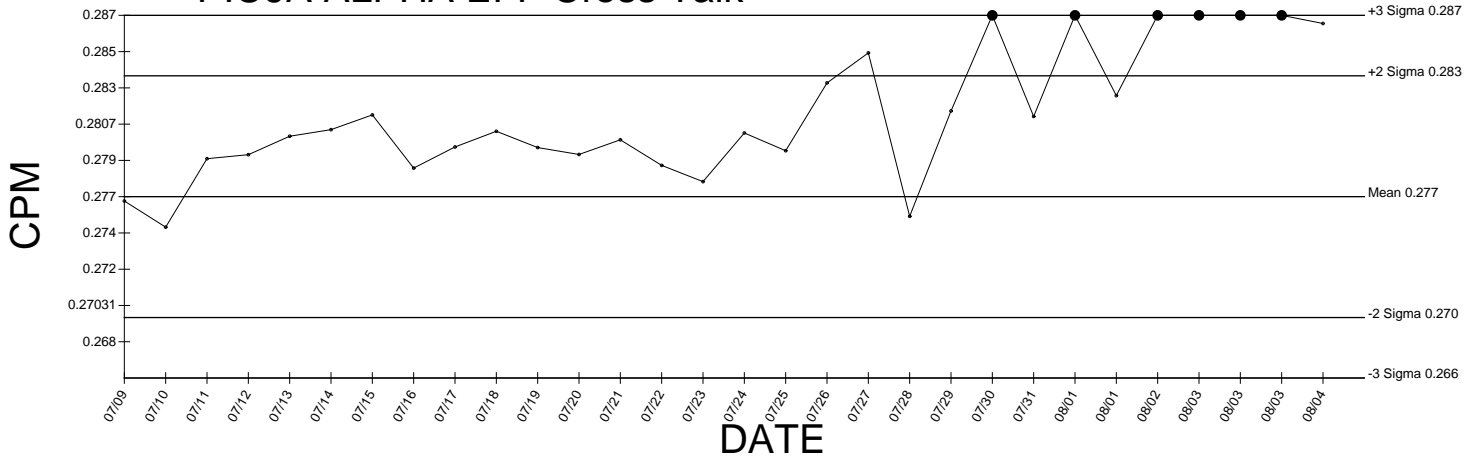
Generated 08/04/2009



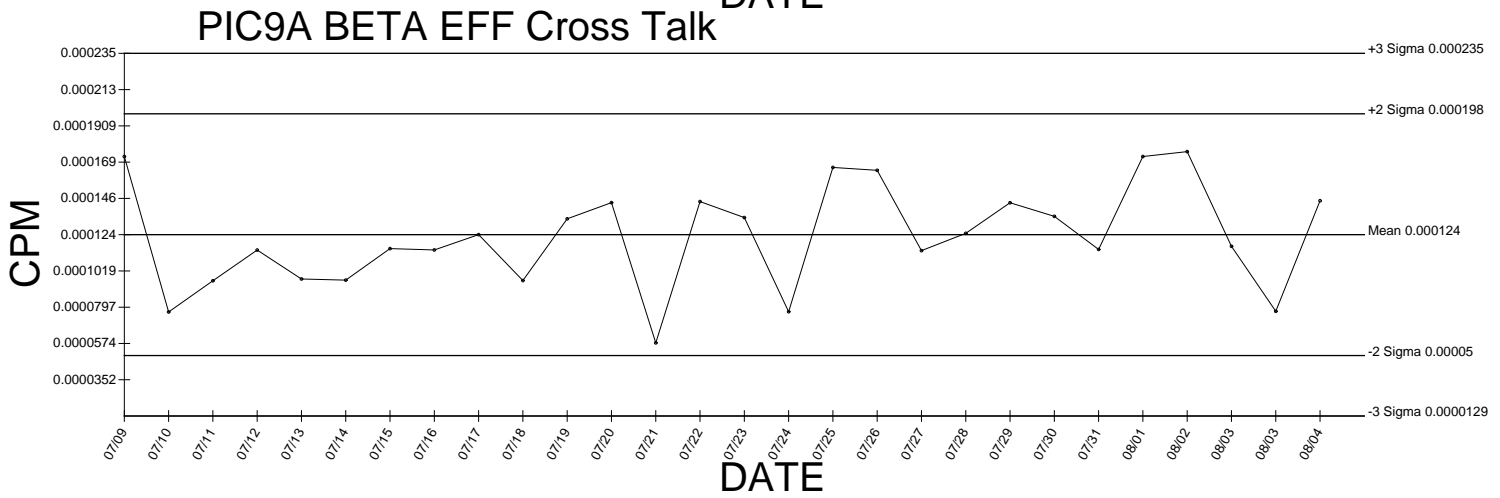
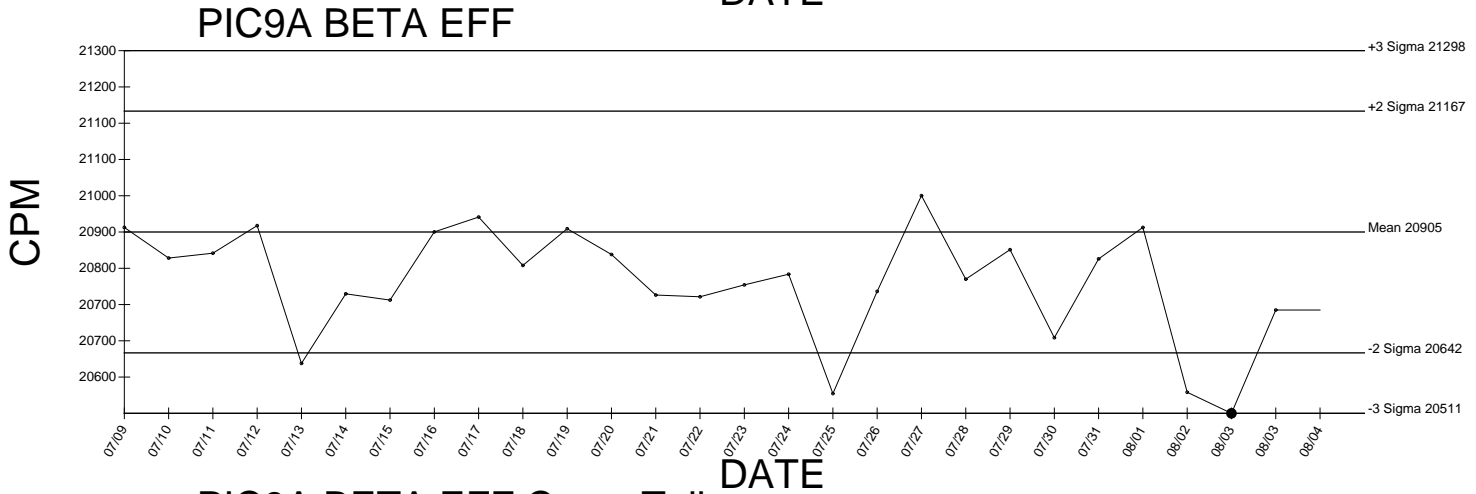
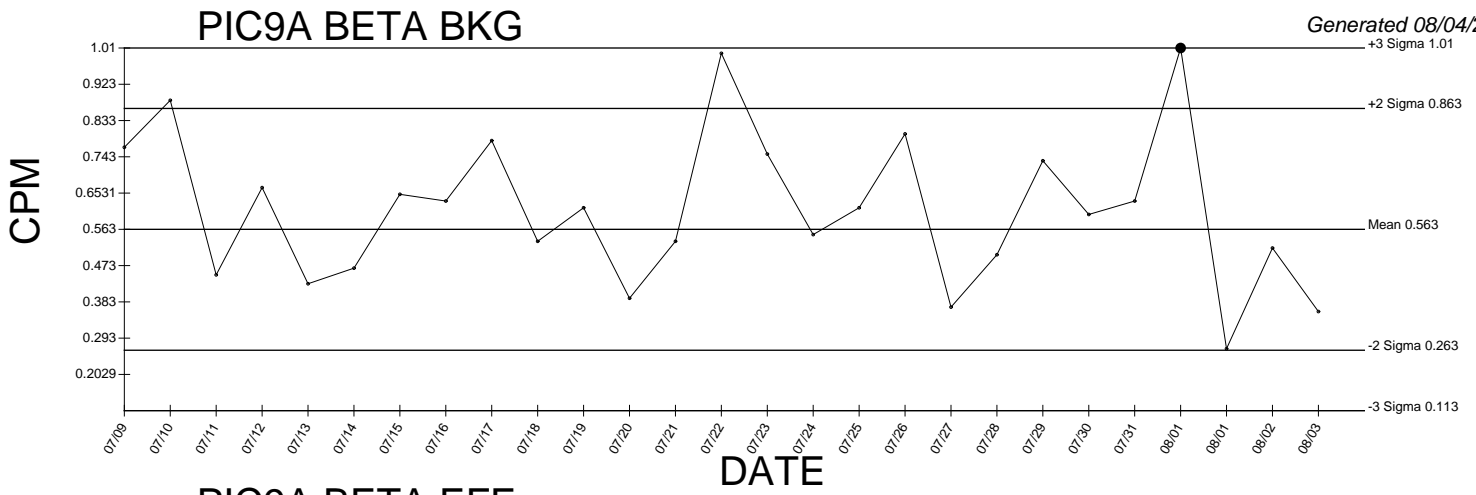
# PIC9A ALPHA EFF



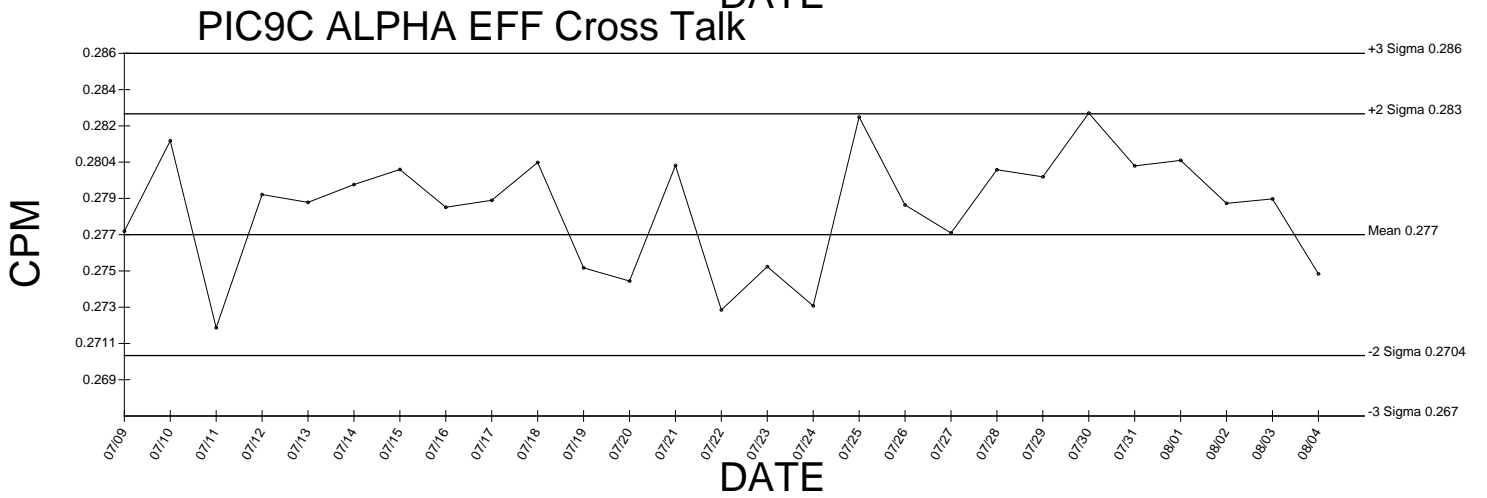
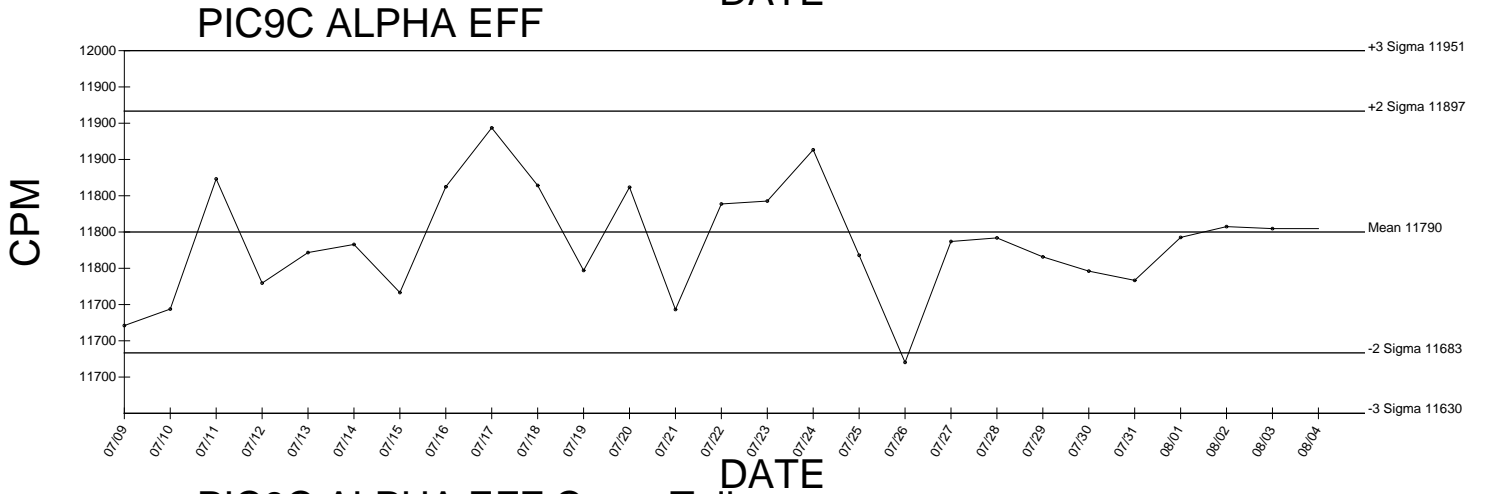
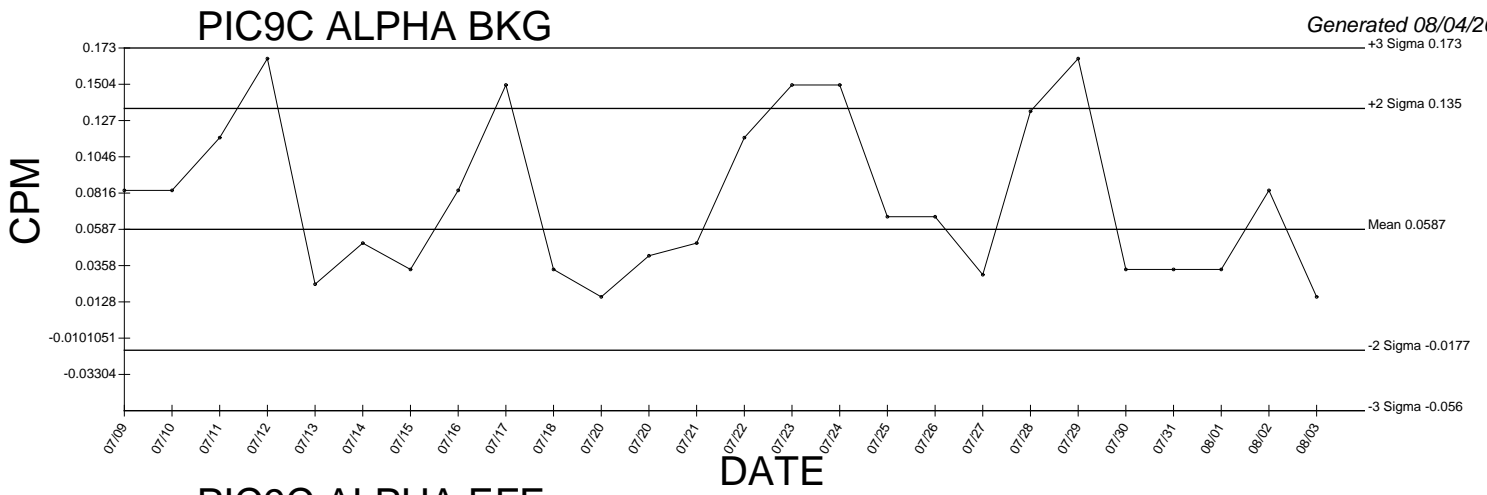
# PIC9A ALPHA EFF Cross Talk



● Denotes Outlier



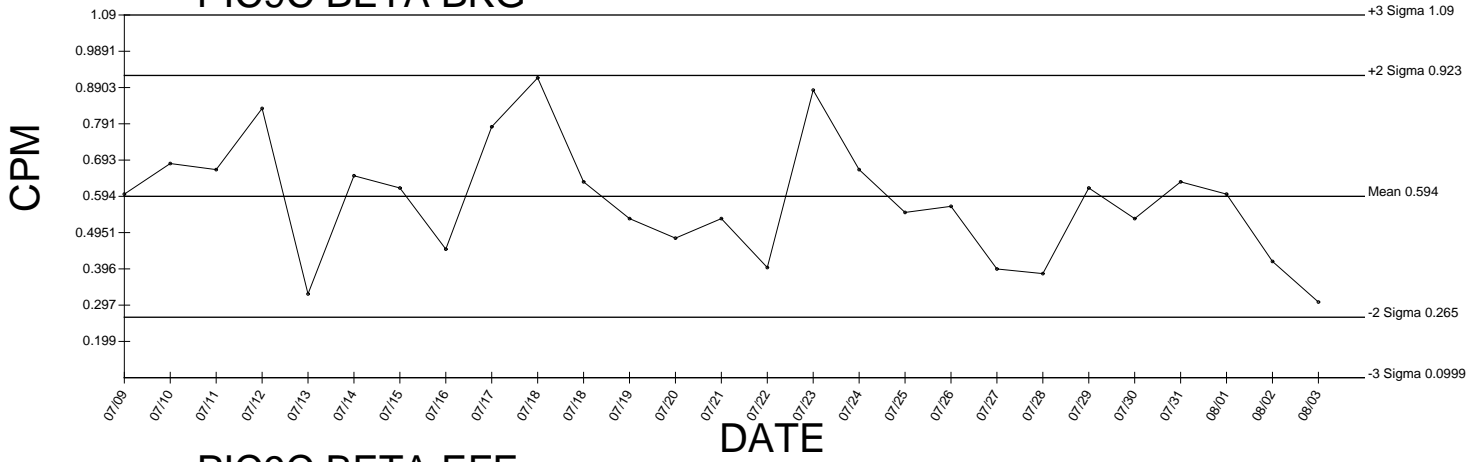
● Denotes Outlier



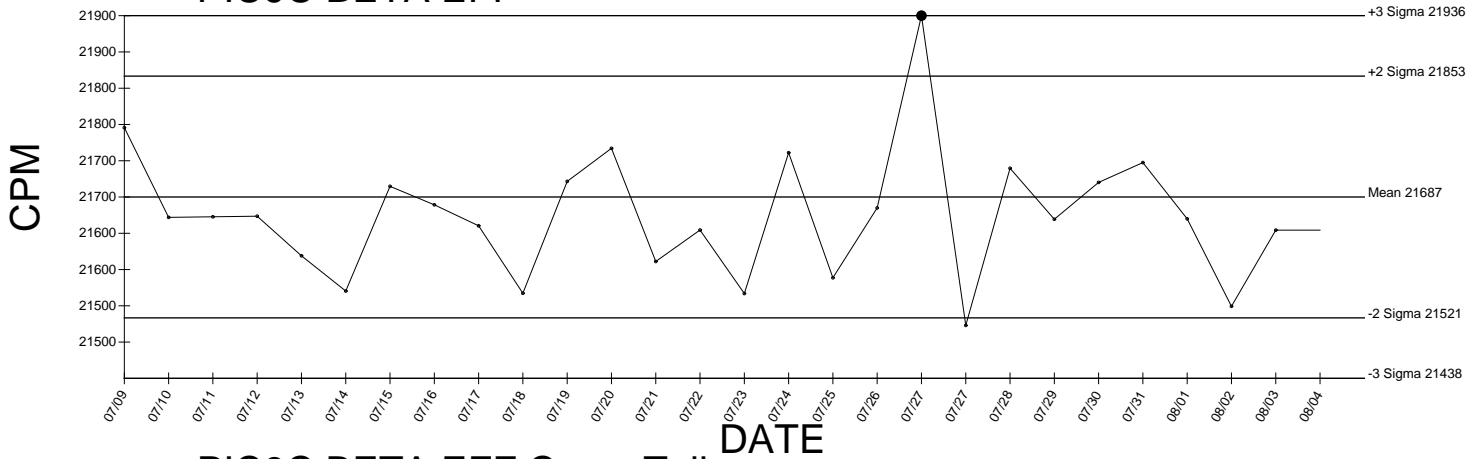
● Denotes Outlier

# PIC9C BETA BKG

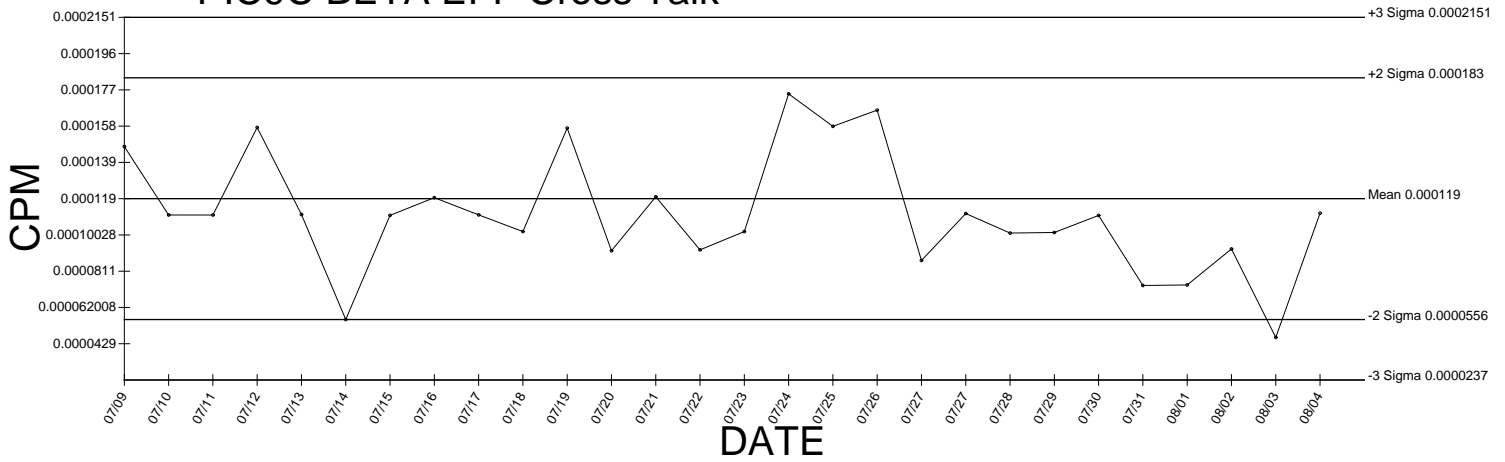
Generated 08/04/2009  
+3 Sigma 1.09



# PIC9C BETA EFF

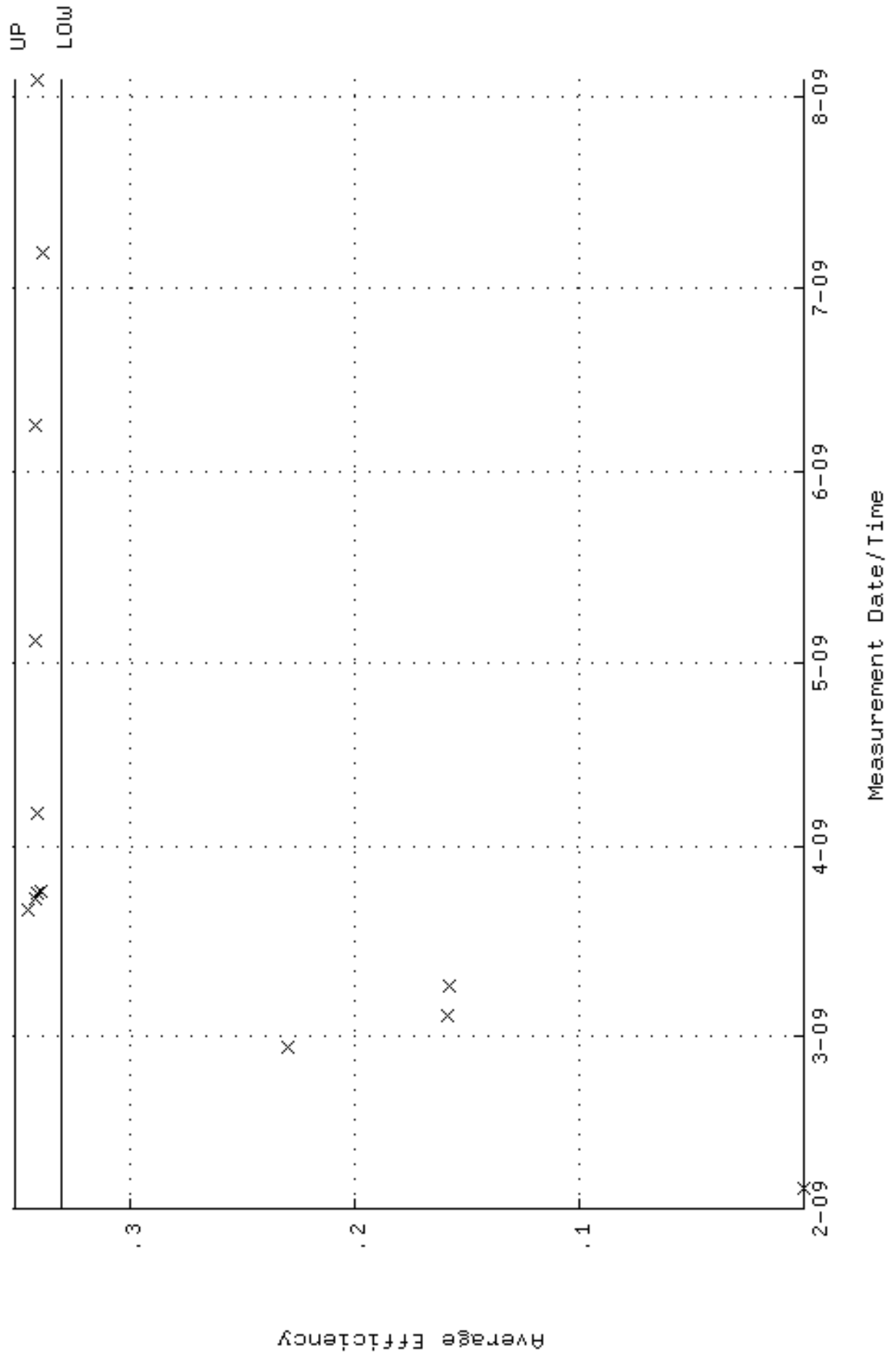


# PIC9C BETA EFF Cross Talk



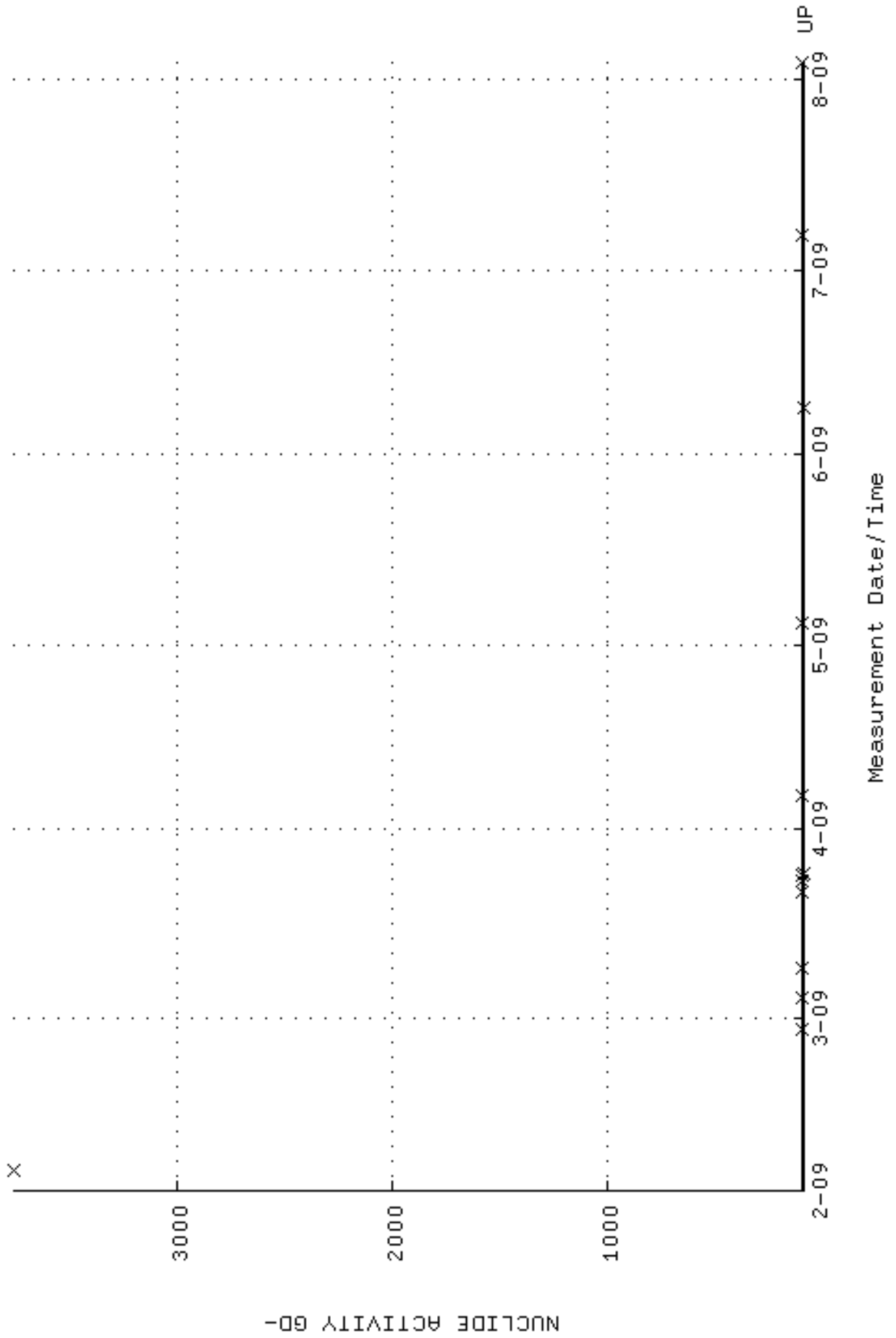
● Denotes Outlier

QA filename : DKA100:[ENV\_ALPHA.QA.W]W013.QAF;2  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 4-FEB-2009 07:05:54 through 3-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.331676 through 0.351676

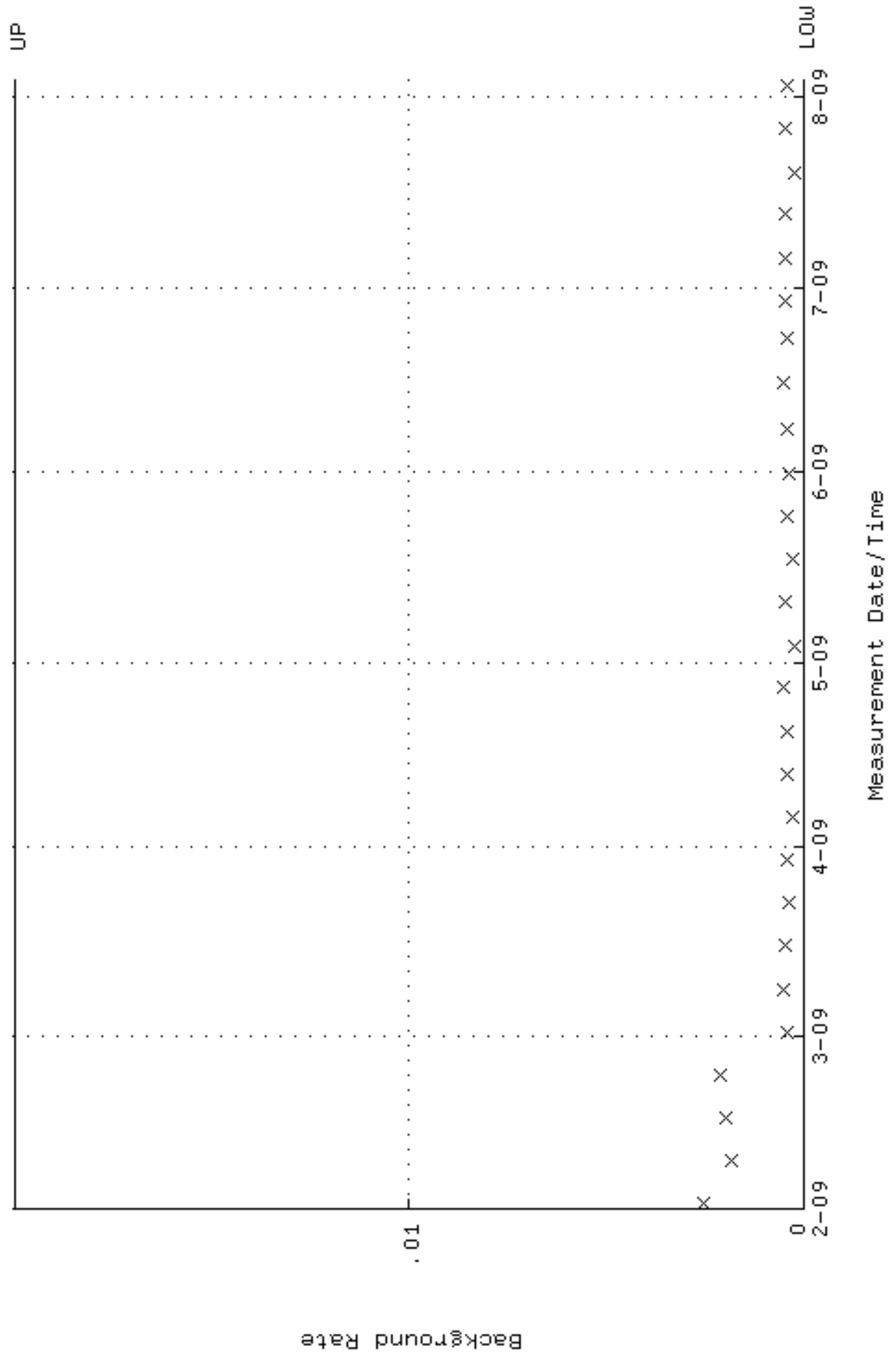




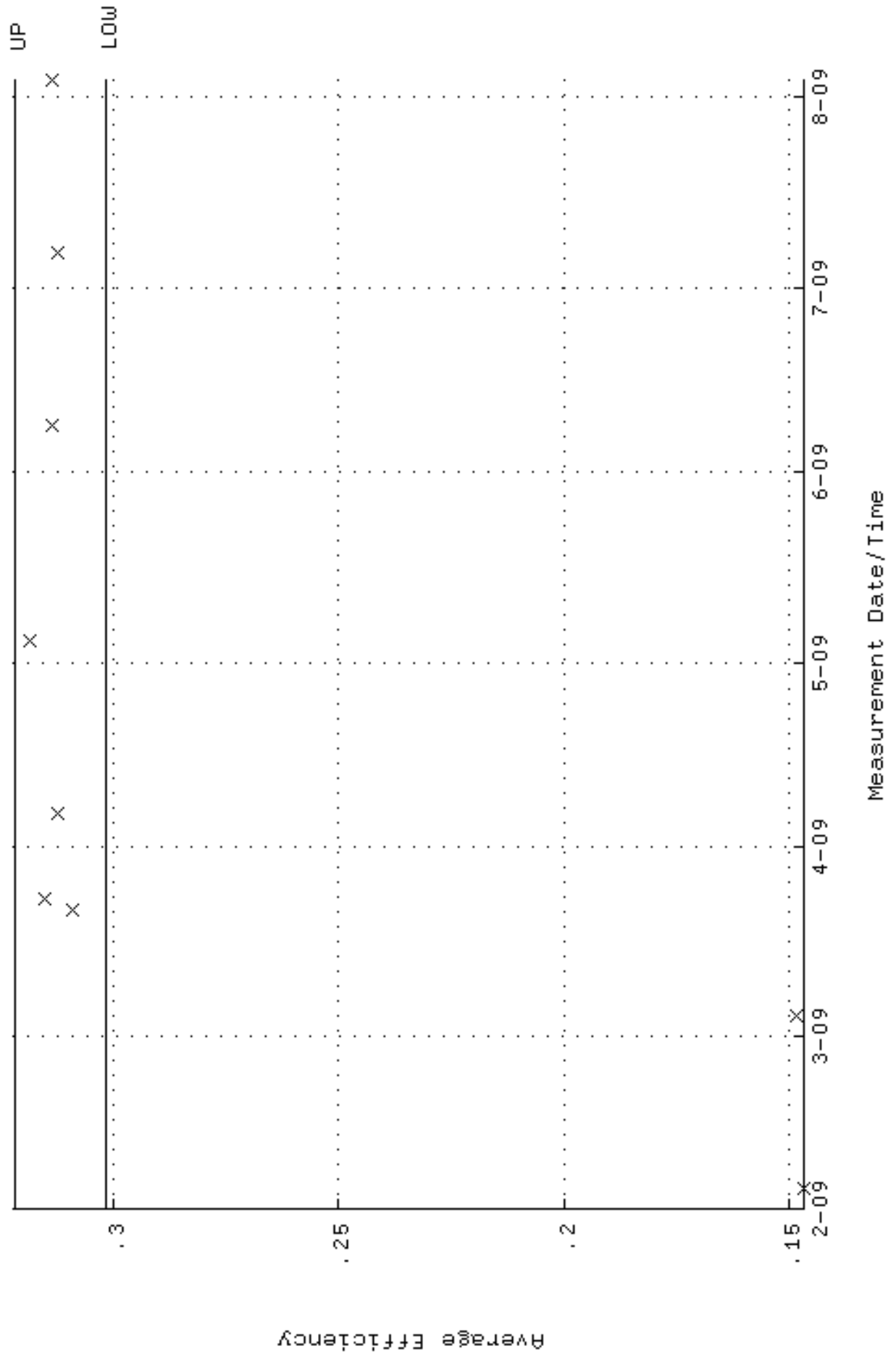
QA filename : DKA100:[ENV\_ALPHA.QA.W]w013.QAF;2  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 4-FEB-2009 07:05:54 through 3-AUG-2009 12:00:00  
 Lower/Upper Lmts: 87.7736 through 97.0130



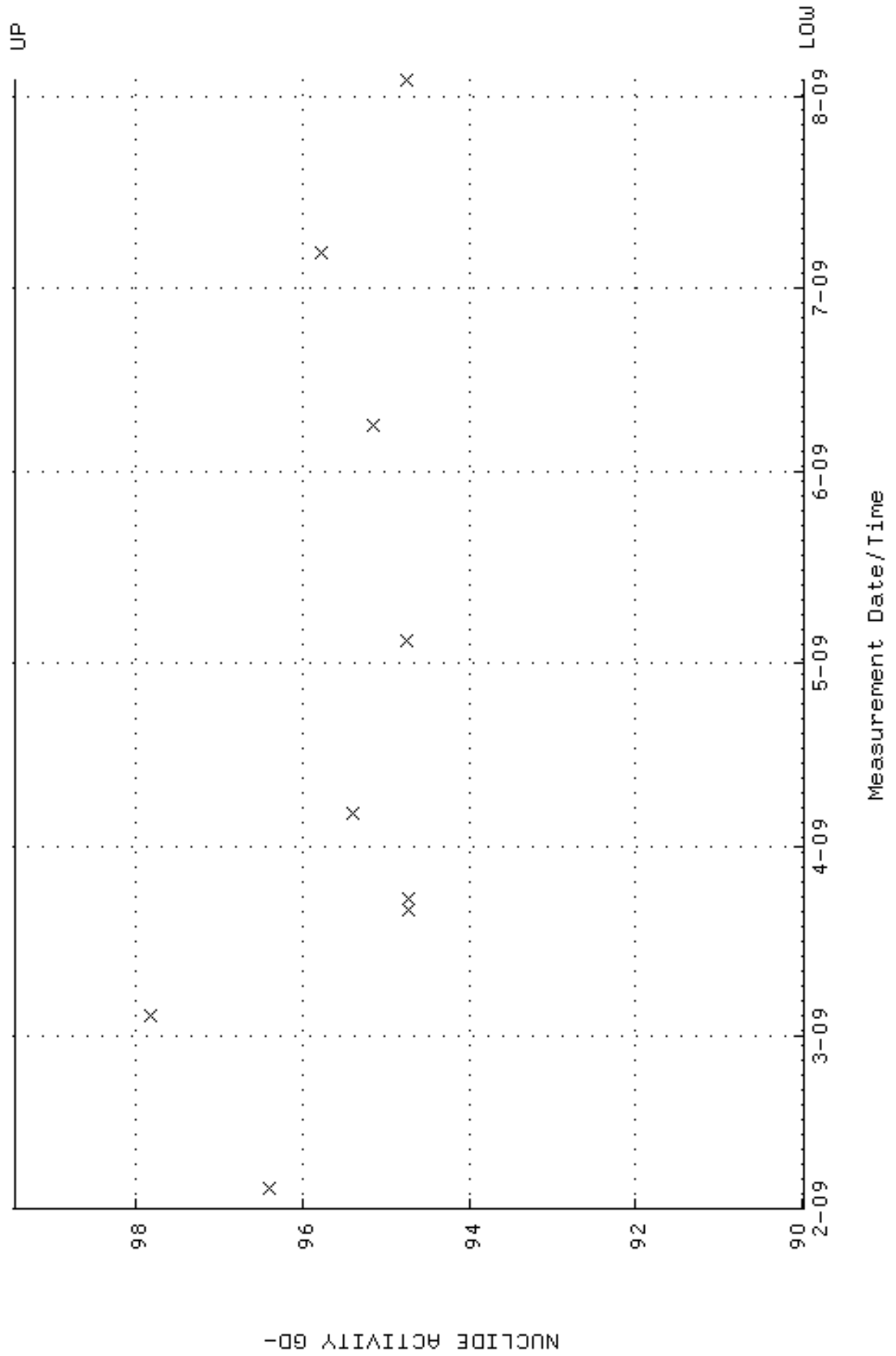
QA filename : DKA100:[ENV\_ALPHA.QA.B]B013.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-FEB-2009 20:04:48 through 3-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



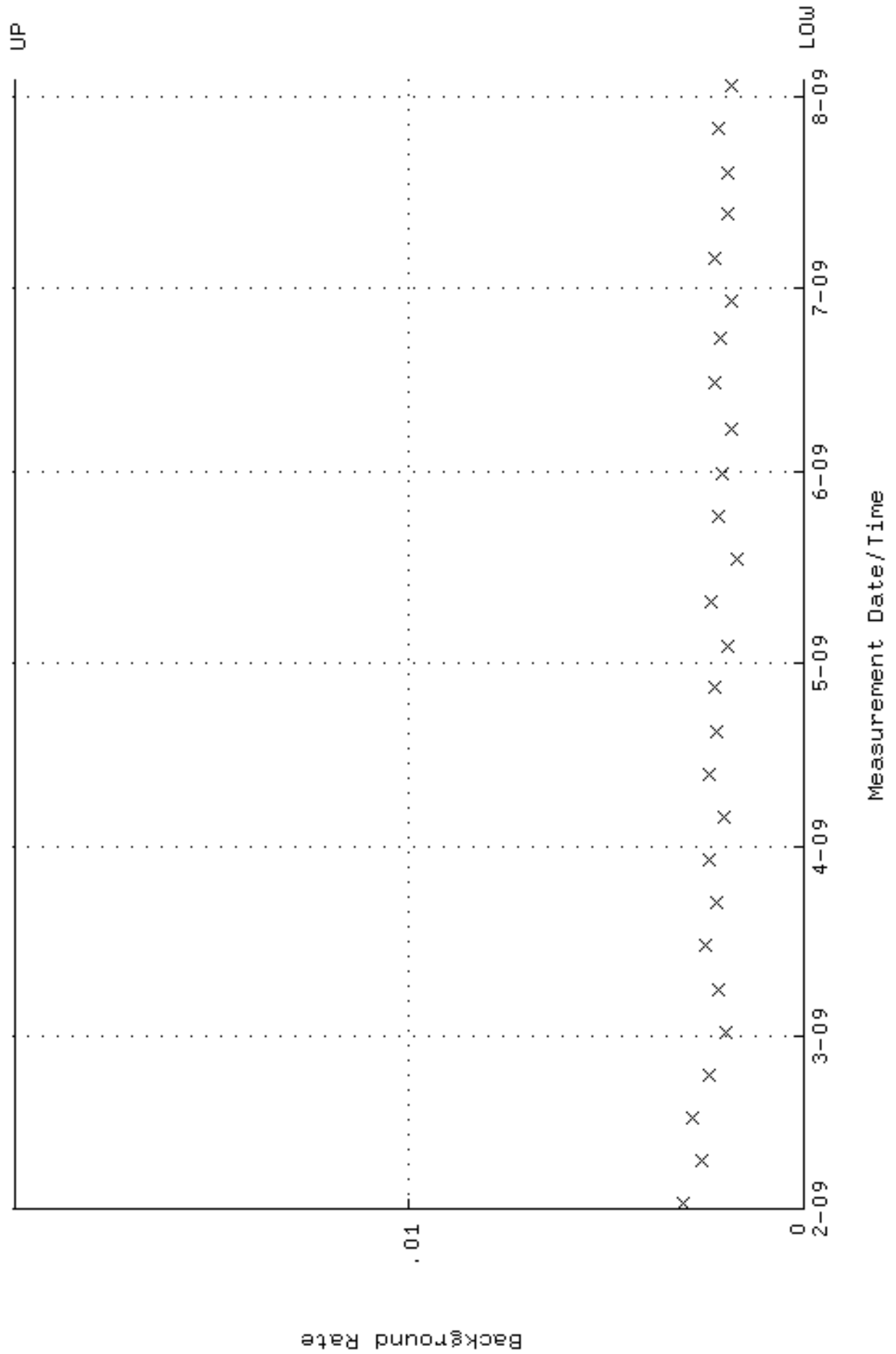
QA filename : DKA100:[ENV\_ALPHA.QA.W]W014.QAF;4  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 4-FEB-2009 07:05:54 through 3-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.301834 through 0.321834



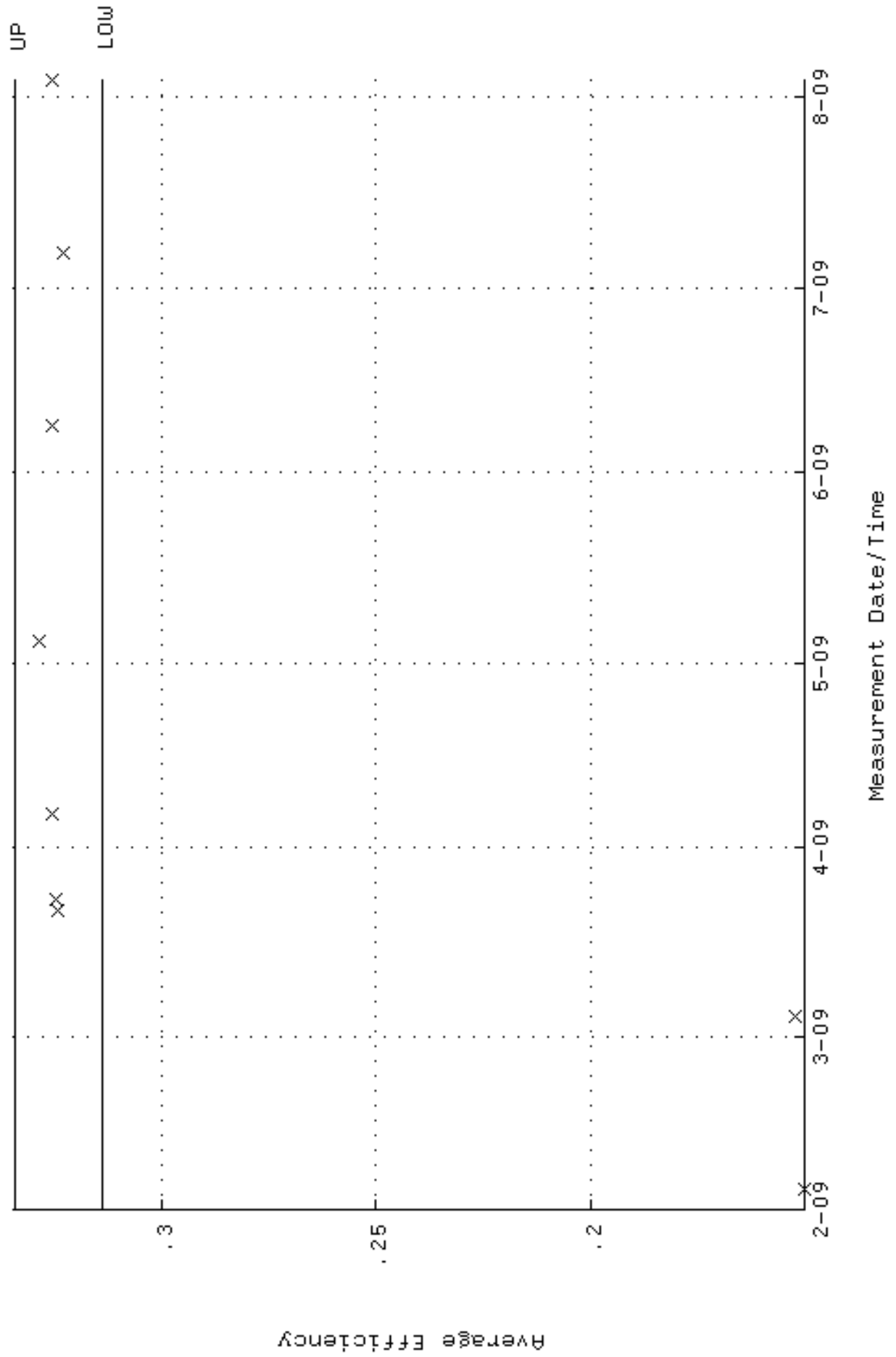
QA filename : DKA100:[ENV\_ALPHA.QA.W]W014.QAF;4  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 4-FEB-2009 07:05:54 through 3-AUG-2009 12:00:00  
 Lower/Upper Lmts: 89.9790 through 99.4504



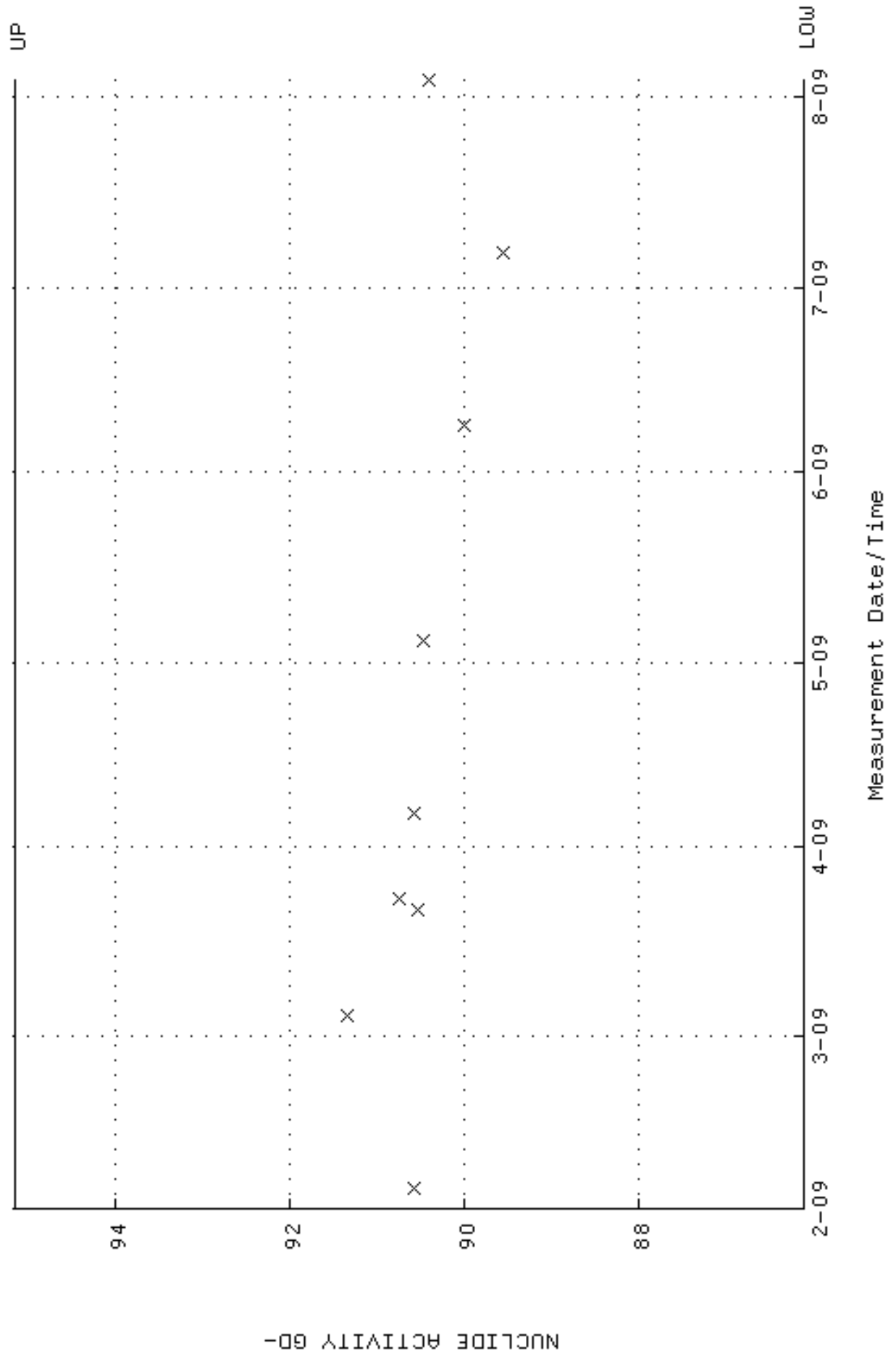
QA filename : DKA100:[ENV\_ALPHA.QA.B]B014.QAF;2  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-FEB-2009 20:04:48 through 3-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



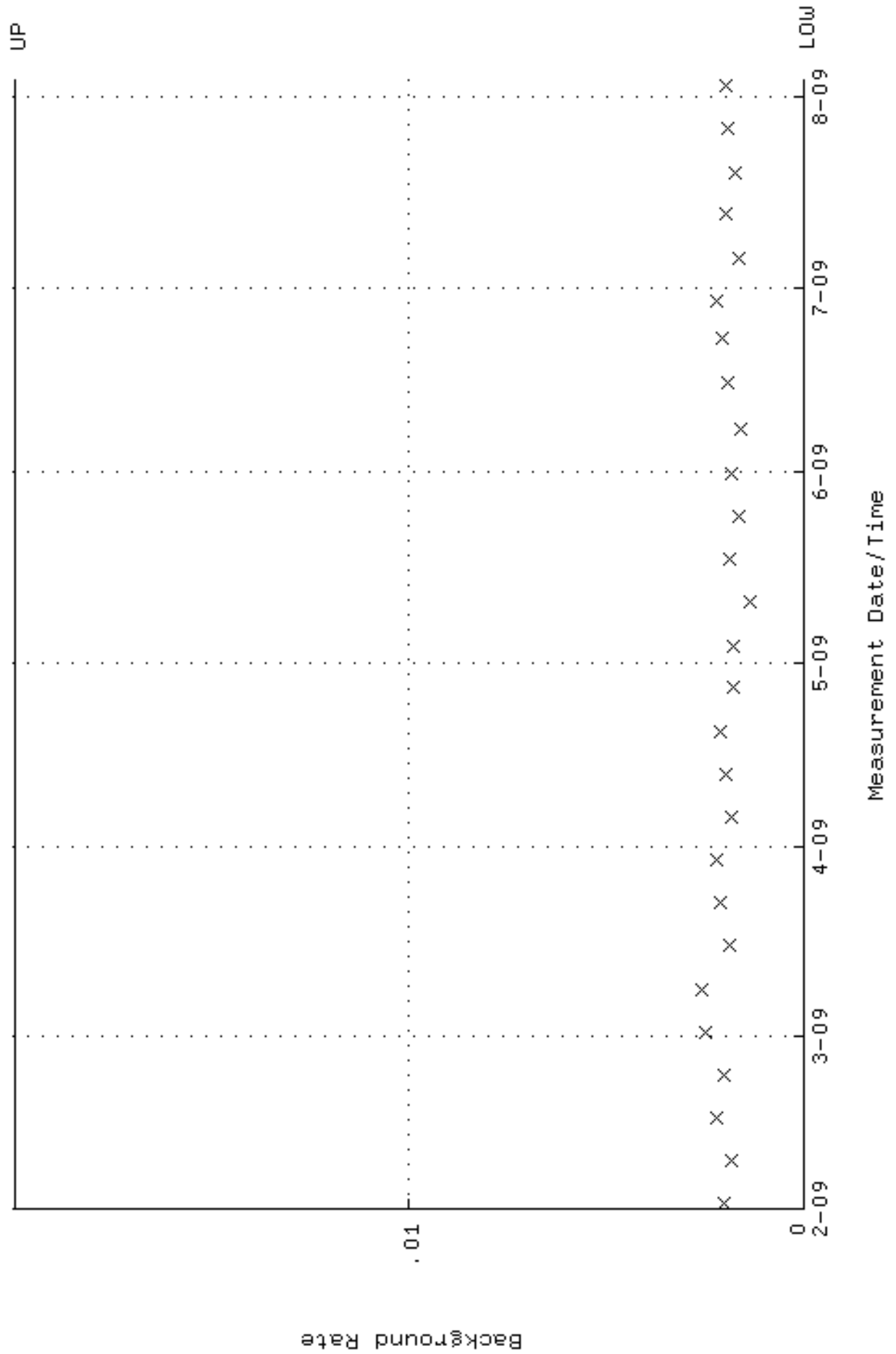
QA filename : DKA100:[ENV\_ALPHA.QA.W]W015.QAF;3  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 4-FEB-2009 07:05:54 through 3-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.314211 through 0.334211



QA filename : DKA100:[ENV\_ALPHA.QA.W]W015.QAF;3  
Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
Start/End Dates : 4-FEB-2009 07:05:54 through 3-AUG-2009 12:00:00  
Lower/Upper Lmts: 86.0931 through 95.1555

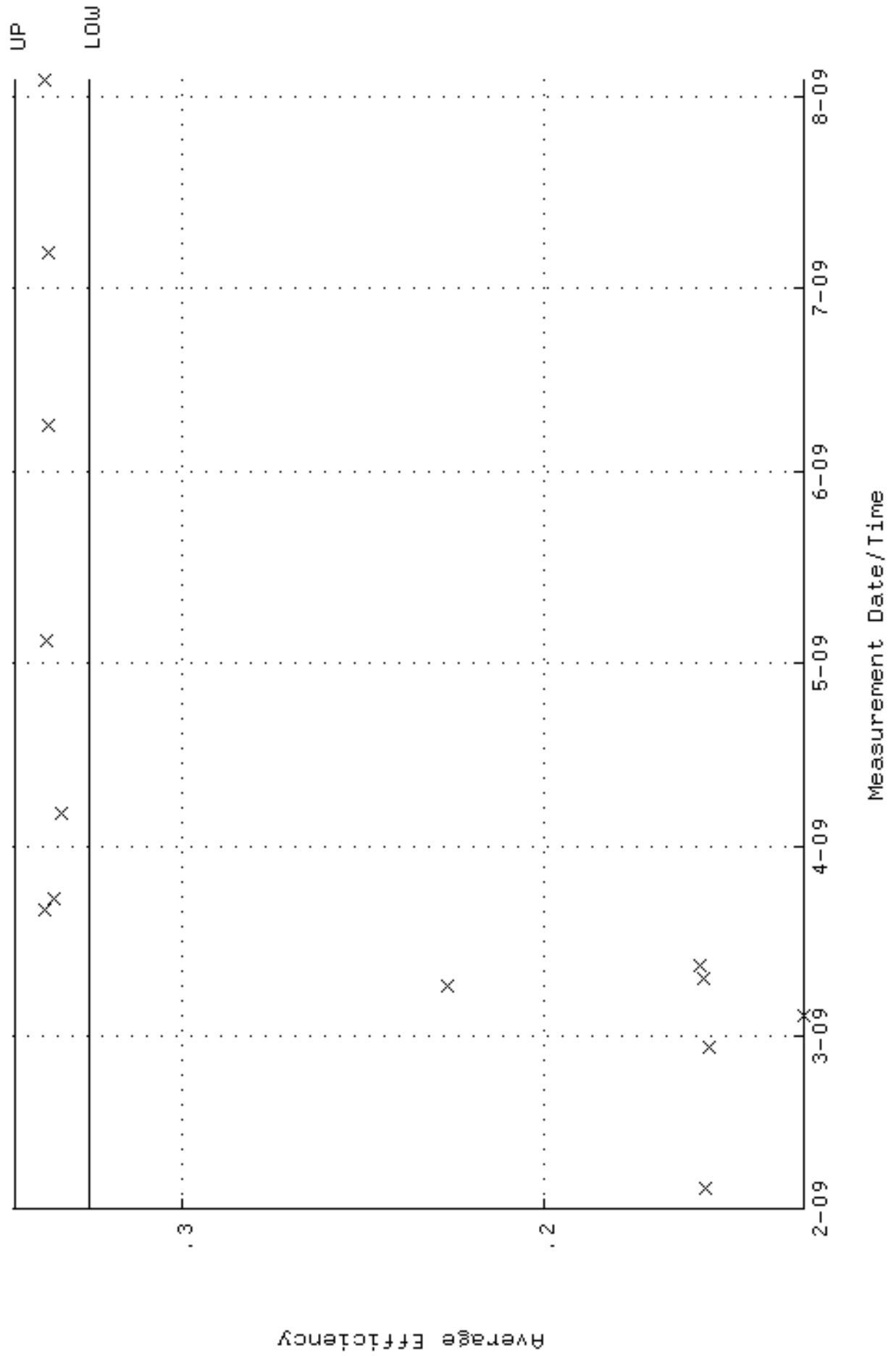


QA filename : DKA100:[ENV\_ALPHA.QA.B]B015.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-FEB-2009 20:04:48 through 3-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02

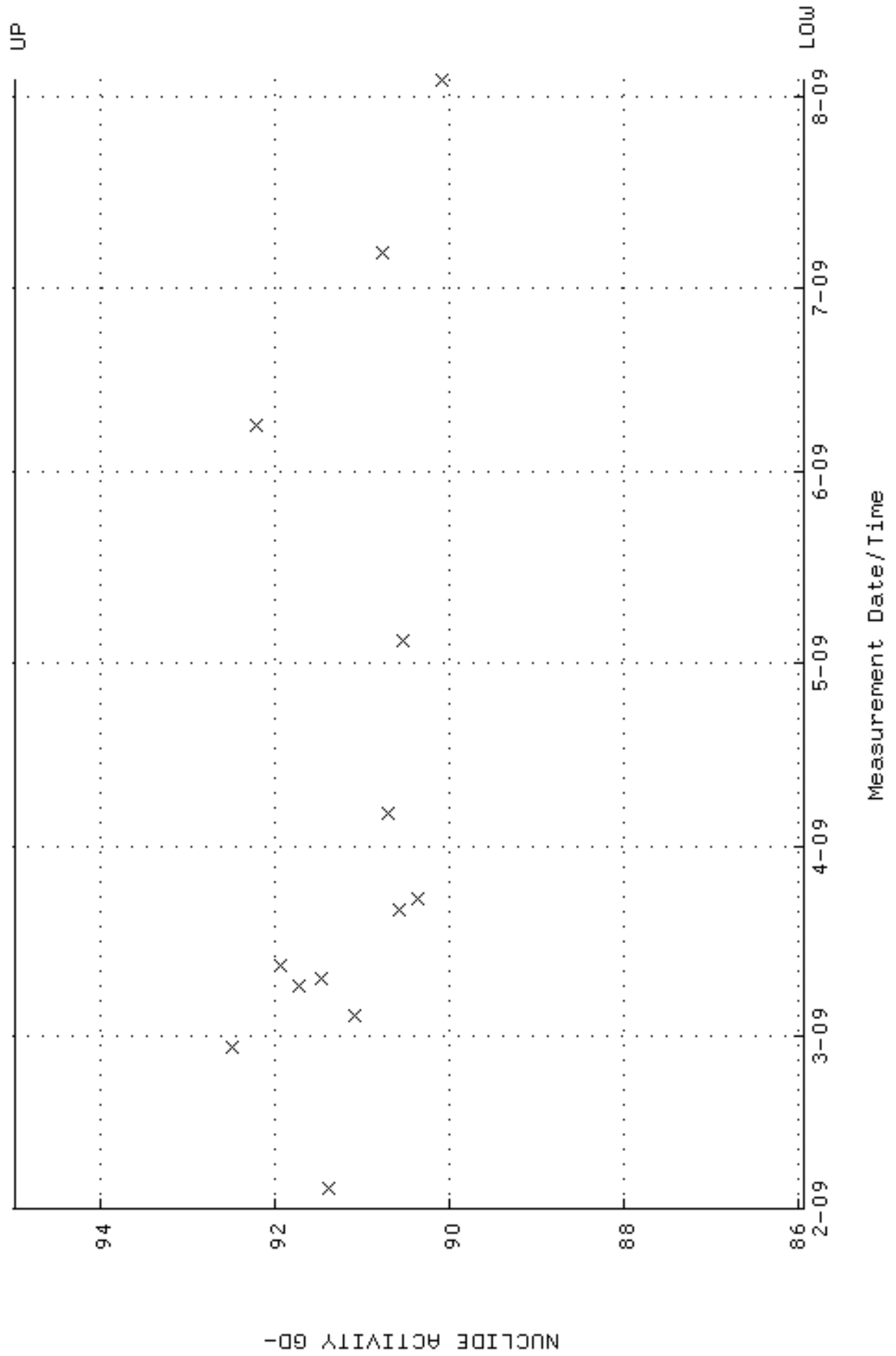




QA filename : DKA100:[ENV\_ALPHA.QA.W]W016.QAF;3  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 4-FEB-2009 07:05:54 through 3-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.326058 through 0.346058

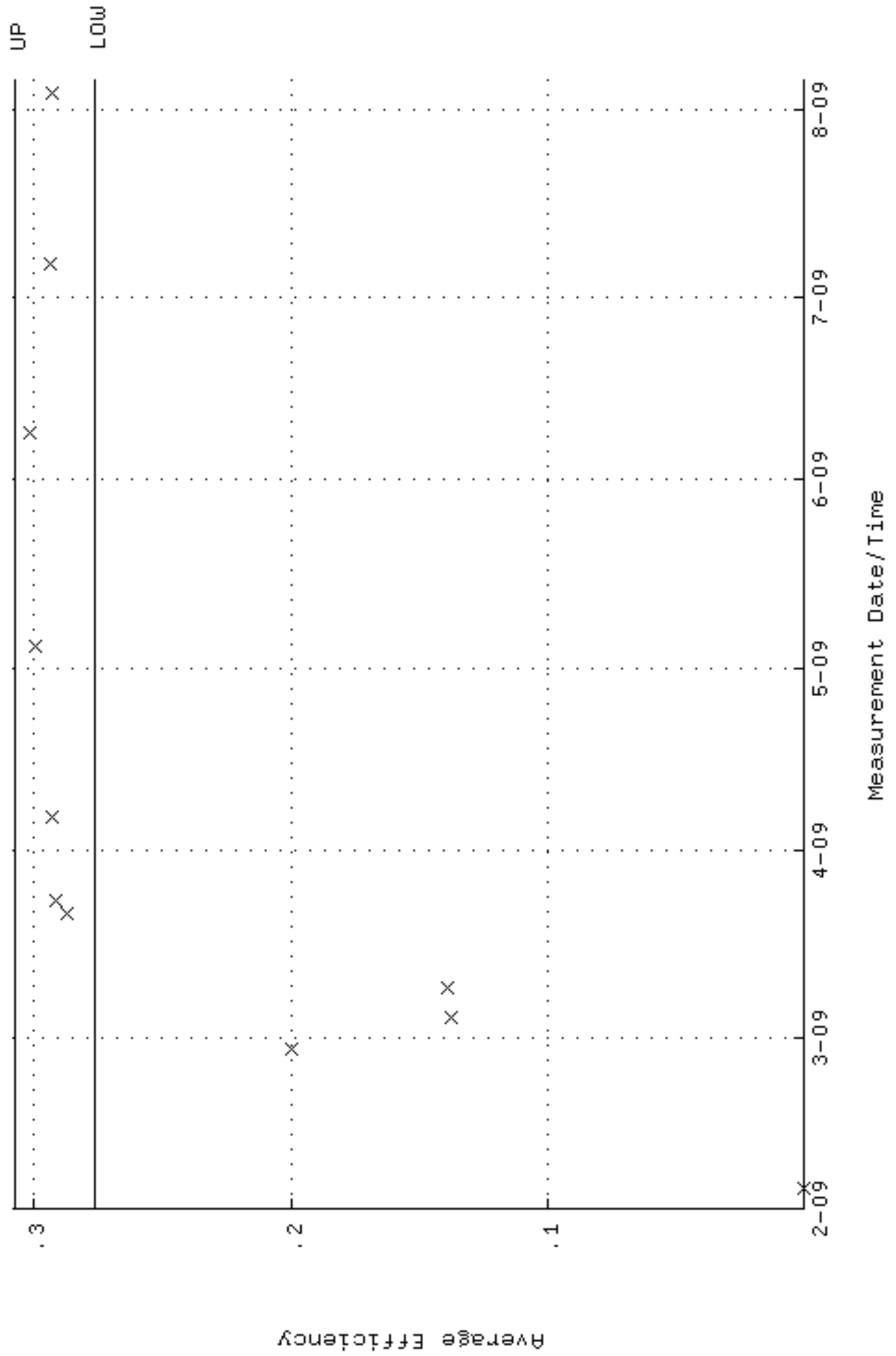


QA filename : DKA100:[ENV\_ALPHA.QA.W]w016.QAF;3  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 4-FEB-2009 07:05:54 through 3-AUG-2009 12:00:00  
 Lower/Upper Lmts: 85.9280 through 94.9730

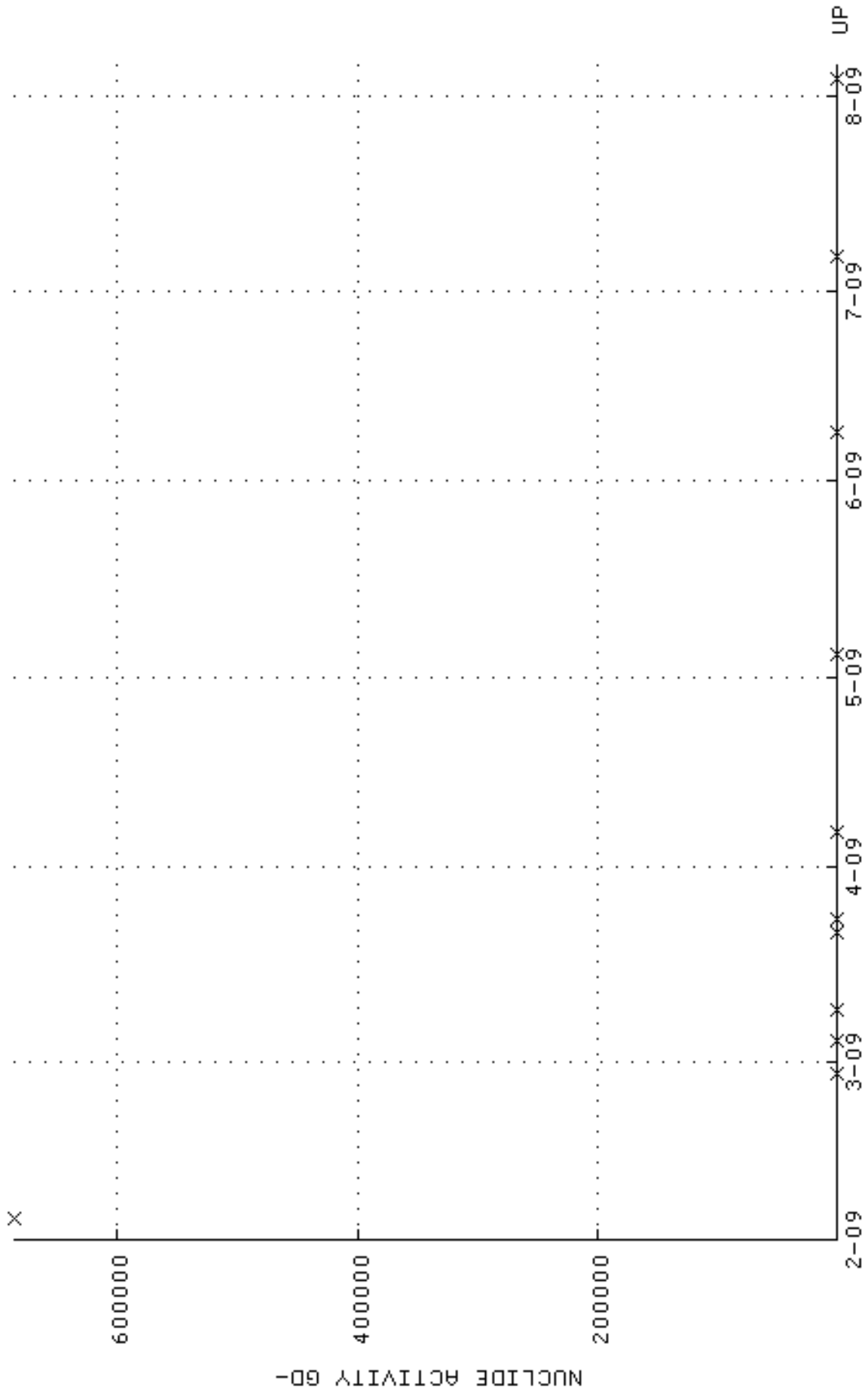




QA filename : DKA100:[ENV\_ALPHA.QA.W]W017.QAF;4  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 4-FEB-2009 07:05:54 through 5-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.276771 through 0.307557

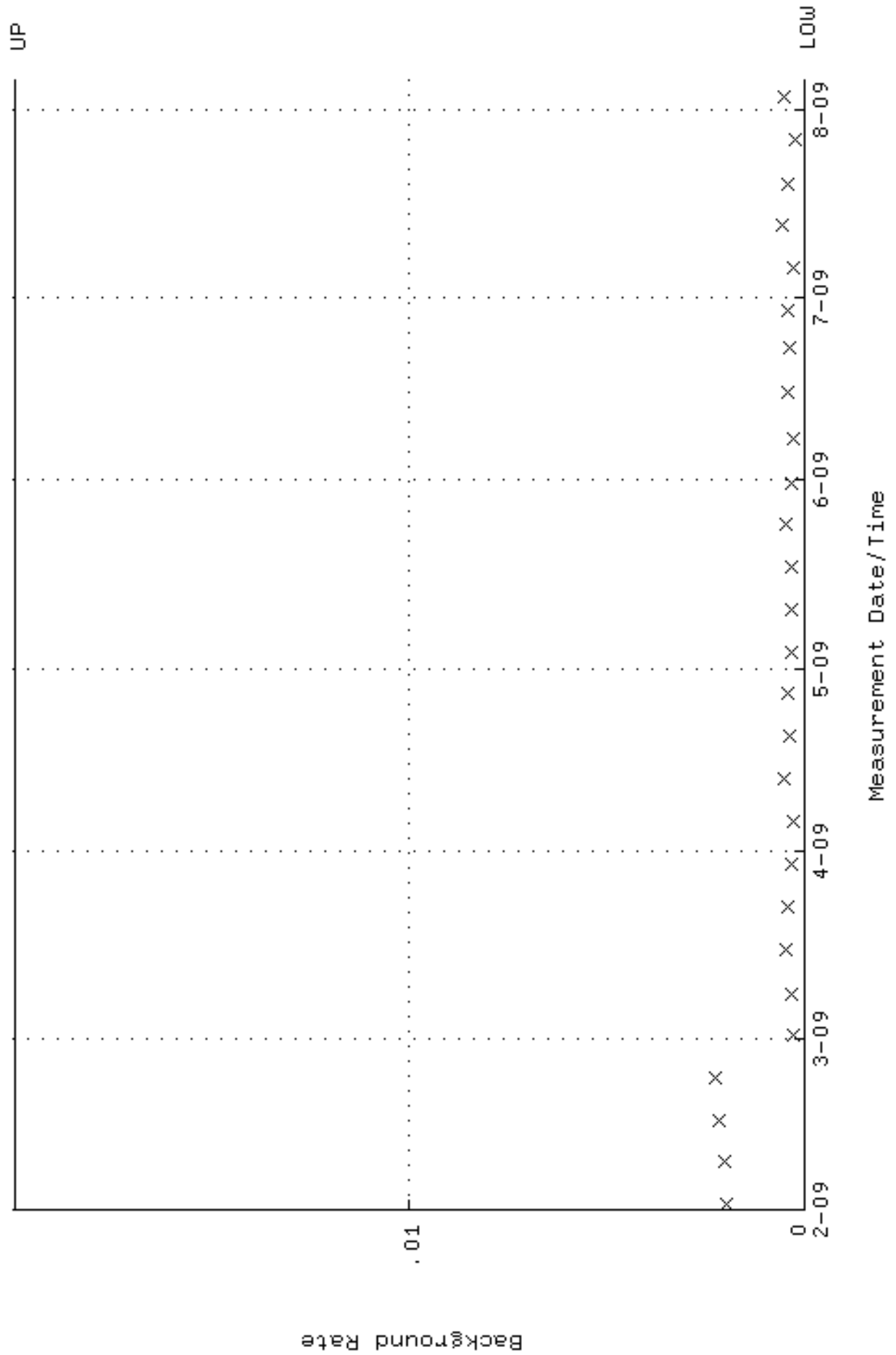


QA filename : DKA100:[ENV\_ALPHA.QA.W]W017.QAF;4  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 4-FEB-2009 07:05:54 through 5-AUG-2009 12:00:00  
 Lower/Upper Lmts: 90.6063 through 97.0149

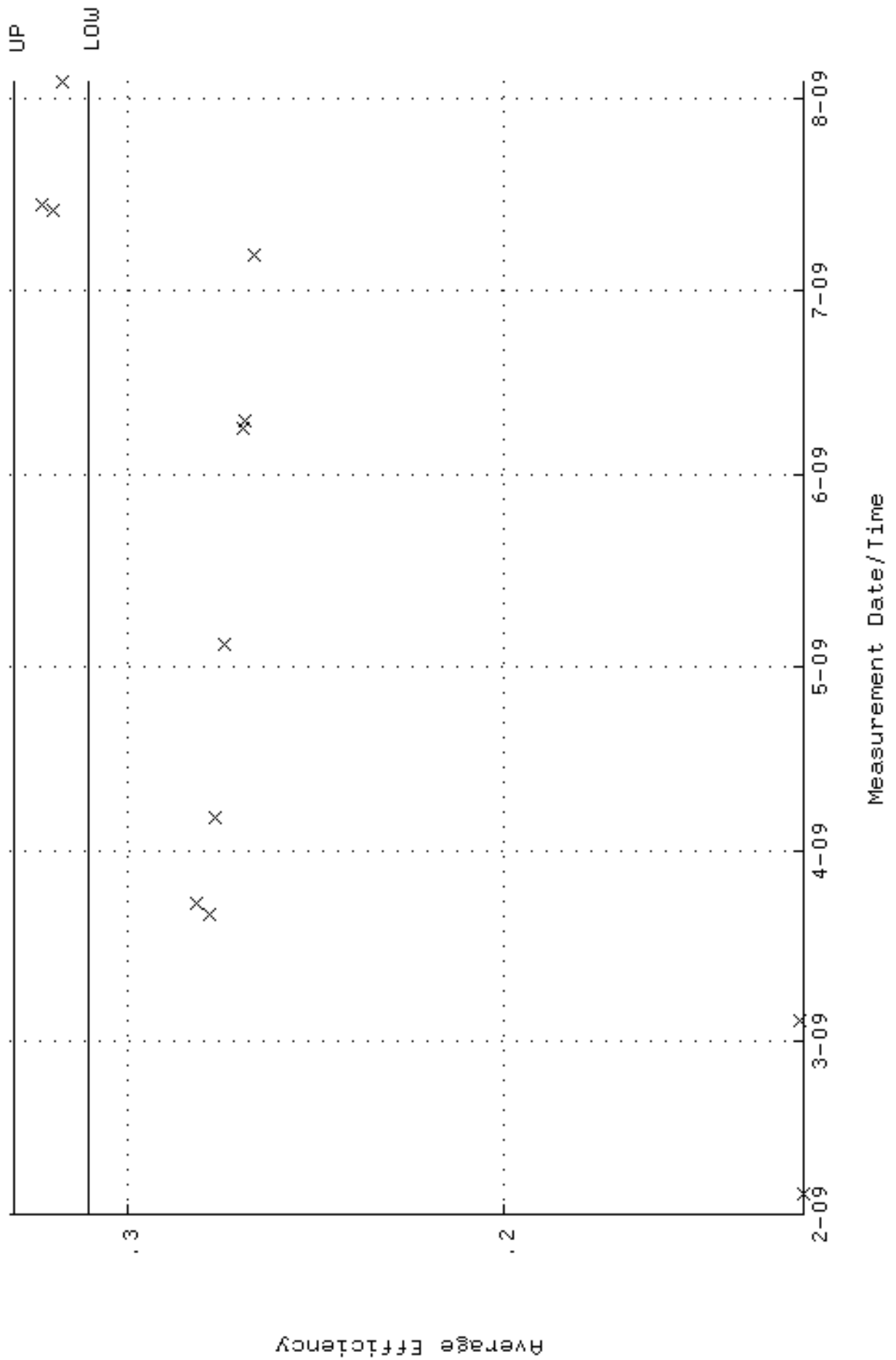


Measurement Date/Time

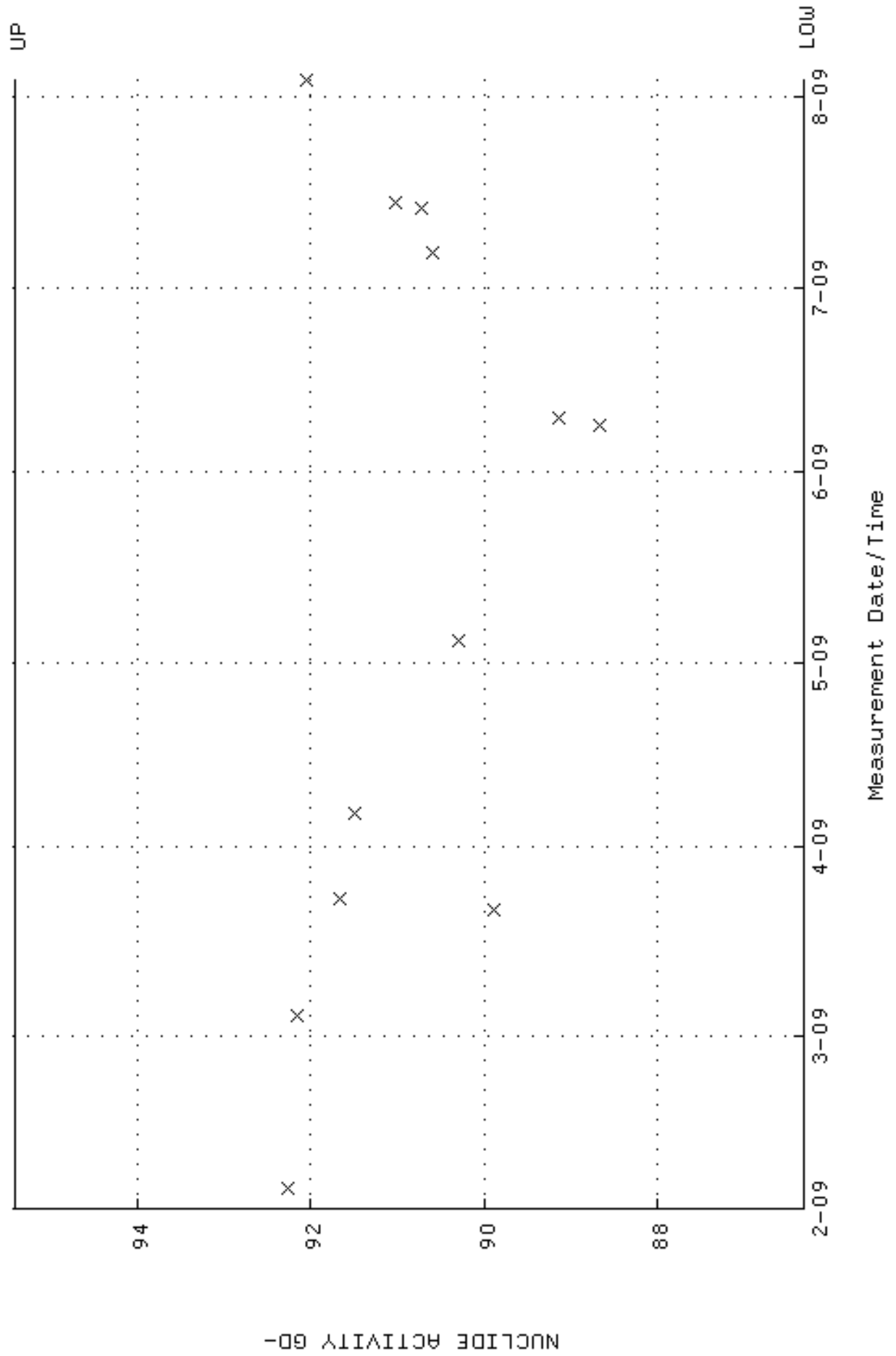
QA filename : DKA100:[ENV\_ALPHA.QA.B]B017.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-FEB-2009 20:04:48 through 5-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



QA filename : DKA100:[ENV\_ALPHA.QA.W]W018.QAF;3  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 4-FEB-2009 07:05:54 through 3-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.310950 through 0.330950



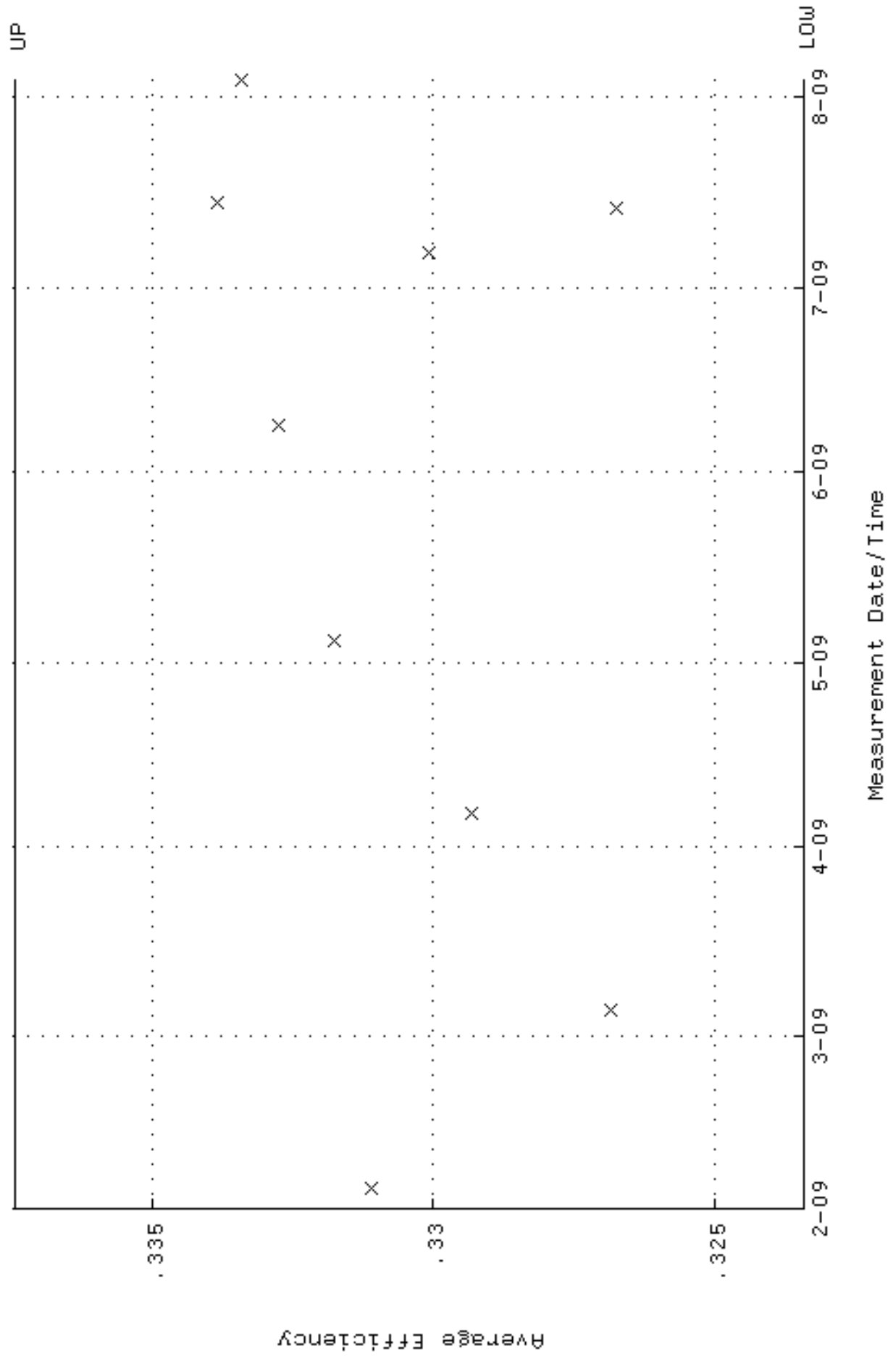
QA filename : DKA100:[ENV\_ALPHA.QA.W]W018.QAF;3  
Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
Start/End Dates : 4-FEB-2009 07:05:54 through 3-AUG-2009 12:00:00  
Lower/Upper Lmts: 86.3167 through 95.4027



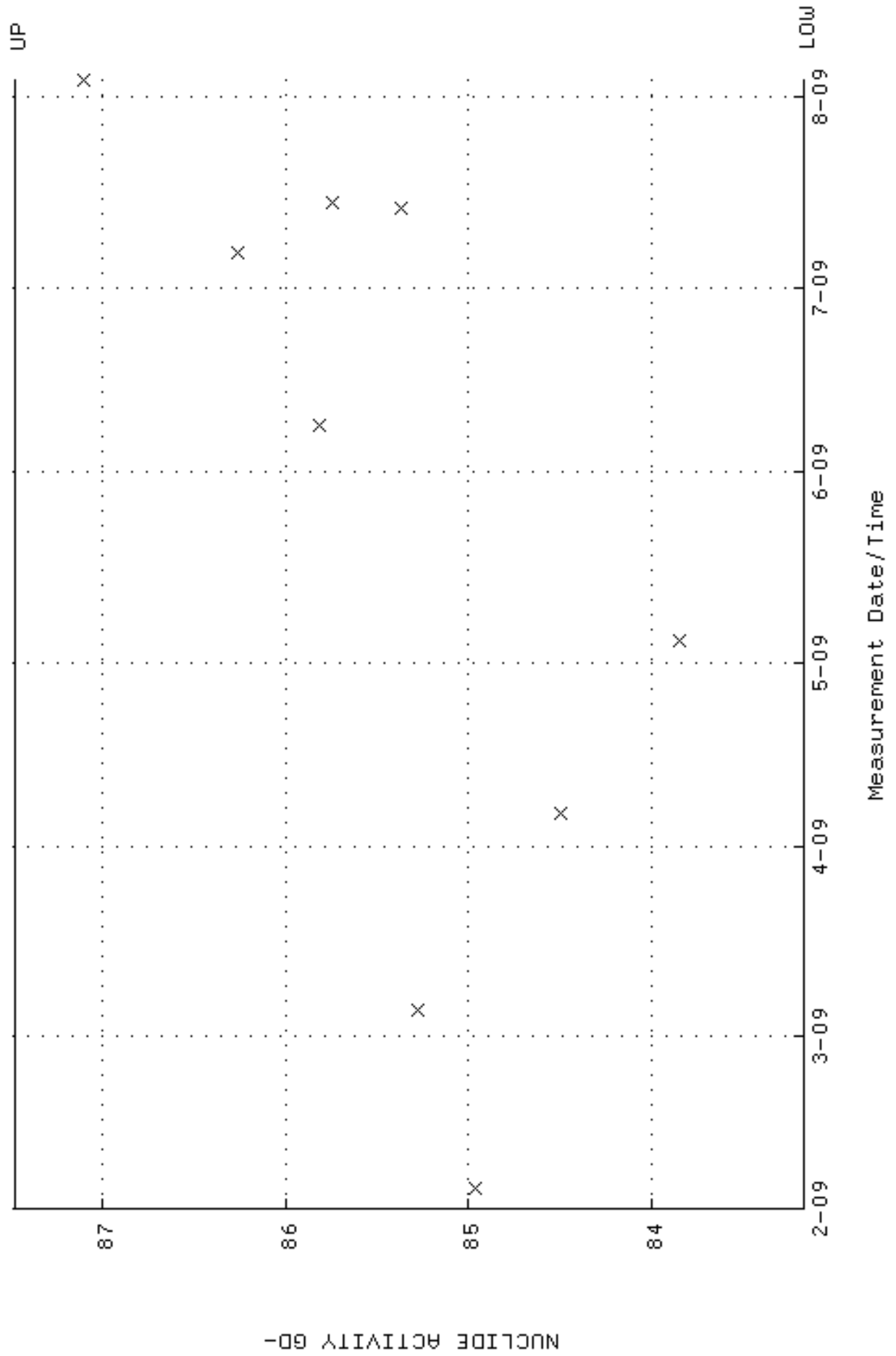




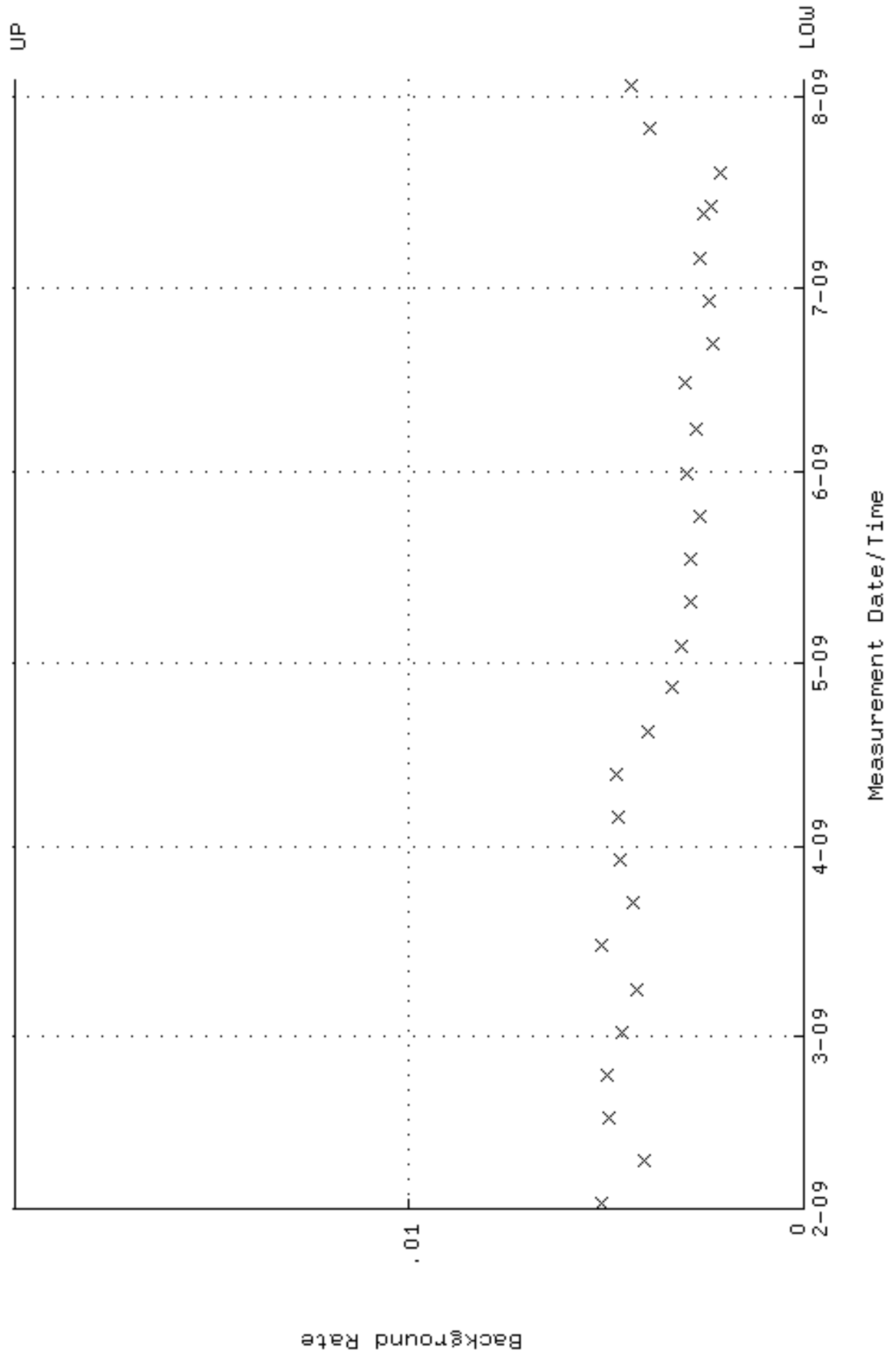
QA filename : DKA100:[ENV\_ALPHA.QA.W]W031.QAF;4  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 4-FEB-2009 07:05:57 through 3-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.323399 through 0.337447



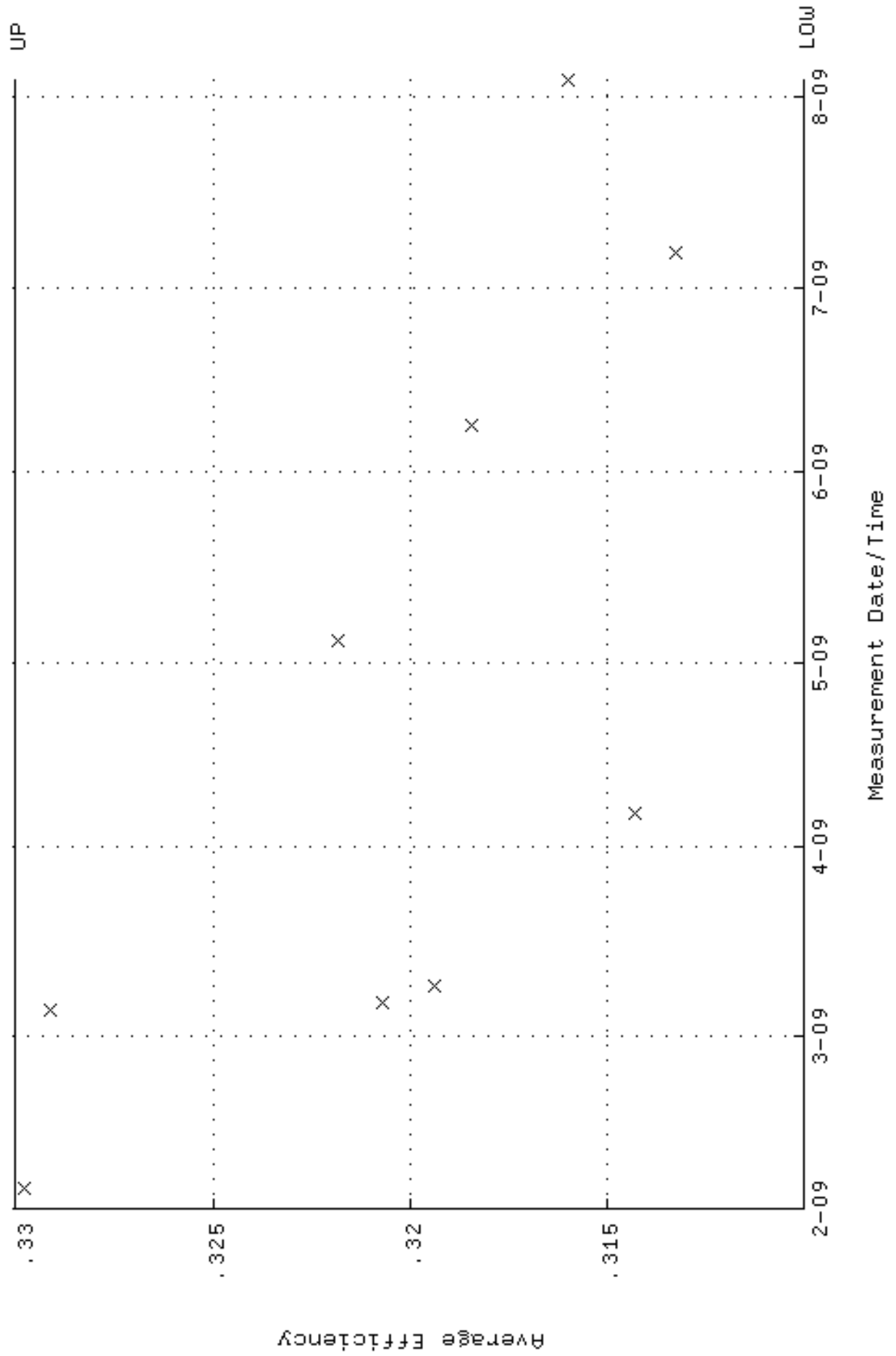
QA filename : DKA100:[ENV\_ALPHA.QA.W]W031.QAF;4  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 4-FEB-2009 07:05:57 through 3-AUG-2009 12:00:00  
 Lower/Upper Lmts: 83.1638 through 87.4767



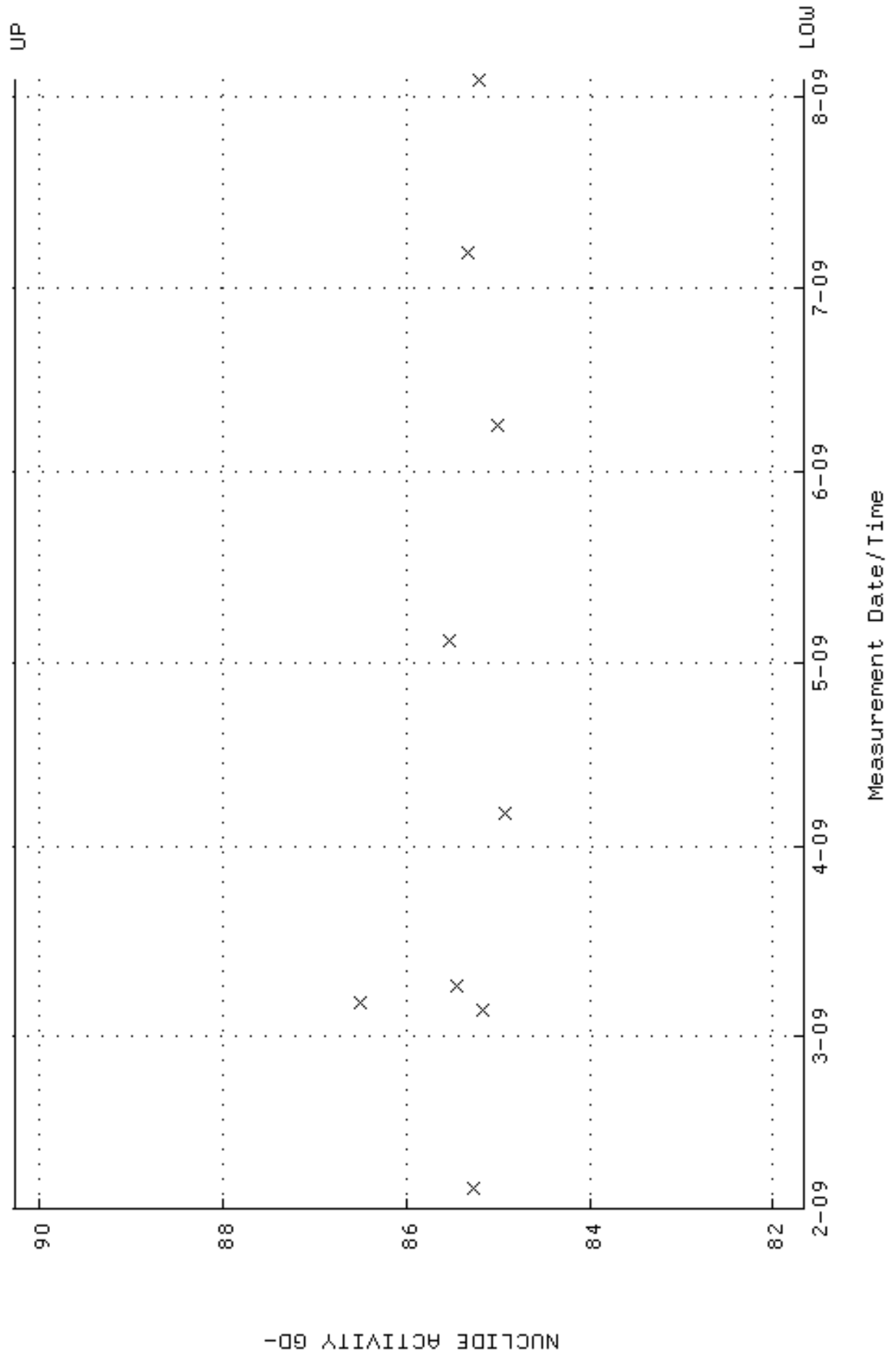
QA filename : DKA100:[ENV\_ALPHA.QA.B]B031.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-FEB-2009 20:05:00 through 3-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



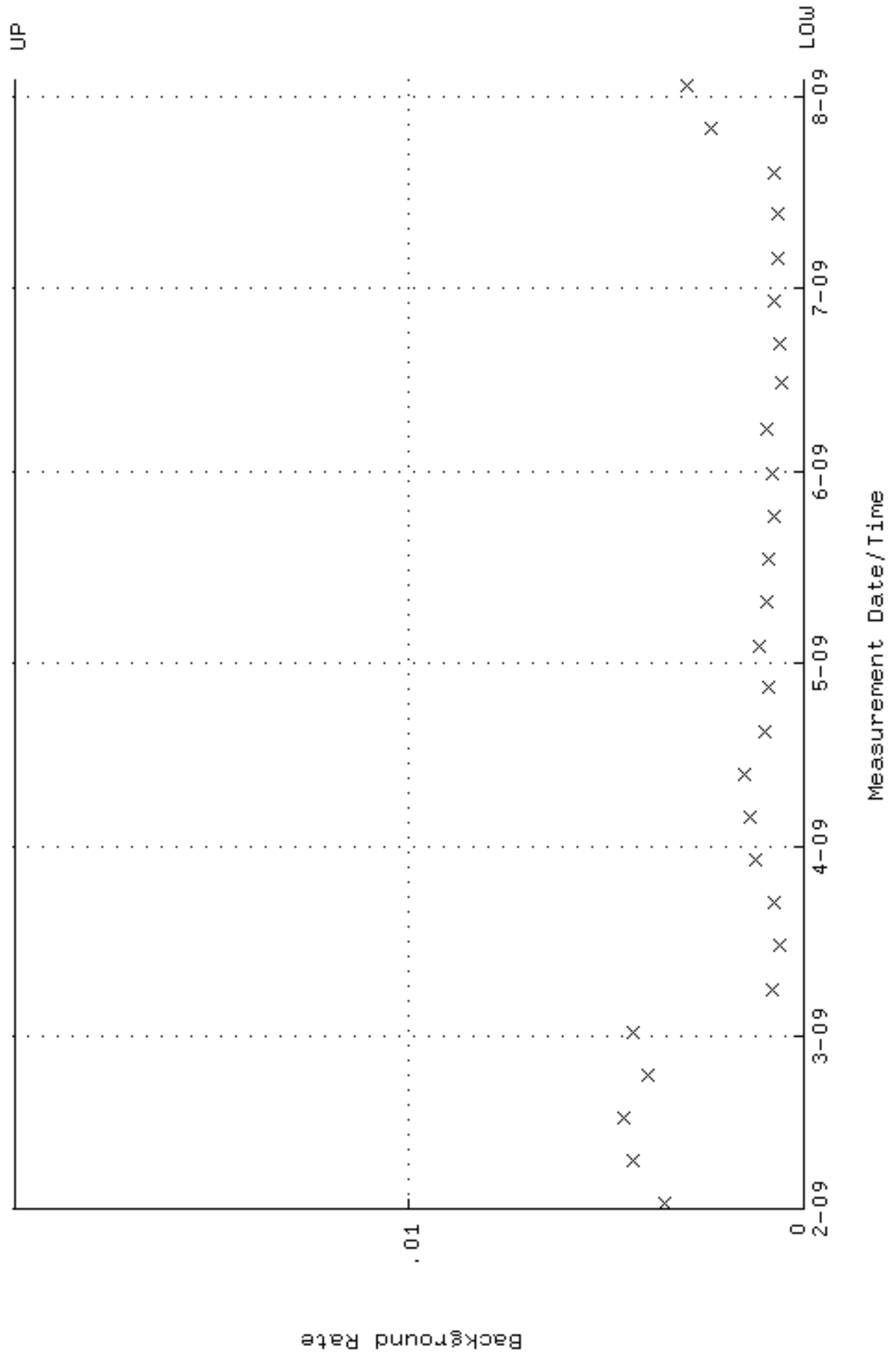
QA filename : DKA100:[ENV\_ALPHA.QA.W]W033.QAF;3  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 4-FEB-2009 07:05:57 through 3-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.310023 through 0.330023



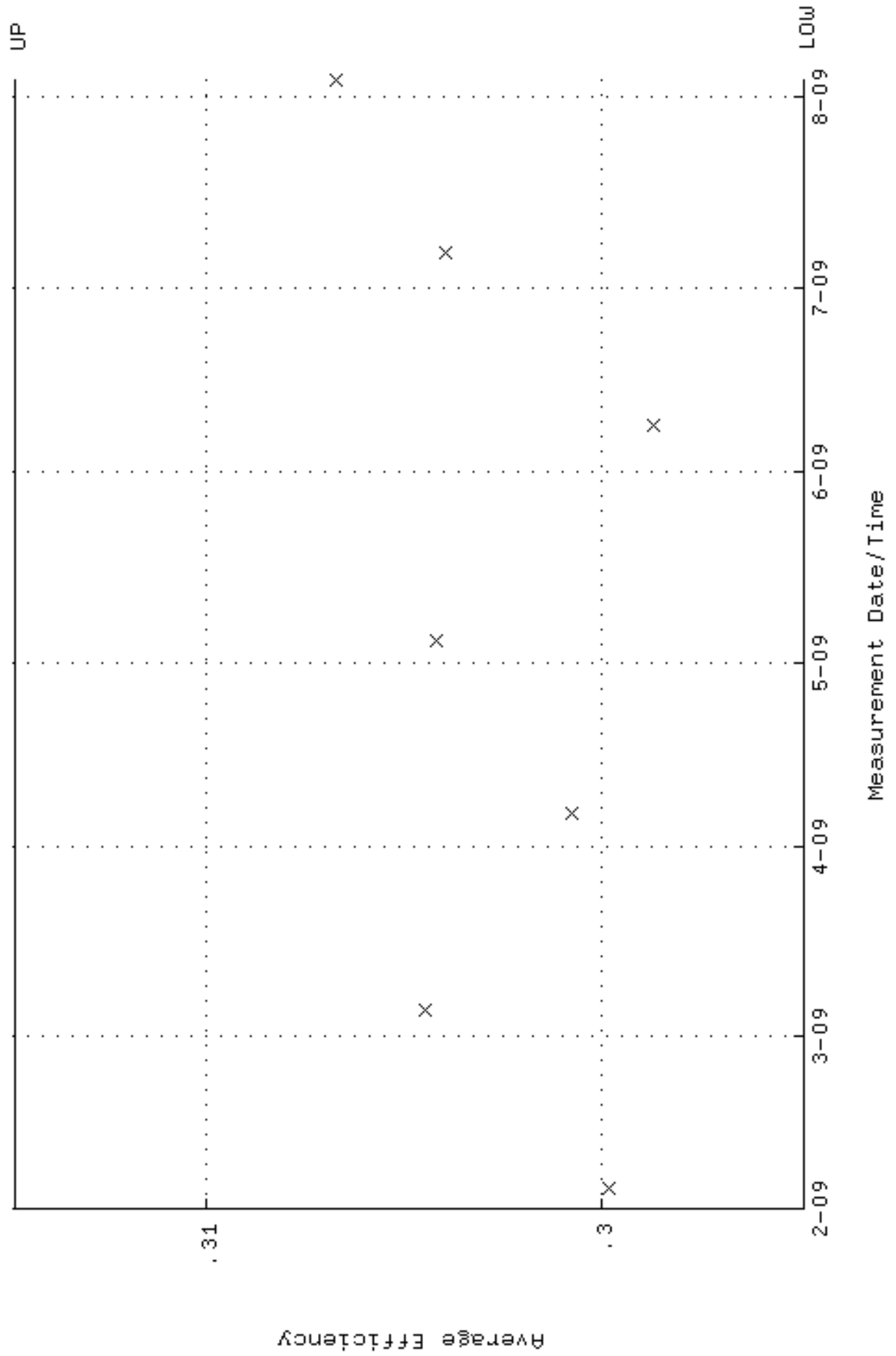
QA filename : DKA100:[ENV\_ALPHA.QA.W]W033.QAF;3  
Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
Start/End Dates : 4-FEB-2009 07:05:57 through 3-AUG-2009 12:00:00  
Lower/Upper Lmts: 81.6649 through 90.2613



QA filename : DKA100:[ENV\_ALPHA.QA.B]B033.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-FEB-2009 20:05:00 through 3-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02

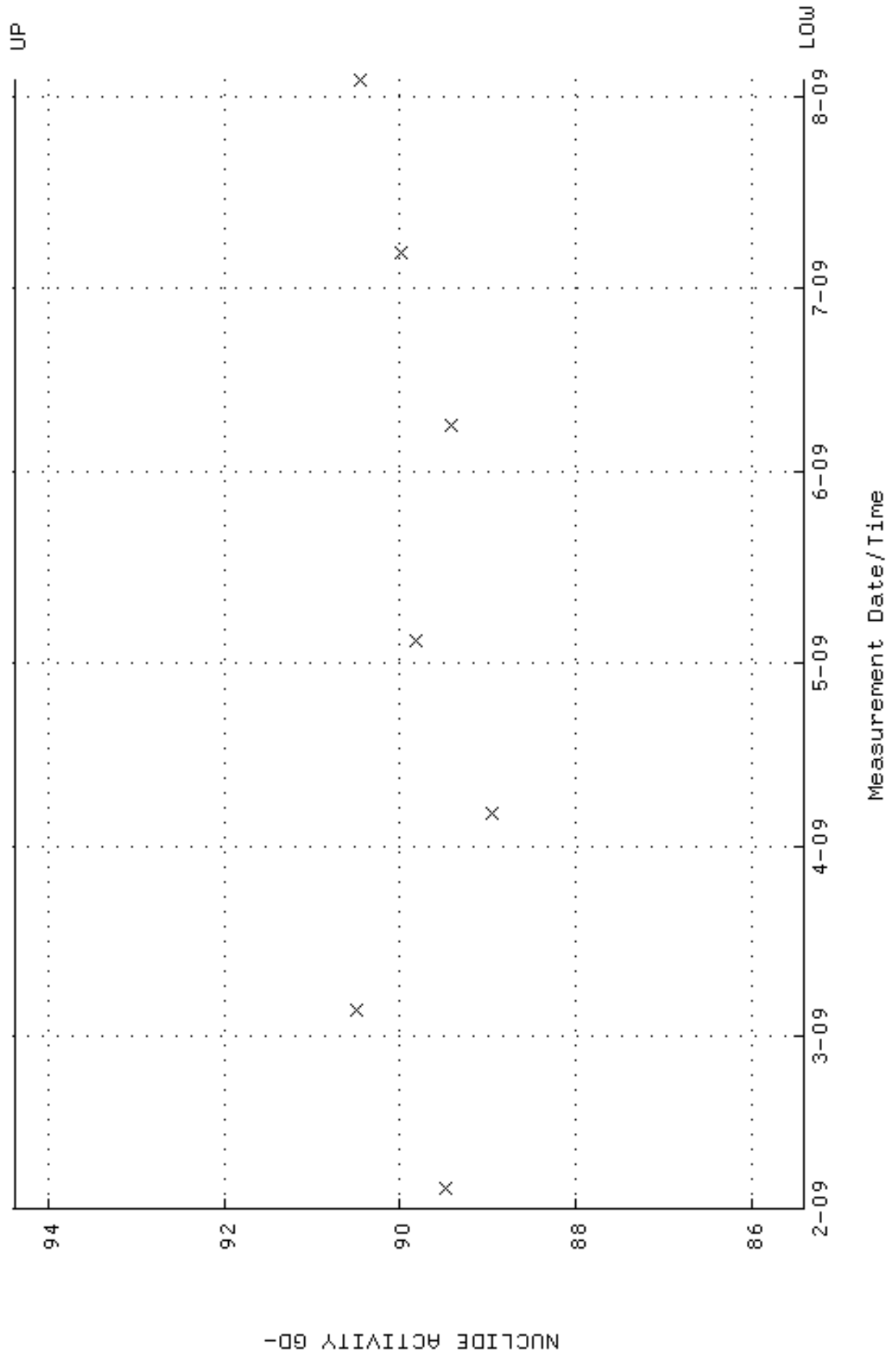


QA filename : DKA100:[ENV\_ALPHA.QA.W]W035.QAF;3  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 4-FEB-2009 07:05:57 through 3-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.294859 through 0.314859

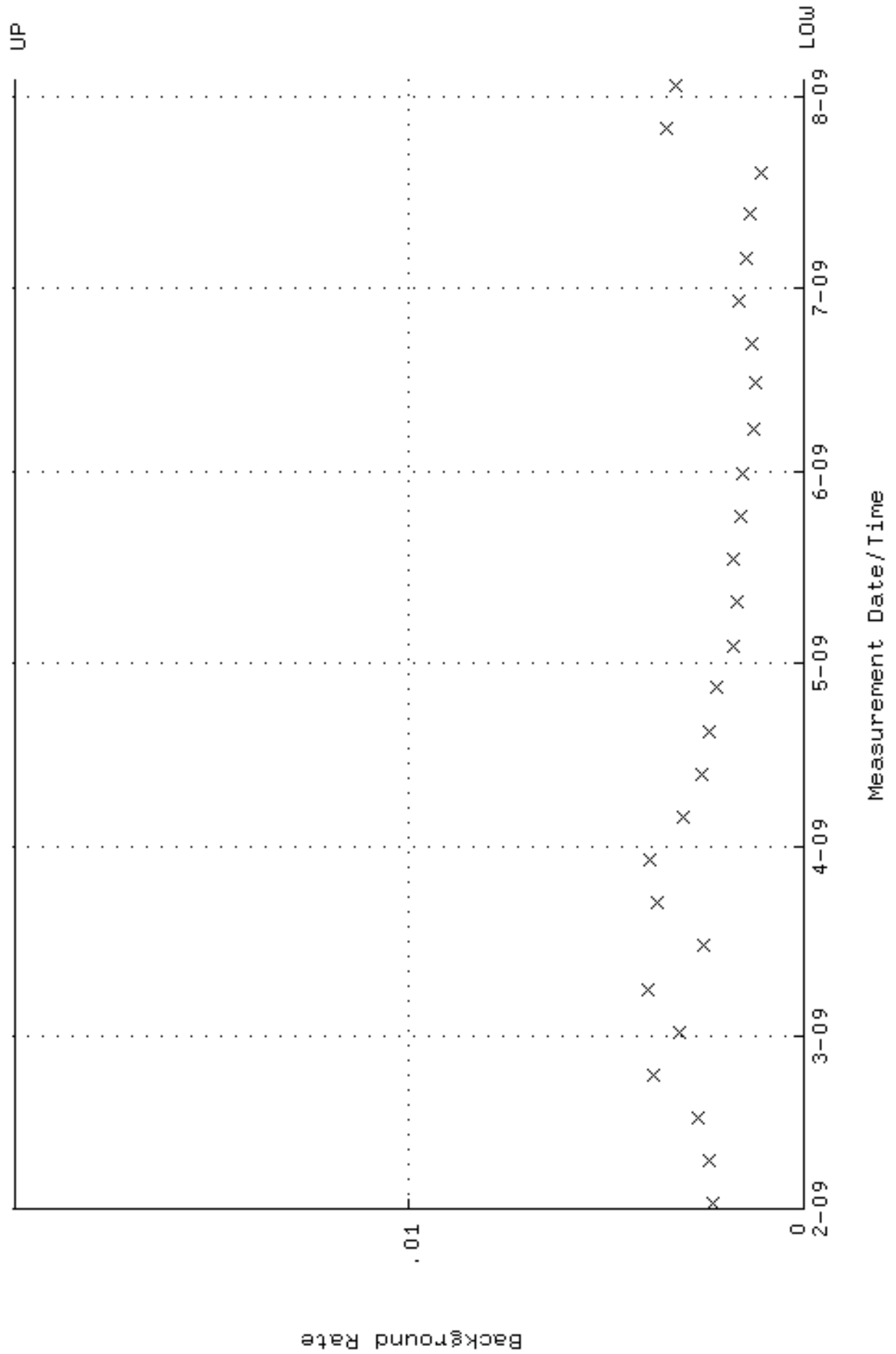




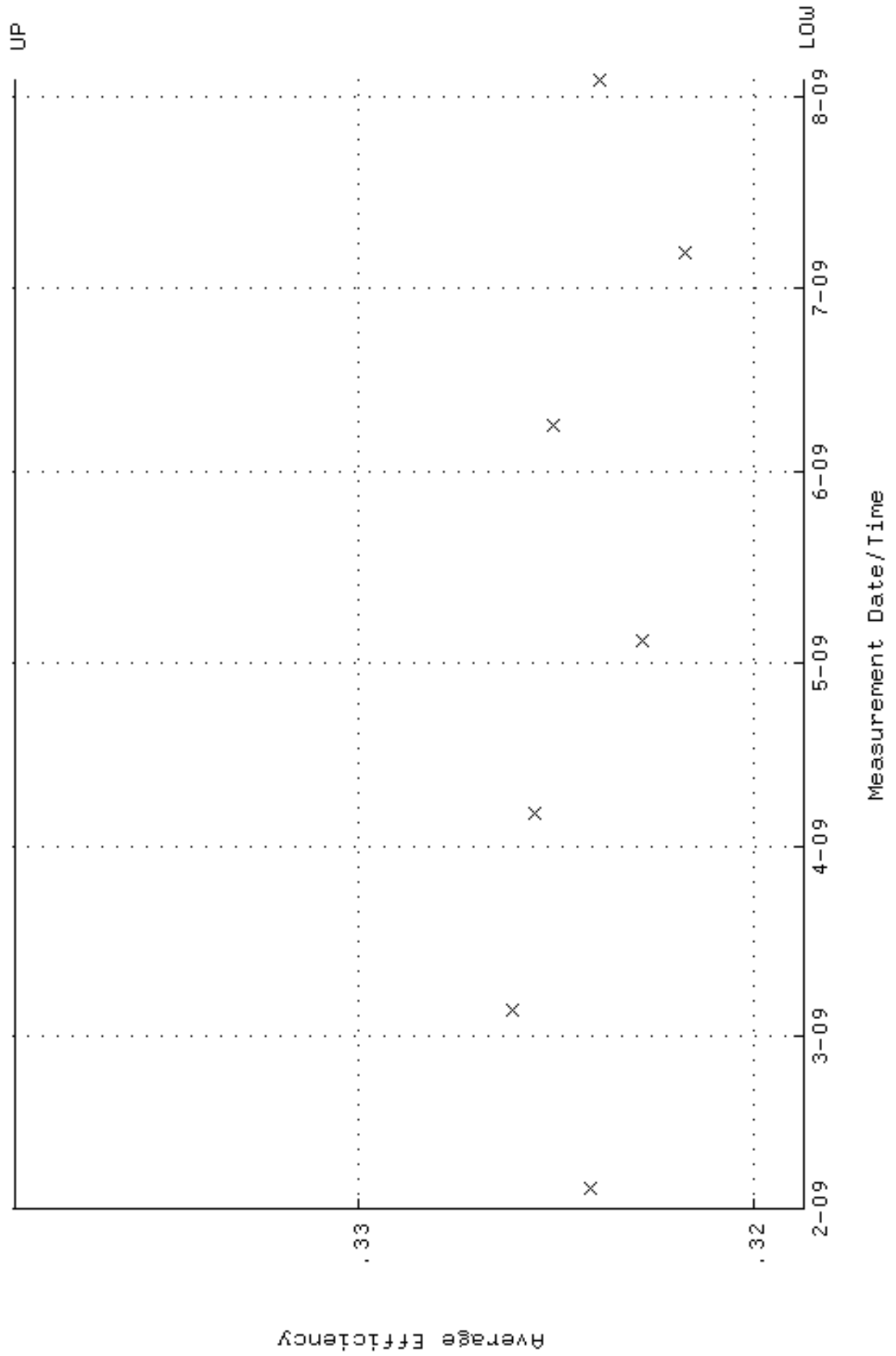
QA filename : DKA100:[ENV\_ALPHA.QA.W]W035.QAF;3  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 4-FEB-2009 07:05:57 through 3-AUG-2009 12:00:00  
 Lower/Upper Lmts: 85.3984 through 94.3878



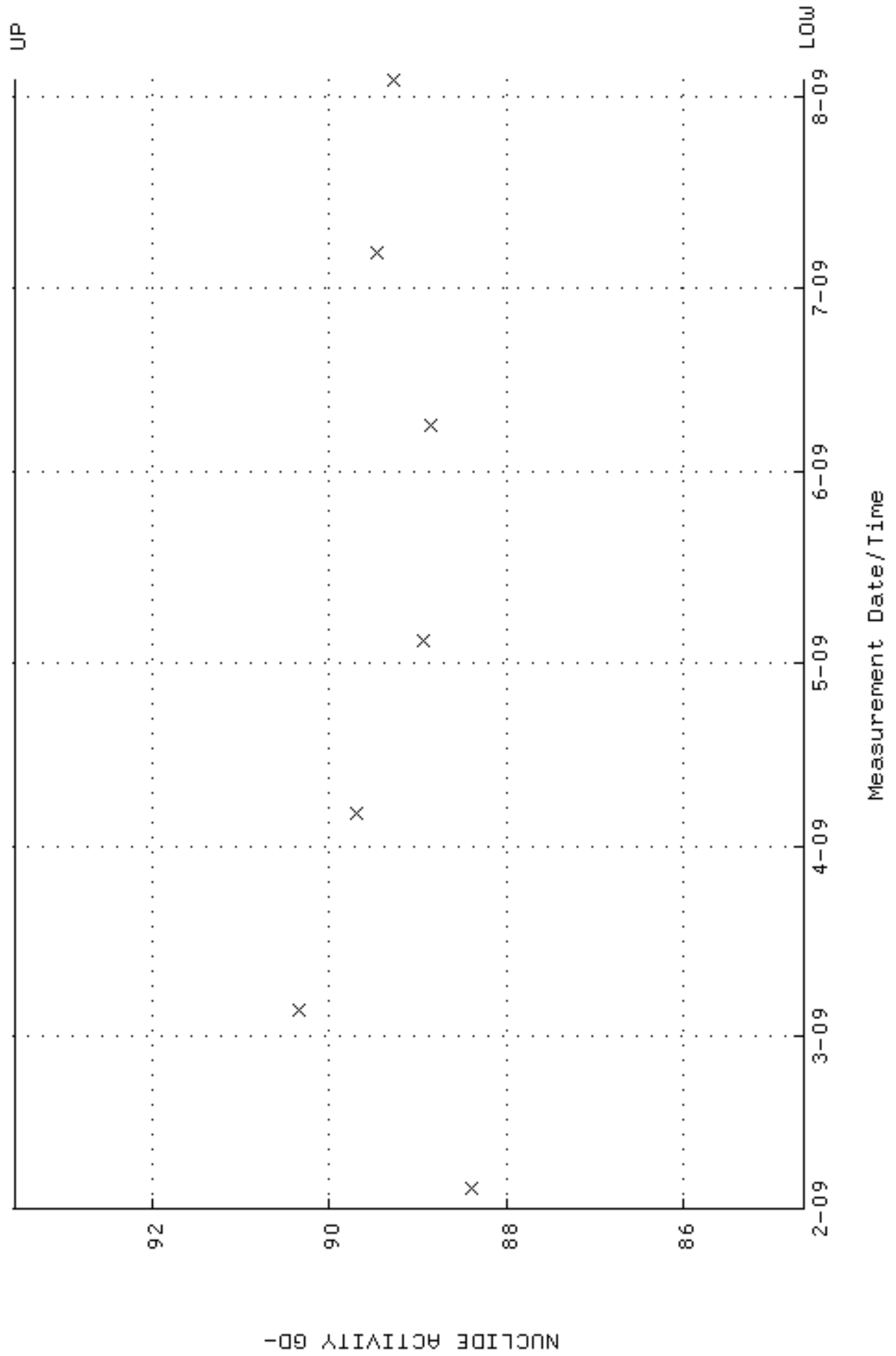
QA filename : DKA100:[ENV\_ALPHA.QA.B]B035.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-FEB-2009 20:05:00 through 3-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



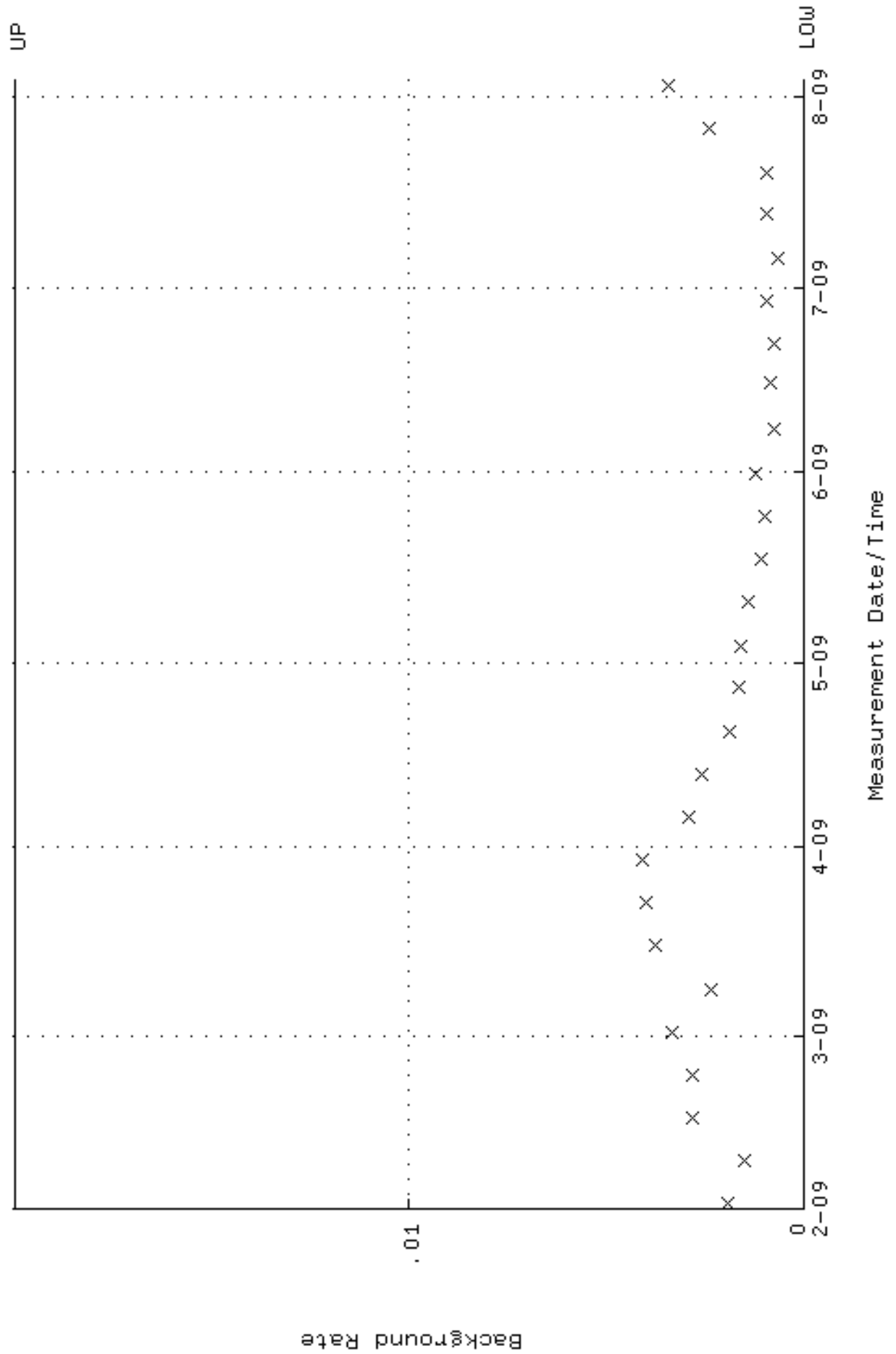
QA filename : DKA100:[ENV\_ALPHA.QA.W]W036.QAF;2  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 4-FEB-2009 07:05:57 through 3-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.318717 through 0.338717



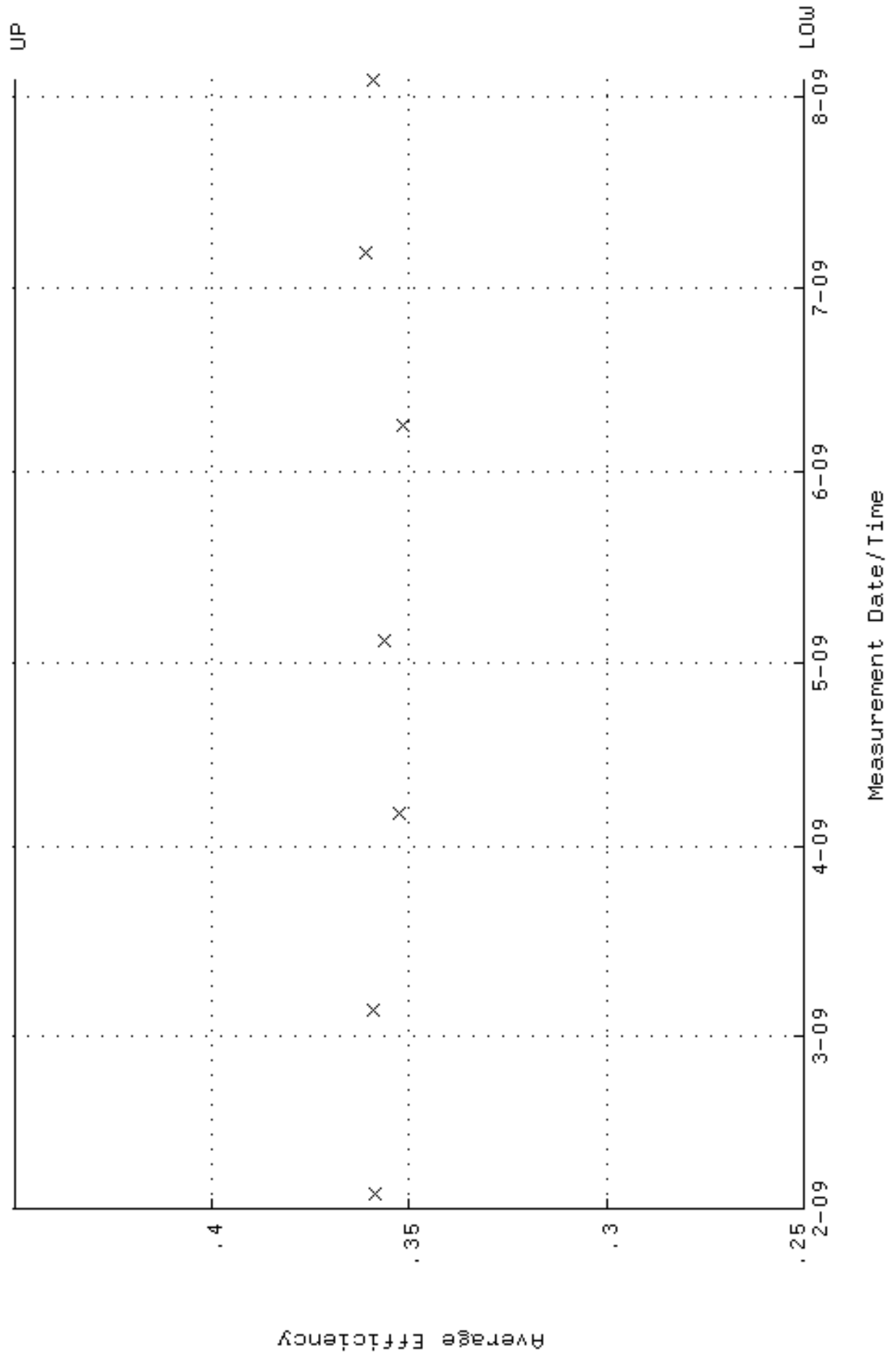
QA filename : DKA100:[ENV\_ALPHA.QA.W]W036.QAF;2  
Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
Start/End Dates : 4-FEB-2009 07:05:57 through 3-AUG-2009 12:00:00  
Lower/Upper Lmts: 84.6422 through 93.5518



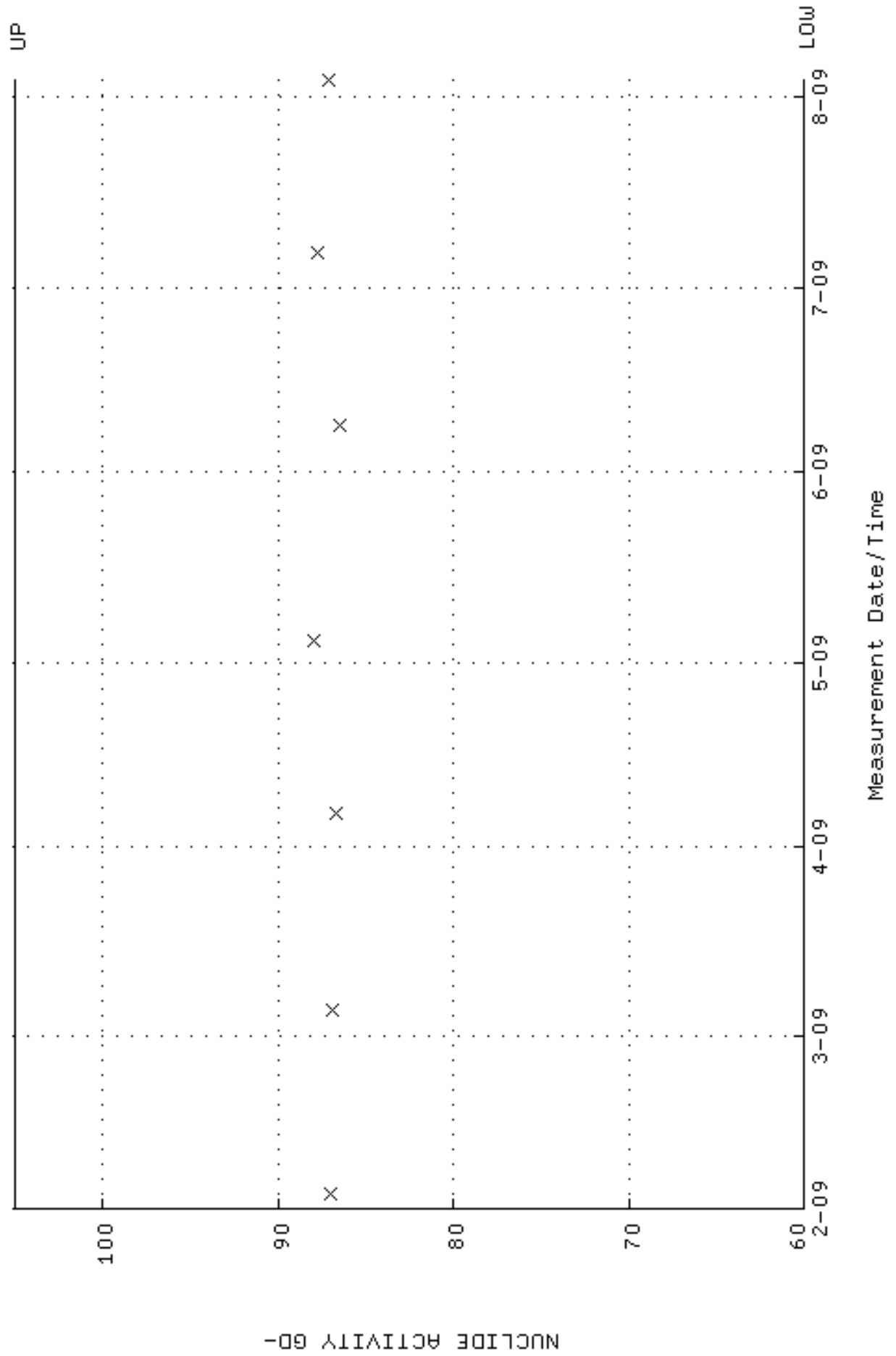
QA filename : DKA100:[ENV\_ALPHA.QA.B]B036.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-FEB-2009 20:05:00 through 3-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



QA filename : DKA100:[ENV\_ALPHA.QA.W]W037.QAF;4  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 3-FEB-2009 12:12:02 through 3-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.250000 through 0.450000



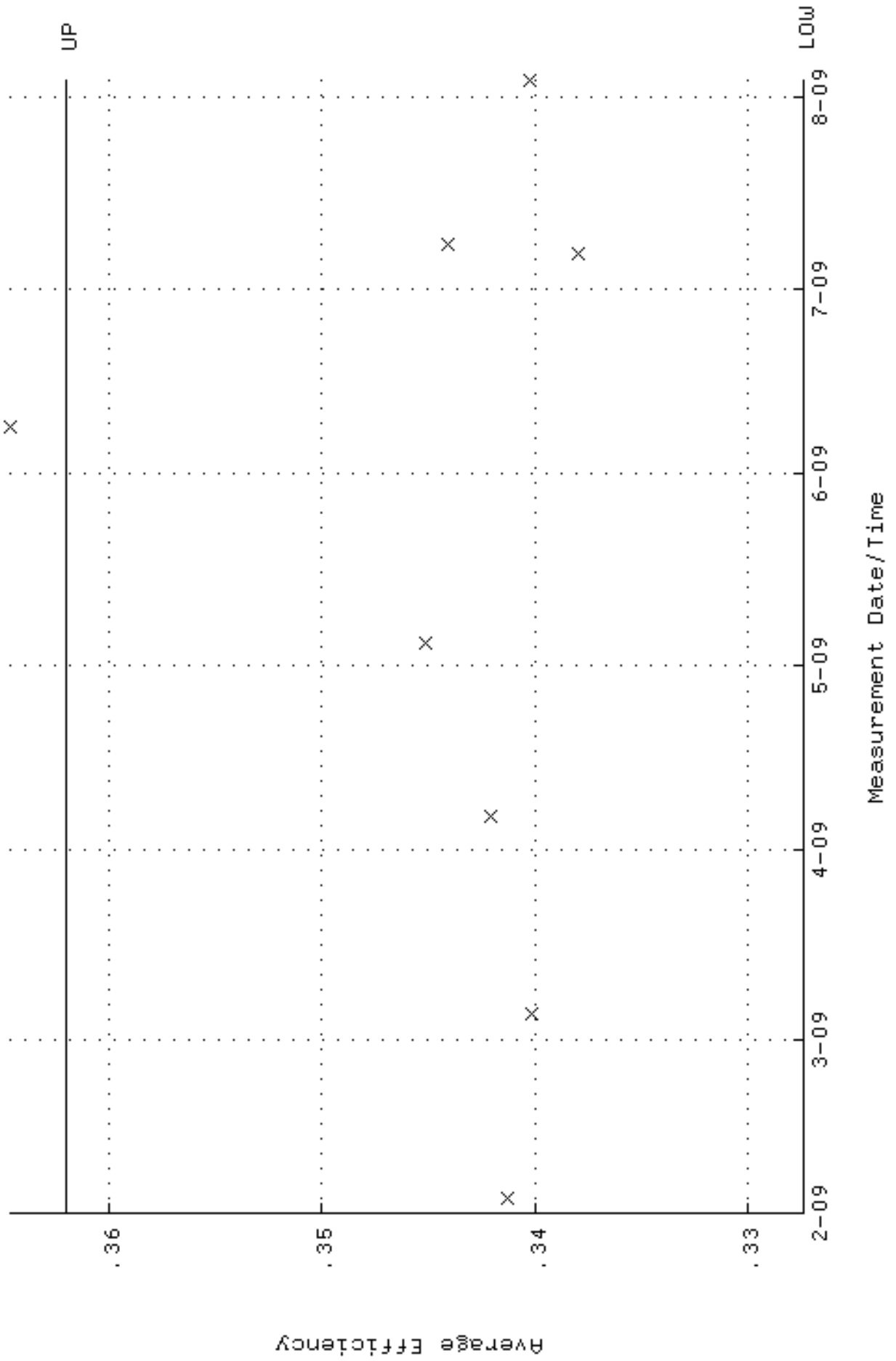
QA filename : DKA100:[ENV\_ALPHA.QA.W]W037.QAF;4  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 3-FEB-2009 12:12:02 through 3-AUG-2009 12:00:00  
 Lower/Upper Lmts: 60.0000 through 105.0000



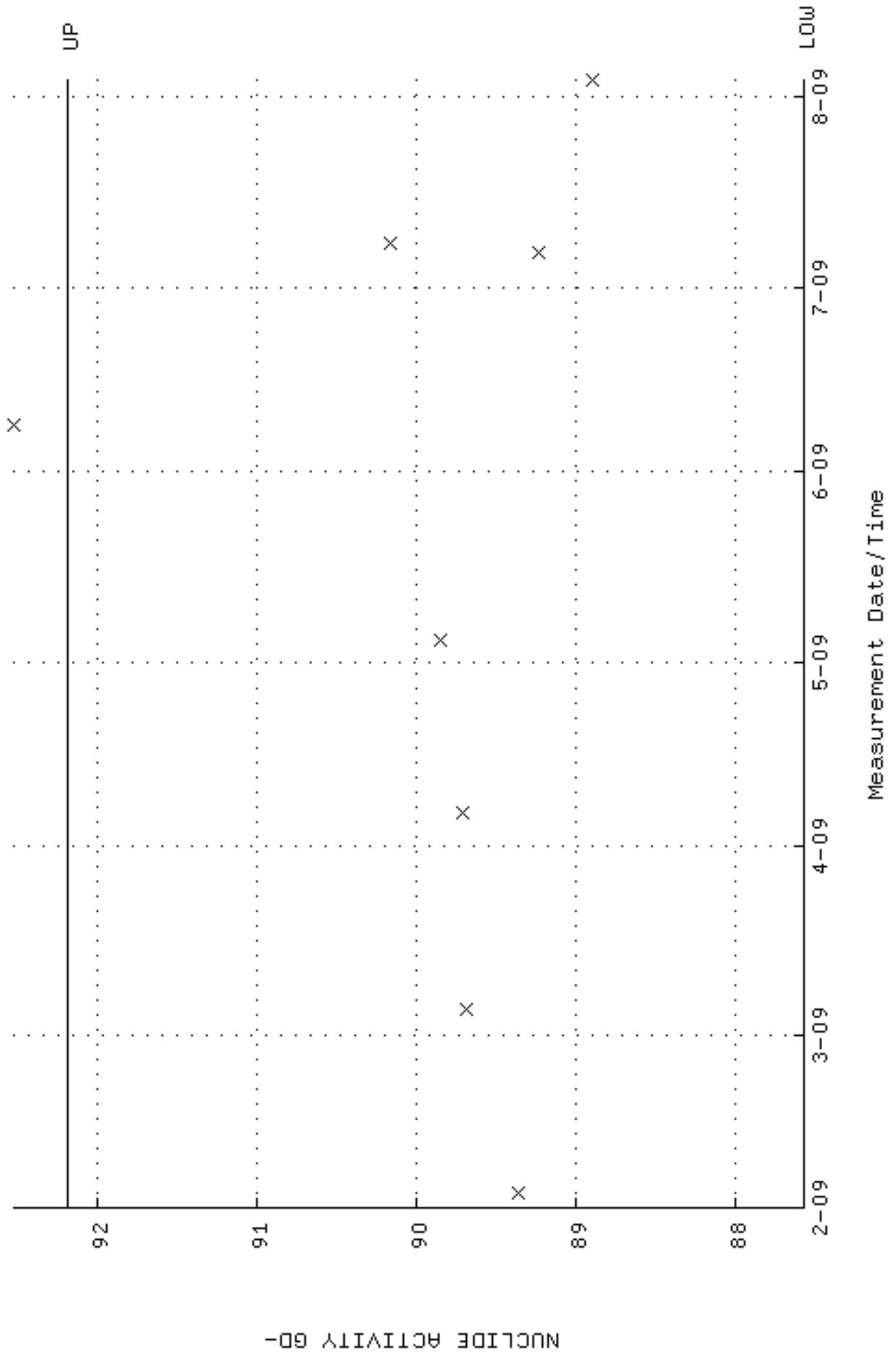




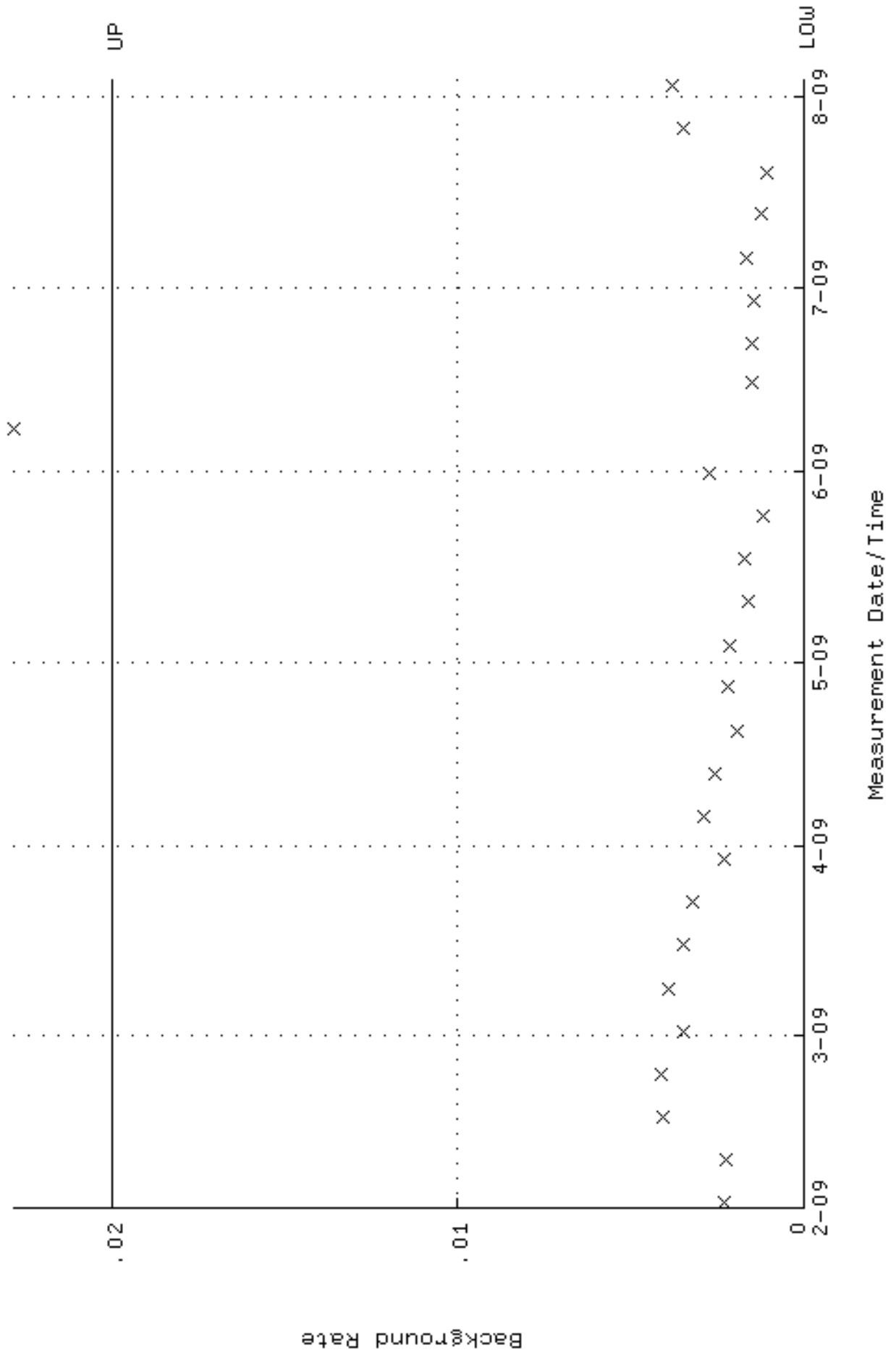
QA filename : DKA100:[ENV\_ALPHA.QA.W]W038.QAF;3  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 3-FEB-2009 12:12:02 through 3-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.327380 through 0.362086



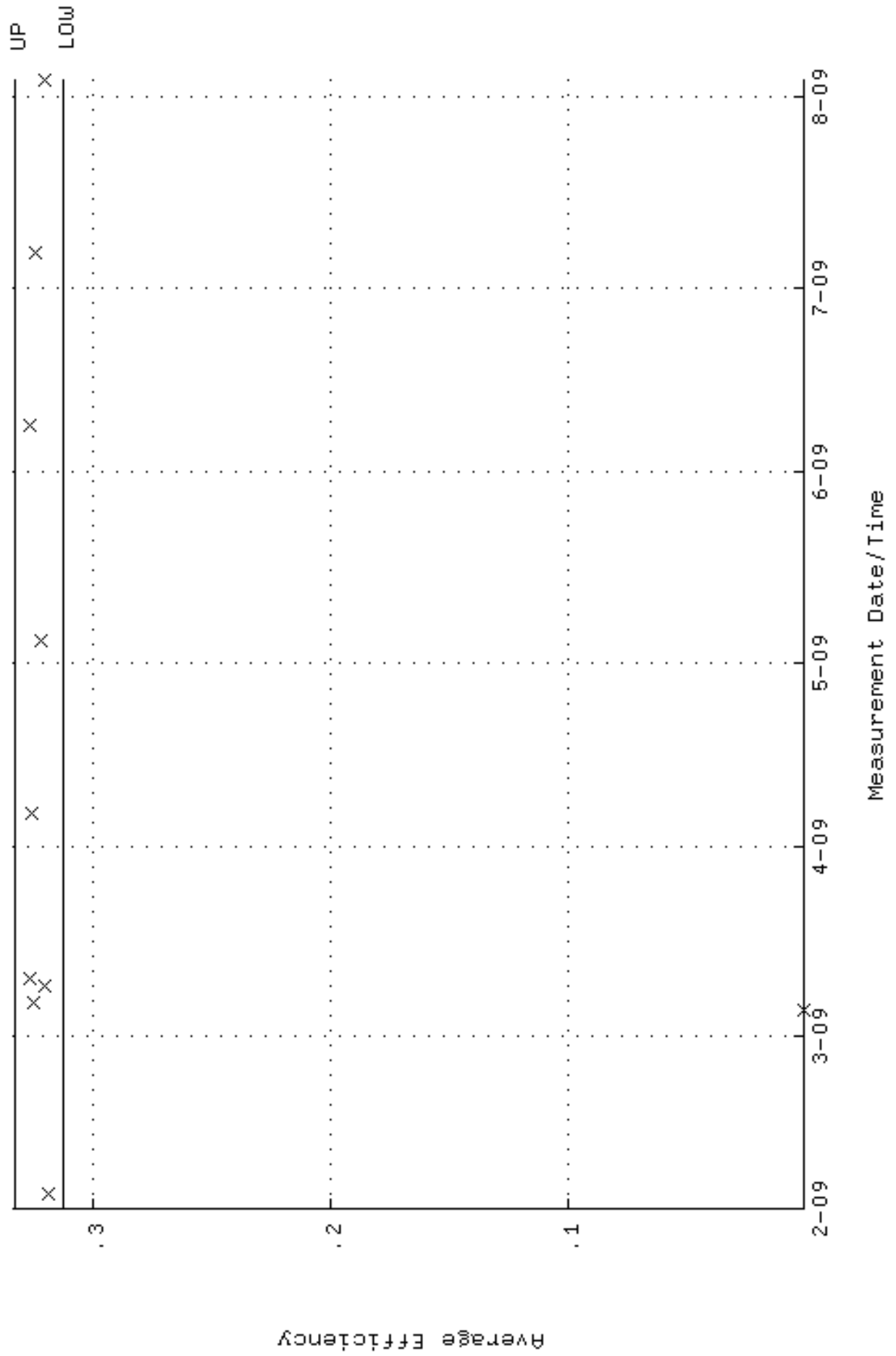
QA filename : DKA100:[ENV\_ALPHA.QA.W]W038.QAF;3  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 3-FEB-2009 12:12:02 through 3-AUG-2009 12:00:00  
 Lower/Upper Lmts: 87.5715 through 92.1899



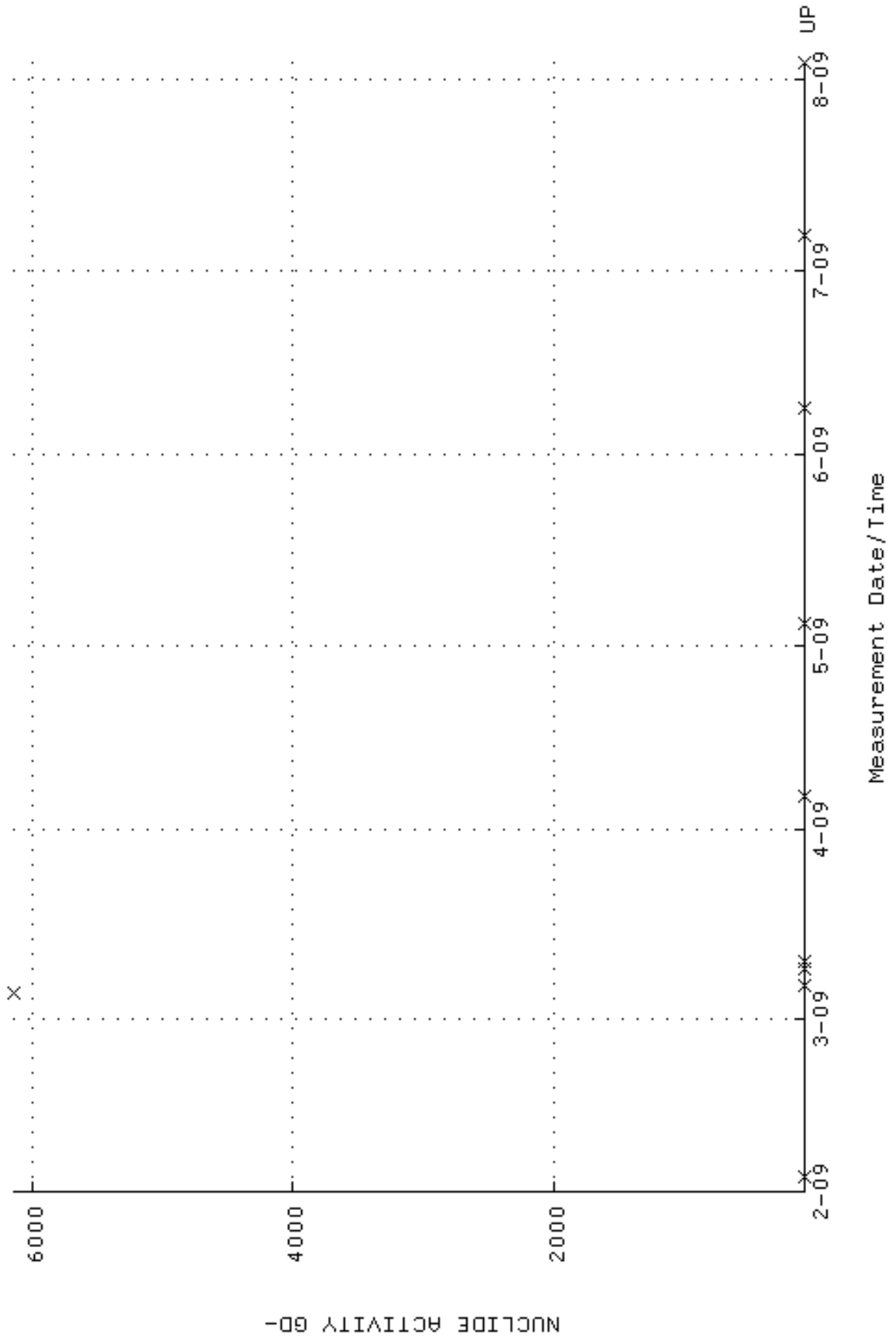
QA filename : DKA100:[ENV\_ALPHA.QA.B]B038.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-FEB-2009 20:05:03 through 3-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



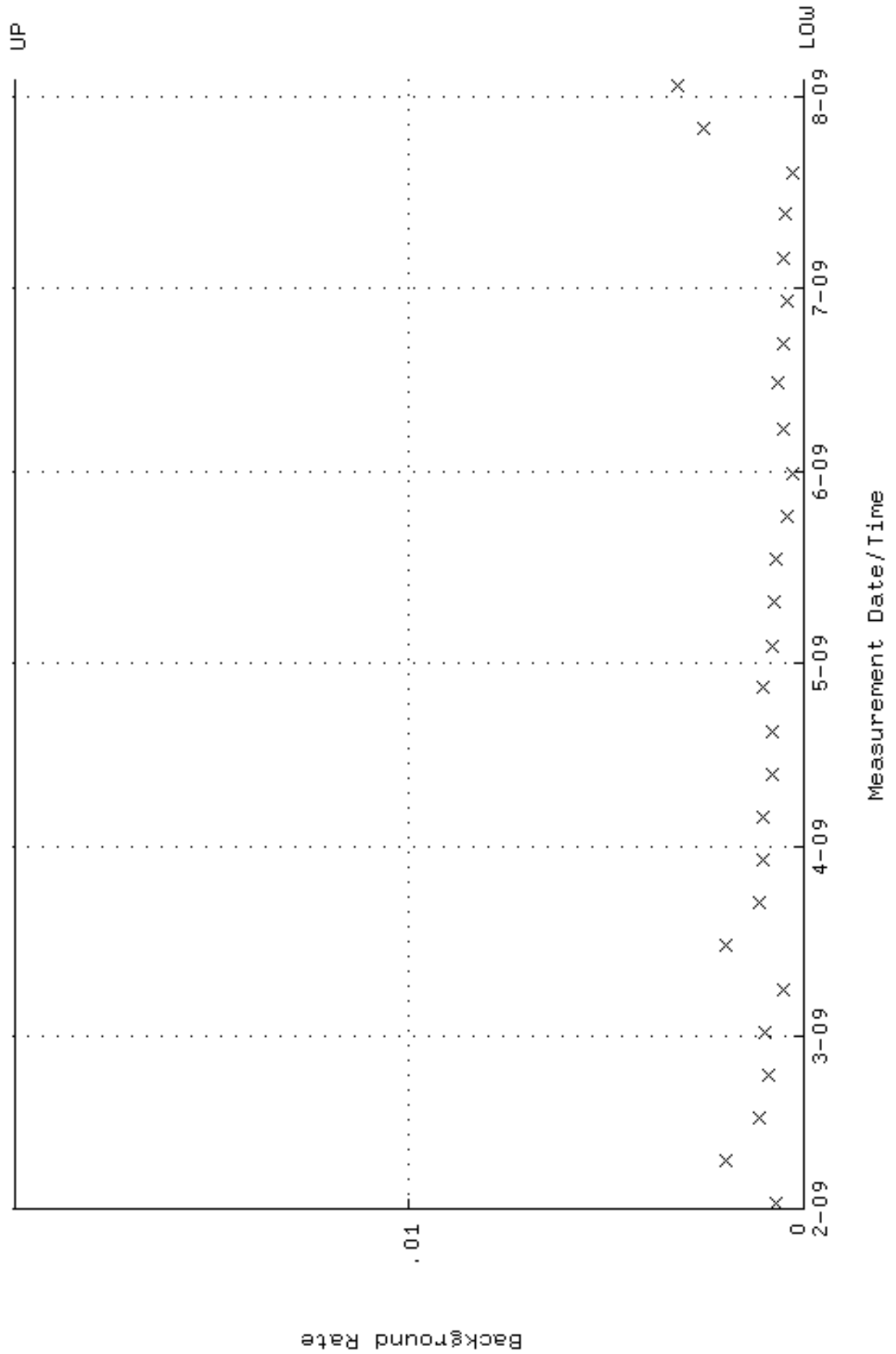
QA filename : DKA100:[ENV\_ALPHA.QA.W]W040.QAF;3  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 3-FEB-2009 12:12:02 through 3-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.313016 through 0.333016



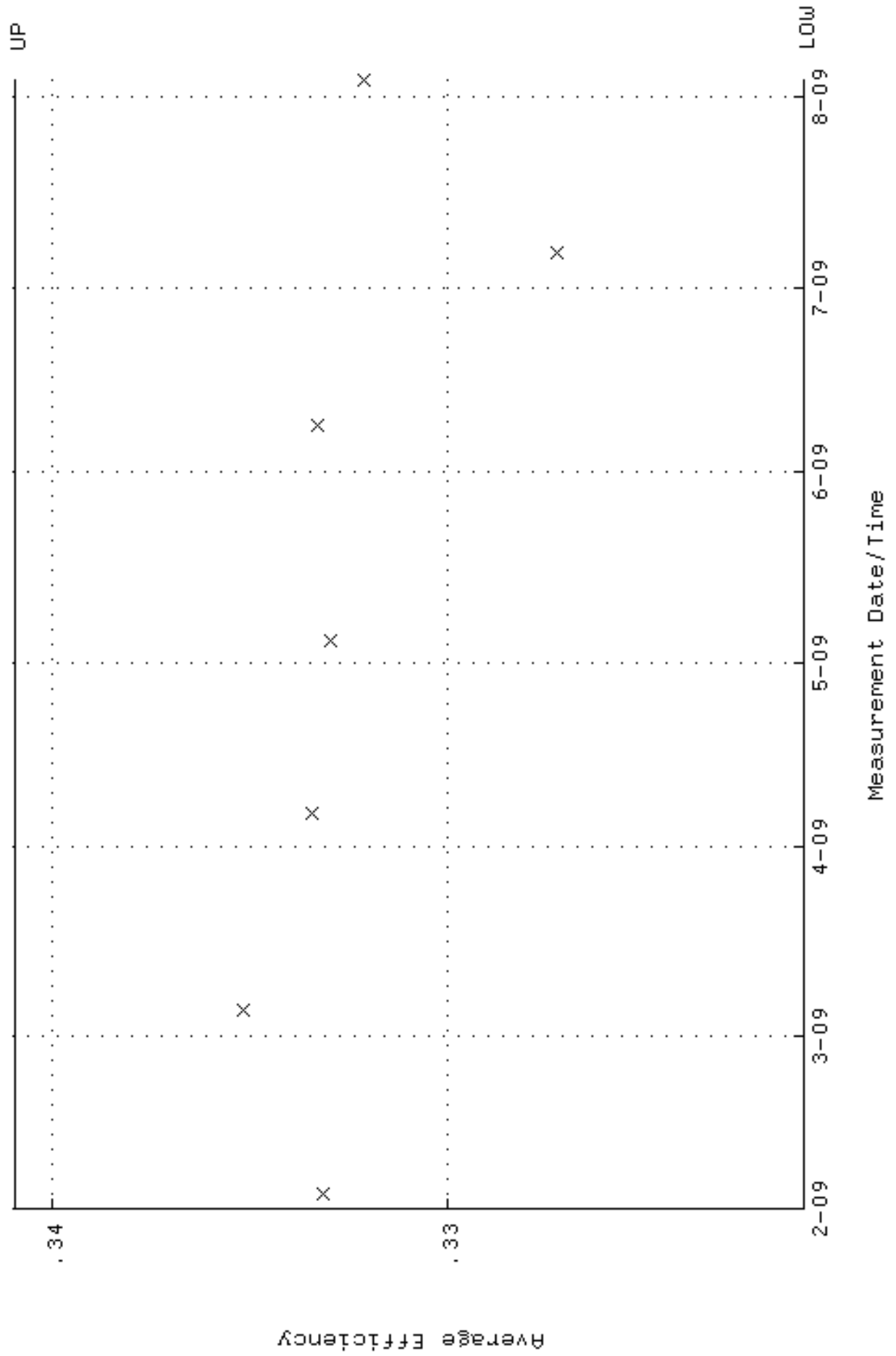
QA filename : DKA100:[ENV\_ALPHA.QA.W]W040.QAF;3  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 3-FEB-2009 12:12:02 through 3-AUG-2009 12:00:00  
 Lower/Upper Lmts: 82.8065 through 91.5229



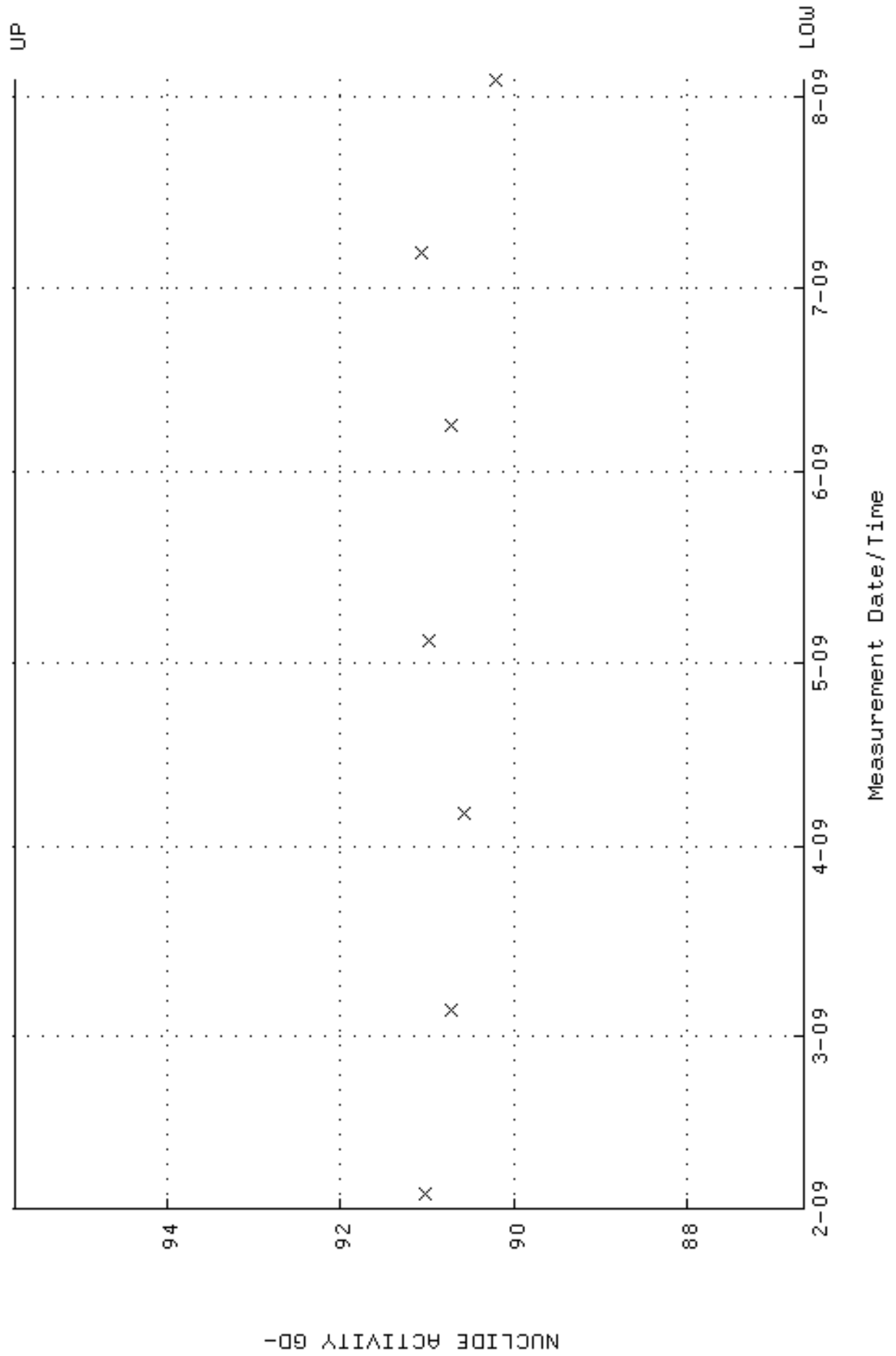
QA filename : DKA100:[ENV\_ALPHA.QA.B]B040.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-FEB-2009 20:05:03 through 3-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



QA filename : DKA100:[ENV\_ALPHA.QA.W]W041.QAF;5  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 3-FEB-2009 12:12:02 through 3-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.320943 through 0.340943

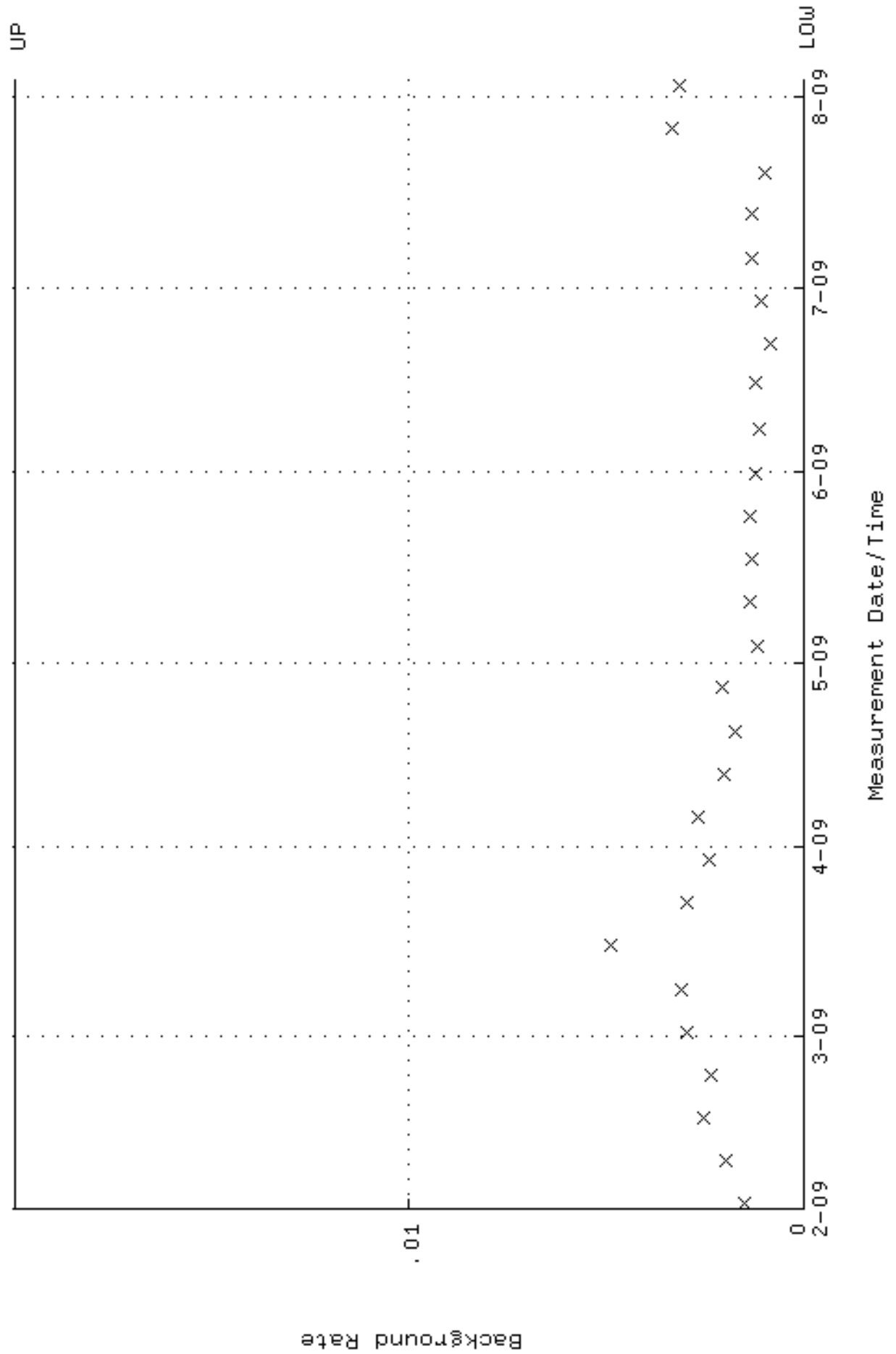


QA filename : DKA100:[ENV\_ALPHA.QA.W]W041.QAF;5  
Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
Start/End Dates : 3-FEB-2009 12:12:02 through 3-AUG-2009 12:00:00  
Lower/Upper Lmts: 86.6435 through 95.7639

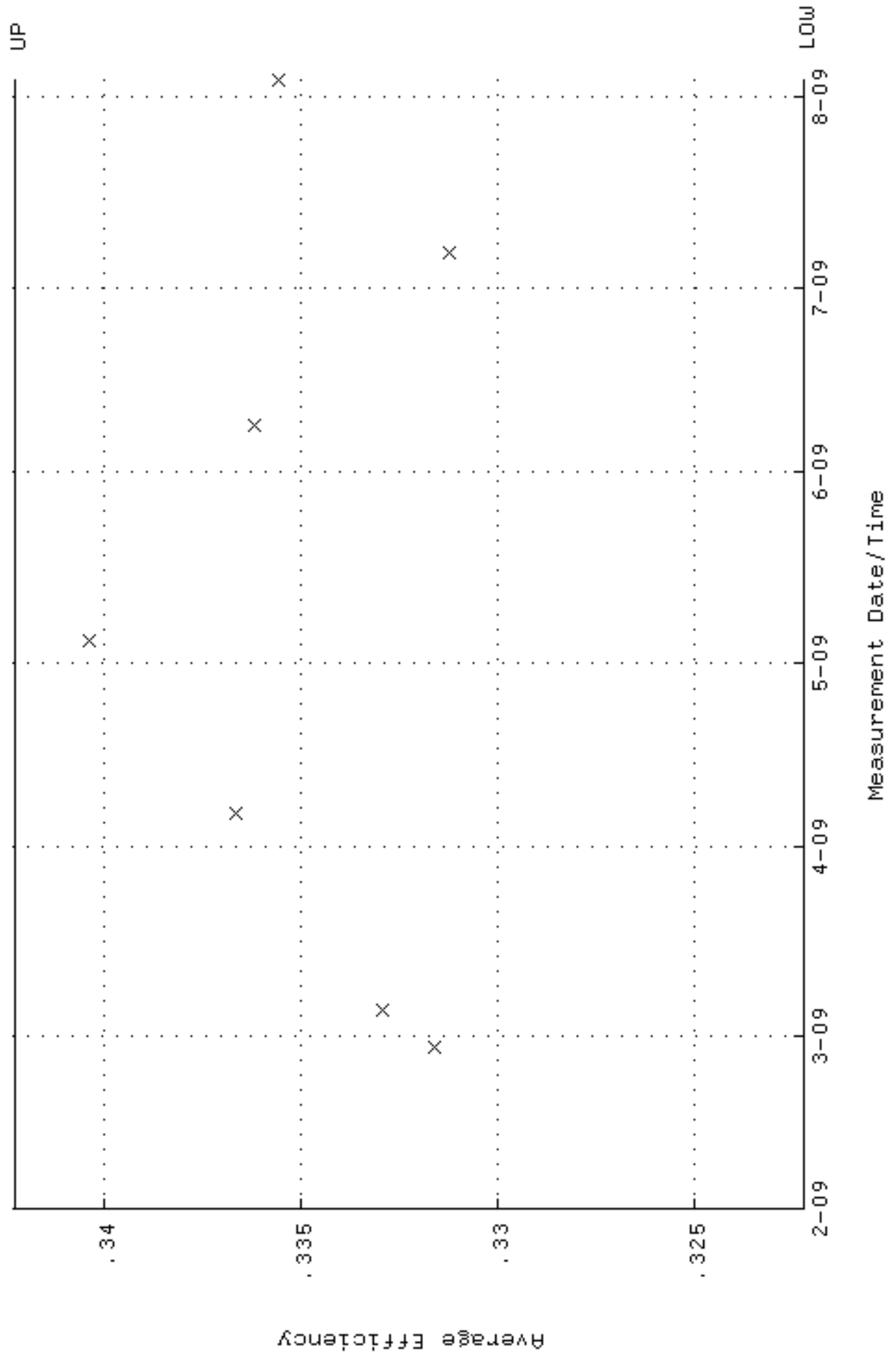




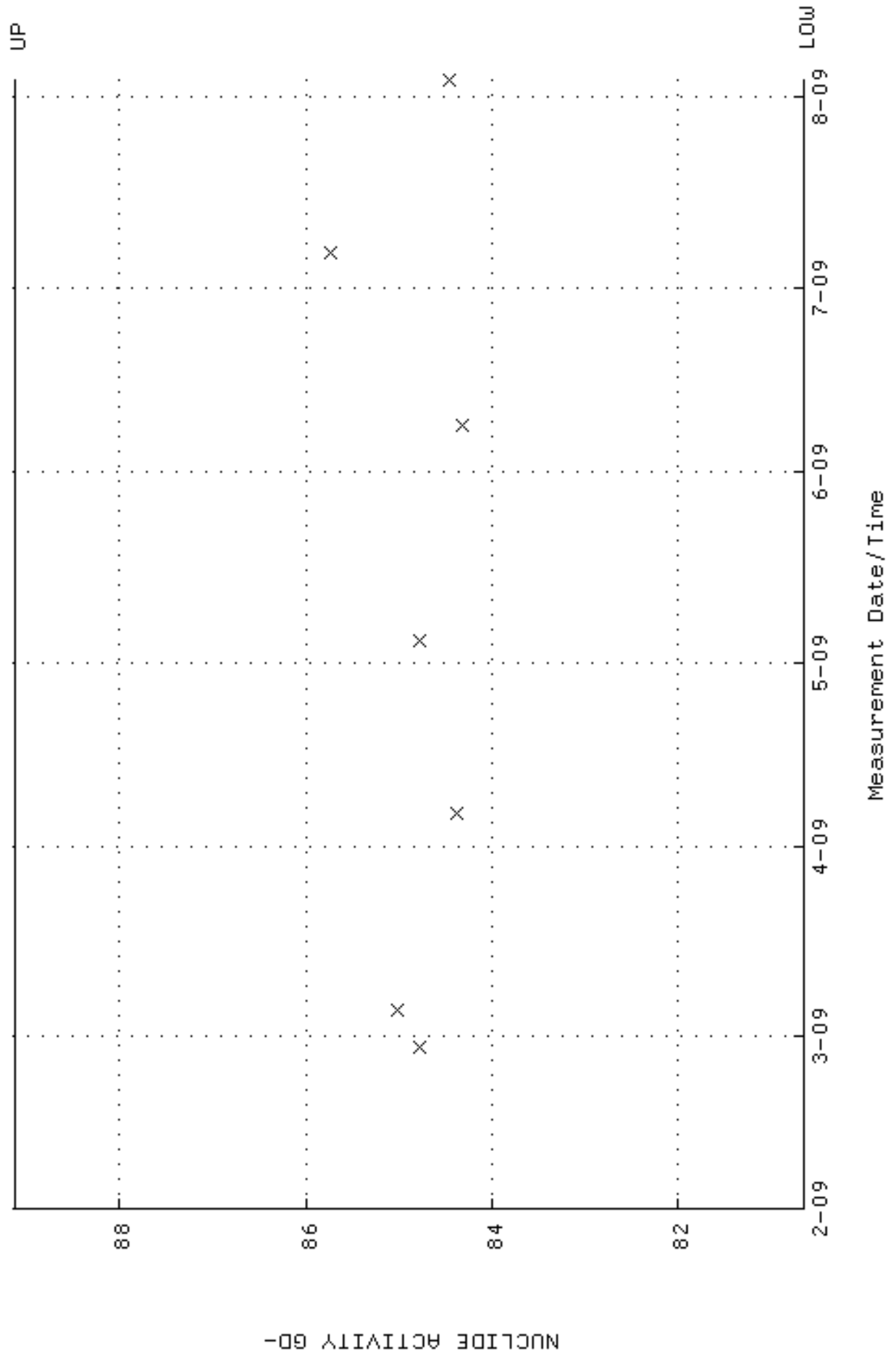
QA filename : DKA100:[ENV\_ALPHA.QA.B]B041.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-FEB-2009 20:05:03 through 3-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



QA filename : DKA100:[ENV\_ALPHA.QA.W]W042.QAF;3  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 27-FEB-2009 07:22:38 through 3-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.322243 through 0.342243

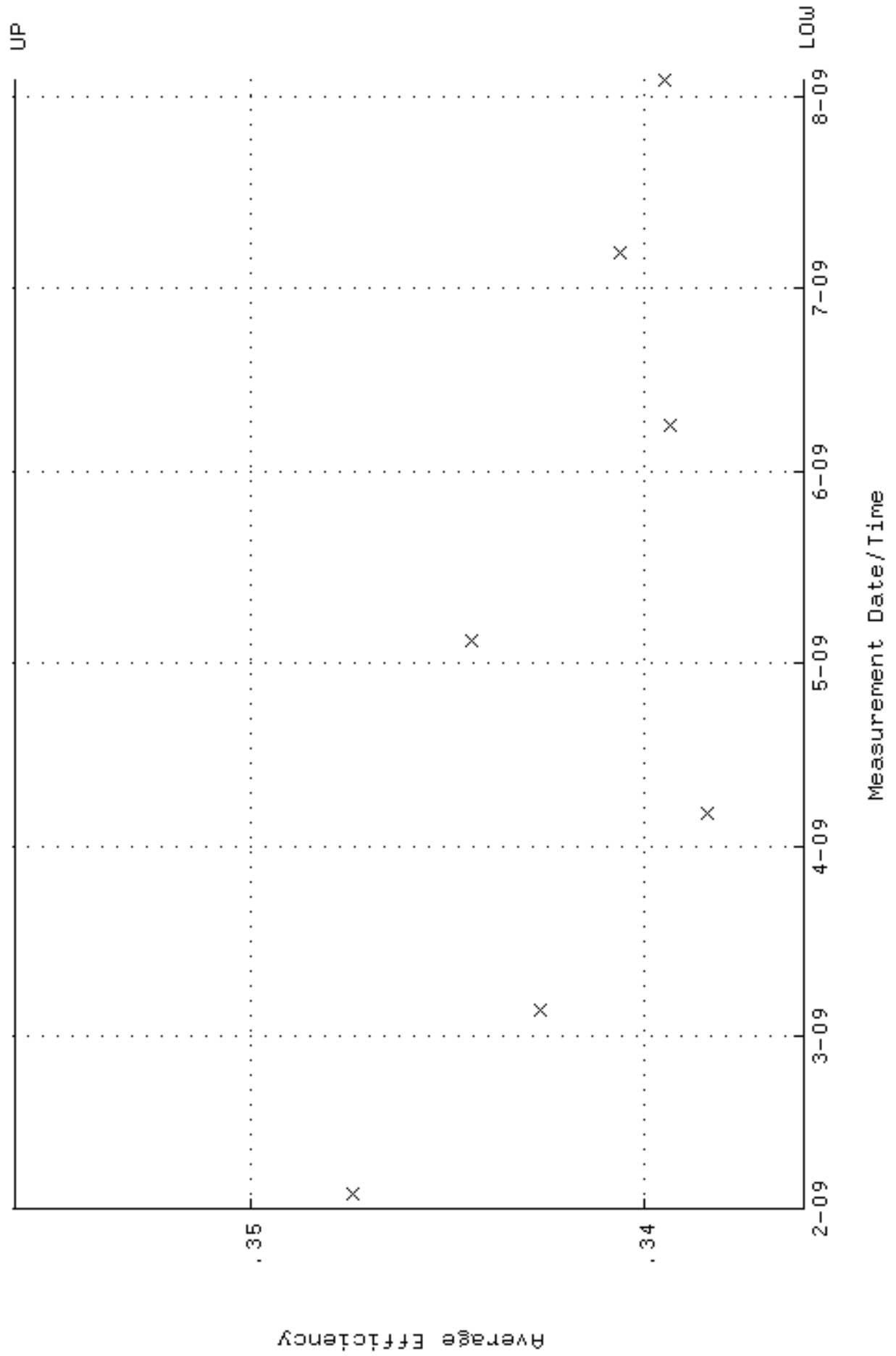


QA filename : DKA100:[ENV\_ALPHA.QA.W]W042.QAF;3  
Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
Start/End Dates : 27-FEB-2009 07:22:38 through 3-AUG-2009 12:00:00  
Lower/Upper Lmts: 80.6389 through 89.1273

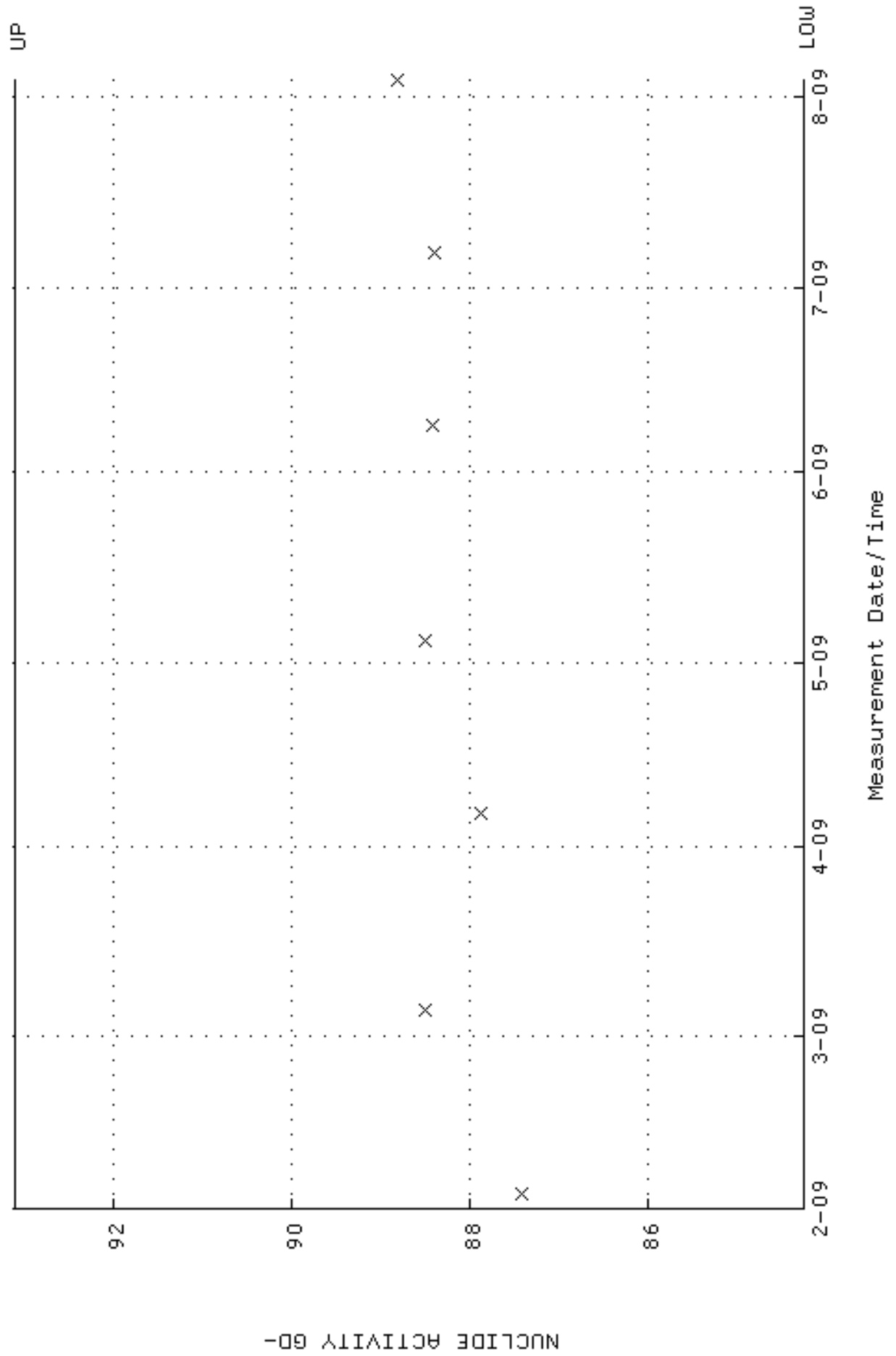




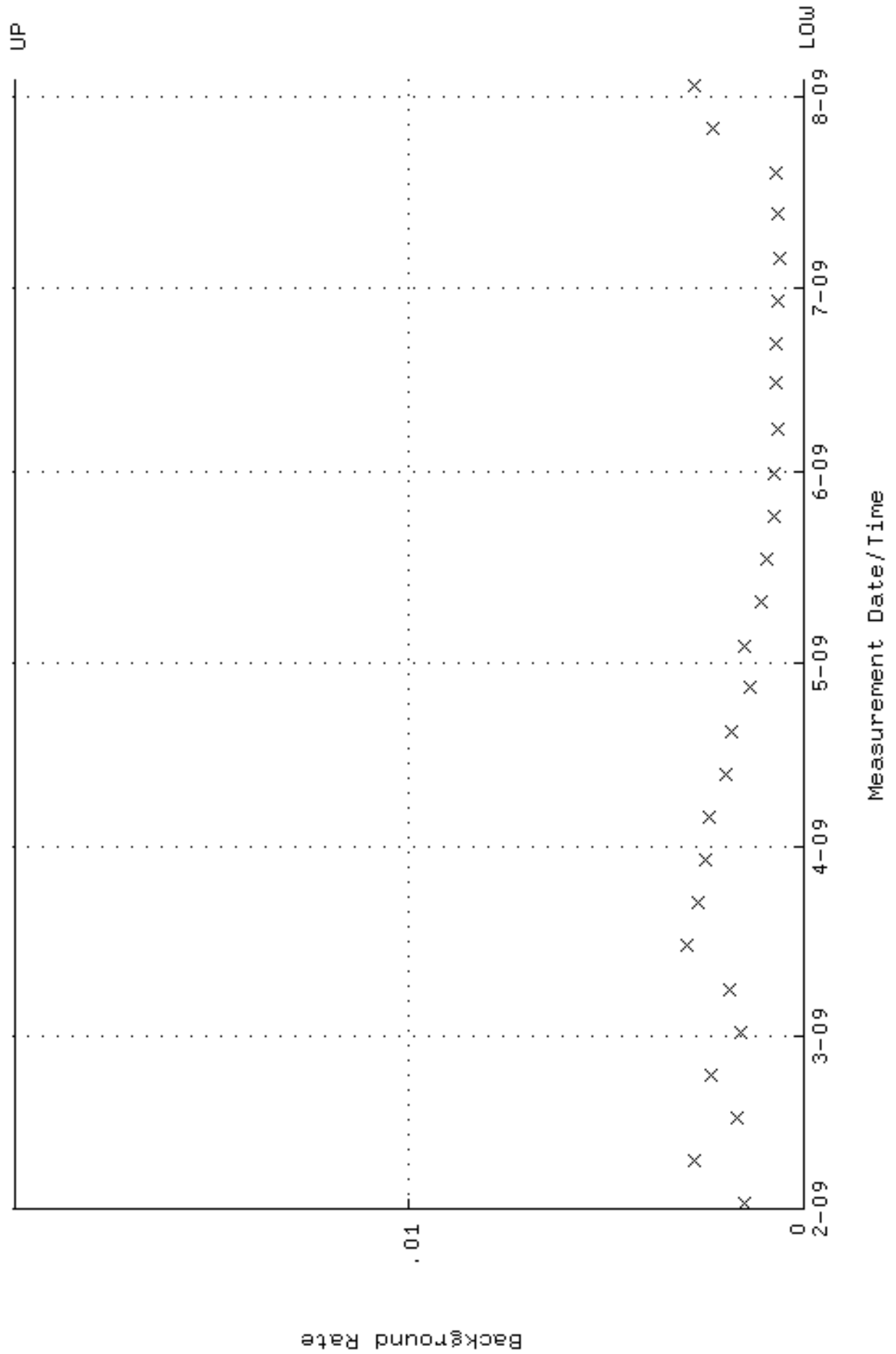
QA filename : DKA100:[ENV\_ALPHA.QA.W]W043.QAF;102  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 3-FEB-2009 12:12:05 through 3-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.335973 through 0.355973



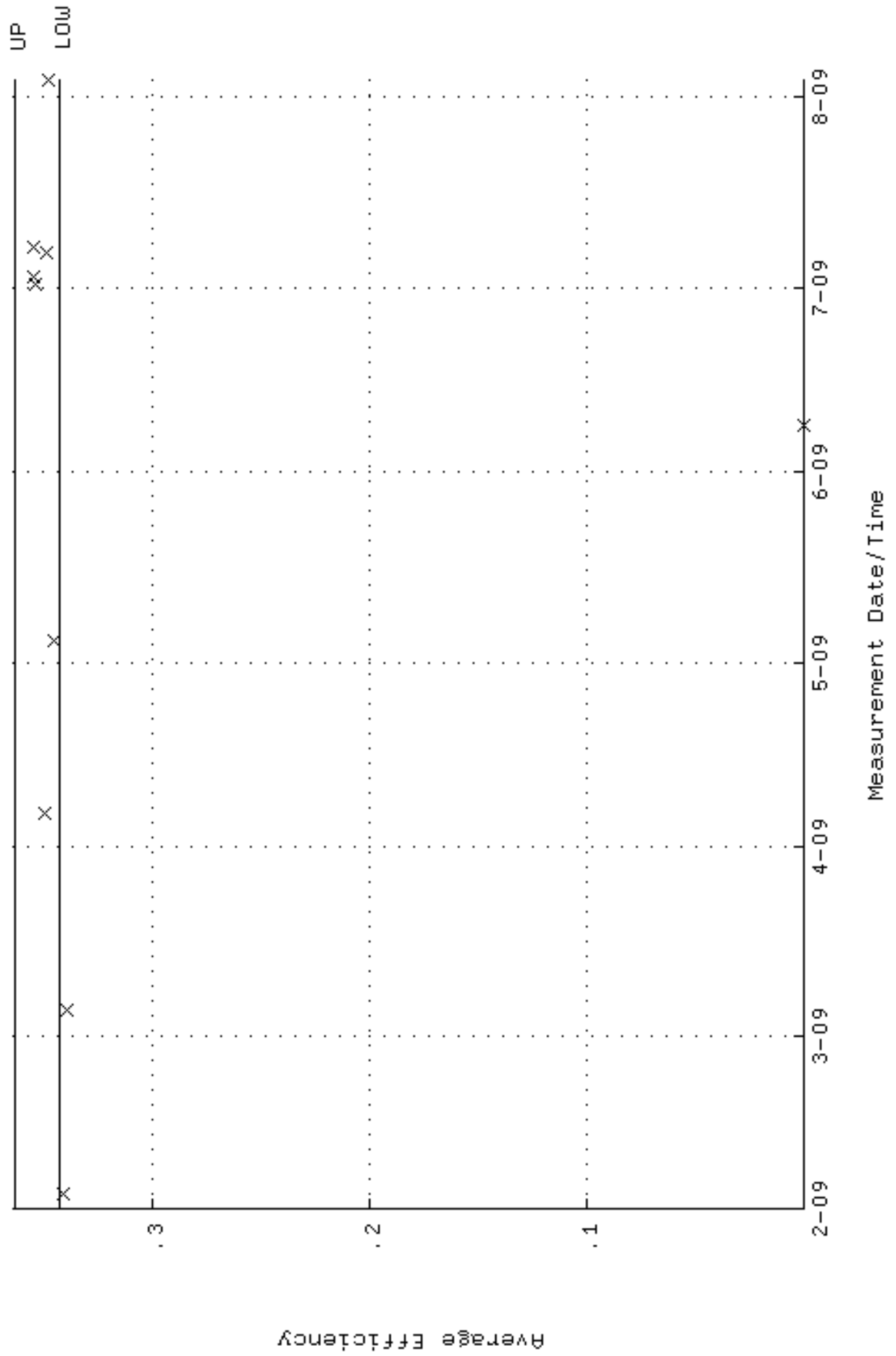
QA filename : DKA100:[ENV\_ALPHA.QA.W]W043.QAF;102  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 3-FEB-2009 12:12:05 through 3-AUG-2009 12:00:00  
 Lower/Upper Lmts: 84.2440 through 93.1118



QA filename : DKA100:[ENV\_ALPHA.QA.B]B043.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-FEB-2009 20:05:04 through 3-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02

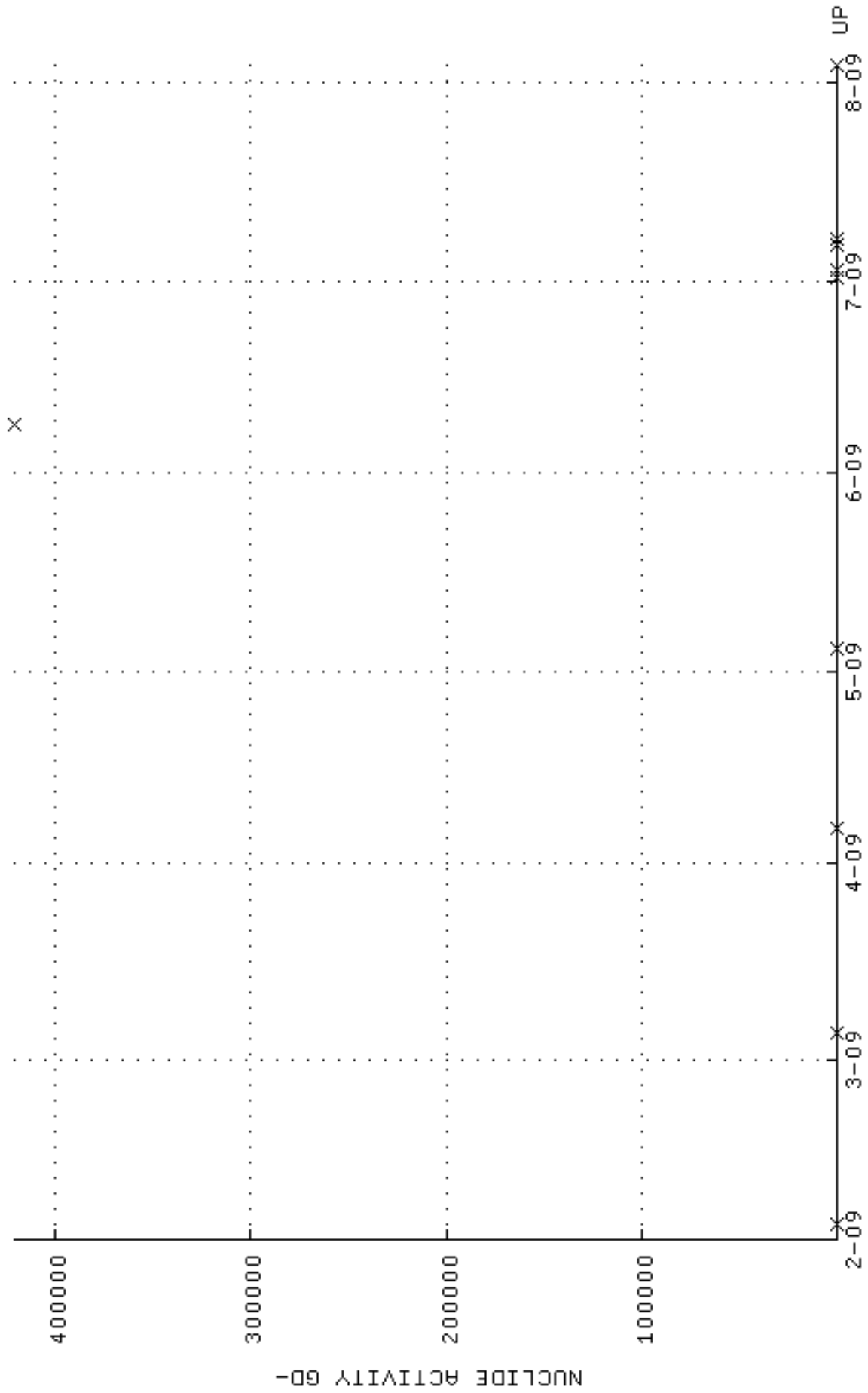


QA filename : DKA100:[ENV\_ALPHA.QA.W]W044.QAF;5  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 3-FEB-2009 12:12:05 through 3-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.343380 through 0.363380





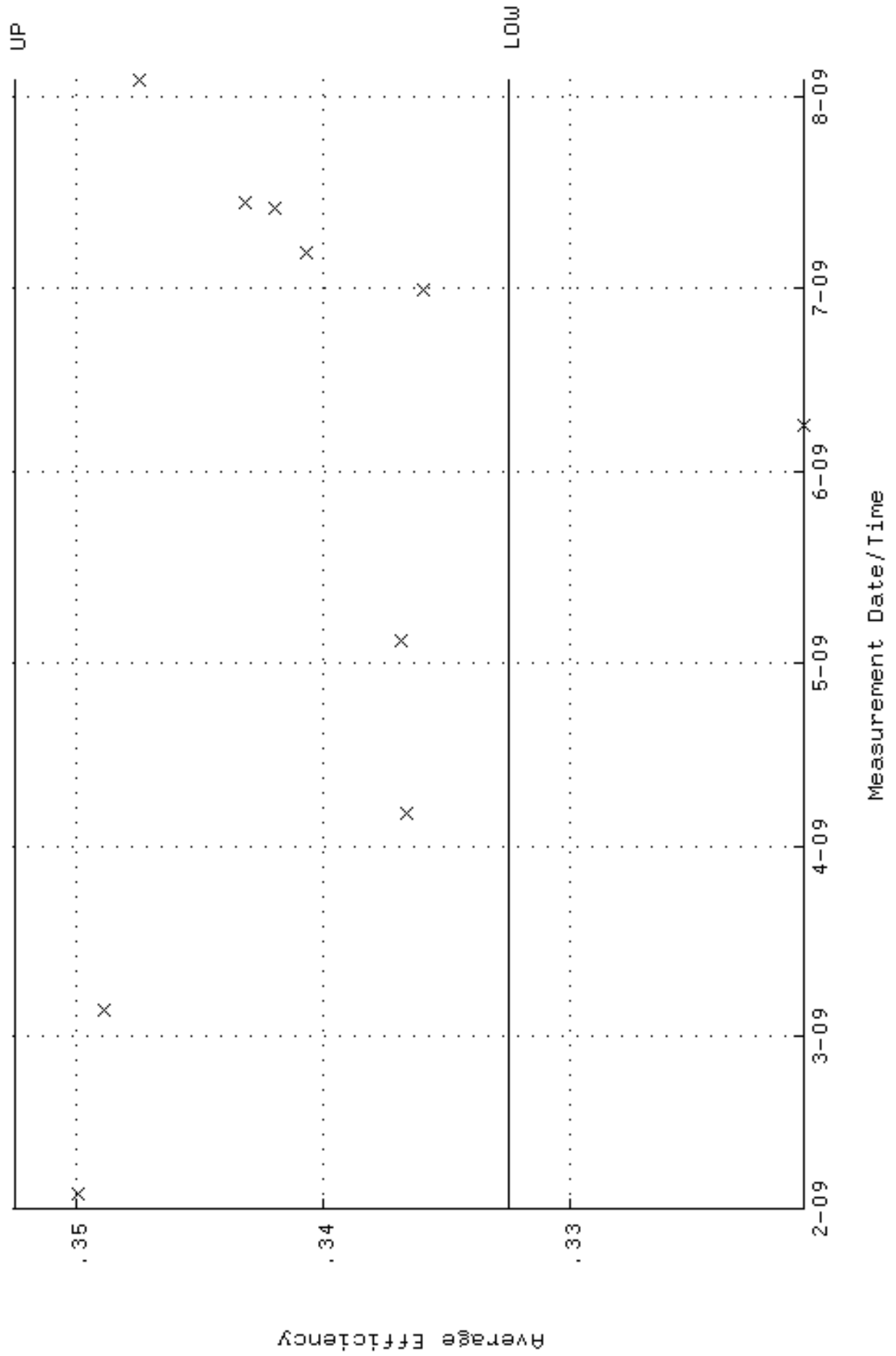
QA filename : DKA100:[ENV\_ALPHA.QA.W]W044.QAF;5  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 3-FEB-2009 12:12:05 through 3-AUG-2009 12:00:00  
 Lower/Upper Lmts: 83.4041 through 92.1835



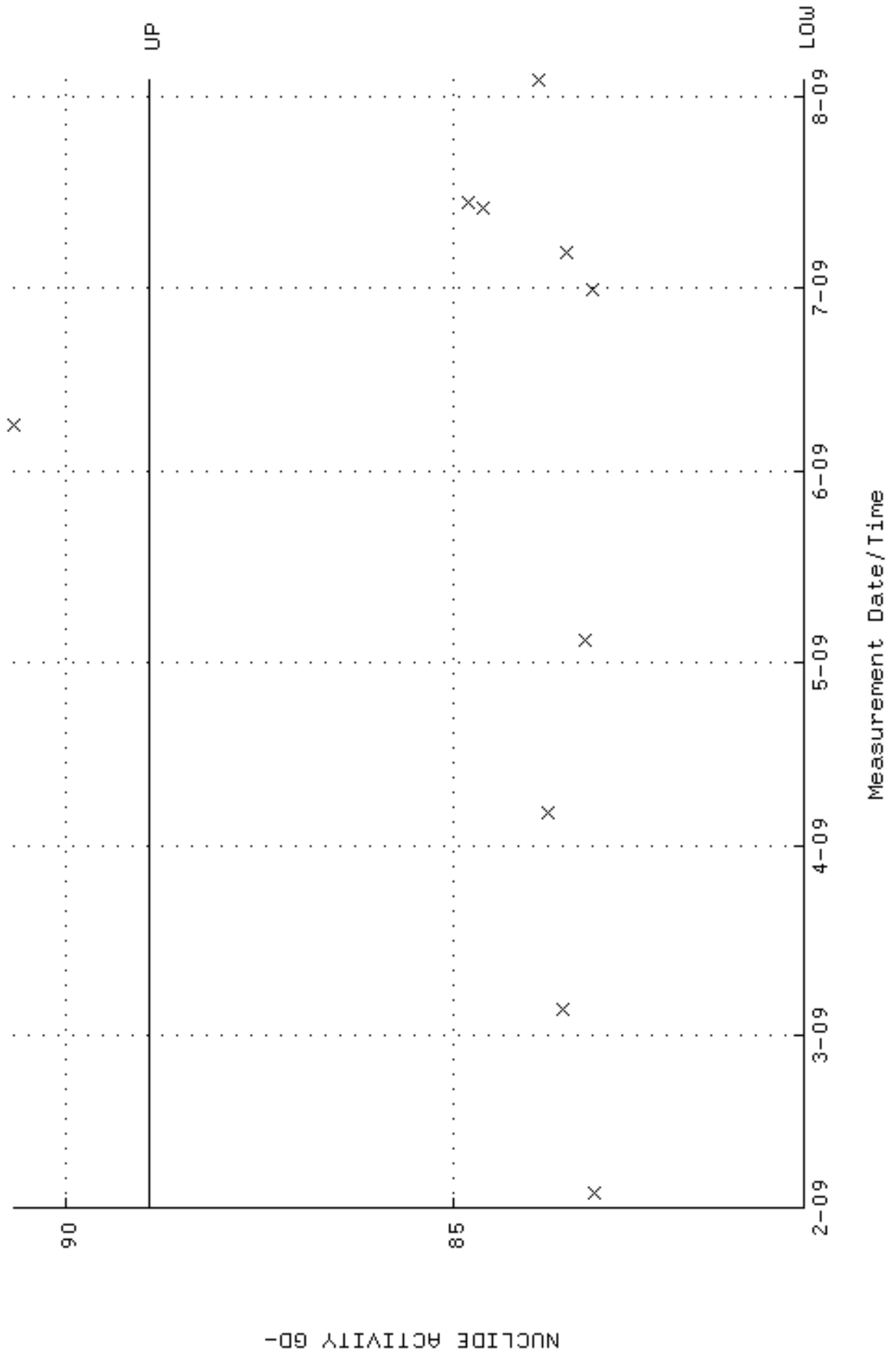
Measurement Date/Time



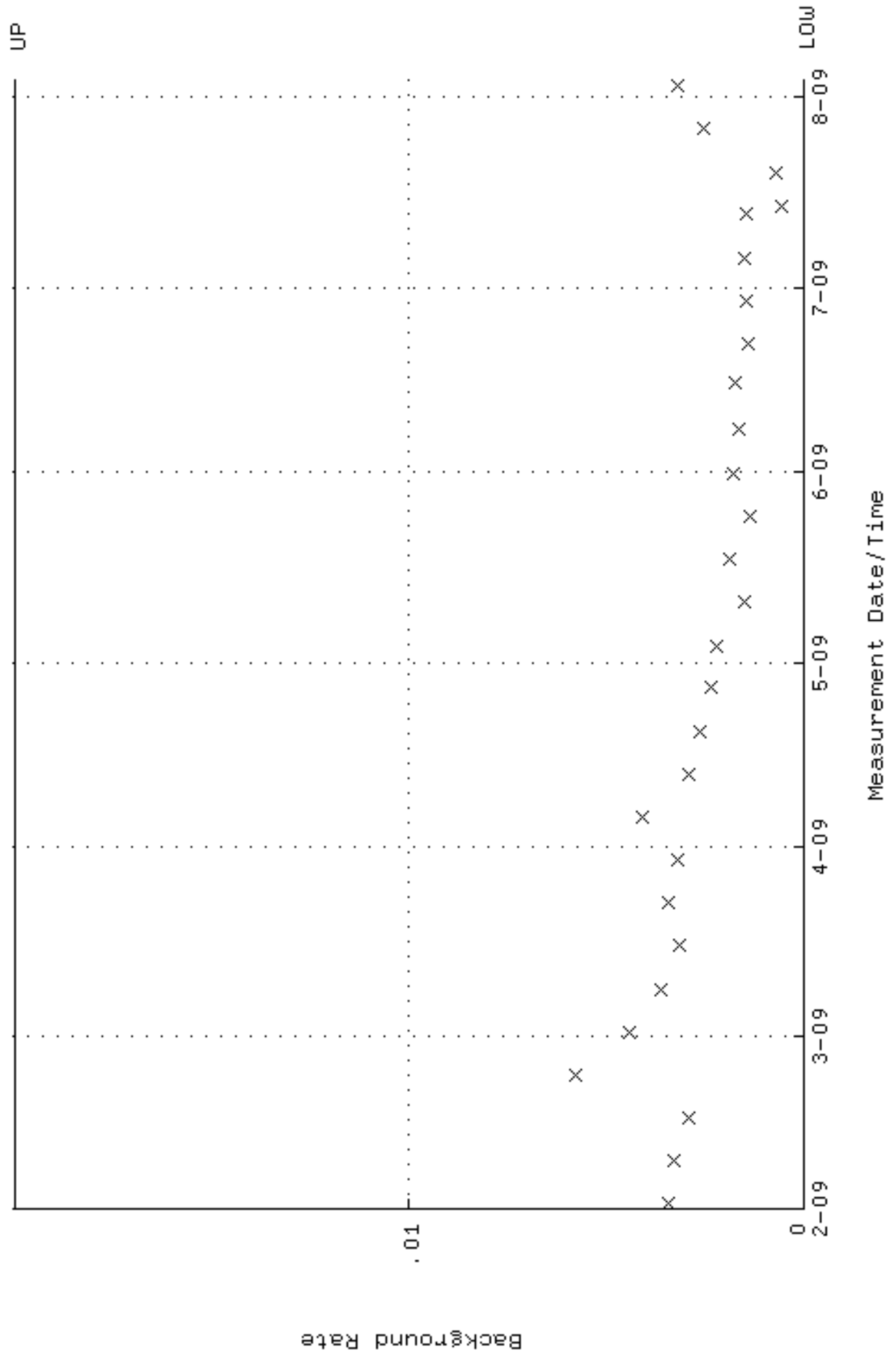
QA filename : DKA100:[ENV\_ALPHA.QA.W]W045.QAF;5  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 3-FEB-2009 12:12:05 through 3-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.332472 through 0.352472



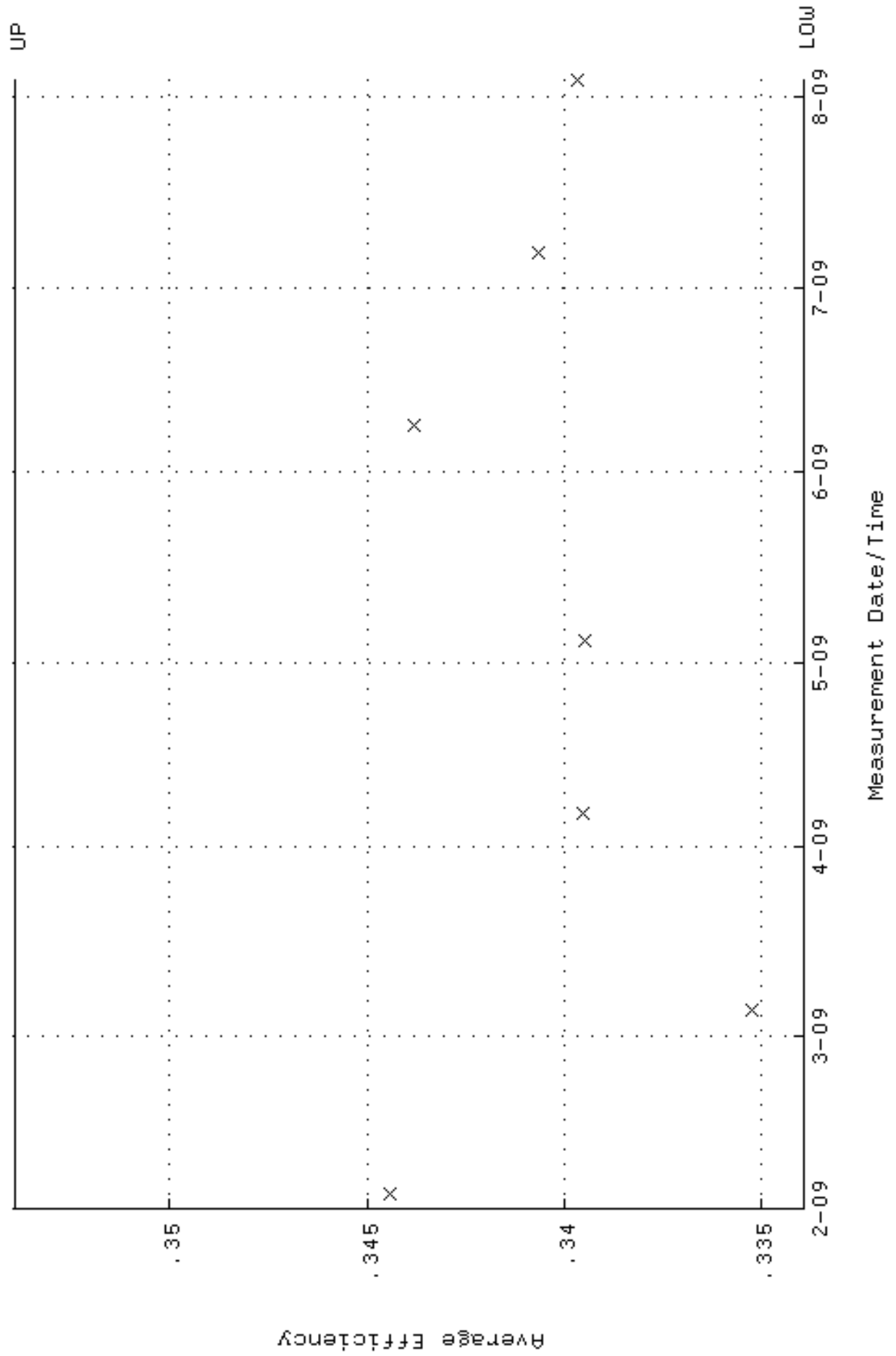
QA filename : DKA100:[ENV\_ALPHA.QA.W]W045.QAF;5  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 3-FEB-2009 12:12:05 through 3-AUG-2009 12:00:00  
 Lower/Upper Lmts: 80.4622 through 88.9320



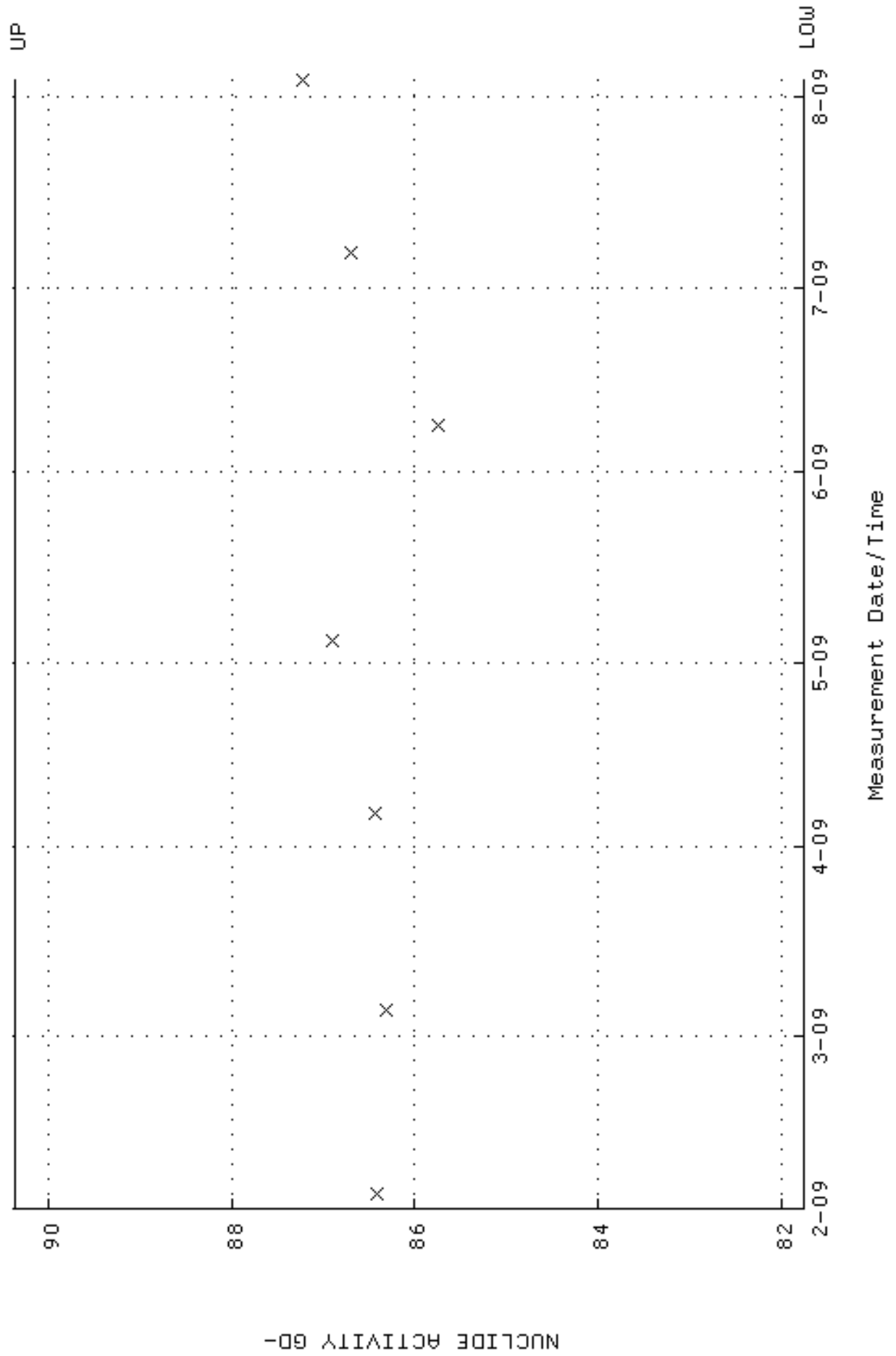
QA filename : DKA100:[ENV\_ALPHA.QA.B]B045.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-FEB-2009 20:05:04 through 3-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



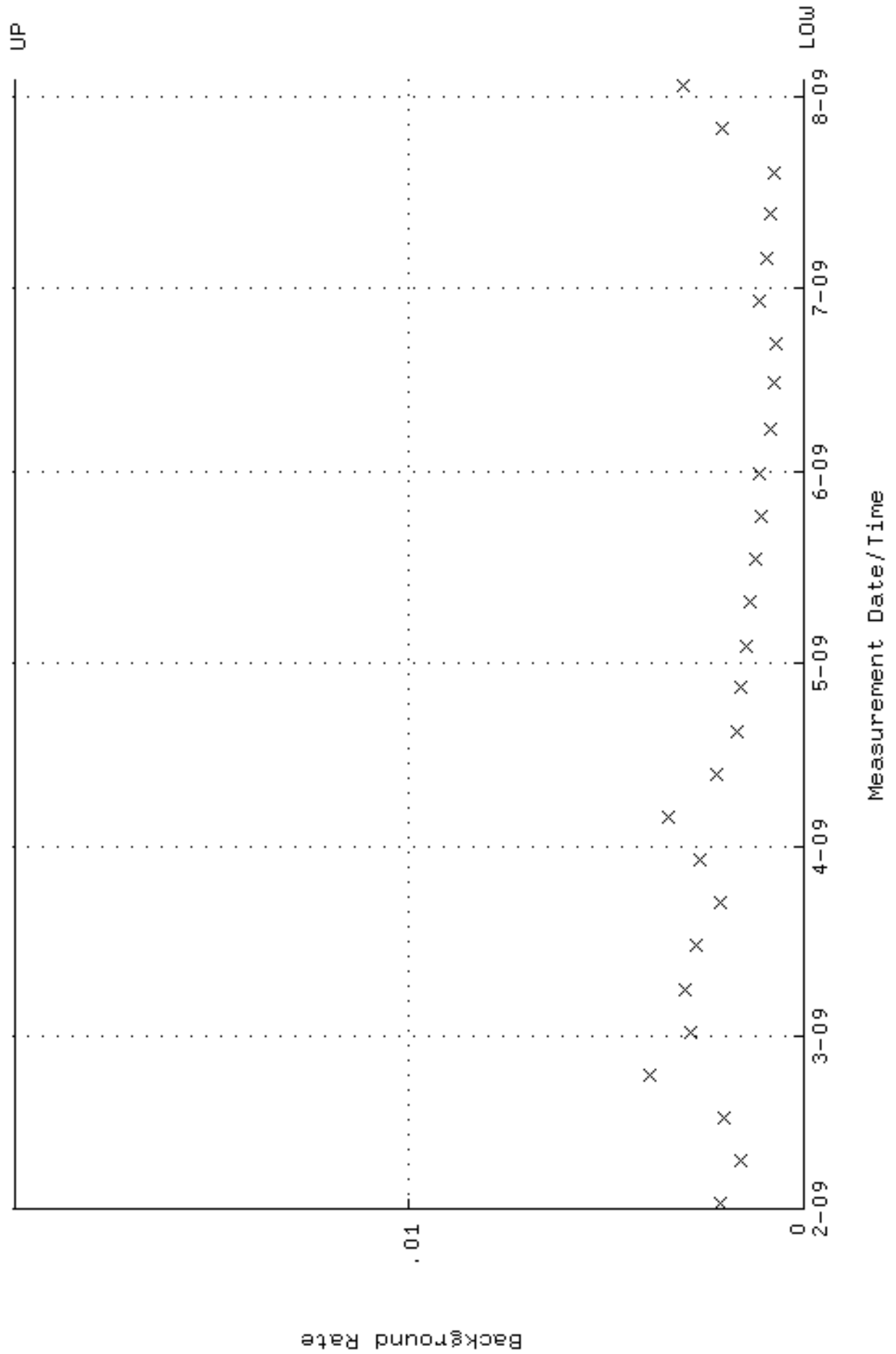
QA filename : DKA100:[ENV\_ALPHA.QA.W]W046.QAF;4  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 3-FEB-2009 12:12:05 through 3-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.333927 through 0.353927



QA filename : DKA100:[ENV\_ALPHA.QA.W]W046.QAF;4  
Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
Start/End Dates : 3-FEB-2009 12:12:05 through 3-AUG-2009 12:00:00  
Lower/Upper Lmts: 81.7568 through 90.3628

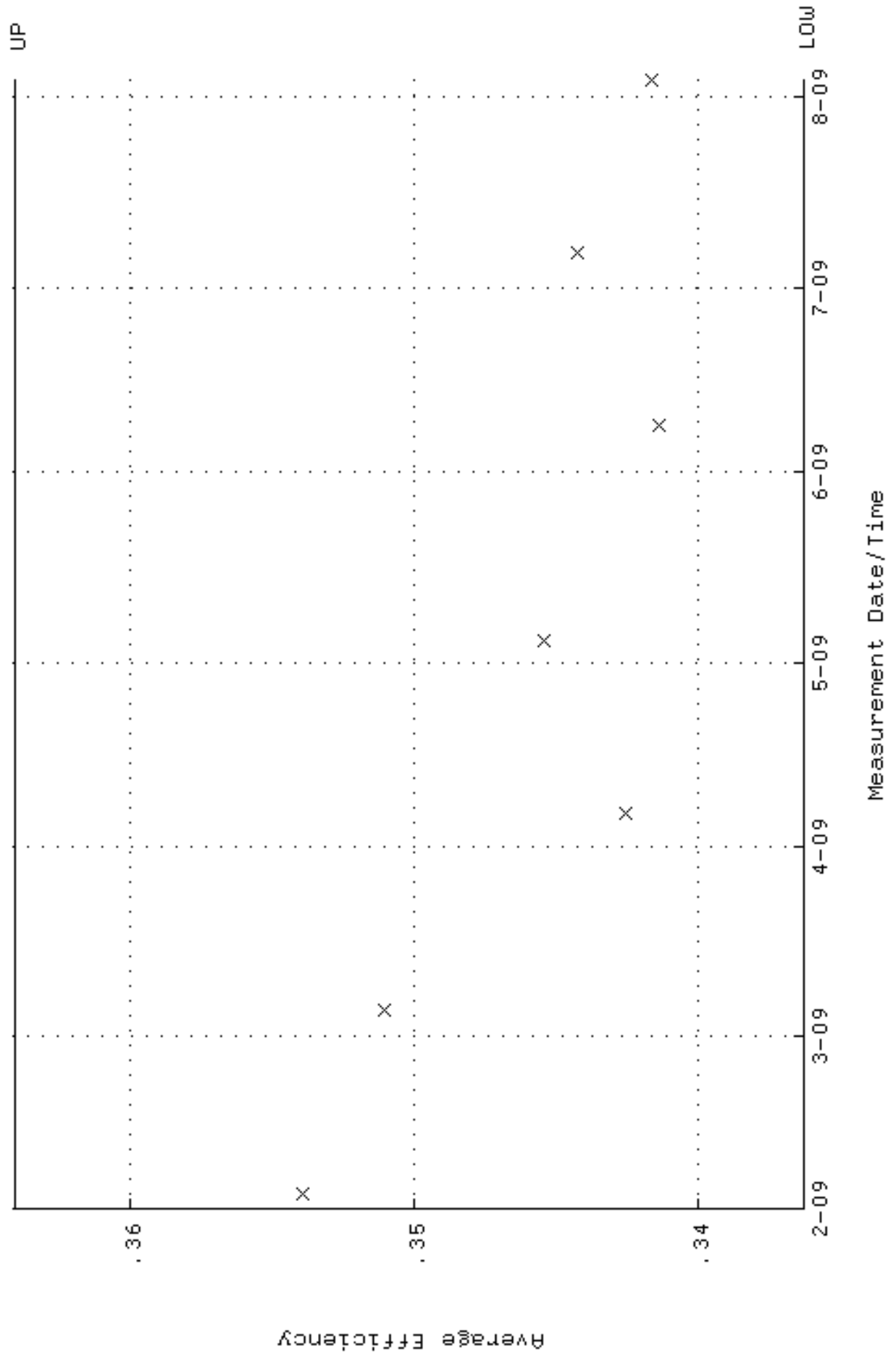


QA filename : DKA100:[ENV\_ALPHA.QA.B]B046.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-FEB-2009 20:05:04 through 3-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02

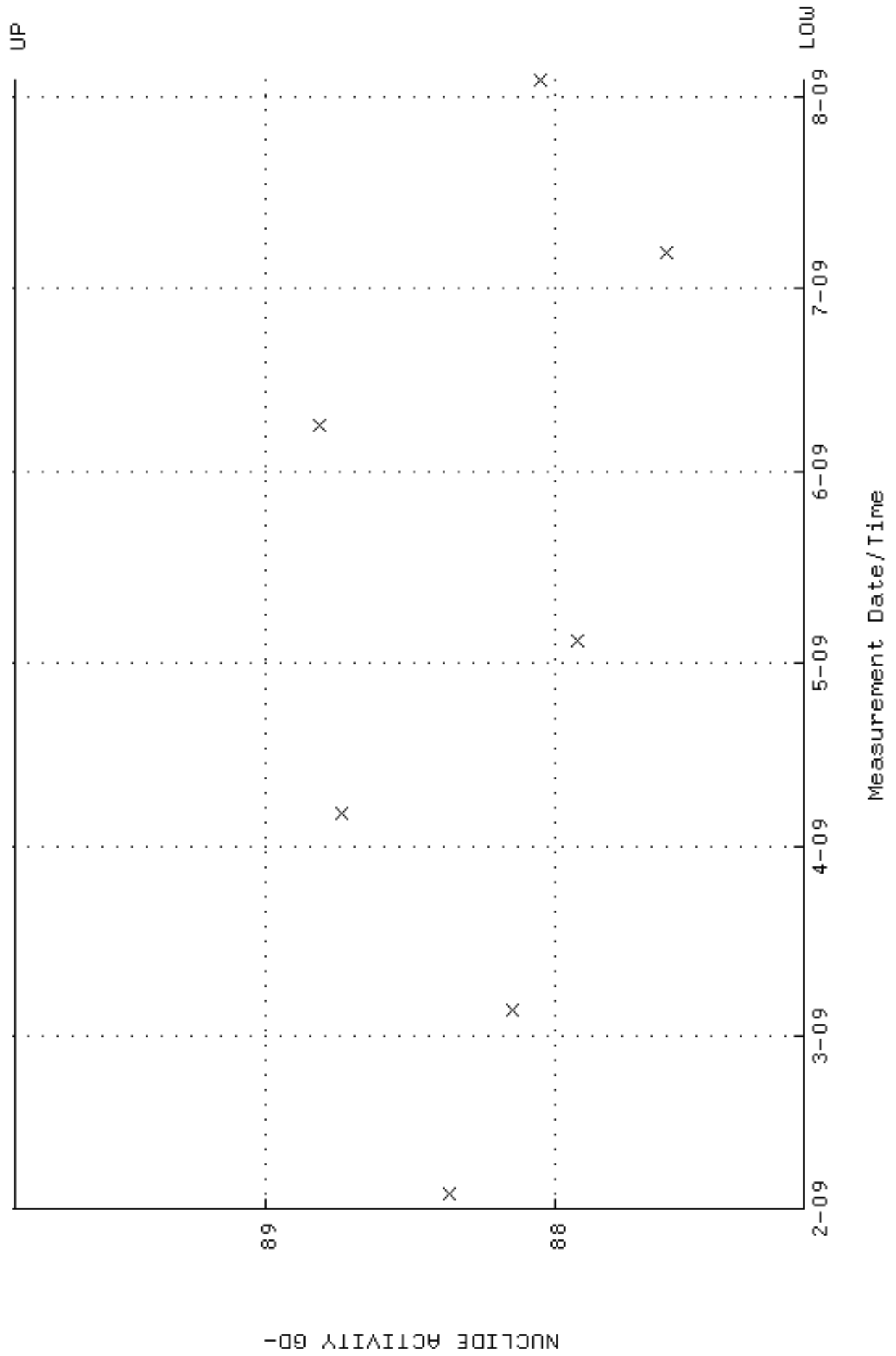




QA filename : DKA100:[ENV\_ALPHA.QA.W]W047.QAF;5  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 3-FEB-2009 12:12:05 through 3-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.336276 through 0.364038

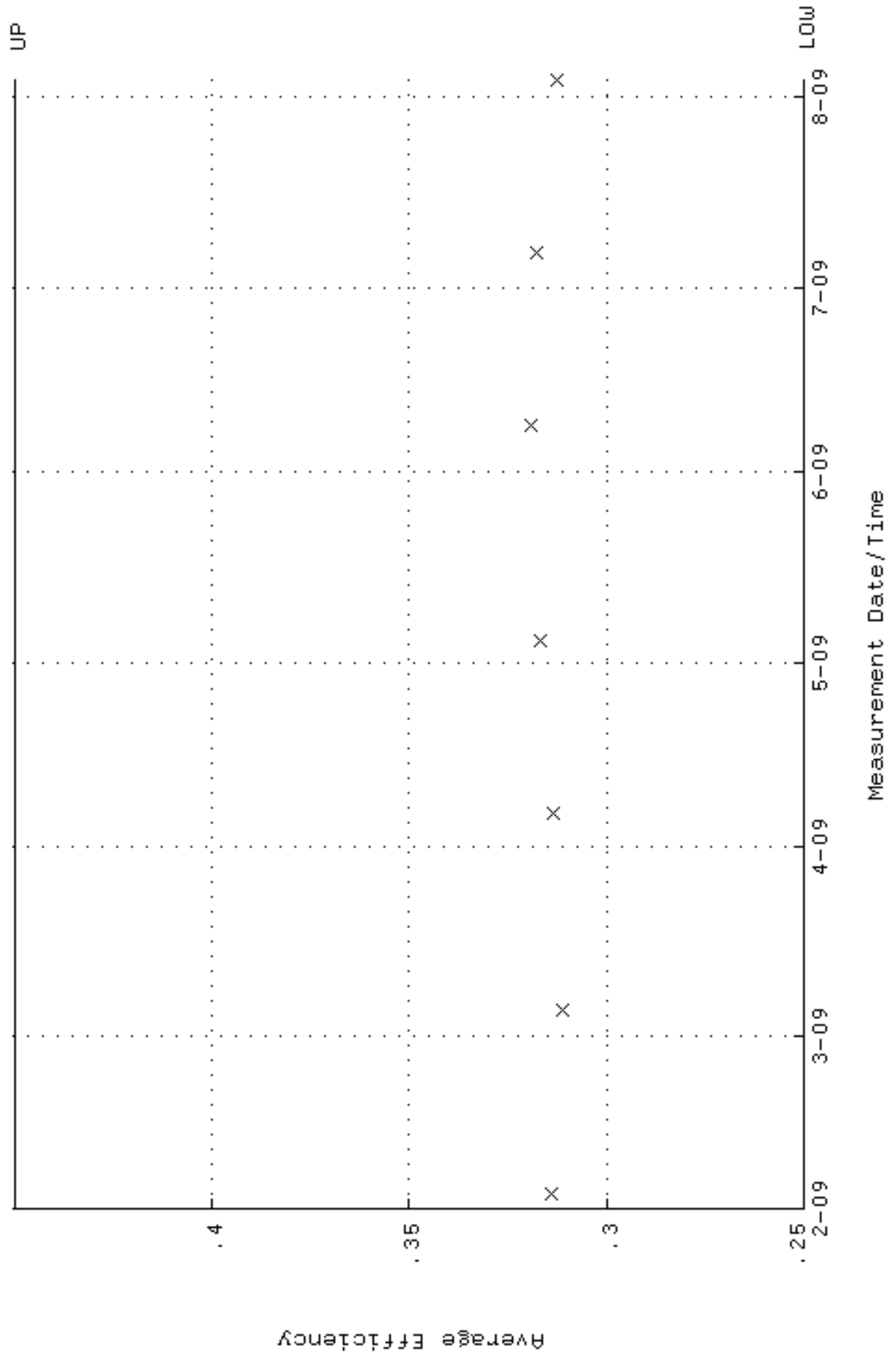


QA filename : DKA100:[ENV\_ALPHA.QA.W]W047.QAF;5  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 3-FEB-2009 12:12:05 through 3-AUG-2009 12:00:00  
 Lower/Upper Lmts: 87.1403 through 89.8631

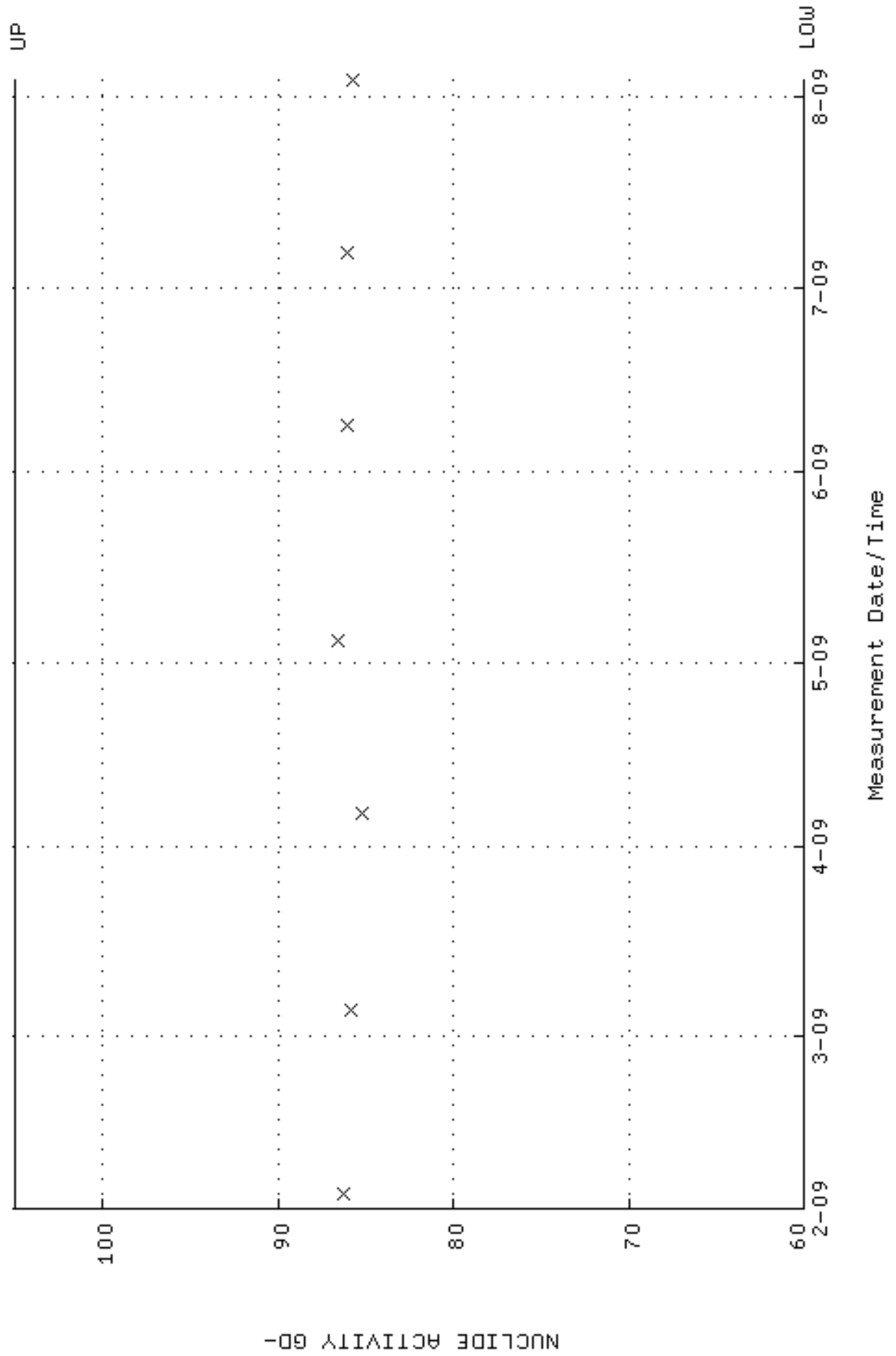




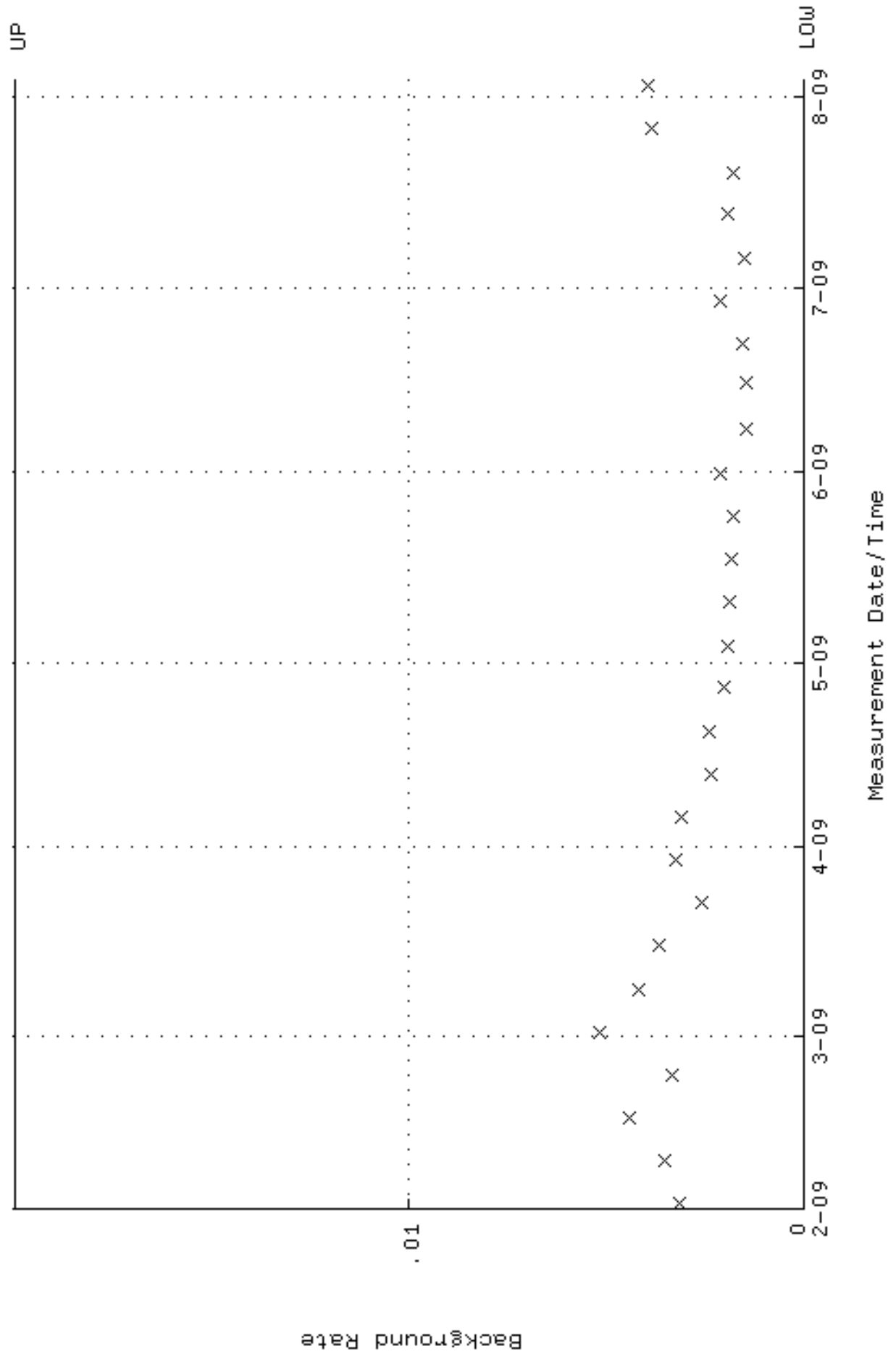
QA filename : DKA100:[ENV\_ALPHA.QA.W]W048.QAF;6  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 3-FEB-2009 12:12:05 through 3-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.250000 through 0.450000



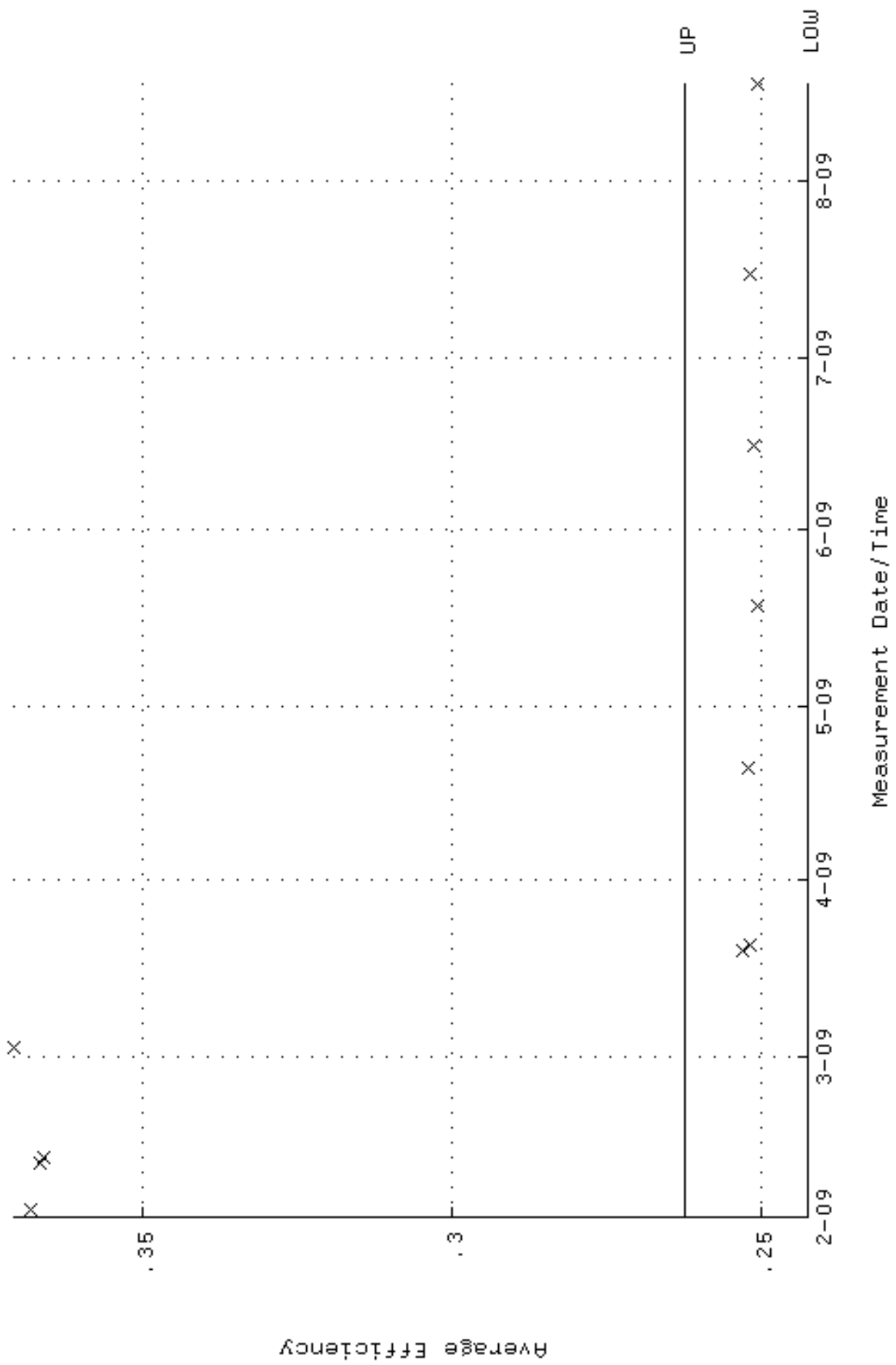
QA filename : DKA100:[ENV\_ALPHA.QA.W]W048.QAF;6  
Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
Start/End Dates : 3-FEB-2009 12:12:05 through 3-AUG-2009 12:00:00  
Lower/Upper Lmts: 60.0000 through 105.0000



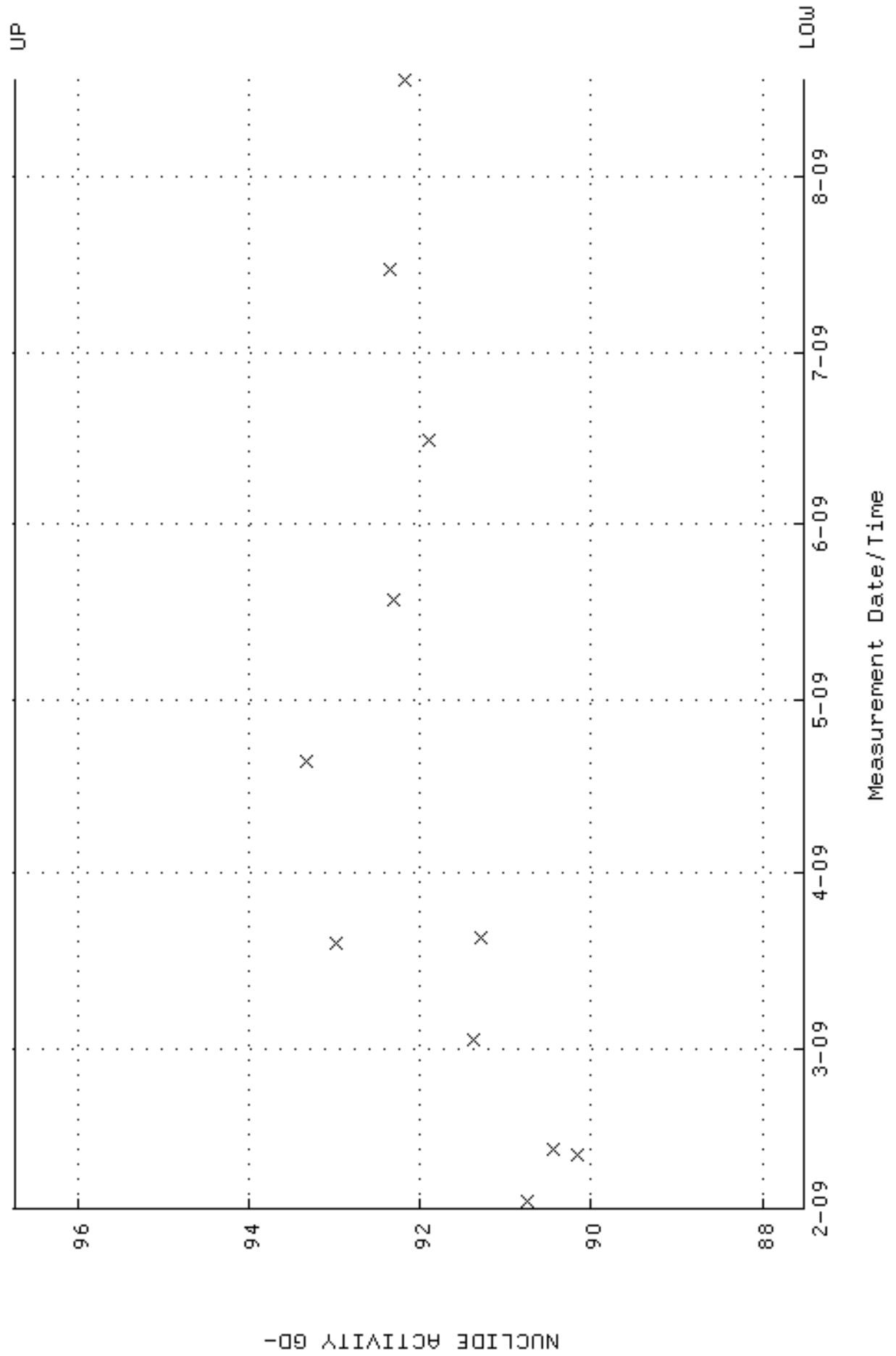
QA filename : DKA100:[ENV\_ALPHA.QA.B]B048.QAF;2  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-FEB-2009 20:05:04 through 3-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



QA filename : DKA100:[ENV\_ALPHA.QA.W]W113.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 2-FEB-2009 10:31:03 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.242598 through 0.262598

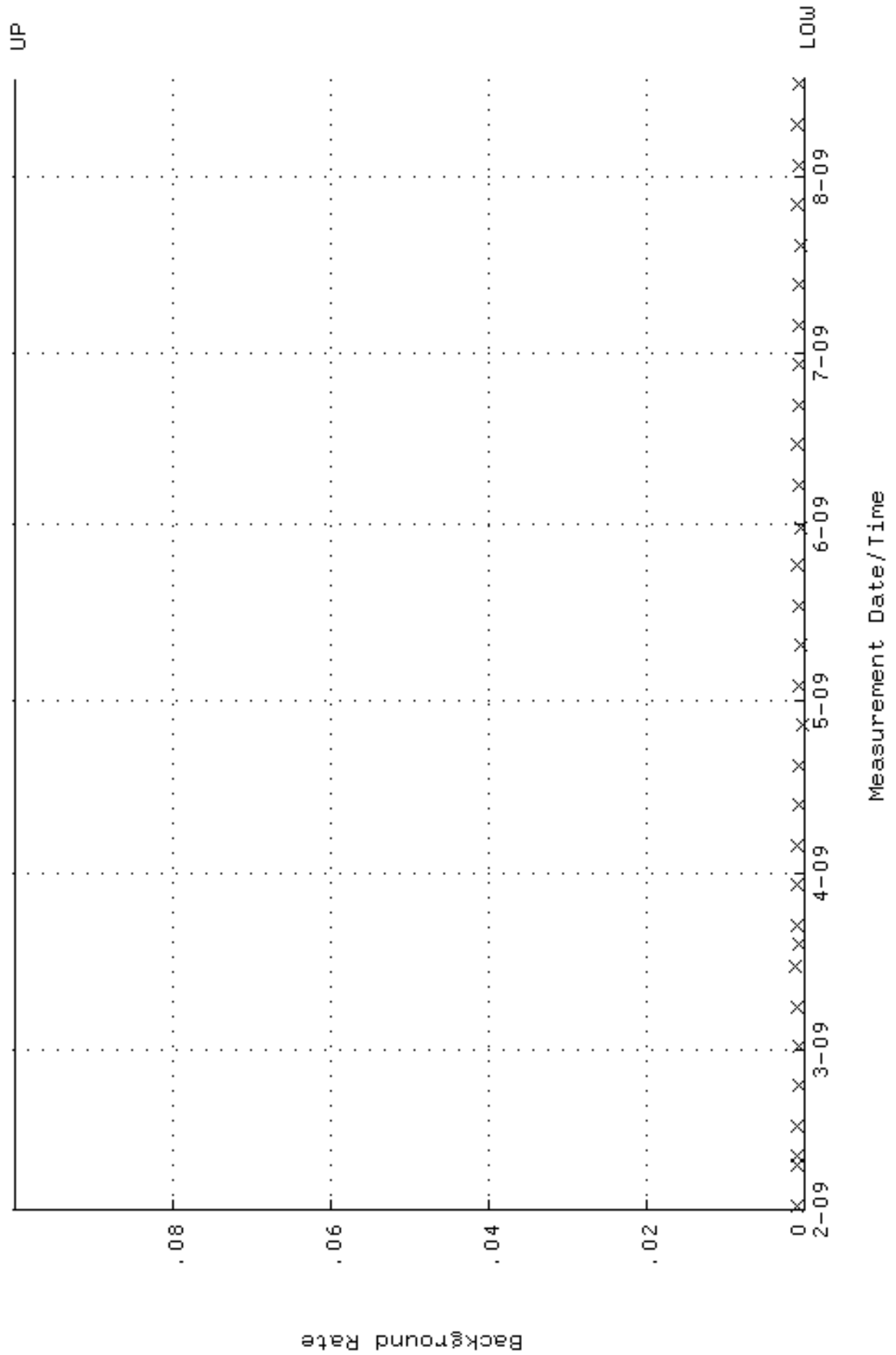


QA filename : DKA100:[ENV\_ALPHA.QA.W]w113.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 2-FEB-2009 10:31:03 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 87.5172 through 96.7296



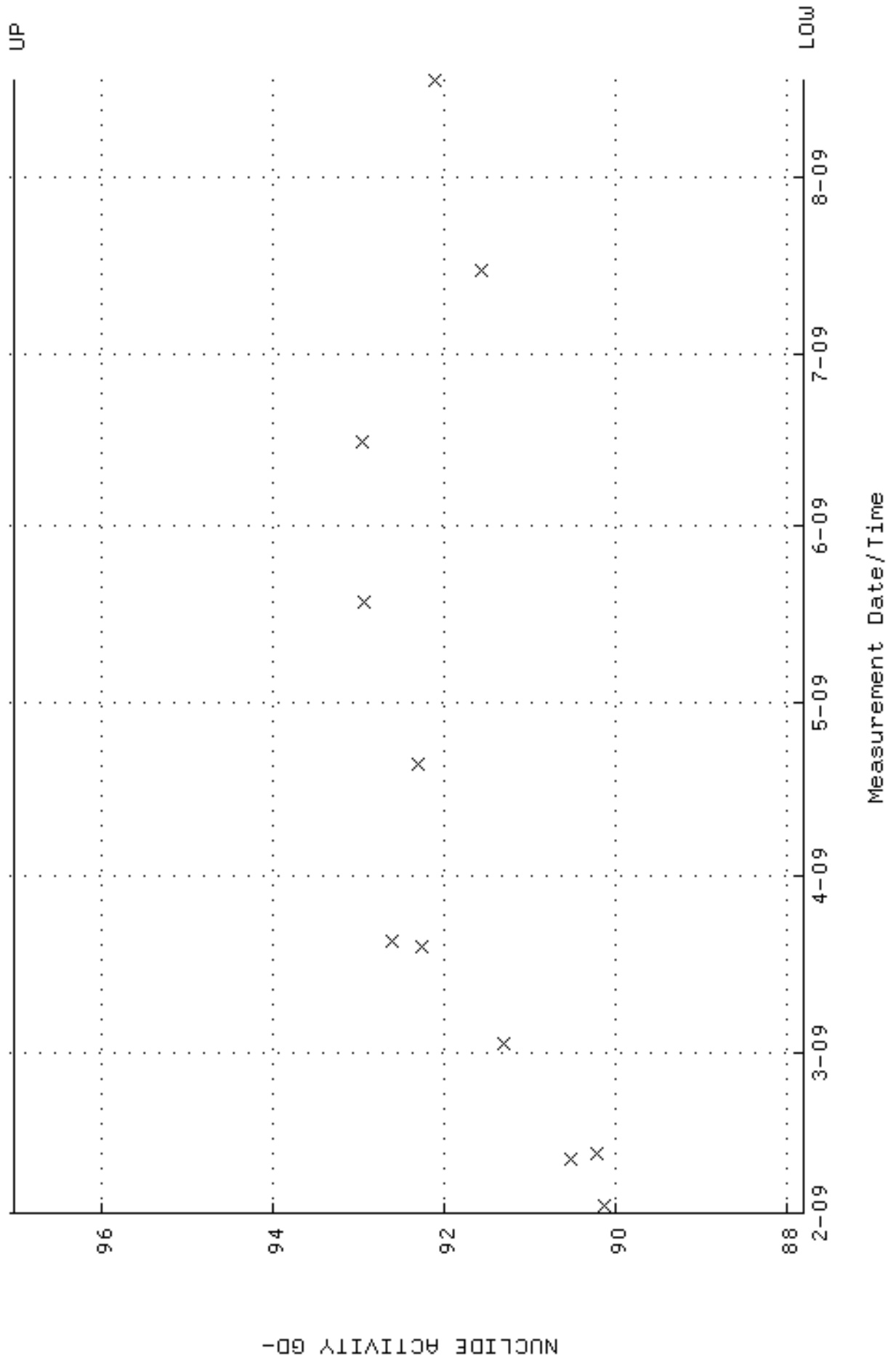


QA filename : DKA100:[ENV\_ALPHA.QA.B]B113.QAF;2  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-FEB-2009 17:00:15 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000

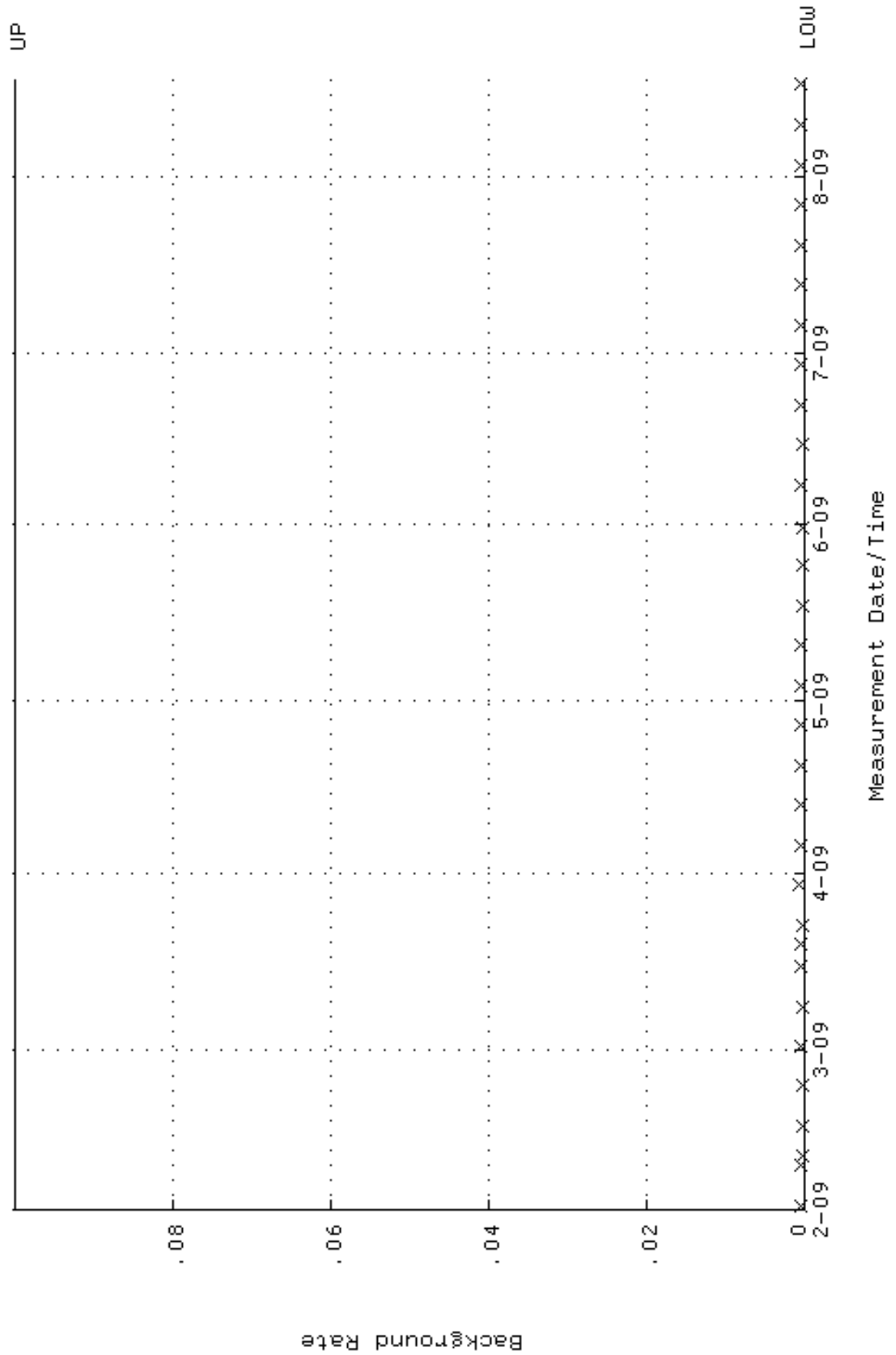




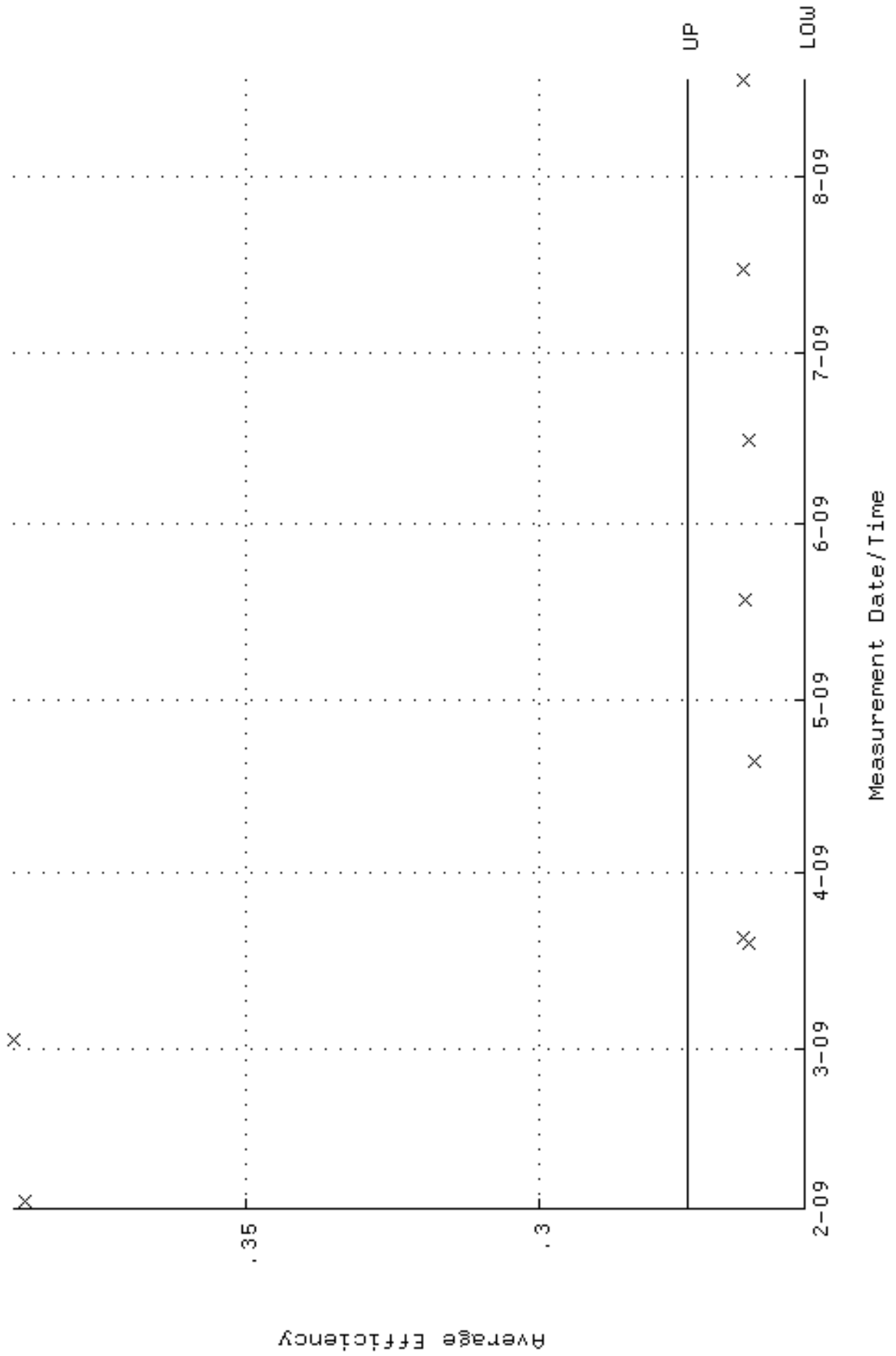
QA filename : DKA100:[ENV\_ALPHA.QA.W]w114.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 2-FEB-2009 10:31:11 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 87.8108 through 97.0540



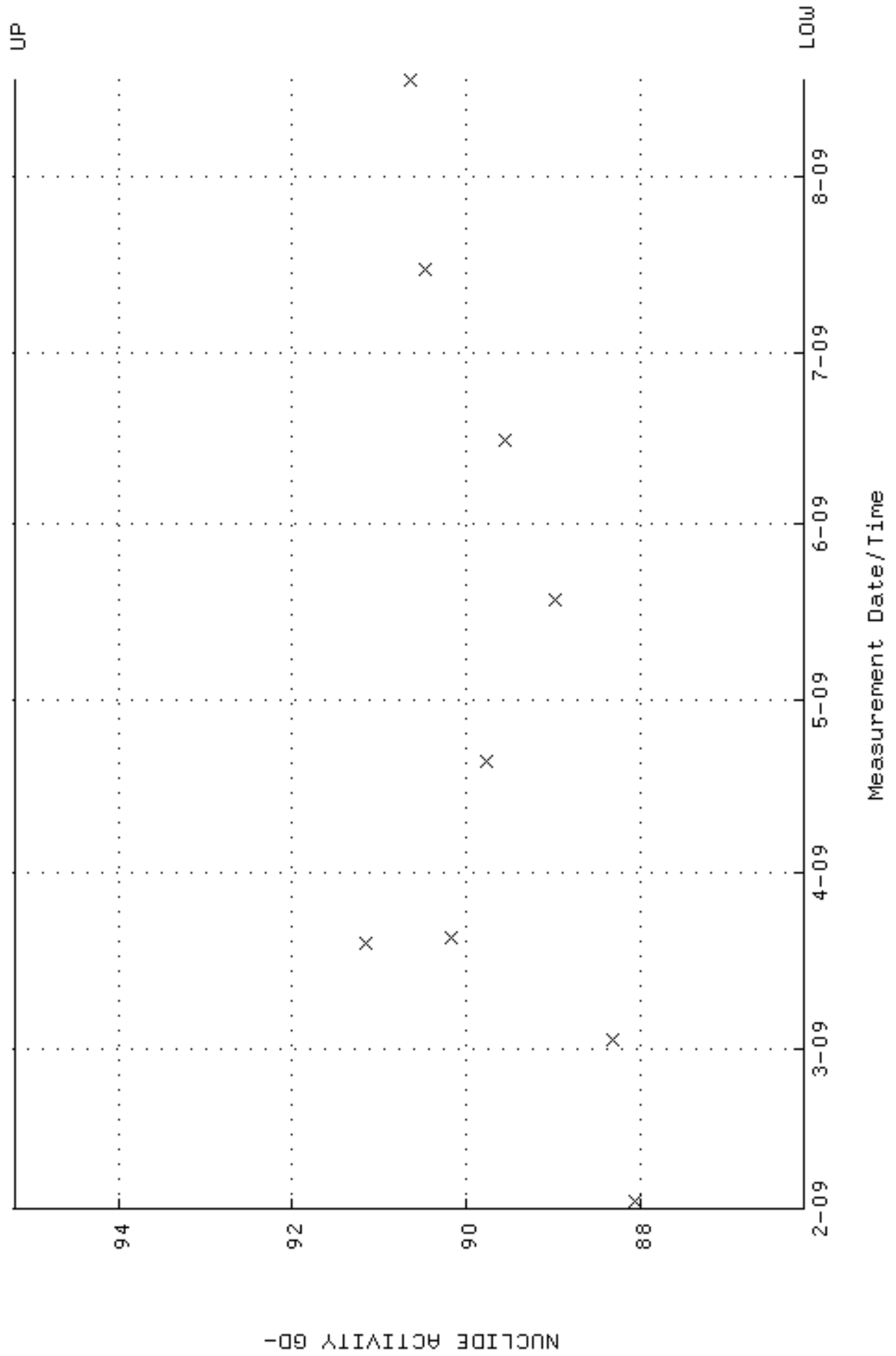
QA filename : DKA100:[ENV\_ALPHA.QA.B]B114.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-FEB-2009 17:00:32 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



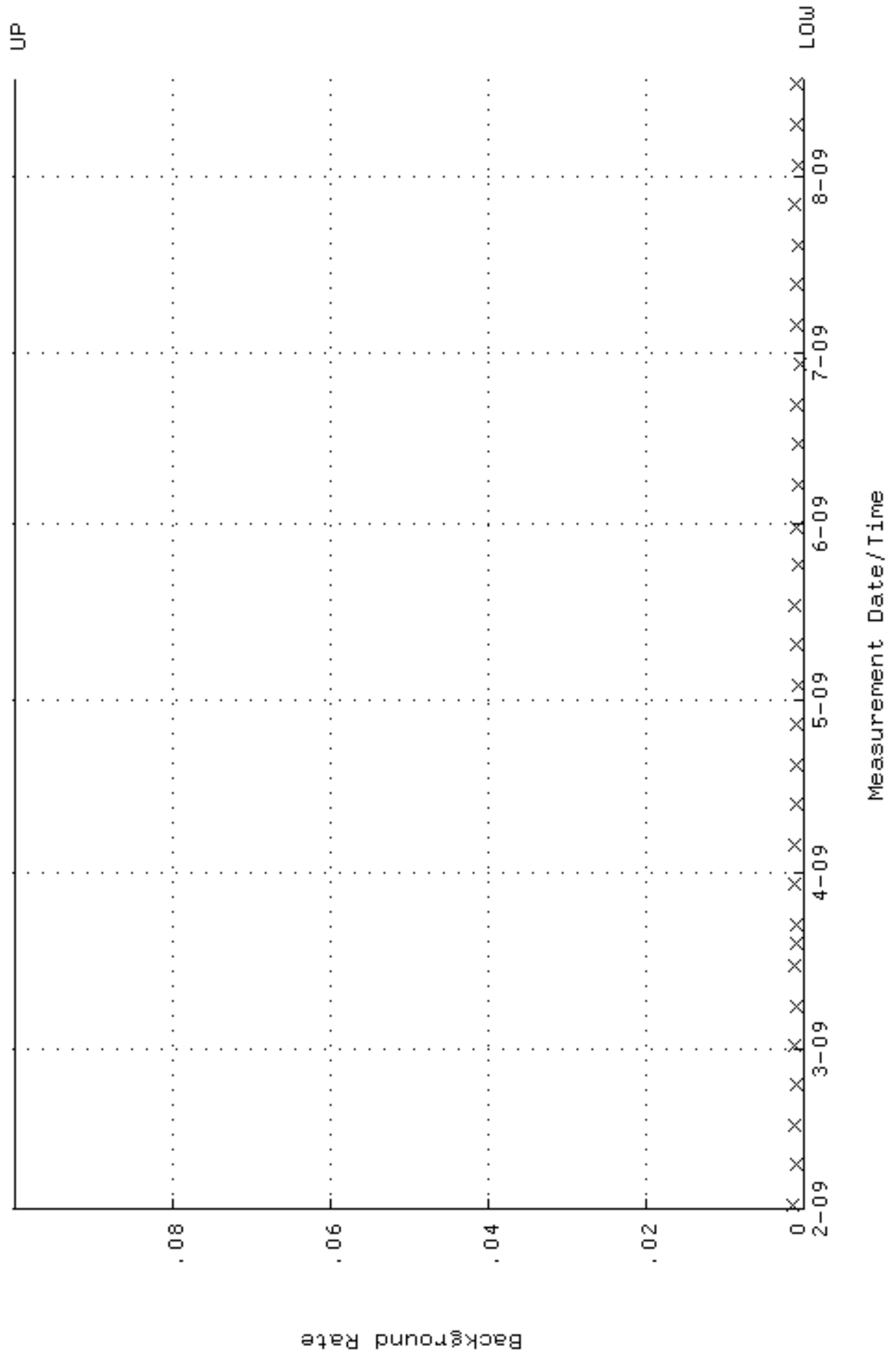
QA filename : DKA100:[ENV\_ALPHA.QA.W]W115.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 2-FEB-2009 10:31:18 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.255018 through 0.275018



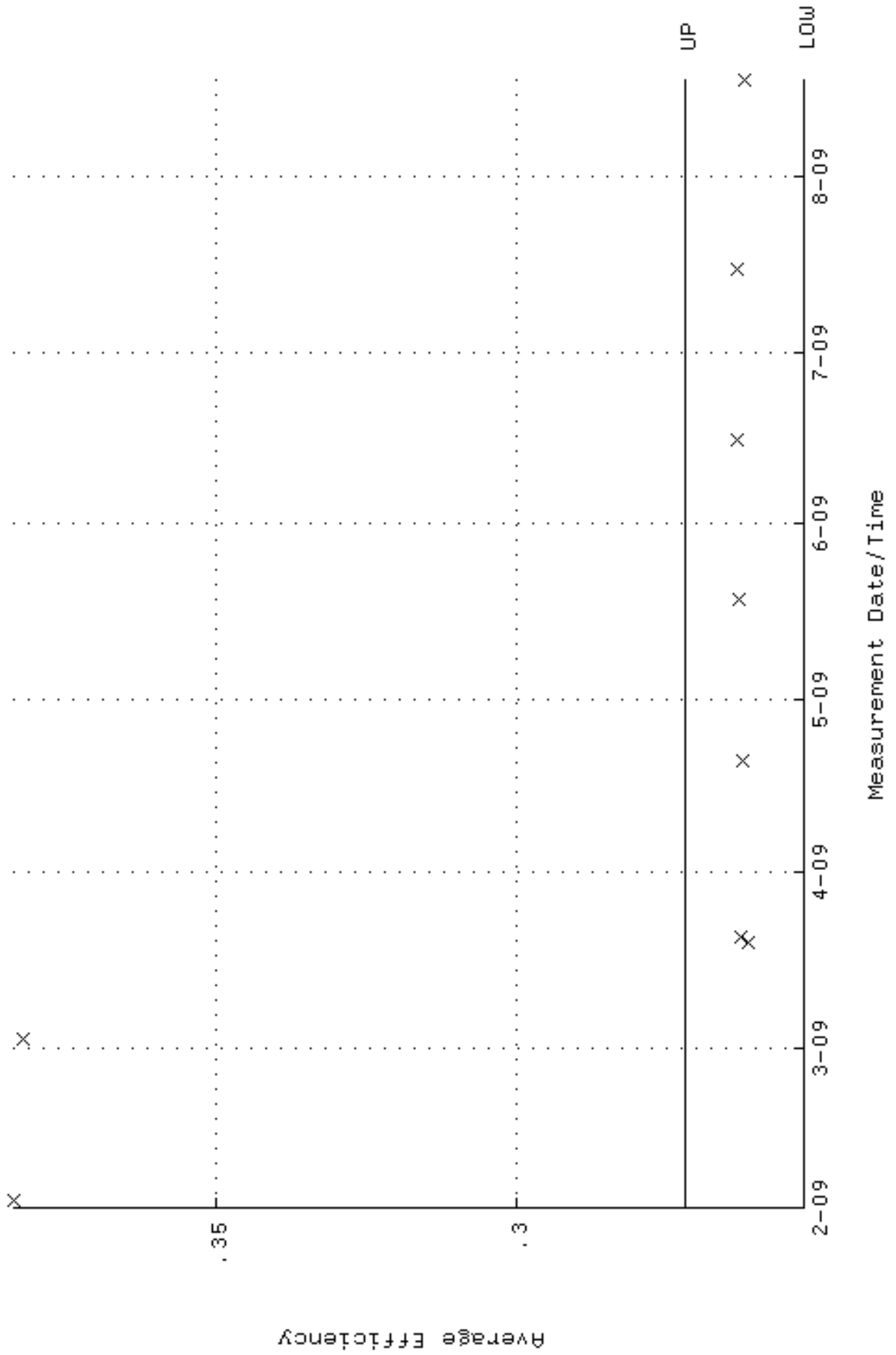
QA filename : DKA100:[ENV\_ALPHA.QA.W]w115.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 2-FEB-2009 10:31:18 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 86.1212 through 95.1866



QA filename : DKA100:[ENV\_ALPHA.QA.B]B115.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-FEB-2009 17:00:46 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000

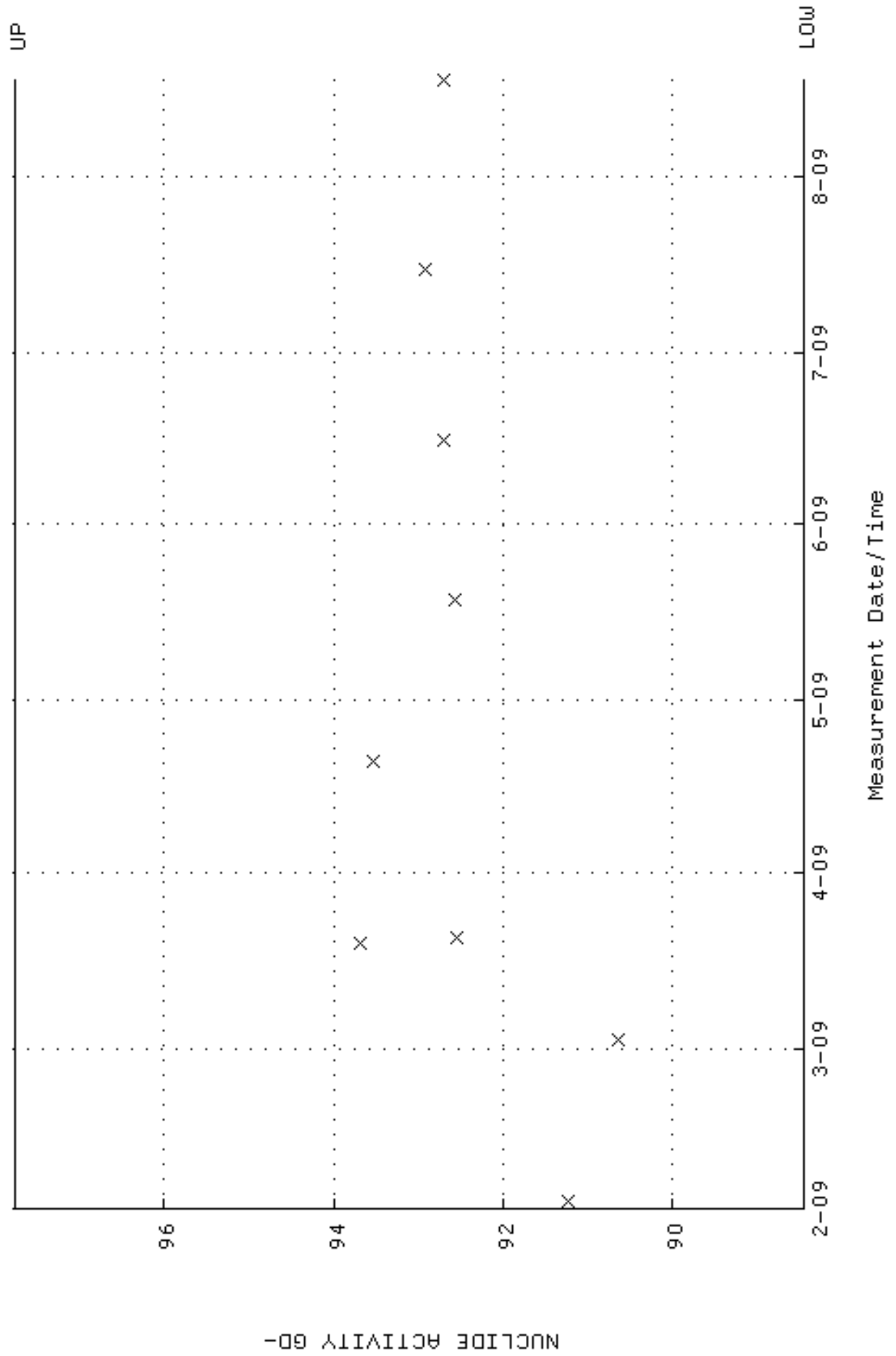


QA filename : DKA100:[ENV\_ALPHA.QA.W]W116.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 2-FEB-2009 10:31:25 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.251950 through 0.271950

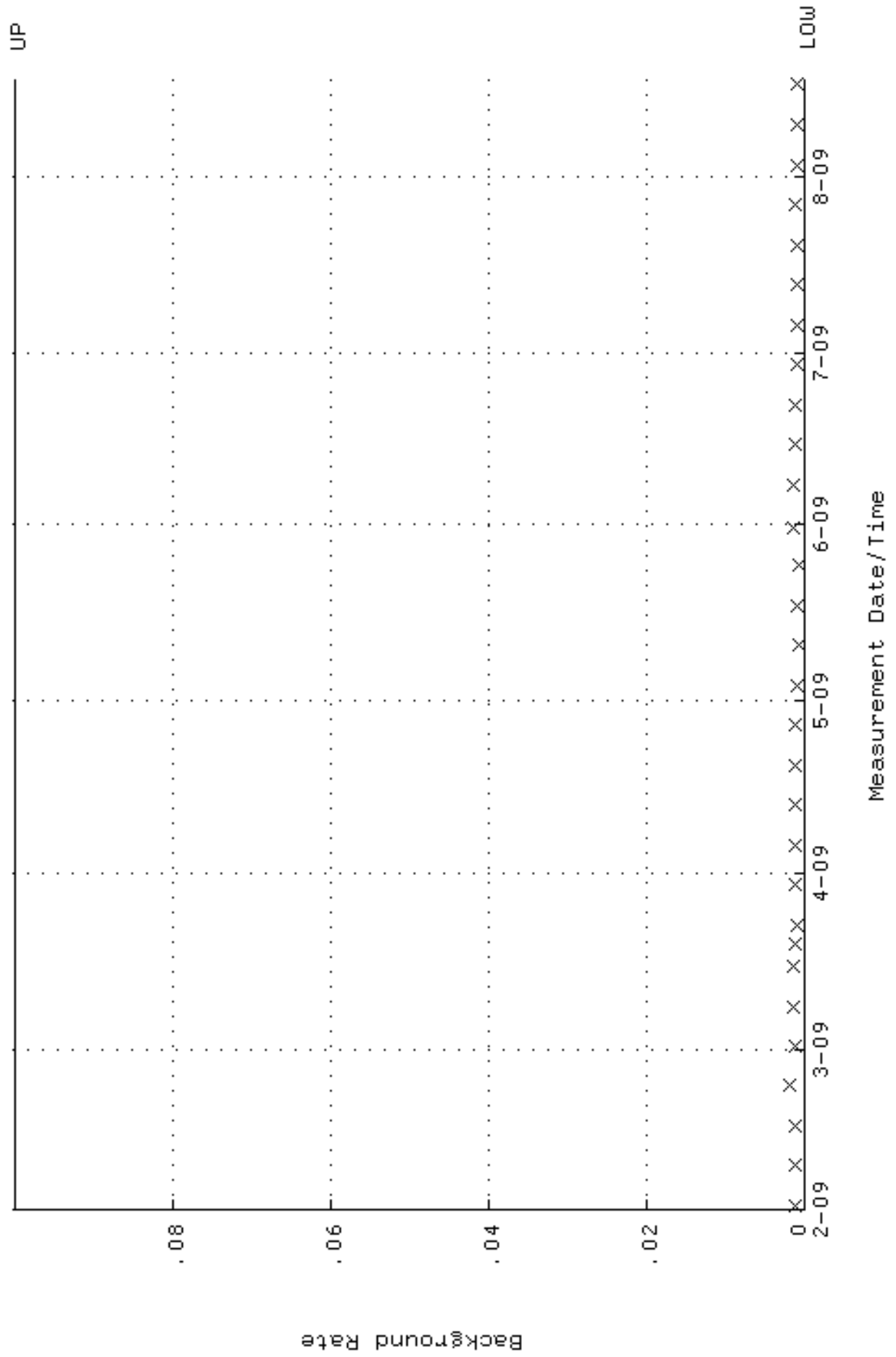




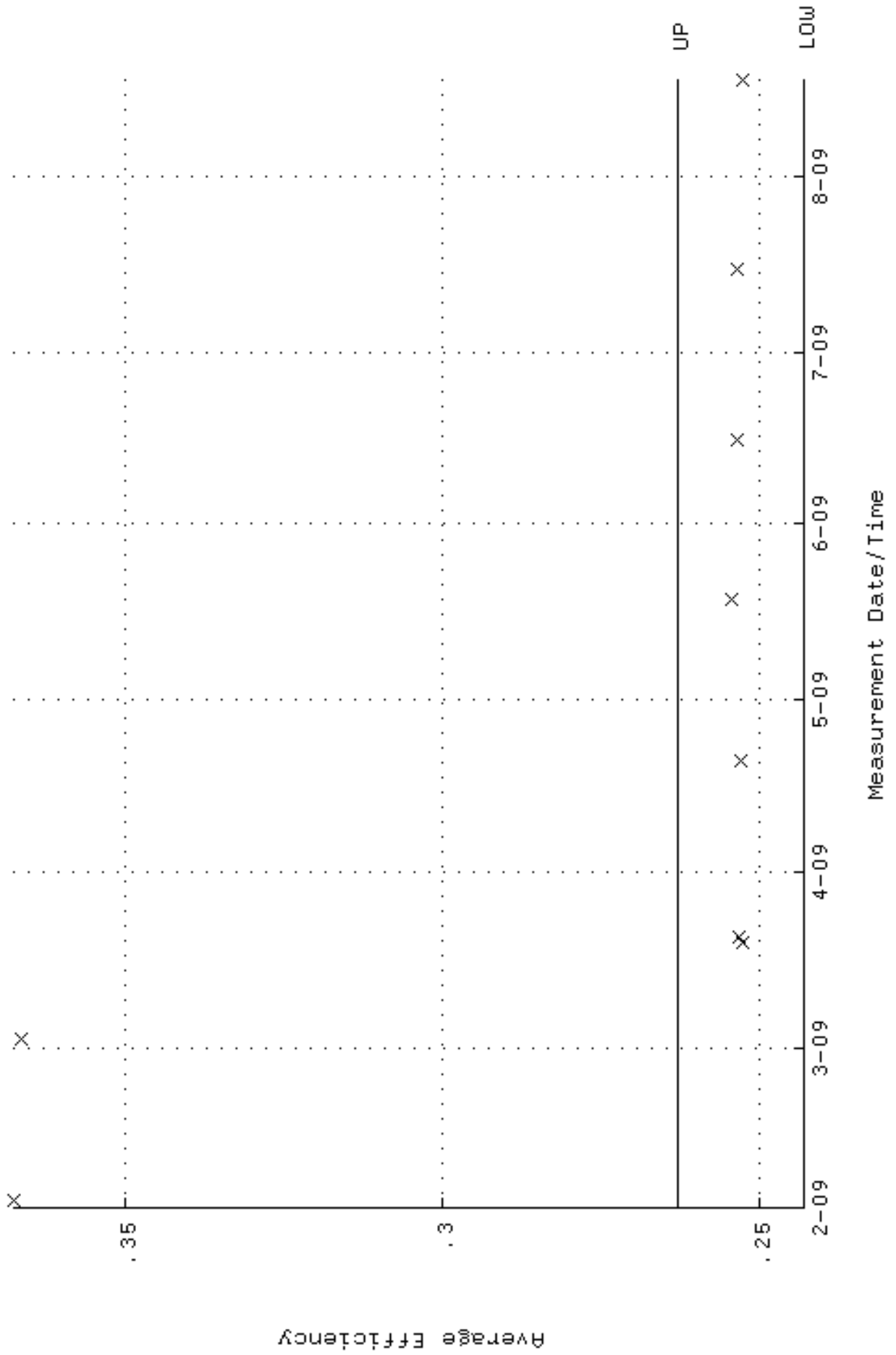
QA filename : DKA100:[ENV\_ALPHA.QA.W]w116.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 2-FEB-2009 10:31:25 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 88.4515 through 97.7621



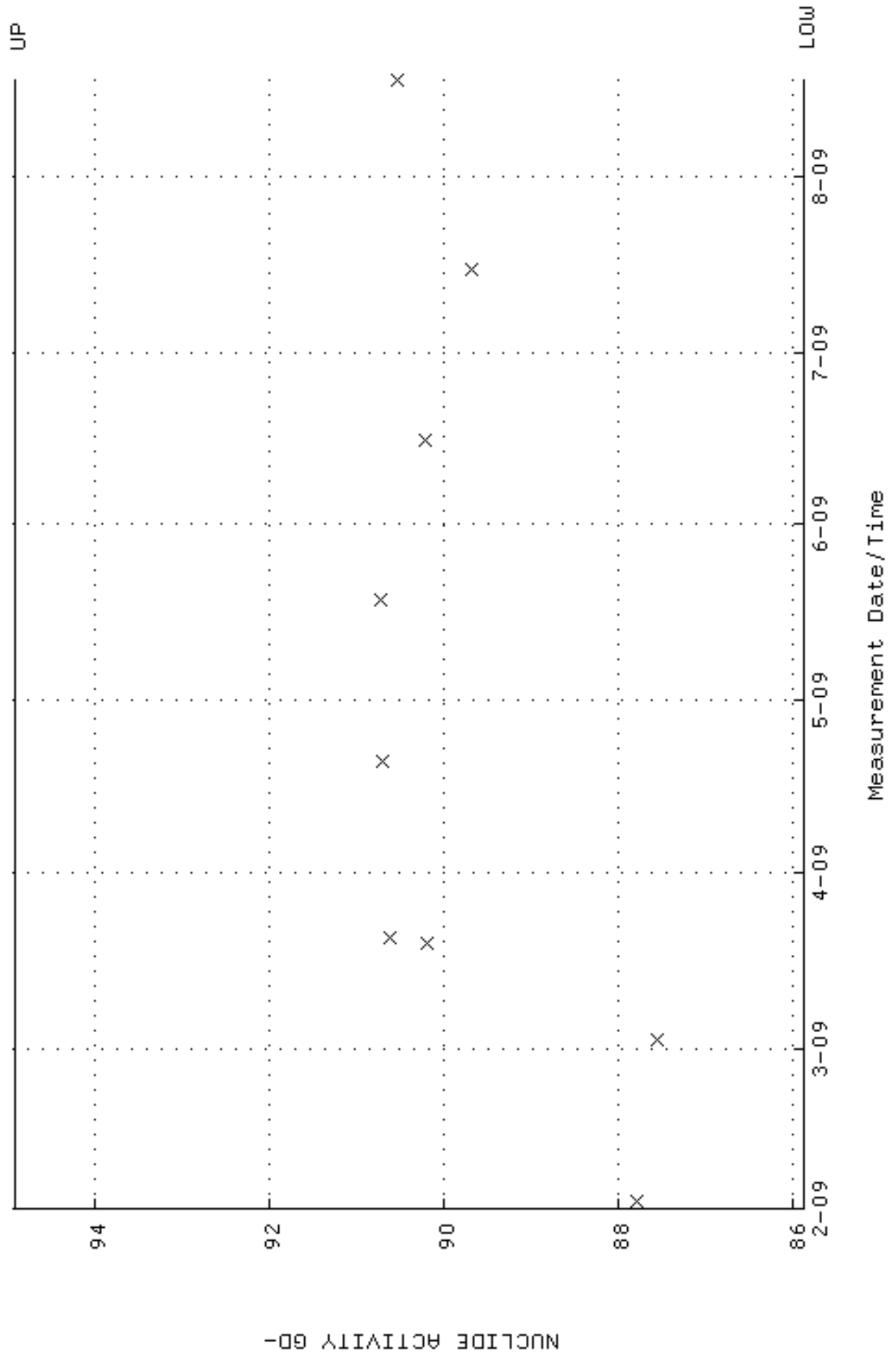
QA filename : DKA100:[ENV\_ALPHA.QA.B]B116.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-FEB-2009 17:01:01 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



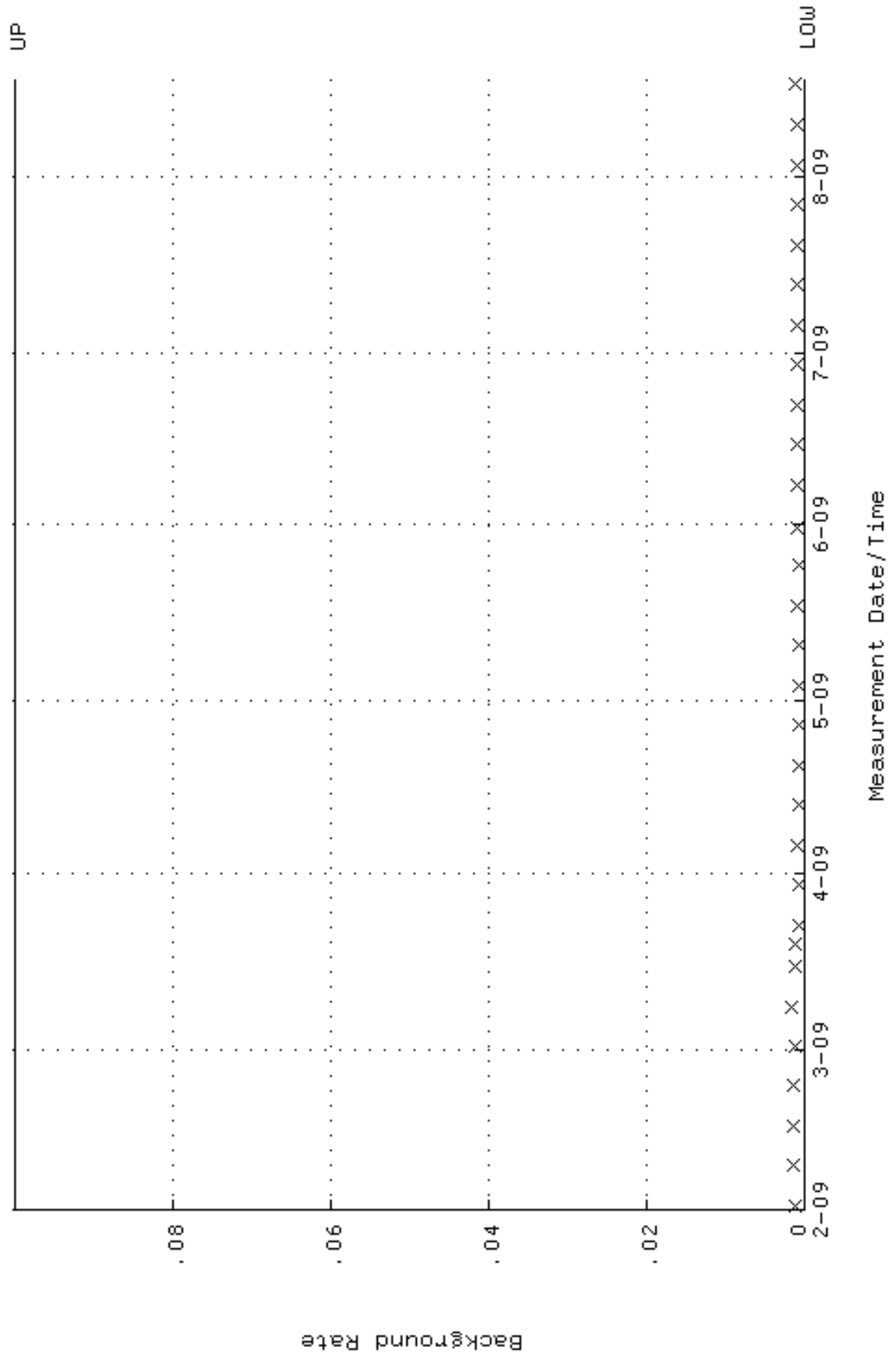
QA filename : DKA100:[ENV\_ALPHA.QA.W]W117.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 2-FEB-2009 10:31:33 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.242940 through 0.262940



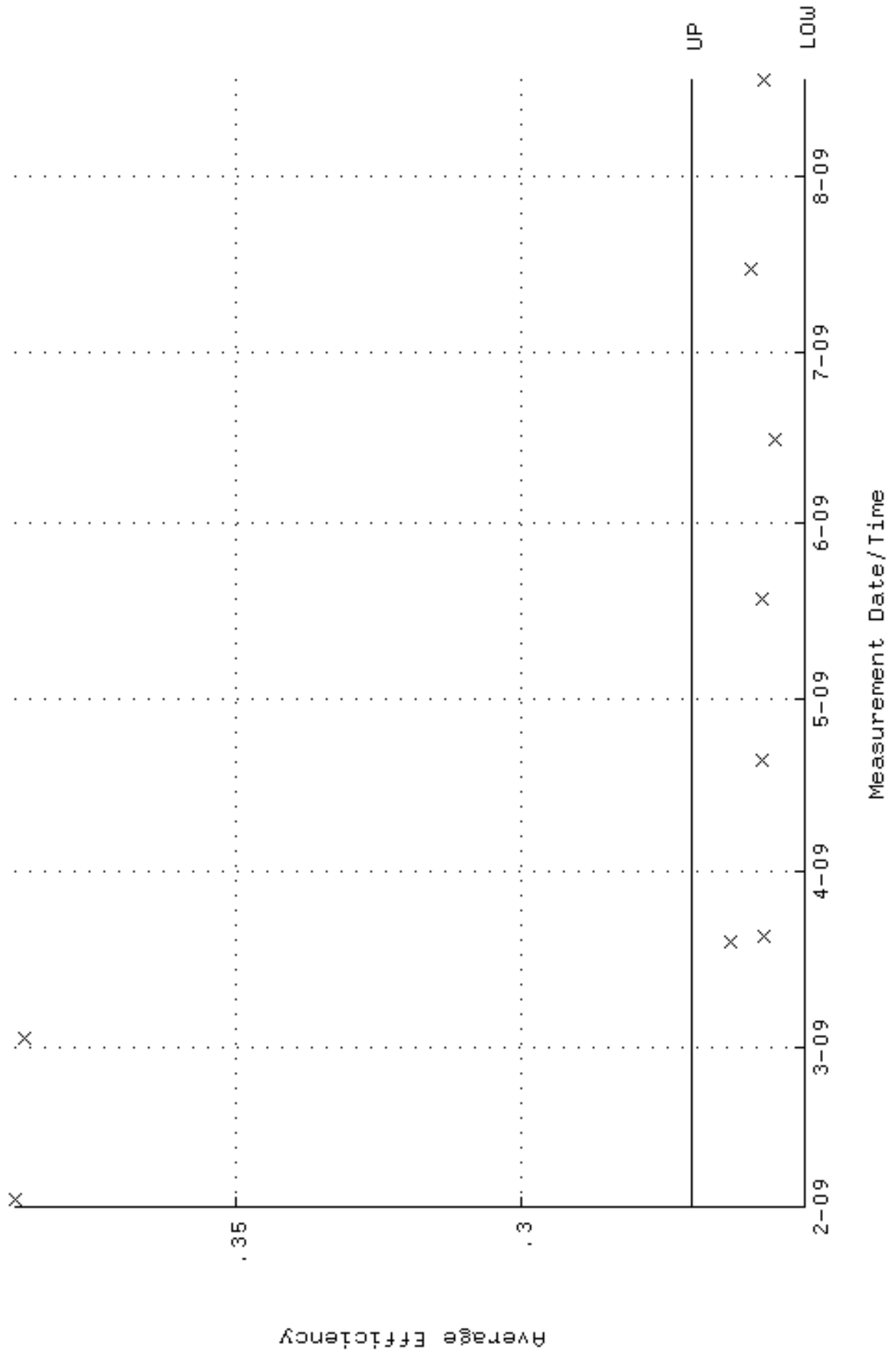
QA filename : DKA100:[ENV\_ALPHA.QA.W]w117.QAF;1  
Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
Start/End Dates : 2-FEB-2009 10:31:33 through 17-AUG-2009 12:00:00  
Lower/Upper Lmts: 85.8693 through 94.9081



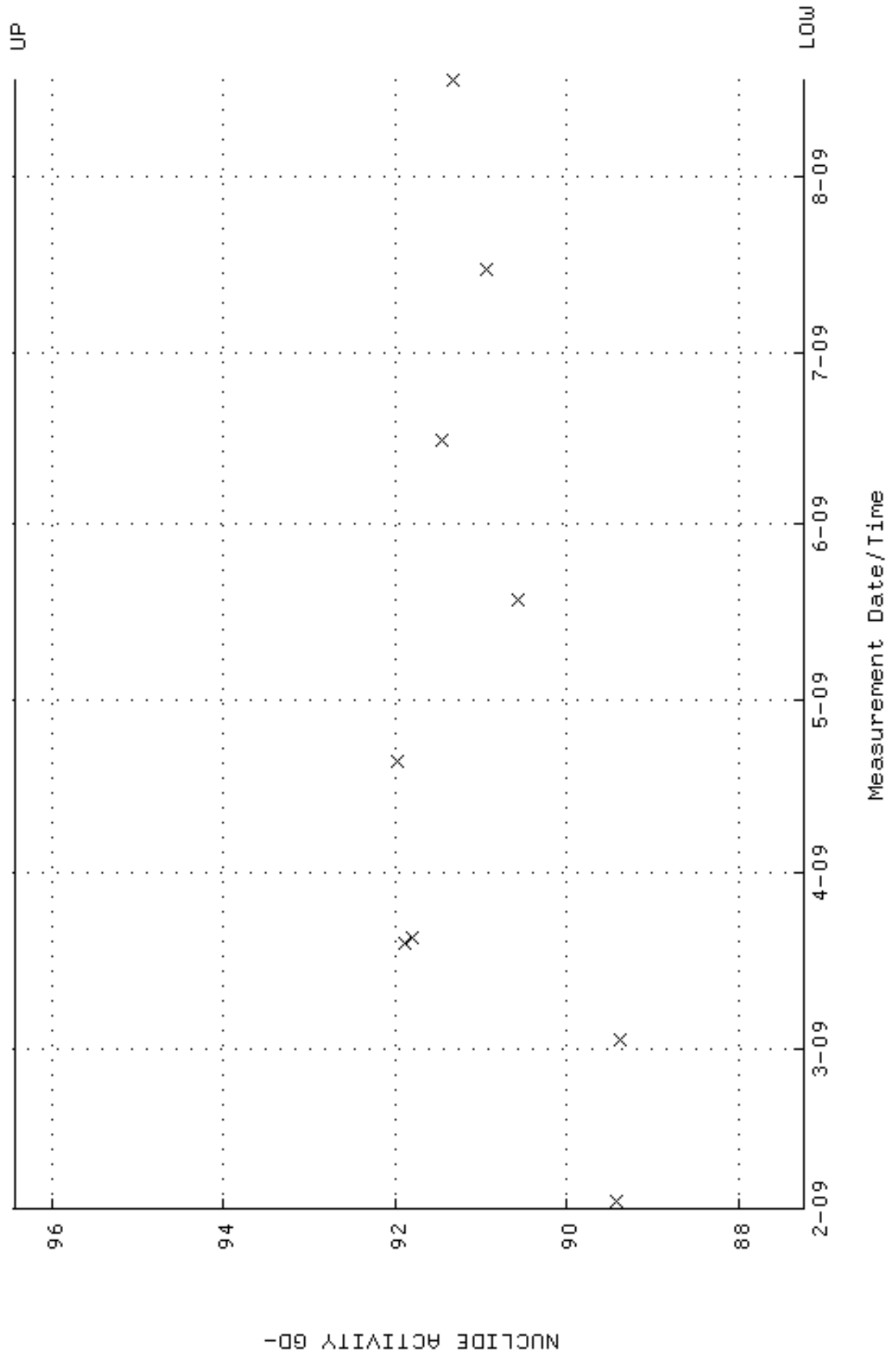
QA filename : DKA100:[ENV\_ALPHA.QA.B]B117.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-FEB-2009 17:01:17 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



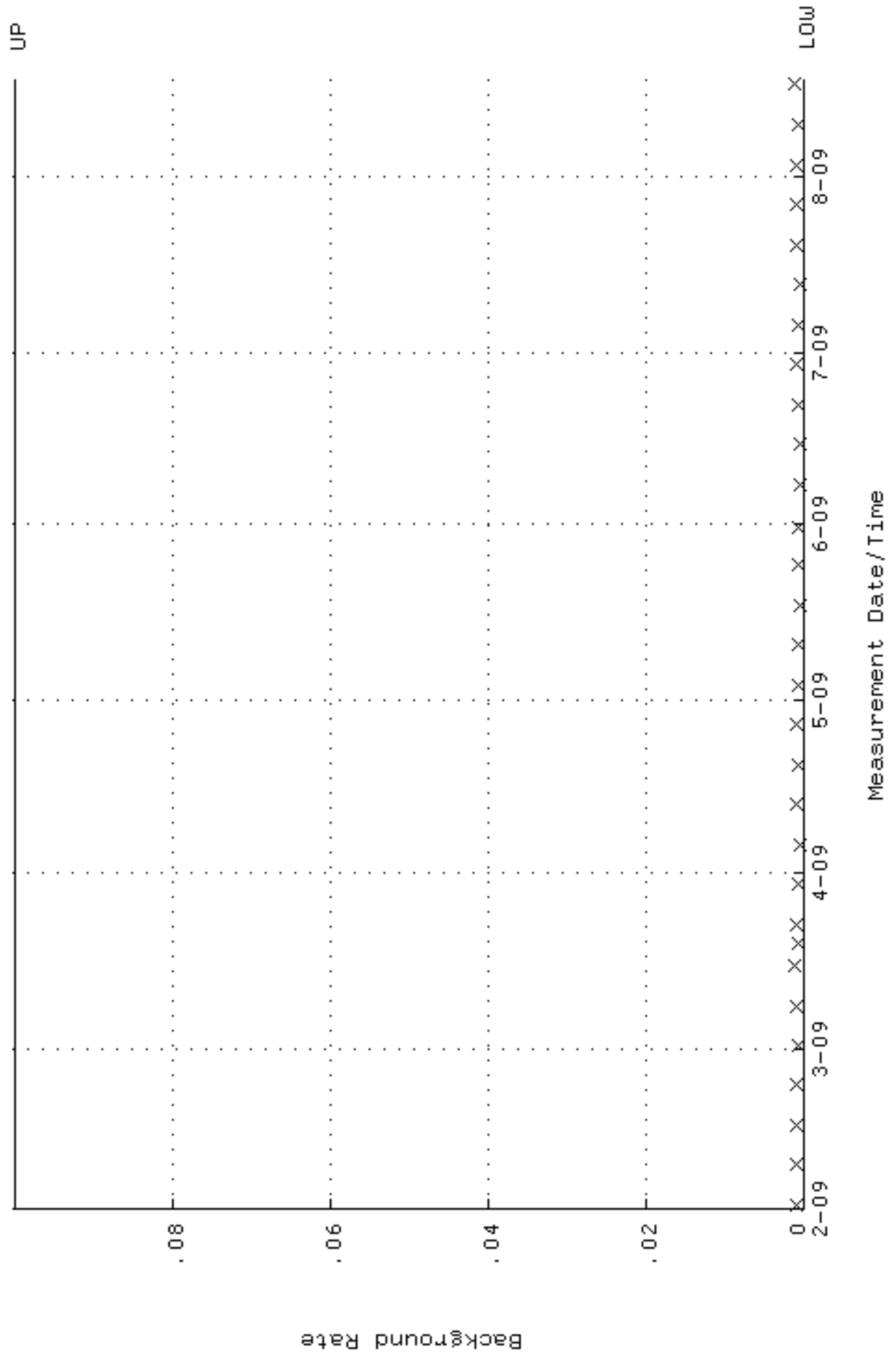
QA filename : DKA100:[ENV\_ALPHA.QA.W]W118.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 2-FEB-2009 10:31:40 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.250490 through 0.270490



QA filename : DKA100:[ENV\_ALPHA.QA.W]w118.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 2-FEB-2009 10:31:40 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 87.2440 through 96.4276

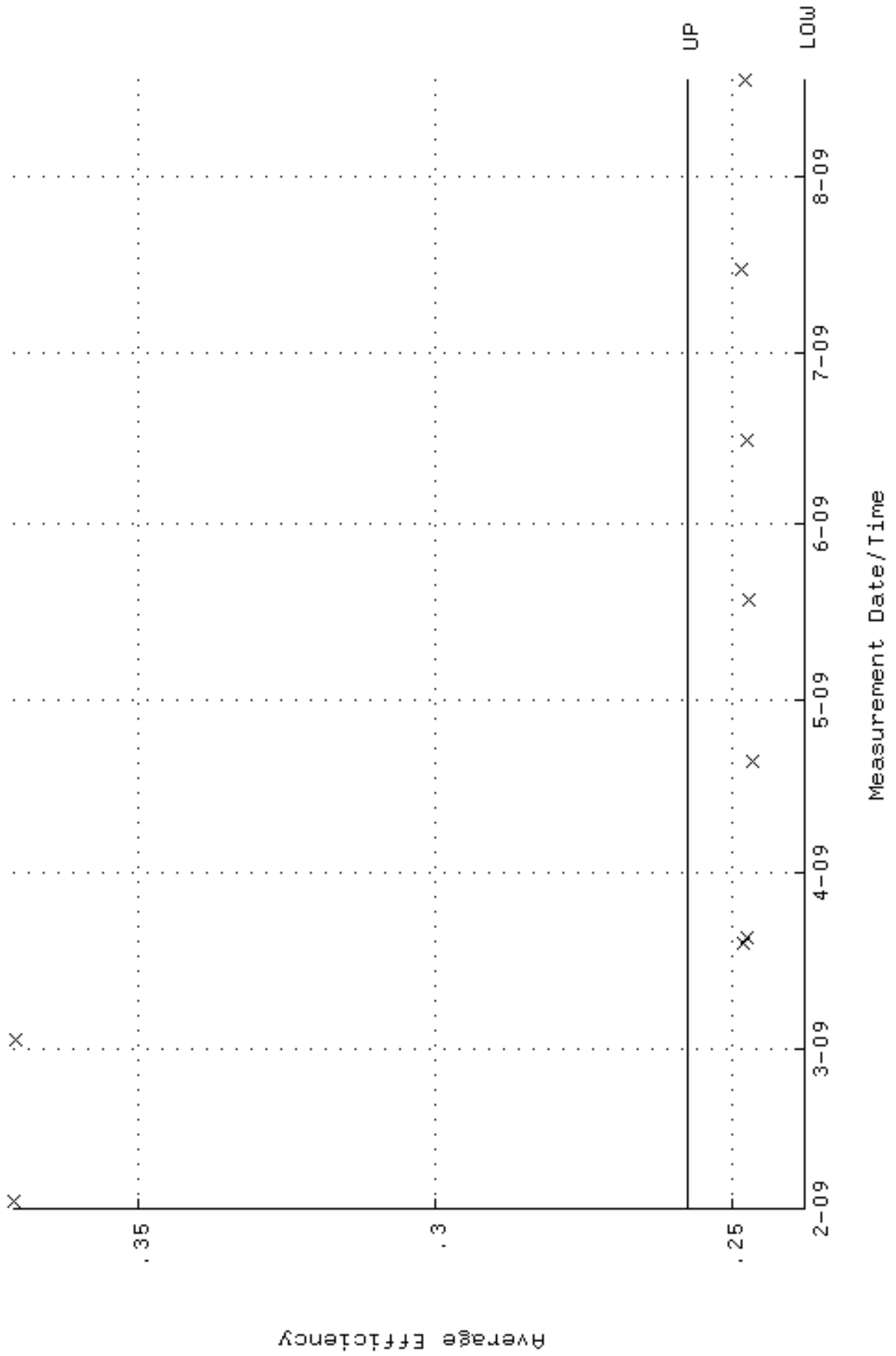


QA filename : DKA100:[ENV\_ALPHA.QA.B]B118.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-FEB-2009 17:01:36 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000

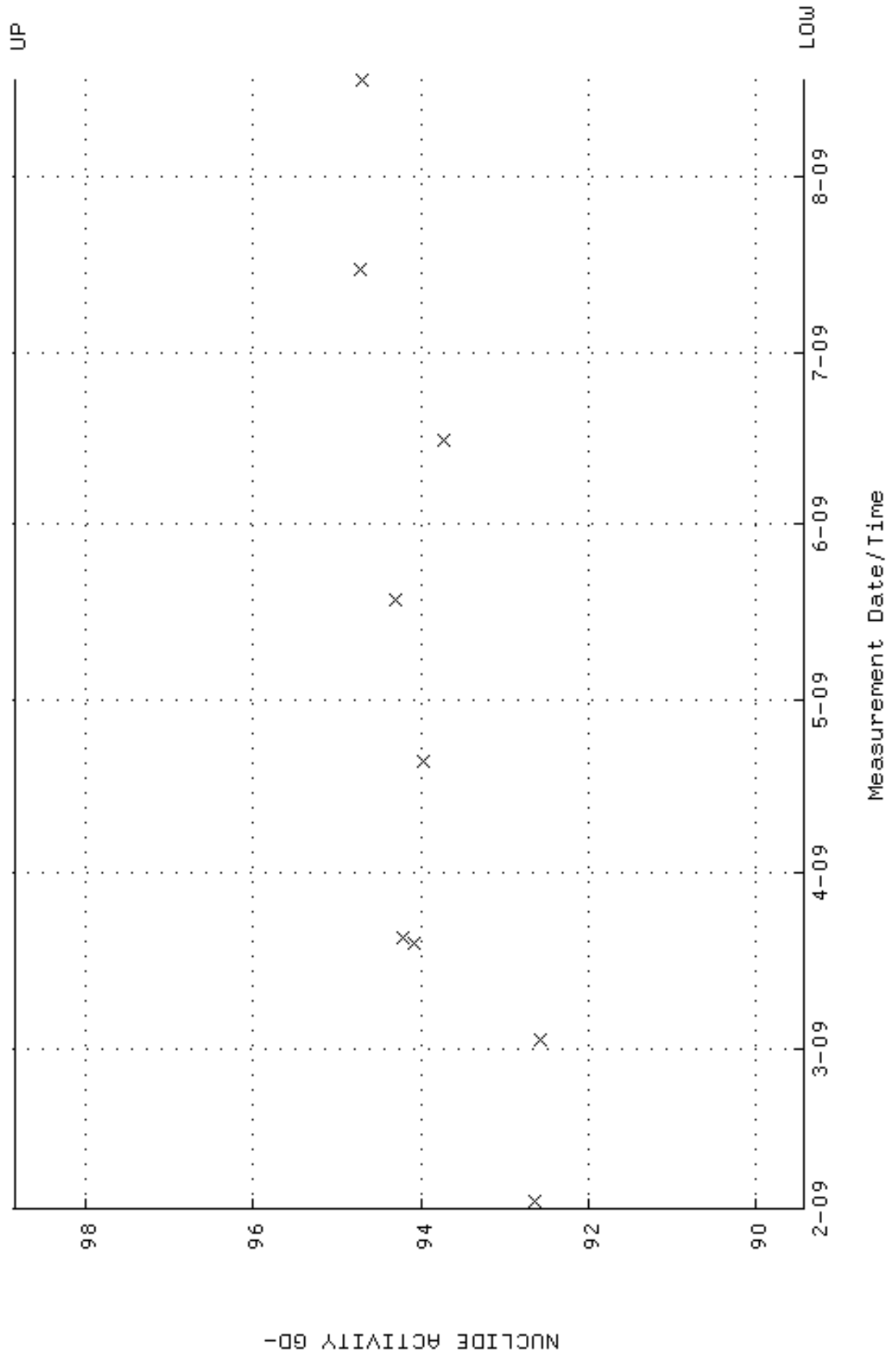




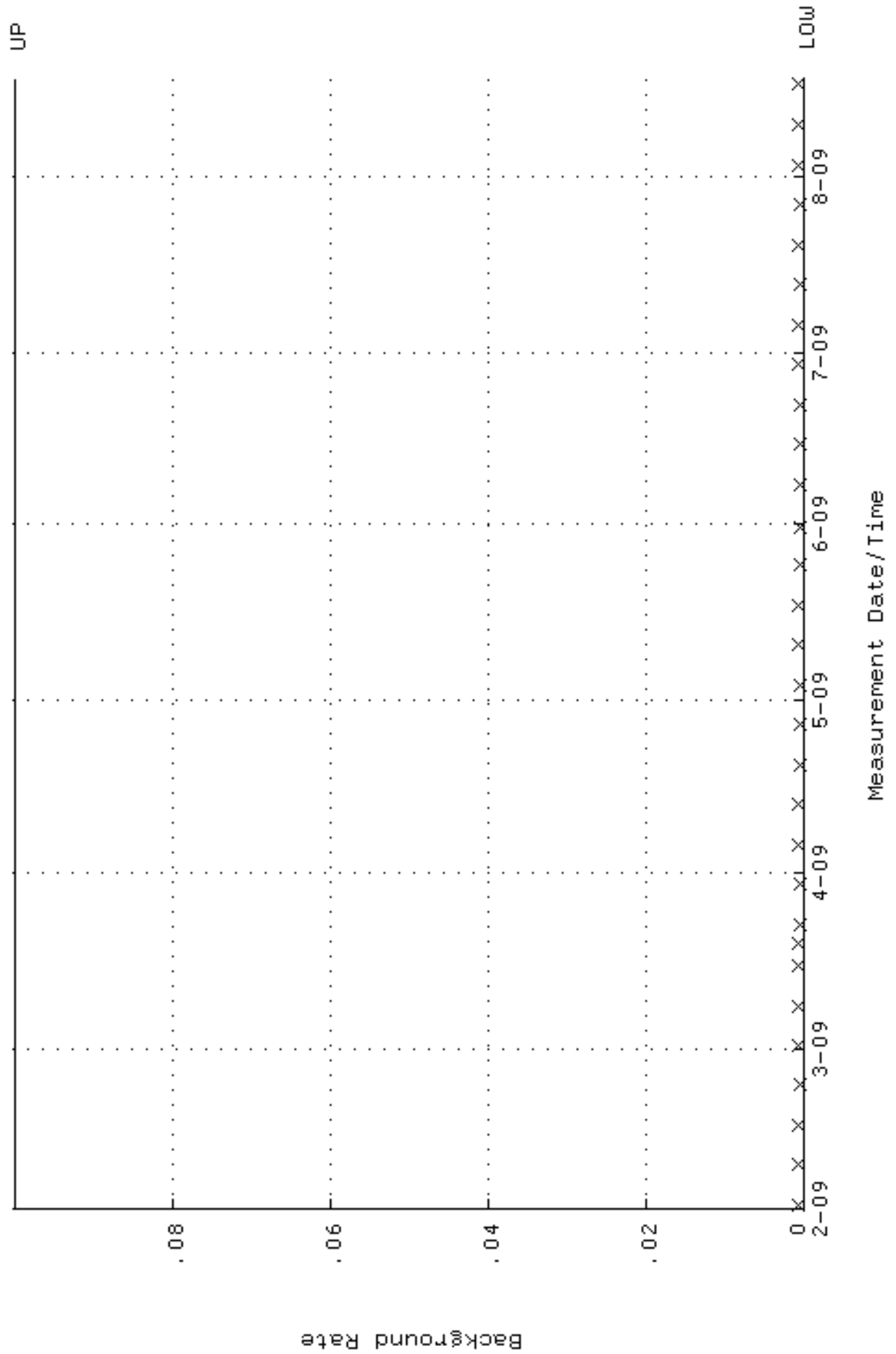
QA filename : DKA100:[ENV\_ALPHA.QA.W]W121.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 2-FEB-2009 10:32:01 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.237686 through 0.257686



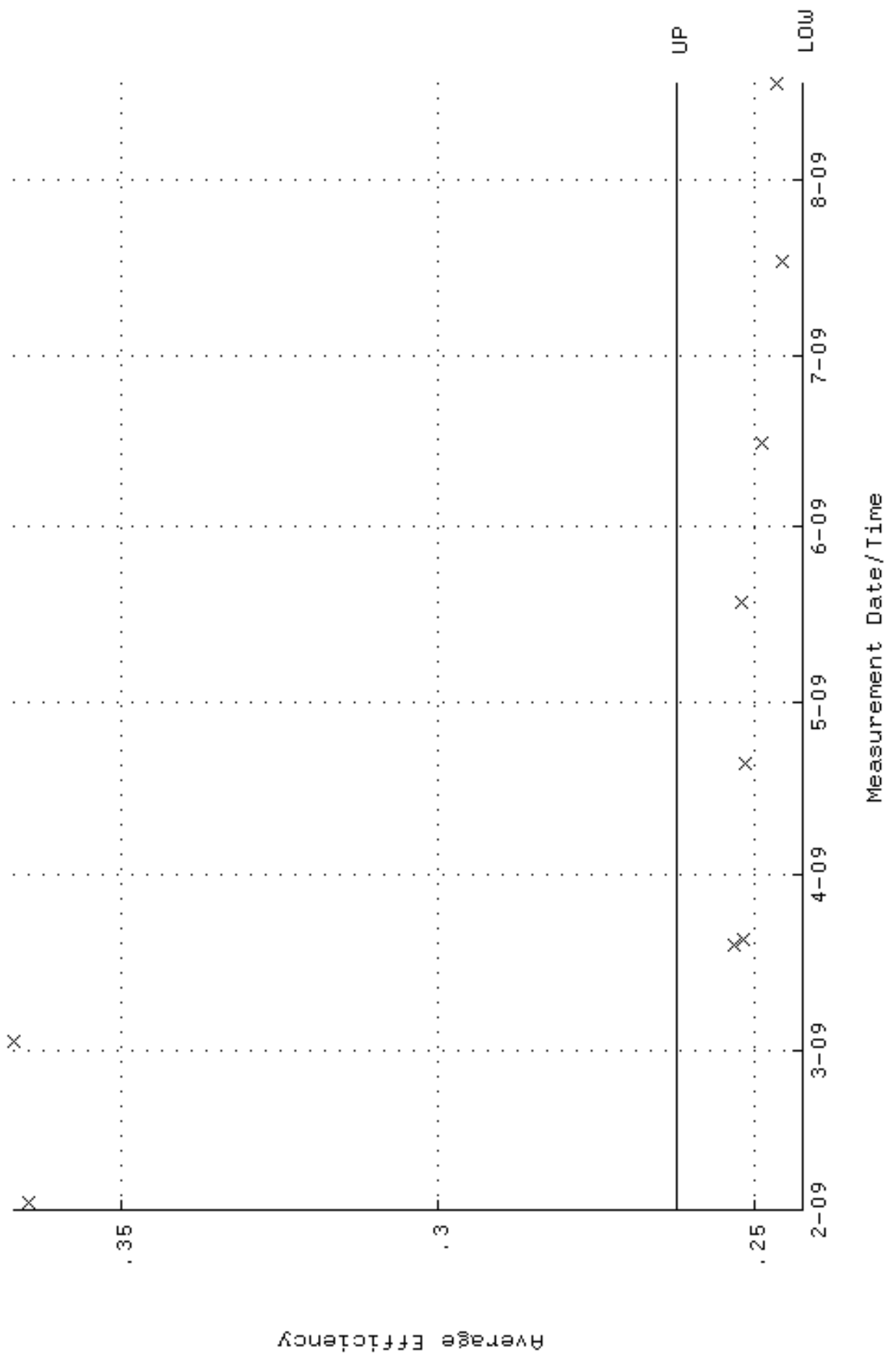
QA filename : DKA100:[ENV\_ALPHA.QA.W]W121.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 2-FEB-2009 10:32:01 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 89.4263 through 98.8395



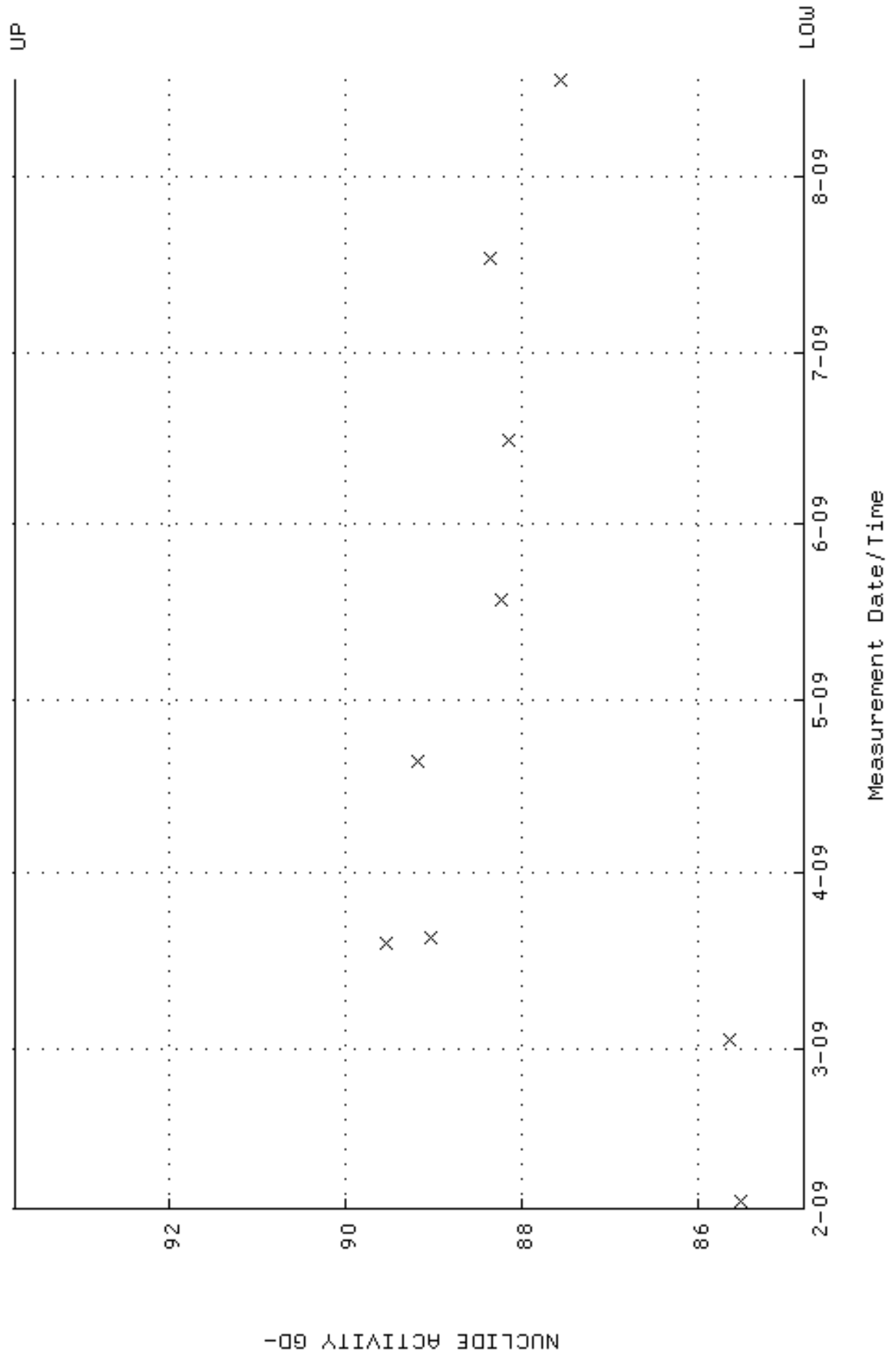
QA filename : DKA100:[ENV\_ALPHA.QA.B]B121.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-FEB-2009 17:02:23 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



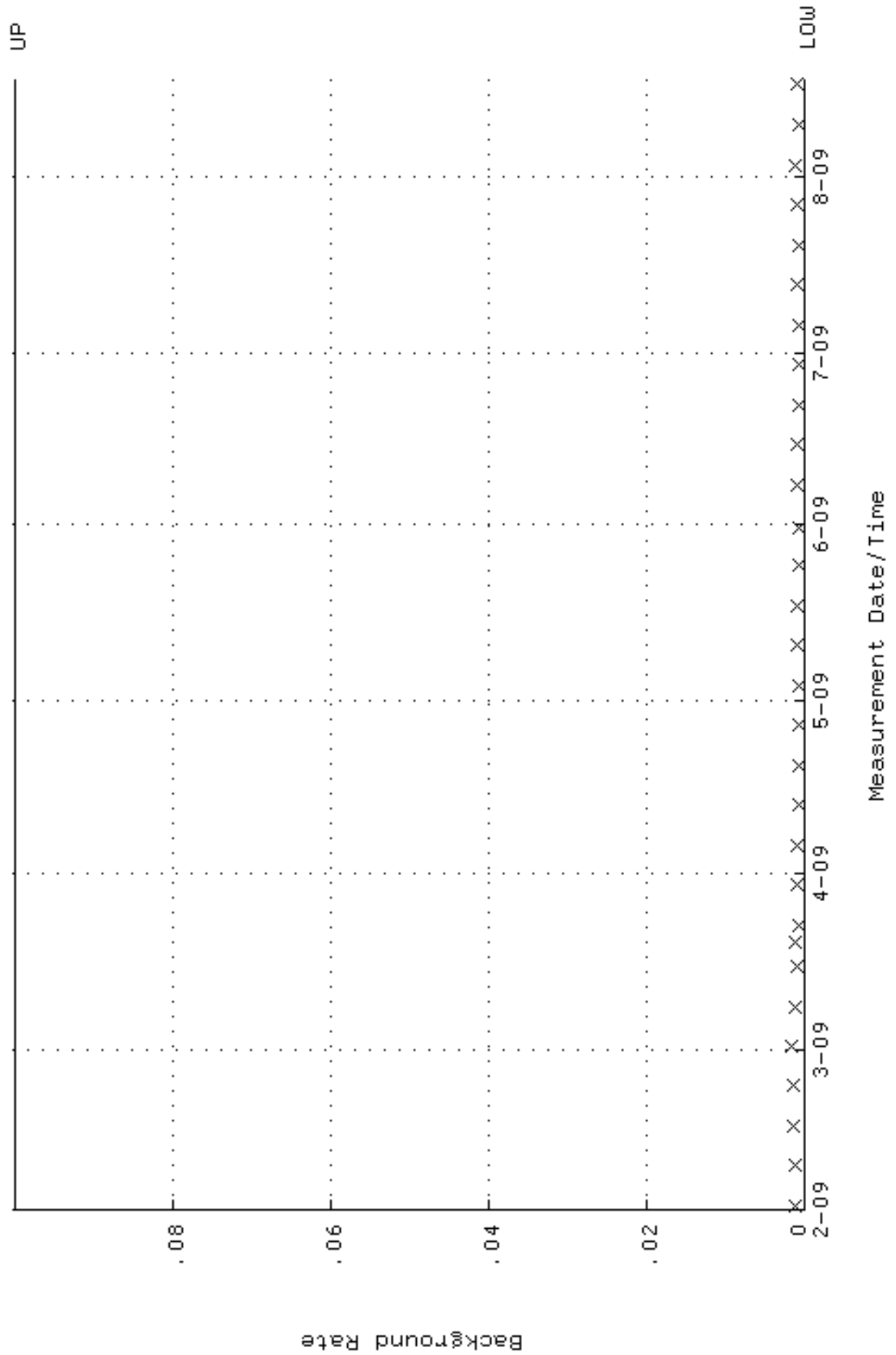
QA filename : DKA100:[ENV\_ALPHA.QA.W]W149.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 2-FEB-2009 10:35:17 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.242495 through 0.262495



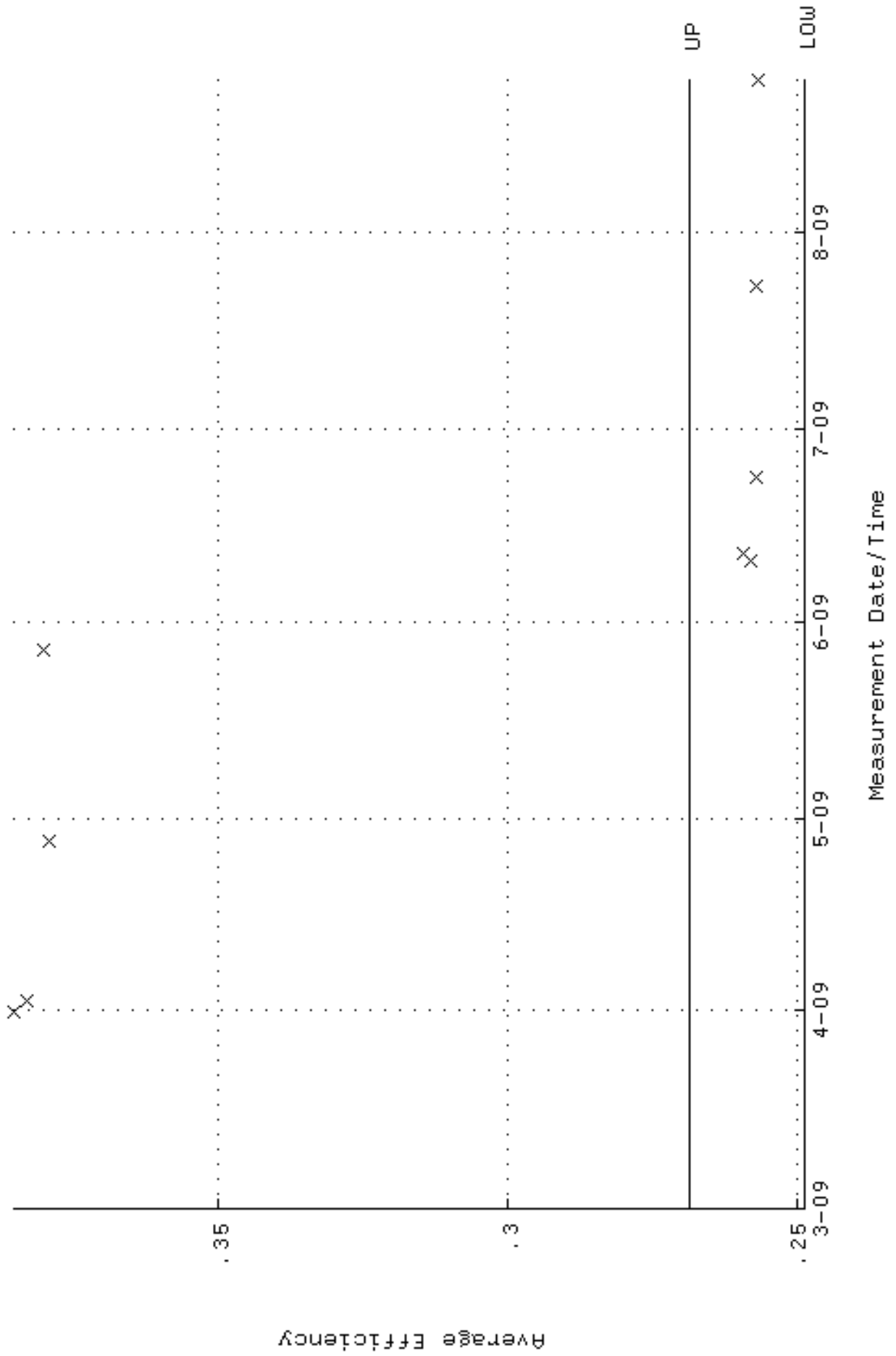
QA filename : DKA100:[ENV\_ALPHA.QA.W]W149.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 2-FEB-2009 10:35:17 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 84.8126 through 93.7402



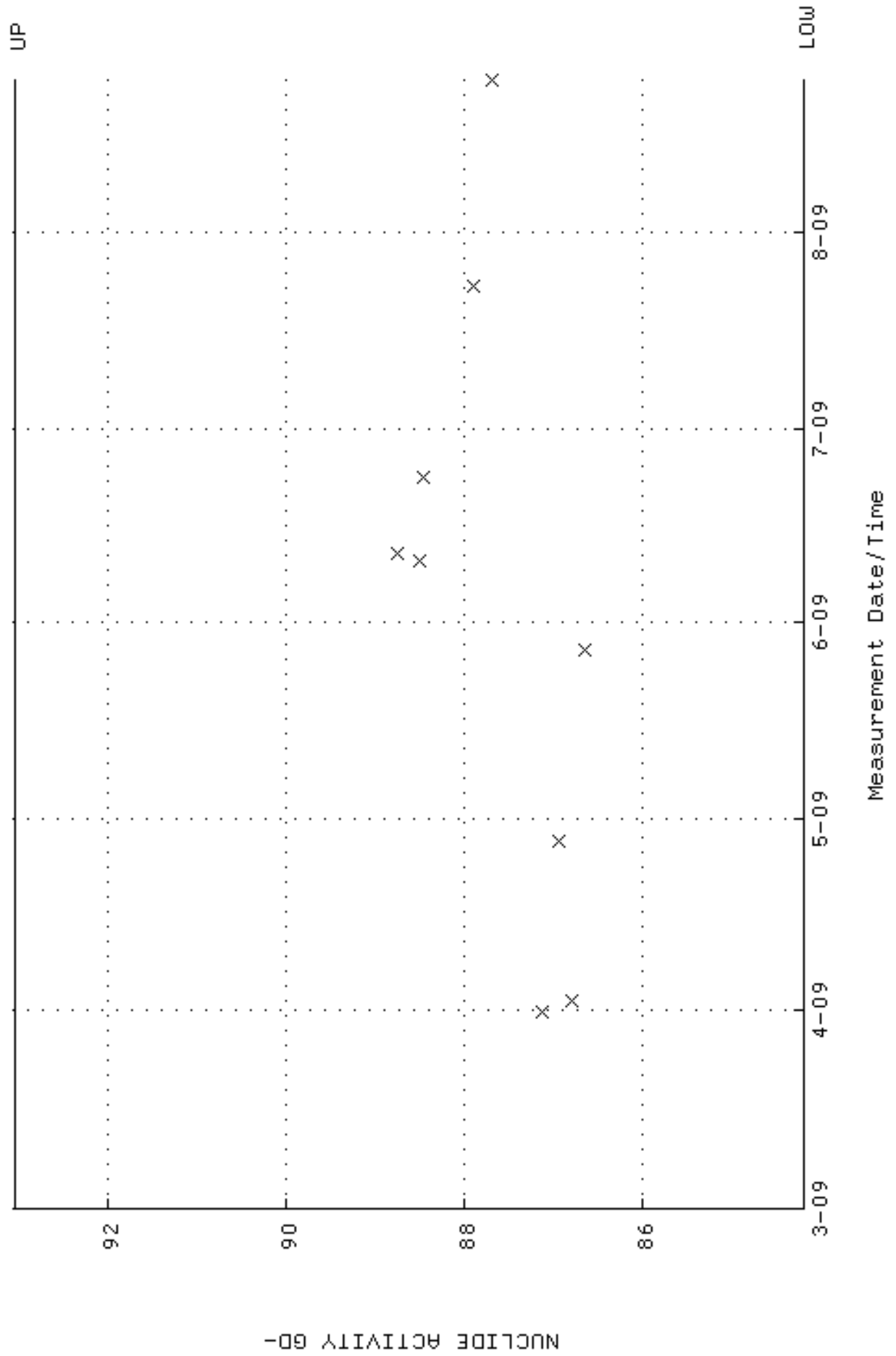
QA filename : DKA100:[ENV\_ALPHA.QA.B]B149.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-FEB-2009 17:09:07 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



QA filename : DKA100:[ENV\_ALPHA.QA.W]W197.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 31-MAR-2009 15:03:56 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.248572 through 0.268572

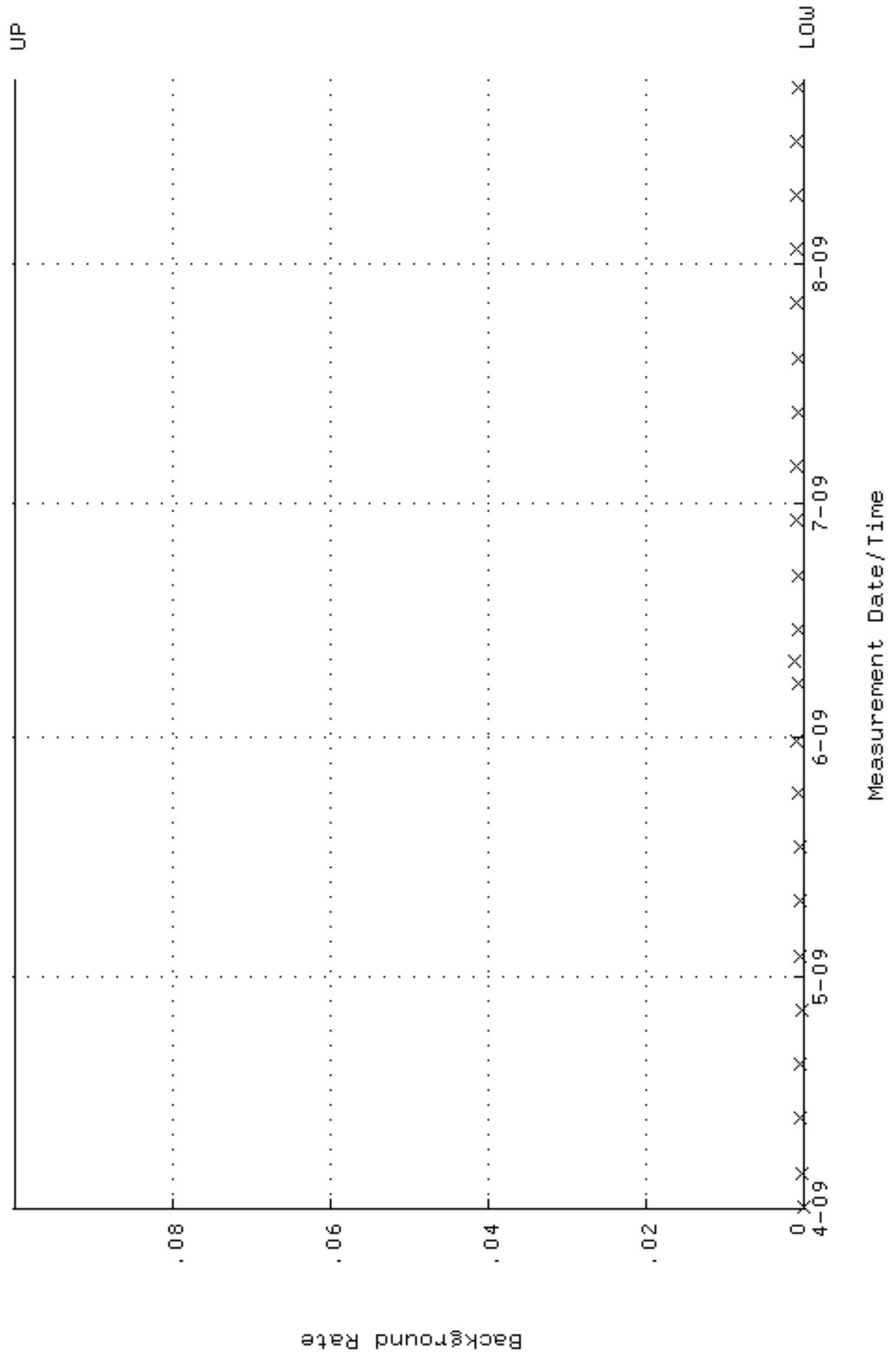


QA filename : DKA100:[ENV\_ALPHA.QA.W]w197.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 31-MAR-2009 15:03:56 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 84.1772 through 93.0380

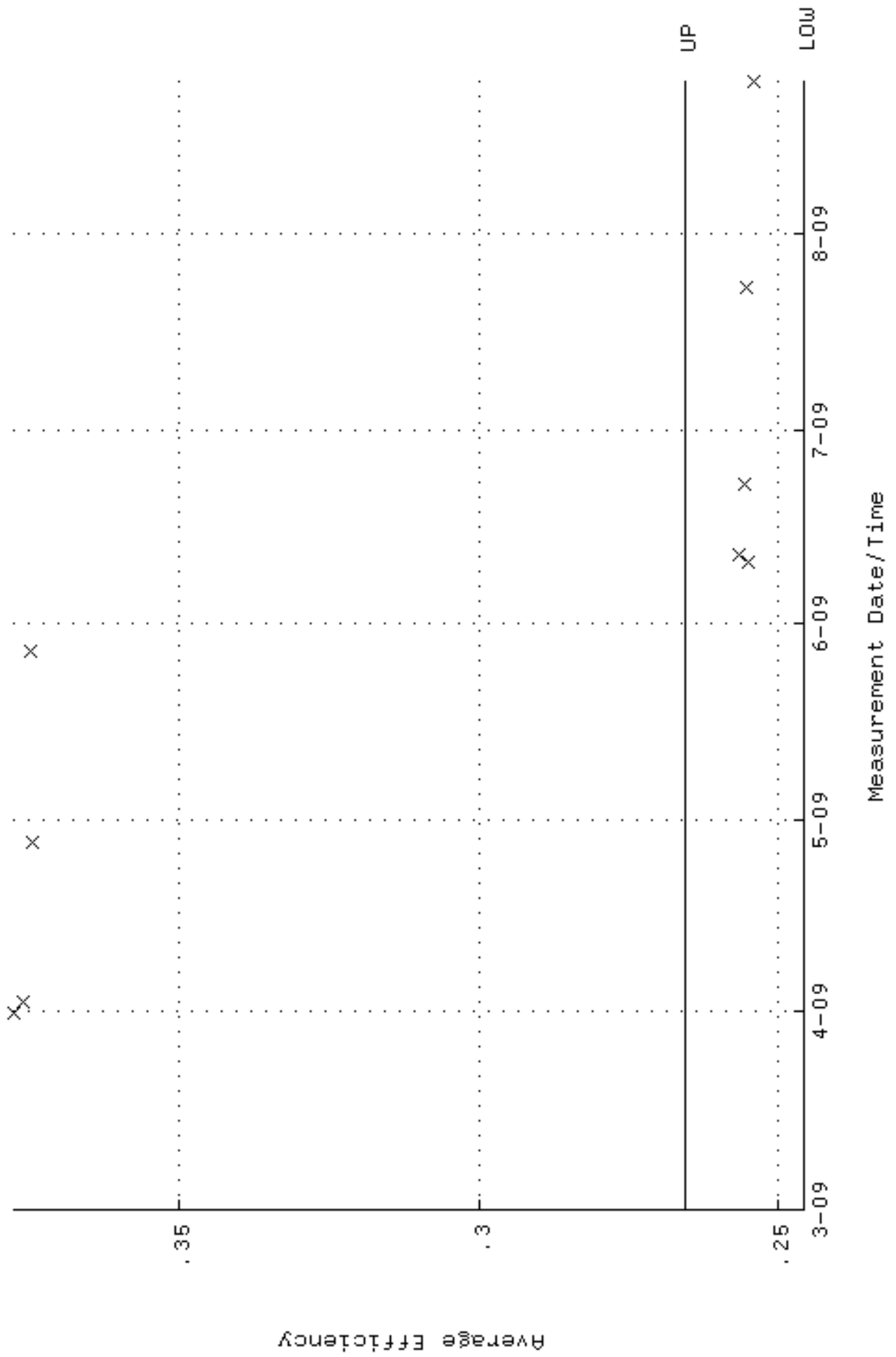




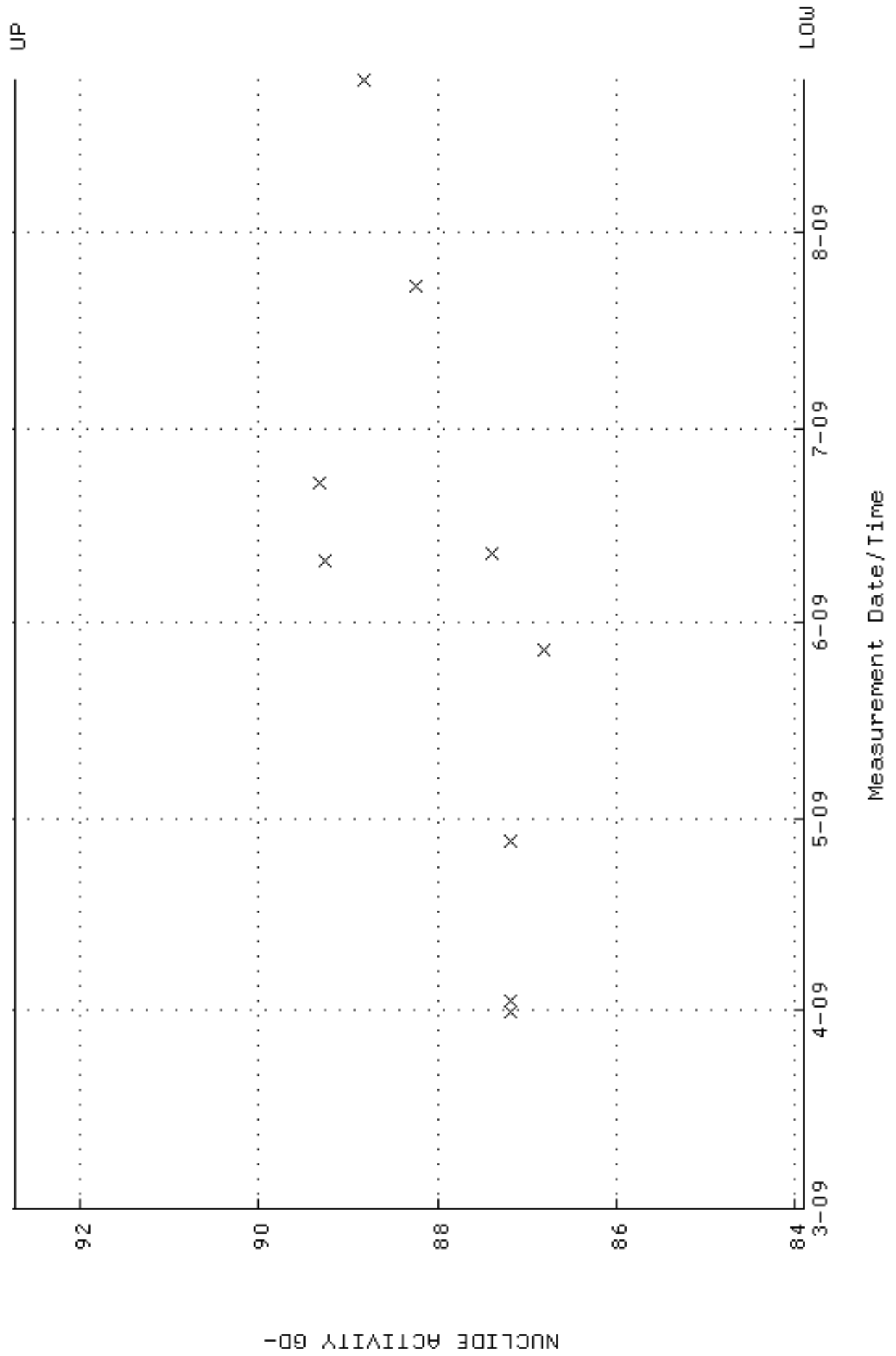
QA filename : DKA100:[ENV\_ALPHA.QA.B]B197.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-APR-2009 08:02:18 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



QA filename : DKA100:[ENV\_ALPHA.QA.W]W198.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 31-MAR-2009 15:06:01 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.245817 through 0.265817



QA filename : DKA100:[ENV\_ALPHA.QA.W]W198.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 31-MAR-2009 15:06:01 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 83.8978 through 92.7292





# RUNLOGS

# Instrument Run Log

Instrument Type: GFPC

Batch ID: 888878

Sample ID	Sample Type	Analyst	Instrument	Run Date	Status	Geometry	Calibration Date
1201890245	MB	MXS2	PIC8A	04-AUG-09 19:20	DONE	CeF on 25mm Filter	02-JUL-09 00:00
1201890246	DUP	MXS2	PIC8C	04-AUG-09 19:20	DONE	CeF on 25mm Filter	02-JUL-09 00:00
1201890247	MS	MXS2	PIC9A	04-AUG-09 19:20	DONE	CeF on 25mm Filter	02-JUL-09 00:00
1201890248	LCS	MXS2	PIC9C	04-AUG-09 19:20	DONE	CeF on 25mm Filter	02-JUL-09 00:00
233580001	SAMPLE	MXS2	PIC1A	04-AUG-09 19:20	DONE	CeF on 25mm Filter	02-JUL-09 00:00
233580002	SAMPLE	MXS2	PIC1B	04-AUG-09 19:20	DONE	CeF on 25mm Filter	02-JUL-09 00:00
233580003	SAMPLE	MXS2	PIC1D	04-AUG-09 19:20	DONE	CeF on 25mm Filter	02-JUL-09 00:00
233580004	SAMPLE	MXS2	PIC2A	04-AUG-09 19:20	DONE	CeF on 25mm Filter	02-JUL-09 00:00
233580005	SAMPLE	MXS2	PIC2C	04-AUG-09 19:20	DONE	CeF on 25mm Filter	02-JUL-09 00:00
233580006	SAMPLE	MXS2	PIC2D	04-AUG-09 19:20	DONE	CeF on 25mm Filter	02-JUL-09 00:00
233580007	SAMPLE	MXS2	PIC5A	04-AUG-09 19:20	DONE	CeF on 25mm Filter	02-JUL-09 00:00
233580008	SAMPLE	MXS2	PIC6B	04-AUG-09 19:20	DONE	CeF on 25mm Filter	02-JUL-09 00:00
233580009	SAMPLE	MXS2	PIC6D	04-AUG-09 19:20	DONE	CeF on 25mm Filter	02-JUL-09 00:00
233580010	SAMPLE	MXS2	PIC7A	04-AUG-09 19:21	DONE	CeF on 25mm Filter	02-JUL-09 00:00
233580011	SAMPLE	MXS2	PIC7B	04-AUG-09 19:21	DONE	CeF on 25mm Filter	02-JUL-09 00:00
233580012	SAMPLE	MXS2	PIC7C	04-AUG-09 19:21	DONE	CeF on 25mm Filter	02-JUL-09 00:00
233580013	SAMPLE	MXS2	PIC7D	04-AUG-09 19:21	DONE	CeF on 25mm Filter	02-JUL-09 00:00

# Instrument Run Log

Instrument Type: ALPHA SPECTROMETER

Batch ID: 891145

Sample ID	Sample Type	Analyst	Instrument	Run Date	Status	Geometry	Calibration Date
233580001	SAMPLE	JXD2	1013	08-AUG-09 16:19	DONE		
233580002	SAMPLE	JXD2	1014	08-AUG-09 16:19	DONE		
233580003	SAMPLE	JXD2	1015	08-AUG-09 16:19	DONE		
233580004	SAMPLE	JXD2	1016	08-AUG-09 16:19	DONE		
233580005	SAMPLE	JXD2	1017	08-AUG-09 16:19	DONE		
233580006	SAMPLE	JXD2	1018	08-AUG-09 16:19	DONE		
233580007	SAMPLE	JXD2	1020	08-AUG-09 16:19	DUSE		
233580008	SAMPLE	JXD2	1021	08-AUG-09 16:19	DUSE		
233580009	SAMPLE	JXD2	1022	08-AUG-09 16:19	DUSE		
233580010	SAMPLE	JXD2	1023	08-AUG-09 16:19	DUSE		
233580011	SAMPLE	JXD2	1024	08-AUG-09 16:19	DUSE		
233580013	SAMPLE	JXD2	1115	10-AUG-09 17:20	DONE		
1201895414	MB	JXD2	1116	10-AUG-09 17:20	DONE		
1201895415	DUP	JXD2	1117	10-AUG-09 17:20	DONE		
1201895416	MS	JXD2	1118	10-AUG-09 17:20	DONE		
1201895417	LCS	JXD2	1121	10-AUG-09 17:20	DONE		
233580001	SAMPLE	JXD2	1007	21-AUG-09 12:07	DUSE		
233580002	SAMPLE	JXD2	1008	21-AUG-09 12:07	DUSE		
233580003	SAMPLE	JXD2	1009	21-AUG-09 12:07	DUSE		
233580004	SAMPLE	JXD2	1010	21-AUG-09 12:07	DUSE		
233580005	SAMPLE	JXD2	1011	21-AUG-09 12:07	DUSE		
233580006	SAMPLE	JXD2	1012	21-AUG-09 12:07	DUSE		
233580012	SAMPLE	JXD2	1024	21-AUG-09 12:07	DUSE		
233580013	SAMPLE	JXD2	1118	21-AUG-09 15:14	DUSE		
1201895414	MB	JXD2	1121	21-AUG-09 15:14	DUSE		
1201895415	DUP	JXD2	1122	21-AUG-09 15:14	DUSE		
1201895416	MS	JXD2	1123	21-AUG-09 15:14	DUSE		
1201895417	LCS	JXD2	1124	21-AUG-09 15:14	DUSE		
233580012	SAMPLE	JXD2	1149	23-AUG-09 14:50	DONE		
233580007	SAMPLE	JXD2	1113	24-AUG-09 16:32	DONE		
233580008	SAMPLE	JXD2	1114	24-AUG-09 16:32	DONE		
233580009	SAMPLE	JXD2	1115	24-AUG-09 16:32	DONE		
233580010	SAMPLE	JXD2	1116	24-AUG-09 16:32	DONE		
233580011	SAMPLE	JXD2	1117	24-AUG-09 16:33	DONE		

# Instrument Run Log

Instrument Type: LUCAS CELL DETECTOR

Batch ID: 892562

Sample ID	Sample Type	Analyst	Instrument	Run Date	Status	Geometry	Calibration Date
233580001	SAMPLE	KSD1	LUCAS4	20-AUG-09 15:25	DONE	Lucas Cell	02-MAR-09 00:00
233580002	SAMPLE	KSD1	LUCAS5	20-AUG-09 15:25	DONE	Lucas Cell	25-MAR-09 00:00
233580003	SAMPLE	KSD1	LUCAS6	20-AUG-09 15:25	DONE	Lucas Cell	04-AUG-09 00:00
233580004	SAMPLE	KSD1	LUCAS1	20-AUG-09 15:55	DONE	Lucas Cell	29-AUG-08 00:00
233580005	SAMPLE	KSD1	LUCAS2	20-AUG-09 15:55	DONE	Lucas Cell	19-DEC-08 00:00
233580006	SAMPLE	KSD1	LUCAS3	20-AUG-09 15:55	DONE	Lucas Cell	04-FEB-09 00:00
233580007	SAMPLE	KSD1	LUCAS4	20-AUG-09 15:55	DONE	Lucas Cell	02-MAR-09 00:00
233580008	SAMPLE	KSD1	LUCAS5	20-AUG-09 15:55	DONE	Lucas Cell	25-MAR-09 00:00
233580010	SAMPLE	KSD1	LUCAS1	20-AUG-09 16:35	DONE	Lucas Cell	29-AUG-08 00:00
233580012	SAMPLE	KSD1	LUCAS3	20-AUG-09 16:35	DONE	Lucas Cell	04-FEB-09 00:00
233580013	SAMPLE	KSD1	LUCAS4	20-AUG-09 16:35	DONE	Lucas Cell	02-MAR-09 00:00
1201898768	MB	KSD1	LUCAS5	20-AUG-09 16:35	DONE	Lucas Cell	25-MAR-09 00:00
1201898769	DUP	KSD1	LUCAS6	20-AUG-09 16:35	DONE	Lucas Cell	04-AUG-09 00:00
233580009	SAMPLE	KSD1	LUCAS6	20-AUG-09 16:35	DONE	Lucas Cell	04-AUG-09 00:00
1201898770	MS	KSD1	LUCAS1	20-AUG-09 17:20	DONE	Lucas Cell	29-AUG-08 00:00
233580011	SAMPLE	KSD1	LUCAS2	20-AUG-09 17:20	DONE	Lucas Cell	19-DEC-08 00:00
1201898771	LCS	KSD1	LUCAS2	20-AUG-09 18:05	DONE	Lucas Cell	19-DEC-08 00:00



# Instrument Run Log

Instrument Type: ALPHA SPECTROMETER

Batch ID: 895930

Sample ID	Sample Type	Analyst	Instrument	Run Date	Status	Geometry	Calibration Date
233580001	SAMPLE	JXD2	1031	22-AUG-09 18:13	DONE		
233580002	SAMPLE	JXD2	1032	22-AUG-09 18:13	DUSE		
233580003	SAMPLE	JXD2	1033	22-AUG-09 18:13	DONE		
233580004	SAMPLE	JXD2	1035	22-AUG-09 18:13	DONE		
233580005	SAMPLE	JXD2	1036	22-AUG-09 18:13	DONE		
233580006	SAMPLE	JXD2	1037	22-AUG-09 18:13	DONE		
233580007	SAMPLE	JXD2	1038	22-AUG-09 18:13	DONE		
233580008	SAMPLE	JXD2	1039	22-AUG-09 18:13	DUSE		
233580009	SAMPLE	JXD2	1040	22-AUG-09 18:13	DONE		
233580010	SAMPLE	JXD2	1041	22-AUG-09 18:13	DONE		
233580011	SAMPLE	JXD2	1042	22-AUG-09 18:13	DONE		
233580012	SAMPLE	JXD2	1043	22-AUG-09 18:13	DONE		
233580013	SAMPLE	JXD2	1044	22-AUG-09 18:13	DONE		
1201907211	MB	JXD2	1045	22-AUG-09 18:13	DONE		
1201907212	DUP	JXD2	1046	22-AUG-09 18:13	DONE		
1201907213	MS	JXD2	1047	22-AUG-09 18:13	DONE		
1201907214	LCS	JXD2	1048	22-AUG-09 18:13	DONE		
233580002	SAMPLE	JXD2	1197	24-AUG-09 14:58	DONE		
233580008	SAMPLE	JXD2	1198	24-AUG-09 14:58	DONE		